Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Fairchild Republic Main Plant Site
Town of Babylon, Suffolk County
Site Number 1-52-130

March 1998

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHALL, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

FAIRCHILD REPUBLIC MAIN PLANT SITE
EAST FARMINGDALE, SUFFOLK COUNTY, NEW YORK
Site No. 1-52-130

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the Fairchild Republic Main Plant Inactive Hazardous Waste Disposal Site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Fairchild Republic Main Plant Inactive Hazardous Waste Disposal Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Fairchild Republic Main Plant Site (MPS) and the criteria identified for evaluation of alternatives, the NYSDEC has selected a groundwater pump and treat remedy with a public supply wellhead treatment contingency. The pump and treat system will be designed to intercept the 1,000 ppb total VOC plume south of the Main Plant Site.

The primary elements of the selected remedy are as follows:

1. A predesign investigation to determine the geology of and the optimum location for the groundwater extraction wells. The predesign investigation and the long term monitoring program will also include the development of a groundwater model of the aquifer, plume tracking, plume tracking updates and plume modeling periodic updates.

2. A remedial design program to verify the components of the design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program.

3. Groundwater extraction to address contamination above 1,000 ppb of the total VOC plume to the south of the MPS.

4. The long-term monitoring of the extraction well system.

5. The required installation and quarterly monitoring for VOCs of outpost monitoring wells installed for the East Farmingdale Water District Wells S-66556 and S-79105; the Suffolk County Water Authority Albany Avenue Wells S-34595, S-47886 and S-6305; and the Suffolk County Water Authority Tenety Avenue Wells S-20460 and S-37681. If necessary, outpost monitoring will be added for the Suffolk County Water Authority North Fifth Street Well S-29491 and/or Lambert Avenue Well S-22351 and/or Great Neck Road Wells S-51214 and S-54568.

6. A wellhead treatment contingency plan for the design, construction, operation and maintenance of wellhead treatment systems, if necessary.

7. The East Farmingdale Route 109 and SCWA Tenety and Albany Avenue Wellfields will be sampled on a monthly basis for total volatile organic compounds.

8. Connection of any private drinking water wells within and around an area between Route 110 and Great Neck Road, Wellwood Avenue and Sunrise Highway.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

3/30/98
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

TABLE OF CONTENTS

RECORD OF DECISION

FAIRCHILD REPUBLIC
MAIN PLANT SITE
East Farmingdale, Suffolk County, New York
Site No. 1-52-130
March 1998

SECTION 1: SITE LOCATION AND DESCRIPTION

The Fairchild Republic Main Plant Site (see Figure 1) is comprised of 4.5 acres of a former facility of approximately 88 acres in East Farmingdale, Suffolk County, New York. The Main Plant Site is bounded by Route 110 (Broad Hollow Road) to the west; the Long Island Railroad (LIRR) to the north; New Highway to the east; and Republic Airport to the south. There are 4.5 acres in the southeast portion of the Fairchild property that represents the current boundary of the Fairchild Republic Main Plant Site (NYSDEC Inactive Hazardous Waste Disposal Site No. 1-52-130).

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

Fairchild Republic manufactured aircraft and related parts from 1931 to 1987. The total Fairchild Main Plant property in East Farmingdale (88 acres) consists of two parcels (see Figure 1). Parcel one is located south of Conklin Street and contains the 4.5 acre NYSDEC listed site. This parcel was first used as a runway in 1927. Seversky Aircraft operated at the site from 1931 to 1939. Republic Aviation Corporation purchased Seversky Aircraft in 1939. Numerous manufacturing buildings were built or expanded in the 1940's. Fairchild Industries, Inc. took possession of the property in 1965 when it acquired assets of Republic Aviation Corporation.

Parcel two (approximately 13 acres) is north of Conklin Street and Buildings 53, 54, and 55 were located here. The Ranger Aircraft Engine Corporation purchased the property in 1927 and constructed manufacturing and test facilities for aircraft engines. Republic Aviation Corporation purchased the property in 1955 and used the existing facilities for research and development and office space. The Farmingdale Company owned the property from 1965 to 1972. Fairchild Industries purchased the property in 1972 and used it as warehouse and office space until closing in 1987. Parcel two has been removed from the original listing of the Main Plant Inactive Hazardous Waste Disposal Site.

The Fairchild Republic Main Plant closure plan was submitted to the NYSDEC in 1987 under the Resource Conservation and Recovery Act (RCRA) requirements. The approved plan was implemented from 1987 through 1988. The site closure included the removal of hazardous materials, residues, and all above and underground storage tanks, except four 15,000 gallon fuel oil tanks, which were removed in 1992.

Fairchild Republic Main Plant manufacturing operations did not change significantly from the mid-1940s to 1987. Building 17 was the primary manufacturing area with processes including chemical milling, alodining, anodizing, vapor degreasing, titanium descaling, and cadmium plating. Process chemicals used in this area included nitric acid, chromic acid, sulfuric acid, sodium hydroxide, toluene, tetrachloroethylene (PCE), trichloroethylene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), and nitric/hydrofluoric acid solutions. PCE, TCE, and 1,1,1-TCA were also used in other areas of the Main Plant.

PCE was substituted for toluene as a coatings vehicle to conform with air pollution regulations beginning in 1975. Years later, the piping from the PCE tank was found to be leaking, creating a source of PCE soil and groundwater contamination. The TCE soil and groundwater contamination came from the vapor degreaser operations, from TCE that occurs in non-reagent grade PCE, and as a breakdown product of PCE.

The Main Plant industrial water supply was always obtained from groundwater wells. The average pumping rate listed in the RI Report was estimated at 1.7 million gallons per day. Non-contact industrial and air conditioning cooling water, treated wastewater, and stormwater were discharged through the storm sewer to the Old Recharge Basin located west of the site beginning in the early 1940s (See Figure 1.)

The Old Recharge Basin historically introduced low level volatile organic compound (VOC) contamination to the groundwater beneath Republic Airport. This low level groundwater plume has commingled with higher concentration contamination from an unknown upgradient VOC source. The Remedial Investigation for the Old Recharge Basin (ORB) has shown that the ORB is no longer a source of groundwater contamination. A Record of Decision was signed for the ORB in June 1996.

Fairchild Republic constructed a wastewater treatment plant at the Main Plant Site (MPS) in 1950 to reduce hexavalent chromium to trivalent chromium and to precipitate metal hydroxides in wastewater from the chemical milling, alodine process, anodizing, spotweld wash, and paint shop operations. The plant was located adjacent to the south wall of Building 17. Wastewater was treated in batches from 1950 to 1963. The treatment plant was upgraded in 1963 to handle continuous waste streams and again in 1986 to meet publicly owned treatment works pretreatment standards. The MPS treatment plant effluent was diverted to the NYSDOT sewage treatment plant located on the Republic Airport property in 1981. In 1986, the MPS treatment plant was

connected to the Suffolk County Publicly Owned Treatment Works. Shortly thereafter in 1987 Fairchild Republic ceased manufacturing operations at the Main Plant.

Fairchild connected homes with private wells to public water that were identified within an area between Route 110 and Great Neck Road, Wellwood Avenue and Sunrise Highway. Fairchild agreed to do this work, but by doing so, Fairchild was not confirming that the contamination in these wells was from Fairchild nor were these connections made in response to any water quality problems necessarily attributable to Fairchild. Any private wells identified in this area of concern that are being used as a source of drinking water will be offered the opportunity to connect, at no cost to the homeowner, to the Suffolk County Water Authority (SCWA) public water supply by the Record of Decision.

Two abandoned 550 gallon underground storage tanks were discovered and removed during the excavation of site soils in February 1998. Both underground storage tanks were found within the boundaries of the inactive hazardous waste site. One of the recently discovered tanks was next to the vapor degreaser. Based on the analytical results from sludge samples, the leaking tank was used to store trichloroethene. The tank location was within the zone of influence of the soil vapor extraction system described in Section 3.2. The second 550 gallon tank also contained a sludge material. The analysis showed the contents to be waste paint.

2.2: Remedial History

1987-8: Phase 2 Hydrogeological Investigation and Report by Geraghty and Miller, Inc.
1988: MPS Resource Conservation and Recovery Act work plan and closure by Eder Associates; including removal of 95 above and below ground tanks, hazardous materials and residues.
1989: The MPS listed as a Class 2 inactive hazardous waste disposal site due to past disposal practices.
1990: Supplemental Phase 2 Report, Geraghty and Miller, Inc.
1991: Fairchild/Grumman Wind Tunnel Investigation and catch basin removal.
1992: Summary of Environmental Investigations Report, Geraghty and Miller, Inc.
1992: MPS RI/FS Consent Order signed.
1992: Initiate Remedial Investigation fieldwork.
1992: Building 42 soil resampled.
1993: 13 fuel oil tanks removed.
1994: Petition for and acceptance of reduction of MPS Site boundary.
1994: Building 18, 18A, 20, 25, 27, 29, 30, 30A, 38, 39, 42, 43, 44, 45, 46, 63 and 64 demolition.
1995-6: Design and installation of Building 17 Soil Vapor Extraction IRM.
1996-7: Connection of downgradient private wells within a specified area to municipal water supply.
1996-7: Area 5 Inactive Hazardous Waste Area Soil Sampling.

1996-7: Building 17, 19, 19A, 32, 33, 53 and 55 demolition.
1997: Final Main Plant Site Remedial Investigation/Feasibility Study (RI/FS) Reports.

SECTION 3: CURRENT STATUS

In response to a determination that the presence of hazardous waste at the Site presents a significant threat to human health and/or the environment, Fairchild Republic has recently completed the Remedial Investigation/Feasibility Study (RI/FS) for the Main Plant Site. The RI/FS documents can be found in the document repositories listed in Section 8.

3.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted in 2 phases. The first phase was conducted between August 1992 and January 1993 and the second phase between September 1993 and February 1994. A report entitled Fairchild Industries, Inc. Main Plant Site Remedial Investigation Report, May 1997 describes the field activities and findings of the RI in detail. Data from previous investigations and additional sampling efforts in 1996 and 1997 for Old Recharge Basin fill materials were also compiled in the Main Plant Site RI Report. The RI included the following activities:

- *Installation of monitoring wells and soil borings.*
- *Chemical analysis of soil and groundwater samples.*
- *Soil gas surveys for volatile organic compounds.*
- *Groundwater hydrogeologic conditions and physical properties of site soils.*
- *Compiling all previous data generated by the Site closure and investigations.*
- *Additional site sampling for soils to be used in filling the Old Recharge Basin.*

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water, and surface water SCGs identified for the Main Plant Site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and 10 NYCRR Part 5 of NYS Sanitary Code. NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 Soil Cleanup Guidelines for the Protection of Groundwater, background conditions, and risk-based remediation criteria were used as SCGs for soils.

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These are summarized below. More complete information can be found in the RI Report.

Chemical concentrations are reported in parts per billion (ppb), parts per million (ppm), and parts per billion by volume (ppbv) for air samples. For comparison purposes, SCGs are given for each medium. (See Table 1.)

3.1.1: Nature of Contamination

As described in the RI Report, many soil, groundwater and soil gas samples were collected at the Site to characterize the nature and extent of contamination. These samples were analyzed for volatile and semi-volatile organic compounds, pesticides, polychlorinated biphenyls (PCBs) and inorganics (metals). Overall, chlorinated volatile organic compounds (VOCs), mainly trichloroethylene (TCE) and perchlorothylene (PCE) are the contaminants of concern for this site. Discrete areas of site soils also contained chromium above NYSDEC TAGM 4046 guidelines but below hazardous levels of concern as substantiated by the Toxicity Characteristic Leaching Procedure (TCLP). The TCLP test is used to define a hazardous waste for disposal purposes.

3.1.2: Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in the soils and groundwater and compares the data with the proposed remedial action levels (SCGs) for the Site. Some chemical concentrations no longer exist due to previously implemented interim remedial measures (IRMs). See Section 3.2. The following are the media which were investigated and a summary of the findings of the investigation:

Soil

The most significant manufacturing and process areas were located in Building 17 (see Figure 1). The alodine and chemical milling tanks, vapor degreaser, and PCE and TCA tanks were located along the southern wall. It is this area that comprises most of the currently listed 4.5 acre site. The soils beneath the slab and adjacent to Building 17 were found to be contaminated with VOCs; mainly TCE and PCE. The alodine and chemical milling areas under Building 17 and sulfuric anodizing area under Building 42 also contain levels of chromium above NYSDEC TAGM 4046 soil values.

The highest soil gas concentrations were found near the former PCE tank and near the vapor degreaser area beneath Building 17. These concentrations ranged from non-detect (ND) to 1,300 ppmv for TCE, ND to 23,000 ppmv for PCE, ND to 690 ppmv for dichloroethylene (DCE, cis & trans), ND to 61 ppmv for trichloroethane (TCA) and ND to 0.016 ppmv for vinyl chloride. There are no standards or guidance values for soil gas concentrations.

Comparative soil sample results ranged from ND to 4.4 ppm for TCE, ND to 4 ppm for PCE, ND to 0.14 ppm for DCE, ND to 0.013 ppm for TCA and 2.6 to 791 ppm for chromium. Most detectable results for soils were below NYSDEC TAGM 4046 soil cleanup values of 0.7 ppm for TCE, 1.4 ppm for PCE, 0.4 ppm for DCE, 0.8 ppm for TCA and 50 ppm for chromium. The chromium contaminated soils did not fail TCLP and were excavated and removed from the Site.

Groundwater

The direction of groundwater for both the shallow and deep zone is illustrated in Figure 2. The RI determined that Building 17 is a significant source area for VOC groundwater contamination. There is an extensive PCE plume that is well defined emanating from the area of the former PCE tank. This plume is moving south-southeast beneath the runways of Republic Airport as shown on Figure 3. In the area of the MPS Site, the glacial aquifer flow in the horizontal direction is about 1.5 feet/day.

No information exists on the duration of TCE use or discharges at the MPS. The vapor degreaser is a source of contamination of TCE (see Figure 4). However, the TCE plume is not as well defined as the PCE plume for the following reasons: (1) the former high volume MPS groundwater production wells and the new recharge basins on the MPS Site (see Figure 2) may have affected the offsite migration of the plume, especially in the glacial aquifer; and (2) off-site sources of TCE, including the Old Recharge Basin (ORB), may have impacted the western portion of the groundwater plume beneath Republic Airport. Furthermore, the downgradient extent of the MPS VOC plume has never been fully established. However, it does extend south of Republic Airport.

Under Building 17, there is no clay layer separating the glacial and Magothy aquifers. However, there is an unnamed clay layer separating the upper Magothy from the lower Magothy. Elevated levels of PCE have migrated downward through the glacial aquifer toward the top of a clay layer confining unit separating the upper and lower portions of the Magothy aquifer. The RI soil borings indicate this clay layer is continuous throughout the area of concern as shown on Figure 5. Deep aquifer testing below this clay formation found no VOCs and indicated that this clay layer has restricted downward migration and enhanced lateral migration of contaminated groundwater flow.

A limited sampling of MPS groundwater wells was conducted in February 1997. The data revealed that the shallow and deep VOC groundwater contamination beneath the Main Plant Site had dropped significantly and moved downgradient. For example MW-19D, located just downgradient of the Building 17 source areas, decreased from 3,600 ppb PCE to 142 ppb of PCE.

Some benzene, toluene, ethylbenzene and xylene (BTEX) was found in upgradient MW-3 from an offsite spill that has since been remediated. The February 1997 sampling round that included MW-3, found BTEX reductions to just above SCGs. The groundwater analytical data was also

reviewed for inorganic SCG exceedences; including chromium. The groundwater analytical results indicate that the MPS is not a source of inorganic contamination to groundwater.

Historic low level VOC groundwater contamination slightly above SCGs from the ORB can also be found on the southwestern side of Republic Airport. The majority of this plume is TCE and has commingled with the plume of a much higher level of TCE from an unidentified upgradient source. It has been more than 15 years since Fairchild discharged into the recharge basin. More recent MPS RI data shows the ORB is no longer a source of VOC groundwater contamination.

Groundwater concentrations exceeded the standard for TCE in 68 of the 160 samples taken. The maximum RI TCE concentration was 1,659 ppb. For PCE the standard was exceeded in 39 of 160 samples taken. The maximum RI PCE concentration was 5,100 ppb. For vinyl chloride, the standard was exceeded in 26 of 160 samples. The maximum RI vinyl chloride concentration was 200 ppb. These groundwater concentrations were found downgradient of the MPS and represent a significant exceedence of SCGs in the glacial and Magothy aquifers. The NYS groundwater standard is 5 ppb for TCE, PCE and DCE and 2 ppb for vinyl chloride. (See Table 1.)

3.2: Interim Remedial Measures

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. Fairchild Republic has elected to implement two IRMs at the Main Plant Site. The first IRM consisted of two soil vapor extraction (SVE) systems in Building 17 of the MPS Site. The second IRM removed the chromium contaminated soils from the surface of the Main Plant Site.

One SVE system addressed the TCE associated with the vapor degreaser located in the southwest corner of Building 17. The second SVE system addressed the PCE associated with the PCE tank located adjacent to the southeast portion of Building 17. The SVE systems operated beneath the slab of Building 17 for more than one year. The SVE effluent prior to treatment approached non-detect after a period of turning on and turning off (pulsing) the system. Test results of the soils were compared to NYSDEC TAGM 4046 guidance values. These results demonstrated that VOCs were effectively removed from the soils beneath Building 17. Both SVE systems were decommissioned in March 1997.

The second IRM consisted of excavating and removing chromium contaminated soils from the Site. These soils were placed in the Old Recharge Basin with the restriction that they must be placed a minimum of 10 feet below ground surface and 5 feet above the water table. None of the chromium analytical results for these soils exceeded chromium concentrations that currently exist in the Old Recharge Basin. The completed soil vapor extraction system, the chromium soil IRM, and the RCRA closure have removed all source areas from the MPS soils.

3.3: Summary of Human Exposure Pathways

This section discusses the potential pathways of exposure for people living near the Fairchild Republic Site. An exposure pathway is how an individual may come in contact with a contaminant. The elements of an exposure pathway include; the source of contamination; the contaminated environmental media (i.e. soil, water and air) and the way the contaminant migrates from the source; the location where one may be exposed to the contamination; how the contaminant enters the body (i.e. inhalation, ingestion, and/or adsorption through the skin); and, the population exposed to the contamination.

The potential exposure pathway of concern at the MPS is ingestion of contaminated groundwater. During the RI, volatile organic compounds were detected in on-site and off-site groundwater monitoring wells at concentrations significantly above drinking water standards. There are three public drinking water supply wellfields located downgradient from the MPS. These include: the East Farmingdale Water District Route 109 Wellfield, and the Suffolk County Water Authority Albany Avenue and Tenety Avenue Wellfields. Two additional Suffolk County Water Authority Wellfields, North Fifth Street and Lambert Avenue are much further downgradient and should not be effected by the MPS plume. Public supply well locations are shown on Figure 6.

VOCs were detected in the shallow wells at the Albany Avenue Wellfield in 1977. The contaminated wells were taken out of service in early 1977 and remain off-line. Organic chemical contamination has never been detected in the three deep wells at Albany Avenue, or at the other downgradient wellfields.

At the request of the NYSDOH, a private well survey was conducted downgradient of the MPS between Route 110 and Great Neck Road, Wellwood Avenue and Sunrise Highway. Several private wells were identified during the survey, some of which were used as a drinking water source. The residents with homes supplied only by private drinking water wells identified during the survey were advised as appropriate on measures to reduce possible exposure to contaminants that may be in their drinking water. Many of these homes have since been connected to public water. In the future, all homes serviced by private drinking water wells located in and around Route 110 and Great Neck Road, Wellwood Avenue and Sunrise Highway will be connected to public water, if permitted by the homeowner, at no cost to the homeowner. Currently, exposure to site-related chemicals in the public water supply is unlikely since routine monitoring of the public drinking water supply wells has not detected contamination.

In order to evaluate the health risks associated with exposure to contaminated drinking water, Fairchild Republic prepared a Risk Assessment using a groundwater model to predict what the concentration of VOCs would be if contaminants migrated to downgradient public drinking water supply wells. Groundwater models, such as the one used by Fairchild, which attempt to predict contaminant levels after microbial decomposition and transport through a heterogenous media (soil), can be highly speculative and may significantly underestimate the health risks associated

with exposure to contaminated drinking water. Therefore, NYSDOH requested that Fairchild recalculate the health risks associated with exposure to contaminated drinking water using the actual VOC levels detected in groundwater during the RI. However, in order to proceed with the RI/FS process, the NYSDOH and NYSDEC allowed Fairchild to forego recalculation of the Risk Assessment as requested, provided that Fairchild agree to a remedial action objective for the groundwater contamination that will be protective of human health and the environment.

3.4: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures which may be presented by the Site. No impacts from the Main Plant Site to fish and wildlife resources were found.

No potential environmental exposure to natural habitats were found to exist based on the MPS data and no future impacts to surface water or fish and wildlife resources are expected. No wetlands or surface water bodies have been identified on or within a one-half mile downgradient radius of the Site. Surrounding land use is light industrial in all directions with the closest residential area over one-half mile to the west.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The Potentially Responsible Party (PRP) for this Site is Mairoll, Inc., which is a subsidiary of the Fairchild Holding Corporation. Fairchild implemented the RI/FS at the Site, as requested by the NYSDEC. After the remedy is selected, Fairchild will be requested to implement the remedial program. If an agreement cannot be reached with Fairchild, the NYSDEC will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs incurred by the State.

The following is the chronological enforcement history of this site:

Plans

1987-8 RCRA Closure Plan

Orders on Consent

Date	Index No.
03/20/92	No. W1-0461-90-02-MPS RI/FS Order
12/25/96	No. W1-0705-94-08-ORB Fill Order

SECTION 5: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria, and Guidance values (SCGs) and be protective of human health and the environment.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The following are goals, or remedial action objectives (RAOs) selected for this site:

- Reduction, control, or elimination to the extent practicable of the contamination present within the soils on site.
- Eliminate the threat to surface waters by eliminating any future contaminated surface run-off from the contaminated soils on site.
- Eliminate the potential for direct human exposure with the contaminated groundwater from the site.
- Mitigate the impacts of contaminated groundwater to the environment.
- Provide for attainment of SCGs for groundwater quality to the extent practicable.
- To the extent practicable, restore the site to pre-disposal conditions.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with other statutory laws, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Main Plant Site were identified, screened, and evaluated in a Feasibility Study. This evaluation is presented in the report entitled "Fairchild Industries, Inc., Main Plant Feasibility Study Report, dated September, 1997."

The RI/FS determined that it was not technically or economically feasible to restore the aquifer to groundwater quality standards. There are many areas around the MPS where groundwater VOC contamination exists above SCGs. Groundwater remedies which will intercept and treat groundwater under Republic Airport with 5 ppb of VOCs or greater, will still not guarantee that downgradient public supply wells, shown on Figure 6, will not be effected at some time in the

future. Therefore, those alternatives that addressed groundwater with 5 ppb or greater of VOCs were screened out and removed from further consideration.

6.1: Description of Remedial Alternatives

The MPS Feasibility Study Report contains four groundwater pump and treat remedies. The groundwater concentration isocontours used in Alternatives 2, 3, 4, and 5 of the MPS FS are based only on PCE RI data. Additional VOC concentrations from TCE due to the MPS vapor degreaser and other sources have increased total VOC concentrations in the areas downgradient of the MPS. Given the known rate of groundwater flow in the glacial and Upper Magothy aquifers in the area of Republic Airport, the NYSDEC has projected total VOC horizontal contours and revised all the alternatives of the FS accordingly. These modified alternatives are designed to intercept the total VOC plume downgradient of the MPS. Figure 7 shows the approximate location of the extraction wells for all of the groundwater alternatives.

Since the RI data used as the basis of the MPS Feasibility Study is almost five years old, a predesign study will be required in the areas where the extraction wells will be installed. The predesign study will delineate the total current horizontal and vertical VOC isocontour concentrations and the geological conditions in the area the extraction wells will be installed.

Since any remedy selected will result in hazardous waste remaining in the groundwater to be reduced by natural attenuation over a period of time, a long-term monitoring program will be instituted. This program will allow the effectiveness of the selected remedy to be monitored and will be a component of the operation and maintenance program for the site. It is a part of each alternative.

As used in the following text, the time to implement reflects only the time required to construct the remedy and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with the responsible party for implementation of the remedy.

The cost of each alternative is presented as the capital cost, annual operation and maintenance (O&M) cost, and the total present worth cost. Present worth is defined as the amount of money currently required (in 1998 dollars at 5 percent interest) to fund the capital cost and 30 years or the number of years required for the O&M cost.

Alternative 1: No Further Action

The no further action alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative recognizes remediation of the site conducted under previously completed IRMs. Only continued monitoring is necessary to evaluate the effectiveness of the remediation completed under the IRMs. This alternative will leave the groundwater downgradient

of the site in its present condition and will not provide any additional protection to human health or the environment. It requires minimal long-term monitoring only to track plume migration and to evaluate the effectiveness of the remediation completed under the IRMs. Contamination concentrations will be reduced only by natural attenuation.

Present Worth:	$328,000
Capital Cost:	$ 87,000
Annual O&M Year 1:	$ 25,000
Annual O&M Year 2-30:	$ 15,000

Each of the next five alternatives contain appropriate long-term monitoring to verify the effectiveness of the remedy being implemented.

Alternative 2: Pump and Treat Groundwater approaching the 500 ppb total VOC Plume Boundary With Alternative 6 Contingency

This alternative consists of installing six groundwater recovery wells, each pumping approximately 300 gallons per minute (gpm) near the Southern State Parkway. This pumping will intercept the elevated portion of the total VOC plume. The zone of influence created by the extraction system will capture the width of the plume defined by the 500 ppb total VOC plume isocontour. Extracted groundwater will be treated to SCGs and recharged to groundwater. Contaminants in the remainder of the plume will be reduced by natural attenuation. The time to construct this remedy is six months to a year.

Present Worth:	$10,530,000
Capital Cost:	$1,767,000
Annual O&M Year 1:	$ 588,000
Annual O&M Year 2-30:	$ 569,000

Alternative 3: Pump and Treat Groundwater above 1,000 ppb total VOCs with Alternative 6 Contingency

This alternative consists of a minimum of two recovery wells pumping at least 250 gpm each with a projected location near the Breslau property. The need for additional wells will be determined in the design phase. Alternative 3 will only extract the highly contaminated groundwater approaching the 1,000 ppb most contaminated total VOC plume under Republic Airport. Extracted groundwater will be treated to SCGs and recharged to the aquifer. Contaminants in the remainder of the plume will be reduced by natural attenuation. The time to construct this remedy is six months to a year.

Present Worth:	$3,468,000
Capital Cost:	$ 738,000
Annual O&M Year 1:	$ 202,000
Annual O&M Year 2-30:	$ 176,000

Alternative 4: Pump and Treat Groundwater above 1,000 ppb total VOCs and at the 500 ppb total VOC Plume Boundary with Alternative 6 Contingency

This alternative consists of eight recovery wells, which is Alternatives 2 and 3 combined. Six extraction wells will be installed at the edge of the 500 ppb total VOC isocontour, each pumping approximately 300 gpm. The remaining two extraction wells will be installed near the Breslau property, pumping at least 250 gpm each. This should potentially reduce the time for operation. Extracted groundwater will be treated to SCGs and recharged to the aquifer. Contaminants in the remainder of the plume will be reduced by natural attenuation. The time to construct this remedy is six months to a year.

Present Worth:	$13,895,000
Capital Cost:	$ 2,398,000
Annual O&M Year 1:	$ 771,000
Annual O&M 2-30:	$ 743,000

Alternative 5: Pump and Treat Groundwater above 1,000 ppb total VOCs and Install Wellhead Treatment Now

This alternative consists of a minimum of two extraction wells pumping at least 250 gpm each and located near the Breslau property. Alternative 5 will only extract the highly contaminated groundwater above 1,000 ppb of the total VOC plume found on Republic Airport. Extracted groundwater will be treated to SCGs and recharged to the aquifer. Contaminants in the remainder of the plume will be reduced by natural attenuation. Wellhead treatment as described in Alternative 6 would be installed now. Outpost monitoring will not be needed. The time to construct this remedy is six months to a year.

Groundwater Remedy:

Present Worth:	$3,468,000
Capital Cost:	$ 738,000
Annual O&M Year 1:	$ 202,000
Annual O&M Year 2:	$ 176,000

Wellhead Treatment:

1. East Farmingdale
   Present Worth: $1,228,000

Capital Cost:	$ 876,000
Annual O&M:	$ 6,000
Carbon Replacement:	$ 40,000

2. SCWA Albany Avenue

Present Worth:	$1,004,000
Capital Cost:	$ 870,000
Annual O&M:	$ 6,000
Carbon Replacement:	$ 40,000

3. SCWA Tenety Avenue

Present Worth:	$ 984,000
Capital Cost:	$ 879,000
Annual O&M:	$ 6,000
Carbon Replacement:	$ 40,000

Total Present Worth:	$6,684,000
Total Capital Cost:	$3,363,000
Total Annual O&M (Year 1):	$ 340,000
Total Annual O&M (Year 2):	$ 314,000

Alternative 6: Wellhead Treatment Contingency:

A. Outpost Monitoring and:
Wellhead Treatment for:
B. East Farmingdale Water District Wells (S-66556 and S-79105);
C. Suffolk County Water Authority Wells at Albany Ave. (S-34595, S-47886 and S-6305); and
D. Suffolk County Water Authority Wells at Tenety Ave. (S-20460, S-37681).

None of Alternatives 2, 3, 4, or 5 will intercept all of the MPS contamination in the downgradient groundwater. In order to correct for this potential shortfall, Alternative 6, listed as a stand alone alternative in the FS, contains outpost monitoring and a wellhead treatment contingency. Outpost monitoring will indicate if treatment of a municipal water supply is needed to address MPS plume impacts. Since this will be a requirement to ensure protection of human health, a detailed analysis for Alternative 6 was not performed. Rather, Alternative 6 will supplement the inability of any other alternatives, except Alternative 5 with wellhead treatment now, to address all contamination above SCGs for protection of human health.

This alternative will monitor VOC concentrations in the groundwater and provide contingency to install wellhead treatment at public supply wells downgradient of the MPS, if necessary, to protect

public health. A wellhead treatment system will be designed, if outpost monitoring well data, as determined by the NYSDEC and State and County Health Departments, upgradient of one or more public supply wells indicates that treatment is necessary.

Outpost monitoring well clusters will be installed upgradient of the East Farmingdale Route 109 Wellfield, the SCWA Albany Avenue Wellfield, and the SCWA Tenety Avenue Wellfield. These wells are the closest downgradient to the MPS at 6,600 feet for East Farmingdale and 14,000 feet for the SCWA wells. It is not expected that the SCWA Lambart Avenue and North 5th Street wells, located almost four miles downgradient, will be effected by the MPS plume. Conceptual remedial designs and cost estimates have been developed for treatment systems at the East Farmingdale Route 109 and the SCWA Albany Avenue and Tenety Avenue public supply wells.

A. Outpost Monitoring:
East Farmingdale: 2 wells at 350 and 500 feet.
Albany Ave.: 3 wells at 100, 200 and 300 feet.
Tenety Ave.: 3 wells at 100, 200 and 300 feet.

Present Worth:	$ 277,000
Capital Cost:	$ 123,000
Annual O&M:	$ 10,000

Wellhead treatment:

B. East Farmingdale: Installed 10 years from now:

Present Worth:	$1,228,000
Capital Cost:	$ 876,000
Annual O&M:	$ 6,000
Carbon Replacement:	$ 40,000

C. SCWA Albany Avenue: Installed 20 years from now:

Present Worth:	$1,004,000
Capital Cost:	$ 870,000
Annual O&M:	$ 6,000
Carbon Replacement:	$ 40,000

D. SCWA Tenety Avenue: Installed 20 years from now:

Present Worth:	$ 984,000
Capital Cost:	$ 879,000
Annual O&M:	$ 6,000
Carbon Replacement:	$ 40,000

Total Present Worth: $3,493,000

Total Capital Cost:	$2,748,000
Total Annual O&M:	$ 49,000

Carbon change out is estimated to be:
East Farmingdale: Every 364 Days
Albany Avenue: Every 308 Days
Tenety Avenue: Every 500 Days

6.2: Evaluation of Remedial Alternatives

Based on information presented in the MPS RI Report, it is not economically or technically feasible to contain and treat the entire contaminant plume migrating from the Fairchild Republic Main Plant Site, the full downgradient extent of which is not currently known. Nor is it feasible to define the low level VOC plume, greater than the NYS Drinking Water Standard of 5 ppb, but generally less than 50 ppb, downgradient of the Old Recharge Basin that has combined with a much higher concentration VOC plume from an unknown upgradient source. Public health must and will be protected with public water supply protection detailed in Alternative 6. Also, the connection to public water of any resident utilizing a private drinking water well, free of charge, that is within the area of concern downgradient from this site, will provide additional public health protection.

A summary of the detailed analysis follows. The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste disposal sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is provided, followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Feasibility Study.

Threshold Criteria: The first two evaluation criteria must be satisfied in order for an alternative to be considered for selection.

1. **Protection of Human Health and the Environment.** This criterion is an overall and final evaluation of the health and environmental impacts to assess whether each alternative is protective. This evaluation is based upon a composite of factors assessed under other criteria, especially short/long term effectiveness and compliance with Standards, Criteria and Guidance values (SCGs).

Alternative 1 will not be protective of human health as the potential for exposure to contaminated groundwater will not be addressed. Alternatives 2 and 4 by themselves will be the most effective in protection of human health and the environment as more of the total VOC contamination will be addressed and will most likely reduce the need for implementation of well head treatment. Alternatives 3 and 5 will be slightly less effective for groundwater protection as a smaller portion

of the total VOC plume will be addressed. None of Alternatives 2, 3, 4, or 5 will intercept all of the total VOC contamination in the downgradient groundwater.

Alternative 1 is unacceptable as contaminated groundwater will remain in its present condition for an indeterminate amount of time. The environment will also remain unprotected. Since Alternative 1 offers no protection of human health or the environment and is not compliant with SCGs, it is eliminated from further consideration.

The wellhead treatment contingency listed in Alternative 6 will be a requirement for the protection of human health, and as such is added to Alternatives 2, 3 and 4. Alternative 6 will protect public supply wells by monitoring of outpost wells and a contingency to provide wellhead treatment, if necessary.

2. **Compliance with New York State Standards, Criteria, and Guidance Values.** Under this criterion, the issue of whether a remedy will meet all of the federal and State environmental laws and regulations is addressed. If these laws and regulations will not be met, then grounds for invoking a waiver must be provided.

The most significant SCGs are the New York State Water Quality Regulations. This includes 10 NYCRR Part 5 Drinking Water Standards and 6 NYCRR Part 700 Groundwater Standards. 6 NYCRR Part 200 Air Quality Regulations are relevant to the air discharges from each groundwater treatment system.

Alternatives 2, 3, 4 and 5 will be compliant with SCGs for the portion of the groundwater plume addressed by each alternative. The groundwater treatment systems will be designed to be compliant with the NYSDEC Part 200 Air Quality Regulations. Alternative 6 by itself does not address any of the groundwater standards.

The 5 ppb groundwater standard for primary organic compounds will not be met with respect to plume interception, although natural attenuation should reduce site related contaminant concentrations to below 5 ppb over time.

Primary Balancing Criteria: The next five "primary balancing criteria" are used to compare the positive and negative aspects of the various alternatives.

3. **Short-term Effectiveness.** Under this criterion, the potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation were evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternatives 2, 3, 4 and 5 will all have the similar short-term impacts related to construction of the pump and treat system on or near Republic Airport and the State Highways. Alternatives 2 and 4 will have a potentially higher short term impact due to the increased amount of construction work required on the Airport property. Worker exposure to VOCs during construction will be controlled through a site-specific health and safety plan developed prior to implementation of any of the groundwater remedies.

4. **Long-term Effectiveness and Permanence.** This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks; 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 4 has a higher long term effectiveness due to a larger contaminant mass removal from the groundwater. Alternative 2 will remove almost as much as Alternative 4 except for some potential dispersion between the middle and the end of the plume. Alternative 3 and Alterative 5 will remove less of the total VOC contamination than Alternatives 2 and 4, but will remove the highly contaminated portion of the total VOC plume.

Alternatives 2, 3, 4 and 5 will all contain air stripping technology. Air stripping with emission controls, if required, is a common, proven and reliable technology which will be operated over the long term to reduce the VOC groundwater contamination due to the MPS. None of the remedies will leave any residual contamination on site, however, none of the alternatives will completely remediate the plume.

Alternatives 3 and 5 will require a longer period of time to achieve the remedial action objectives. Alternatives 2 and 4 will require a slightly shorter period of time to meet the remedial action objectives. The time is based on the rate of travel of the contaminated groundwater downgradient of the MPS.

5. **Reduction of Toxicity, Mobility or Volume.** Preference is given to alternatives that permanently, and by treatment reduce the toxicity, mobility or volume of the wastes at the site.

By means of groundwater extraction at the center and southern end of Republic Airport, Alternatives 2 and 4 offer the highest reduction in volume of the effected groundwater. Alternatives 3 and 5 will offer less contamination reduction, but will intercept the most contaminated portion of the VOC plume and offer a substantial reduction in toxicity, mobility and volume of contamination. Alternative 6 with outpost monitoring and wellhead treatment, if necessary, will be included with any remedy, except Alternative 5, and will reduce the toxicity of the contamination to the public. Alternative 5 eliminates the need for outpost monitoring by

immediately putting wellhead treatment on the East Farmingdale Route 109, and SCWA Albany Avenue and Tenety Avenue Wellfields.

6. **Implementability.** Under this criterion, the technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

Alternatives 2, 3, 4, and 5 will all be implementable with respect to construction. Alternative 4 will be the most difficult to implement because it contains the most number of extraction wells and has the highest groundwater pumping rate. Alternatives 3 and 5 have slightly less construction requirements on airport property than Alternatives 2 and 4. The need for VOC emission air controls on an air stripper will be evaluated during the design phase.

7. **Cost.** Under this criterion, capital and operation and maintenance (O&M) costs are estimated for each alternative and compared on a present worth basis. Although cost is the last criterion evaluated, where two or more alternatives have met the requirements of the other criteria, cost effectiveness can be used as the basis for the final decision.

The costs for each alternative are presented in Section 6.1 and Table 2. The costs for Alternative 6, wellhead treatment, will be common to Alternatives 2, 3 and 4. Alternative 5 will not contain outpost monitoring. Alternative 6, with outpost monitoring and the wellhead treatment contingency to protect the public drinking water supply has a present worth of $277,000 for outpost monitoring and $3,216,000 for wellhead treatment, respectively.

Modifying Criterion: This final criterion is taken into account after evaluating those above. It is focused upon after public comments on this Proposed Remedial Action Plan (PRAP) have been received.

8. **Community Acceptance** - Under this criterion, concerns of the community regarding the RI/FS Report and the Proposed Remedial Action Plan are evaluated. The concerns of the community are presented along with the NYSDEC's responses to these concerns, in the Responsiveness Summary (Appendix A) to the Record of Decision.

SECTION 7: SUMMARY OF THE SELECTED ALTERNATIVE

Based upon the results of the RI/FS and the evaluation presented in Section 6 and the reasons presented below, the NYSDEC is selecting Alternative 3 which includes Alternative 6. Alternative 3 will be designed to intercept the 1,000 ppb total VOC plume south of the Main Plant

Site. The capture zone will intercept groundwater as depicted in Figure 7 and as determined by the predesign study. The groundwater remedy will begin at the water table and intercept all incoming contaminated groundwater along both a horizontal and vertical axis. Additionally, a wellhead treatment contingency will be in effect for the East Farmingdale Route 109 and SCWA Albany Avenue and Tenety Avenue Wellfields with outpost monitoring to determine if wellhead treatment is necessary.

The selected remedy, Alternative 3 with Alternative 6, was chosen based on the fact that it is not economically or technically feasible to contain and treat all the contaminated groundwater migrating from the Fairchild Republic Main Plant Site with concentrations greater than the New York State Drinking Water Standard of 5 ppb. The probability of impacts to the public water supply wells is low. These wells will be protected by the monitoring of outpost wells upgradient of the public water supply wells and with a contingency to provide wellhead treatment, if necessary. The preference to permanently and significantly reduce the toxicity, mobility or volume of VOCs in groundwater is satisfied in that this remedy will attempt to reduce the mass of VOCs in the groundwater by recovering, treating and discharging groundwater contaminated by the Fairchild Republic Main Plant Site plume with total VOCs greater than 1,000 ppb. The remedial goal to provide for attainment of the 5 ppb groundwater standard will be met in the treated aquifer segment, to the extent practicable.

Part of the remedy may address contamination that has not been conclusively attributable to Fairchild. As more data becomes available, other PRPs may be identified. In the same manner, not all of the contamination attributable to Fairchild will be addressed by the selected groundwater remedy.

The elements of the selected remedy are as follows:

1. A predesign investigation to determine the geology of and the optimum location for the groundwater extraction wells. This predesign investigation will derive the data necessary to determine the screen zone of each extraction well. In addition, the number of extraction wells will be substantiated and the potential need to cluster these wells will be determined. The predesign investigation and the long term monitoring will also include the development of a groundwater model of the aquifer, plume tracking, plume tracking updates and plume modeling periodic updates. The results will identify the fate and transport of the unremediated portion of the groundwater plume including whether the Suffolk County Water Authority Great Neck Road Wellfield is at risk due to the potential for increased pumping rates.

2. A remedial design program to verify the components of the design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS, and due to the length of time between

the remedial investigation and the remedial design, will be resolved through the installation of monitoring wells and/or hydropunch data and sampling of existing monitoring wells, if necessary.

3. Groundwater extraction to address contamination above 1,000 ppb of the total VOC plume to the south of the MPS. The capture zone must be three dimensional from the water table to the depth of contamination to intercept the width and depth of the 1,000 ppb total VOC plume. The installation of at least 2 groundwater extraction wells, or comparable remedial technology, pumping a minimum total combined rate of 500 gpm, or a comparable remedial technology; with all necessary piping to install the wells and properly run the discharge to the groundwater treatment systems.

4. Construction of a groundwater recharge system, if necessary, that is outside the groundwater extraction zone, unless this can be demonstrated otherwise by design calculations.

5. The installation of the necessary air stripping systems or comparable remedial technology designed to remove VOCs in the extracted groundwater to meet the State Pollution Discharge Elimination System (SPDES) discharge limitations.

6. The installation of air emission controls, if required, to comply with the NYSDEC air regulations.

7. The long-term monitoring of the extraction well system by means of the installation and use of upgradient and downgradient groundwater shallow and deep monitoring wells. This will be done semi-annually the first year and annually thereafter to verify the system performance. Additionally, quarterly elevation monitoring will be done in the first year to determine the groundwater capture zone in different seasons and annually thereafter.

8. The required installation and quarterly monitoring for VOCs of outpost monitoring wells installed for the East Farmingdale Water District Wells S-66556 and S-79105; the Suffolk County Water Authority Albany Avenue Wells S-34595, S-47886 and S-6305; and the Suffolk County Water Authority Tenety Avenue Wells S-20460 and S-37681. If necessary, outpost monitoring will be added for the Suffolk County Water Authority North Fifth Street Well S-29491 and/or Lambert Avenue Well S-22351 and/or Great Neck Road Wells S-51214 and S-54568. The remedial design will evaluate and determine the best locations for these outpost wells.

9. Wellhead treatment contingency plan for the design, construction, operation and maintenance of wellhead treatment systems, if necessary. If the evaluation of the monitoring indicates that the outpost monitoring wells are contaminated with MPS contaminants, treatment at the public supply wells will be necessary to comply with 10 NYCRR Part 5 Drinking Water Standards.

An activated carbon or comparable treatment system to produce potable water will be designed and constructed. Alternatively, if Mairoll/Fairchild Corporation reaches a cash settlement with the SCWA and/or the East Farmingdale Water District, then each settling Water Authority and/or District will be responsible for its respective implementation of, as necessary, wellhead treatment.

10 Any detection of 1 ppb or more of MPS site related contamination in the outpost monitoring wells will "trigger" Fairchild to evaluate the rate of movement of the MPS contaminants towards the public supply wells. If VOC concentrations in the outpost well(s) exceed the respective standards, a minimum of one and a maximum of three confirmatory samples will be collected within 30 days and the results evaluated by the NYSDEC and the State and County Health Departments. If the NYSDEC's and the Health Departments' evaluation indicates that wellhead treatment is necessary to comply with drinking water standards, the design phase of the wellhead treatment system(s) will begin.

11 The East Farmingdale Route 109 and SCWA Tenety and Albany Avenue Wellfields will be sampled on a monthly basis for total volatile organic compounds.

12 A performance evaluation will be conducted at least once a year to determine whether the remedial goals have been or can be achieved, and whether the monitoring should continue.

13 Connection of any private drinking water wells within and around an area between Route 110 and Great Neck Road, Wellwood Avenue and Sunrise Highway.

14 A plan to properly close all monitoring wells associated with the Old Recharge Basin and the MPS no longer required as part of the remedial action or the long term operation and maintenance plan.

The selected remedy for any site should, at a minimum, eliminate or mitigate all significant threats to the public health or the environment presented by the hazardous waste present at the site. The State believes that the IRM remediations which have taken place, and the implementation of the selected remedy, which is described in this section, will accomplish this objective provided that it continues to be operated and maintained in a manner consistent with the design.

The estimated present worth to implement the groundwater portion of Alternative 3 is $3,468,000. The estimated cost to construct the groundwater portion is $738,000 and the estimated average annual operation and maintenance cost for the groundwater portion, which will be necessary for thirty years, is $202,000 for the first year and $176,000 for the remainder of thirty years. The present worth estimate for outpost monitoring implementation will be $277,000. The combined total present worth for wellhead treatment calculated for the East Farmingdale Route 109, and

SCWA Albany Avenue and Tenety Avenue Wellfields is $3,216,000. The total present worth of the proposed remedy is $6,961,000.

The source areas associated with the MPS have been removed. The Department will reclassify the site from a Class 2 to a Class 4 on the New York State Registry of Inactive Hazardous Waste Disposal Sites after the remedy has been installed and is operating. A Class 4 site is defined as a site that has been properly closed but requires continued operation, maintenance and monitoring.

SECTION 8: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following activities were conducted at the site:

- A Citizen Participation Plan was developed and repositories were established for site related documents. They are located at the Farmingdale Free Library on Merritts Road, the NYSDEC Region 1 SUNY Stony Brook office and the NYSDEC Central office at 50 Wolf Road in Albany.

- A public contact list was established which included nearby property owners, local elected officials, local media and other interested parties.

- Fact sheets were mailed to the contact list on several occasions to update interested parties on the site status.

- Public informational meetings were held in June 1992, December 1994, March 1996 and February 1998 to discuss this project and answer questions posed by the public.

- In January 1998 a public information sheet was mailed to the public contact list and a public meeting was held on February 10, 1998 to present the Fairchild Republic Main Plant Site Proposed Remedial Action Plan (PRAP). A 30 day public comment period was established for the receipt of written comments which closed on February 27, 1998.

- In March 1998 a Responsiveness Summary was prepared to address the comments and questions received during the public comment period for the PRAP. This was sent to the meeting attendees, placed in the document repositories and appended to the Record of Decision.

GLOSSARY OF TERMS

Alodine:	Refers to a process used to treat metals to make them corrosion resistant
ARAR:	Applicable or relevant and appropriate requirement
Capital Cost:	Refers to the cost of constructing a remedial alternative
CERCLA:	Comprehensive Environmental Response, and Comprehensive Liability Act (USEPA)
Chemical Milling:	A process using acids to etch specific areas of metal surfaces
Chromium:	An inorganic element used in various manufacturing processes at the MPS Site
ECL:	Environmental Conservation Law
FS:	Feasibility Study
Glacial:	Refers to the Glacial or shallow aquifer associated with Long Island
Groundwater Contours:	Equipotential lines of groundwater elevation
IRM:	Interim Remedial Measure
Magothy:	Refers to the section of the Long Island aquifer below the Glacial aquifer and above the Lloyd aquifer
Metal Hydroxides:	Refers to basic compounds consisting of an inorganic and a hydroxyl group capable of combining with a proton to form a new compound
MGD:	Million gallons per day, refers to daily rate of pumping groundwater
MPS:	The Main Plant Site, or the former Fairchild Republic Aircraft manufacturing facility
ND:	Non-detect or below the detection limit of the analytical equipment
NYCRR:	New York State Codes, Rules and Regulations

NYSDEC:	New York State Department of Environmental Conservation
NYSDOH:	New York State Department of Health
NYSDOT:	New York State Department of Transportation
O&M:	Operation and maintenance, refers to operation of remedial alternatives
ORB:	Old Recharge Basin, located between Carmans Road and Route 110, south of Conklin Street
PCE:	(Perchloroethylene or tetrachloroethlyne) A chlorinated, aliphatic organic solvent
Plume:	Contaminant dispersion in the groundwater
POTW:	Publicly owned treatment works or sewage treatment plant
ppb:	Part per billion
ppm:	Part per million
ppmv:	Part per million volume
PRAP:	Proposed Remedial Action Plan. This is a document listing the remedy(s) proposed to mitigate the threat of hazardous waste disposal to human health and the environment
RAOs:	Remedial Action Objectives, or the goals established to remedy a site based on findings of the RI (CERCLA)
RCRA:	Resource Conservation and Recovery Act
RI/FS:	Remedial Investigation/Feasibility Study
ROD:	Record of Decision
SCGs:	Standards, Criteria and Guidance values
SCWA:	Suffolk County Water Authority
TAGM:	Technical and Administrative Guidance Memorandum. Used by the NYSDEC

TCA:	(Trichloroethane) A chlorinated aliphatic organic solvent
TCE:	(Trichloroethylene) A chlorinated, aliphatic organic solvent
TCLP:	Toxicity Characteristic Leaching Procedure, is a test used to define a hazardous waste for disposal purposes
VOC:	Volatile Organic Compound

TABLE 1
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE	FREQUENCY of SCG EXCEEDENCES	SCG
Groundwater	Volatile Organic Compounds (VOCs)	Trichloroethane	ND to 100 ppb	22 out of 160	5 ppb
		Tetrachloroethylene	ND to 5,100 ppb	39 out of 160	5 ppb
		Trichloroethylene	ND to 1,659 ppb	68 out of 160	5 ppb
		Dichloroethene	ND to 460 ppb	7 out of 160	5 ppb
		Dichloroethane	ND to 210 ppb	30 out of 160	5 ppb
		Vinyl Chloride	ND to 200 ppb	26 out of 160	2 ppb
		Benzene	ND to 163 ppb	33 out of 160	0.7 ppb
		Toluene	ND to 1,500 ppb	8 out of 160	5 ppb
		Ethyl benzene	ND to 1,200 ppb	13 out of 160	5 ppb
		Xylene	ND to 3,900 ppb	15 out of 160	5 ppb
		Chlorobenzene	ND to 670 ppb	8 out of 160	5 ppb
Groundwater	Inorganics	Lead	ND to 678 ppb	15 out of 86	25 ppb
		Iron	ND to 184,000 ppb	44 out of 86	300 ppb
		Mercury	ND to 3 ppb	1 out of 86	2 ppb
		Cadmium	ND to 107 ppb	7 out of 86	10 ppb
		Chromium	ND to 1,270 ppb	13 out of 86	50 ppb
		Manganese	ND to 10,500 ppb	58 out of 86	300 ppb
		Arsenic	ND to 104 ppb	7 out of 86	25 ppb
		Zinc	ND to 2,300 ppb	4 out of 86	300 ppb
Soils	Volatile Organic Compounds (VOCs)	Trichloroethene	ND to 4,000 ppb	5 out of 65	700 ppb
		Tetrachloroethene	ND to 4,100 ppb	1 out of 65	1,400 ppb
		Trichloroethane	ND to 370 ppb	0 of 65	800 ppb
		Dichloroethene	ND	0 of 65	300 ppb
		Chloroform	ND to 7,800 ppb	1 out of 65	300 ppb
		Toluene	ND to 610 ppb	0 out of 65	1,500 ppb

Soils	Inorganics	Lead	0.79 to 18.1 ppm	0 of 6	2-500 ppm
		Cadmium	ND to 0.12 ppm	0 of 6	1 ppm
		Chromium	6.6 to 791 ppm	21 of 31	10 ppm
		Arsenic	ND to 1.8 ppm	0 of 6	7.5 ppm
		Zinc	4.2 to 25.1 ppm	1 of 5	20 ppm

TABLE 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M YEAR 1	Annual O&M YEAR 2 PLUS	Total Present Worth
ALTERNATIVE 1:	$ 87,000	$25,000	$15,000	$328,000
ALTERNATIVE 2:*	$1,767,000	$588,000	$569,000	$10,530,000
ALTERNATIVE 3:*	$ 738,000	$202,000	$176,000	$3,468,000
ALTERNATIVE 4:*	$2,398,000	$771,000	$743,000	$13,895,000
ALTERNATIVE 5:**	$3,363,000	$340,000	$314,000	$6,684,000
ALTERNATIVE 6:***				
A. OUTPOST MONITORING:	$123,000	$10,000	$10,000	$277,000
	Capital Cost	**Annual O&M**	**GAC Replacement**	**Total Present Worth**
B. E. FARMINGDALE	$876,000	$6,000	$40,000	$1,228,000
C. ALBANY AVE.	$870,000	$6,000	$40,000	$1,004,000
D. TENETY AVE.	$879,000	$6,000	$40,000	$984,000

NOTES

Present Worth is calculated by adding the capital cost to the present worth of the Operation and Maintenance (O&M) costs. These O&M costs computed for the expected duration of the operation of the remedy or 30 years, which ever is less.

Alternatives 2, 3 and 4 must add Alternative 6 costs to get the cost for the entire remedy.

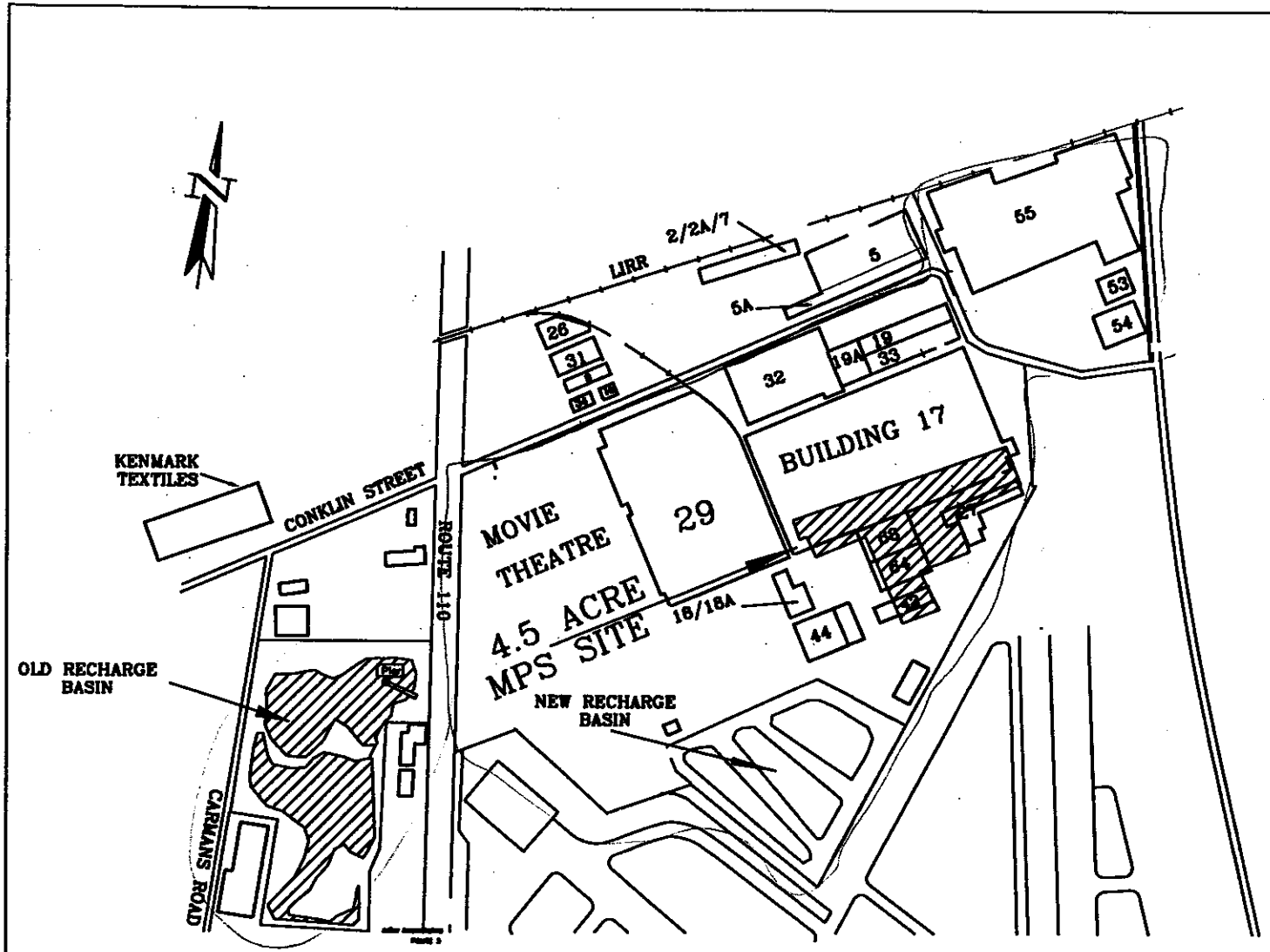
*Alternative 5 includes the cost of wellhead treatment but not outpost monitoring.

**ALTERNATIVE 6:

a. Outpost Monitoring

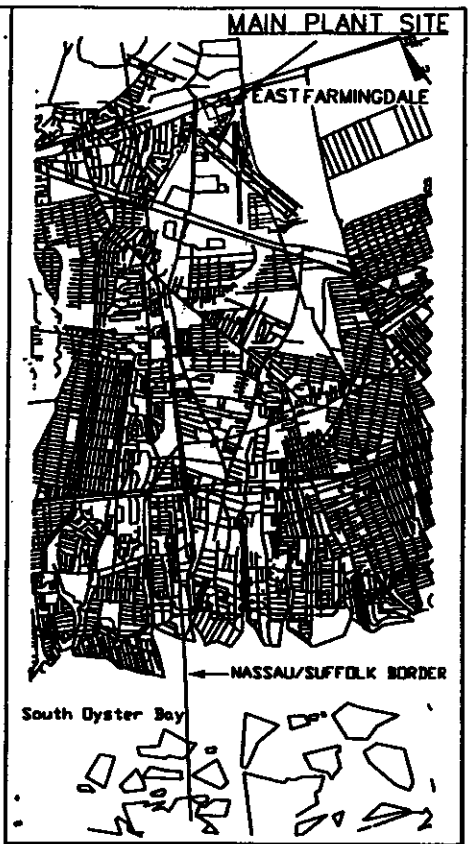
Wellhead Treatment:

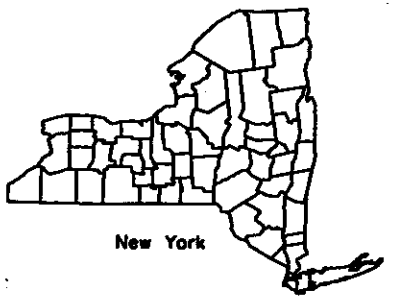
b. East Farmingdale Water District Wells (S-66556 and S-79105)
c. Suffolk County Water Authority, Albany Avenue Wells (S-34595, S-47886 and S-6305)
d. Suffolk County Water Authority, Tenety Avenue Wells (S-20460, S-37681)



NOTES:

1. SCALE IS FOR ESTIMATING PURPOSES ONLY
2. MOST BUILDINGS NO LONGER EXIST
3. NOT ALL FORMER BUILDINGS ARE INCLUDED ON THIS FIGURE





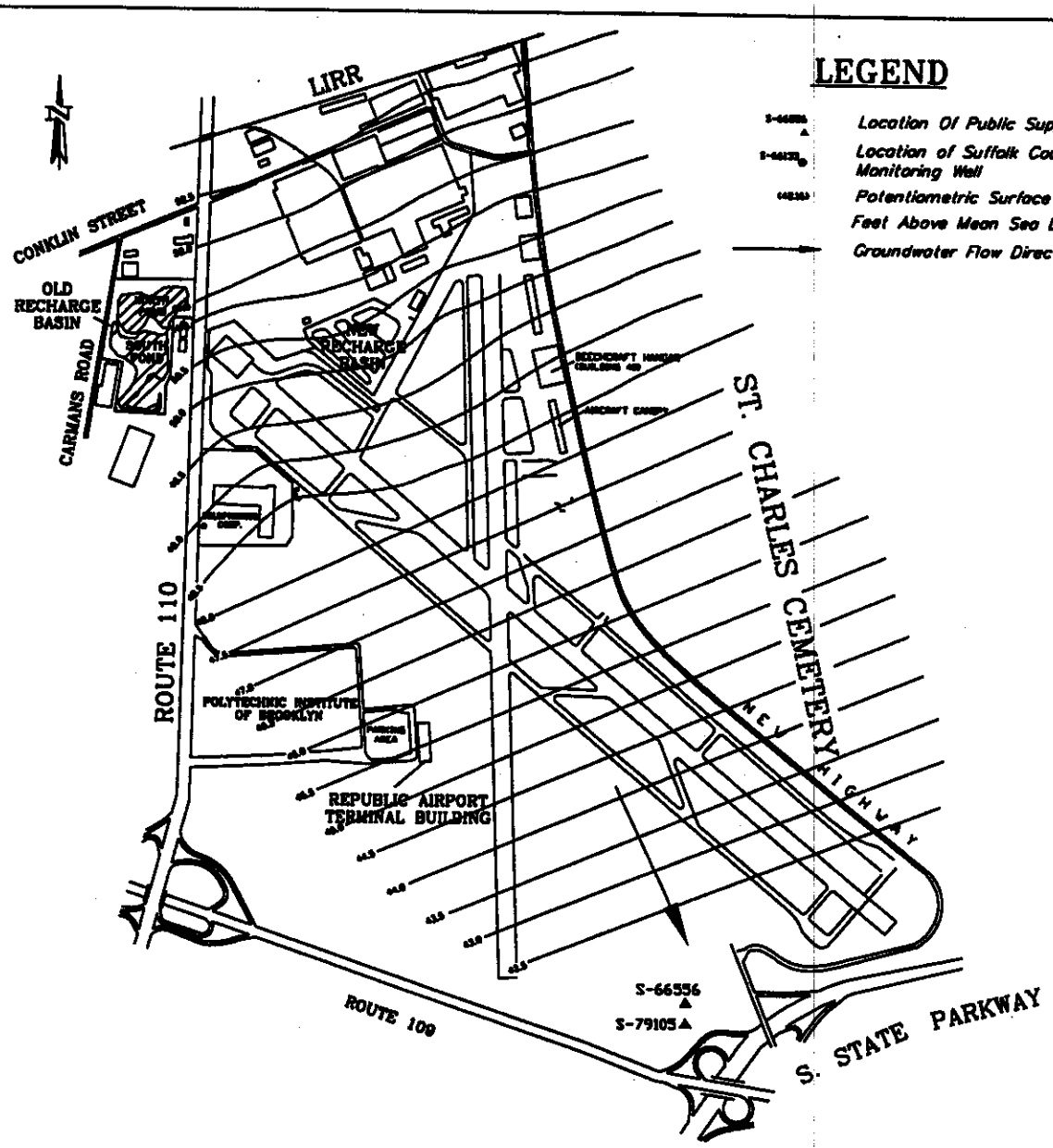
FAIRCHILD REPUBLIC AVIATION

SITE MAP

East Farmingdale, Suffolk County, New York
Site No. 1-52-130

New York State Department of Environmental Conservation

FILE: MNPT.DWG	DRAWING: DRAWN FROM EDER ASSOCIATES BASE MAP
MODIFIED BY: STEVEN M. SCHARF, P.E.	
DATE: 11/26/97	FIGURE 1



WATER TABLE CONTOUR MAP
(OCTOBER 27, 1993)

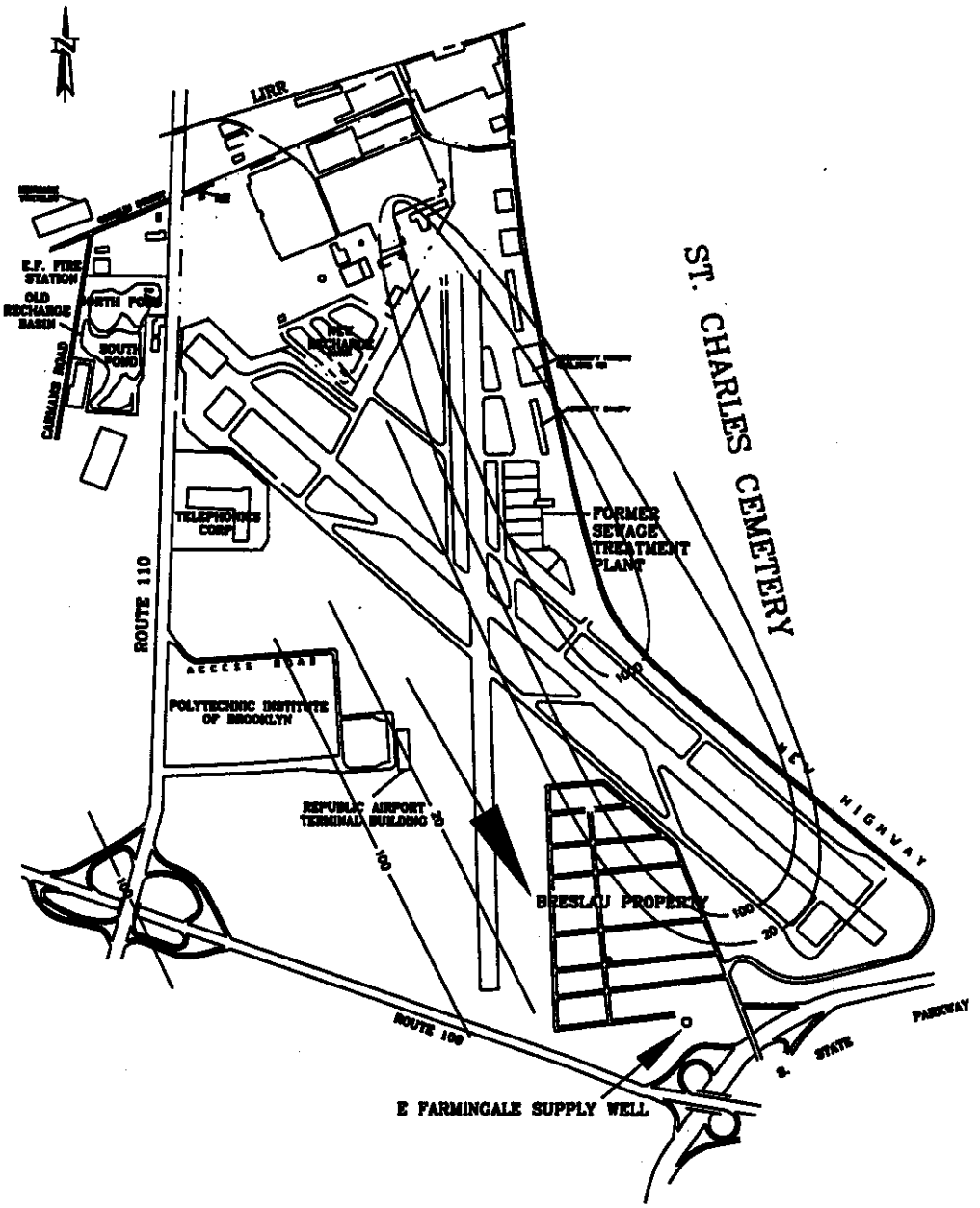
FAIRCHILD REPUBLIC MAIN PLANT SITE
EAST FARMINGDALE, NEW YORK

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE REVISED:	FIGURE:	DRAWING: REVISED BY STEVEN M. SCHARF, P.E.
10/08/97	FR16.DWG	FROM EDER ASSOCIATES BASE MAP

WATER TABLE CONTOUR MAP
OCTOBER 1993

FIGURE 2



LEGEND

20 —— *Generalized PCE Isoconcentration Contour Line*

→ *Groundwater Flow Direction*

FAIRCHILD REPUBLIC SITE

EAST FARMINGDALE, SUFFOLK COUNTY, NEW YORK

Site No. 1-52-130

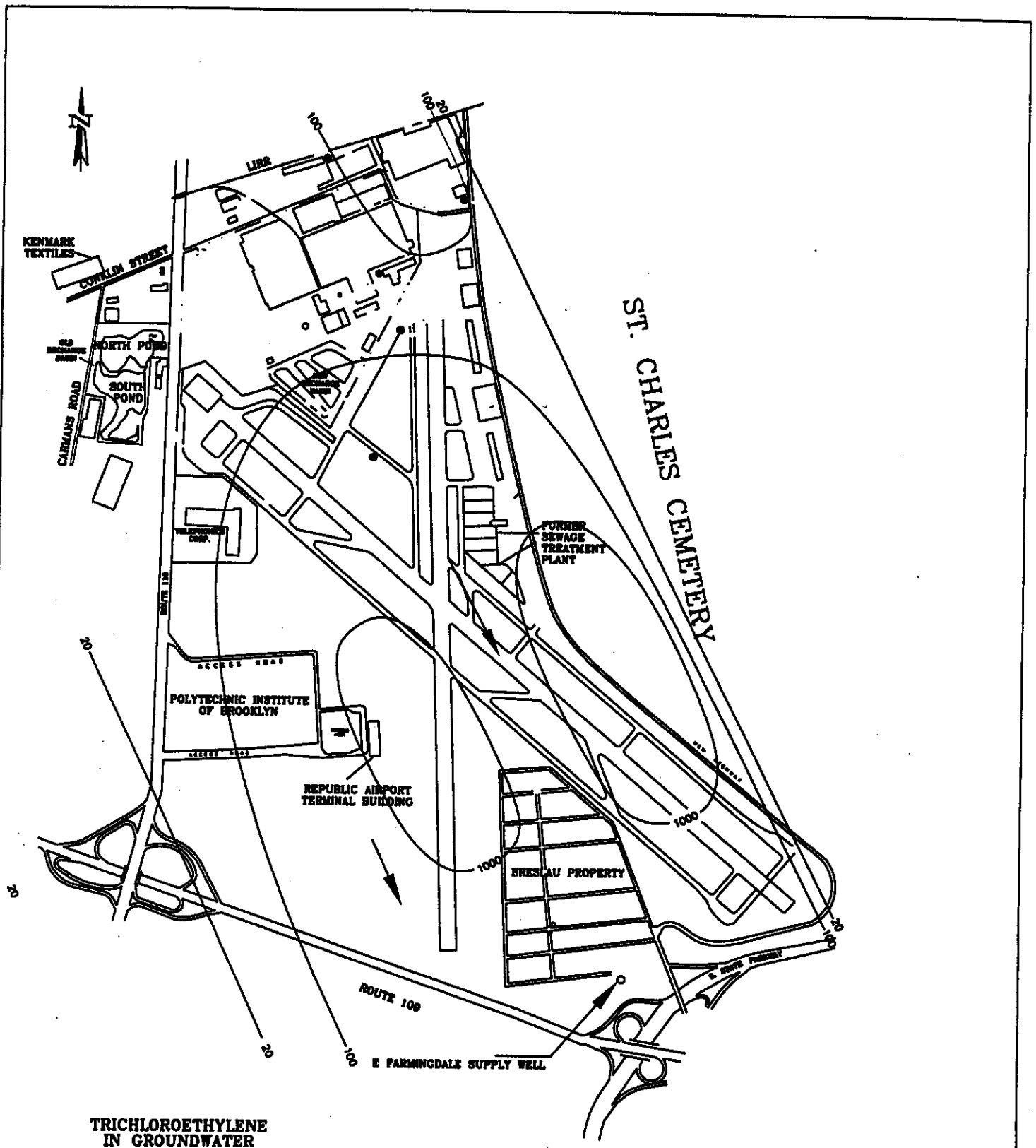
New York State Department of Environmental Conservation

Steven M. Scharf, P.E. | DRAWING: EDER ASSOCIATES BASE MAP

TETRACHLOROETHYLENE IN DOWNGRADIENT GROUNDWATER

(FR17.DWG)

DATE: 10/10/97 | **FIGURE 3**



TRICHLOROETHYLENE IN GROUNDWATER

Legend

20 —— *Generalized TCE Isoconcentration Contour Line*

→ *Groundwater Flow Direction*

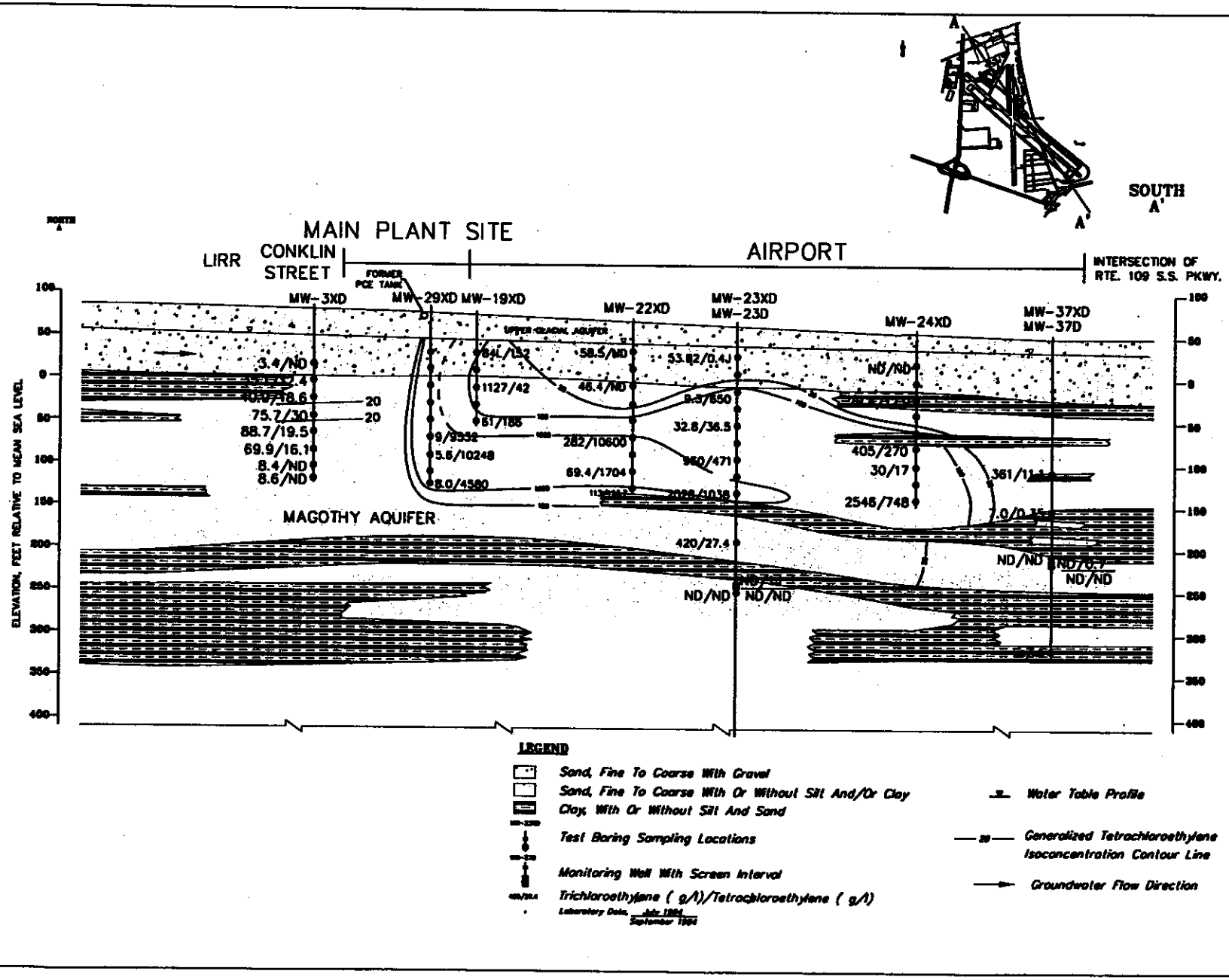
FAIRCHILD REPUBLIC SITE
EAST FARMINGDALE, SUFFOLK COUNTY, NEW YORK
Site No. 1-52-130

New York State Department of Environmental Conservation

DRAWN BY: STEVEN M. SCHARF, P.E. | DRAWING: FROM KIMER ASSOCIATES (FRBDA.DWG) BASE MAP

TRICHLOROETHYLENE IN GROUNDWATER

DATE: 12/01/97 | FIGURE 4



MAIN PLANT SITE
REMEDIAL INVESTIGATION
FAIRCHILD INDUSTRIES, INC.
EAST FARMINGDALE, NEW YORK

TITLE
VERTICAL PROFILE OF PCE IN GROUNDWATER

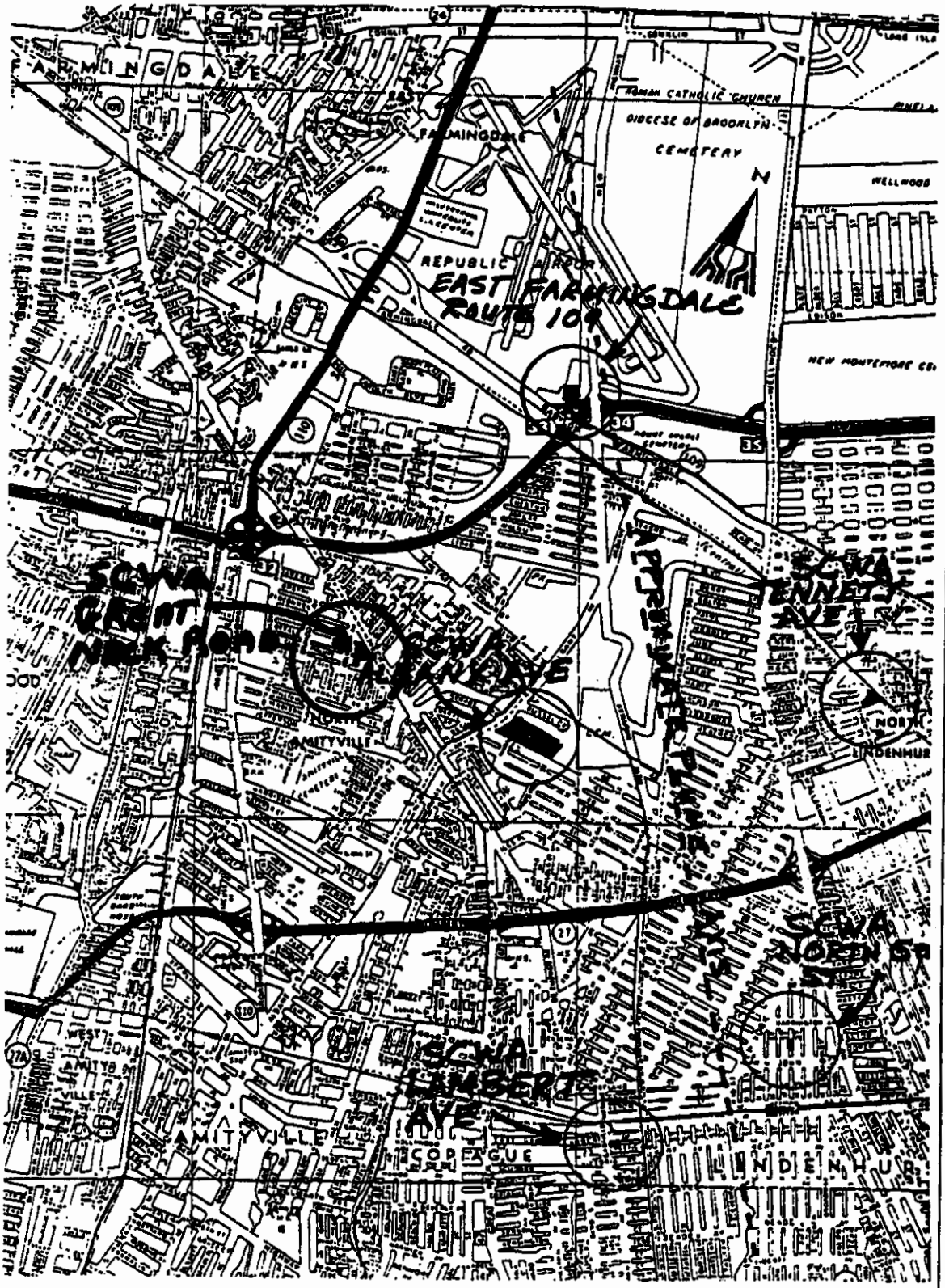
PROJECT
FAIRCHILD REPUBLIC SITE
Dept. Farmingdale, Suffolk County, NY
Site No. 1-52-150

New York State Department of Environmental Conservation

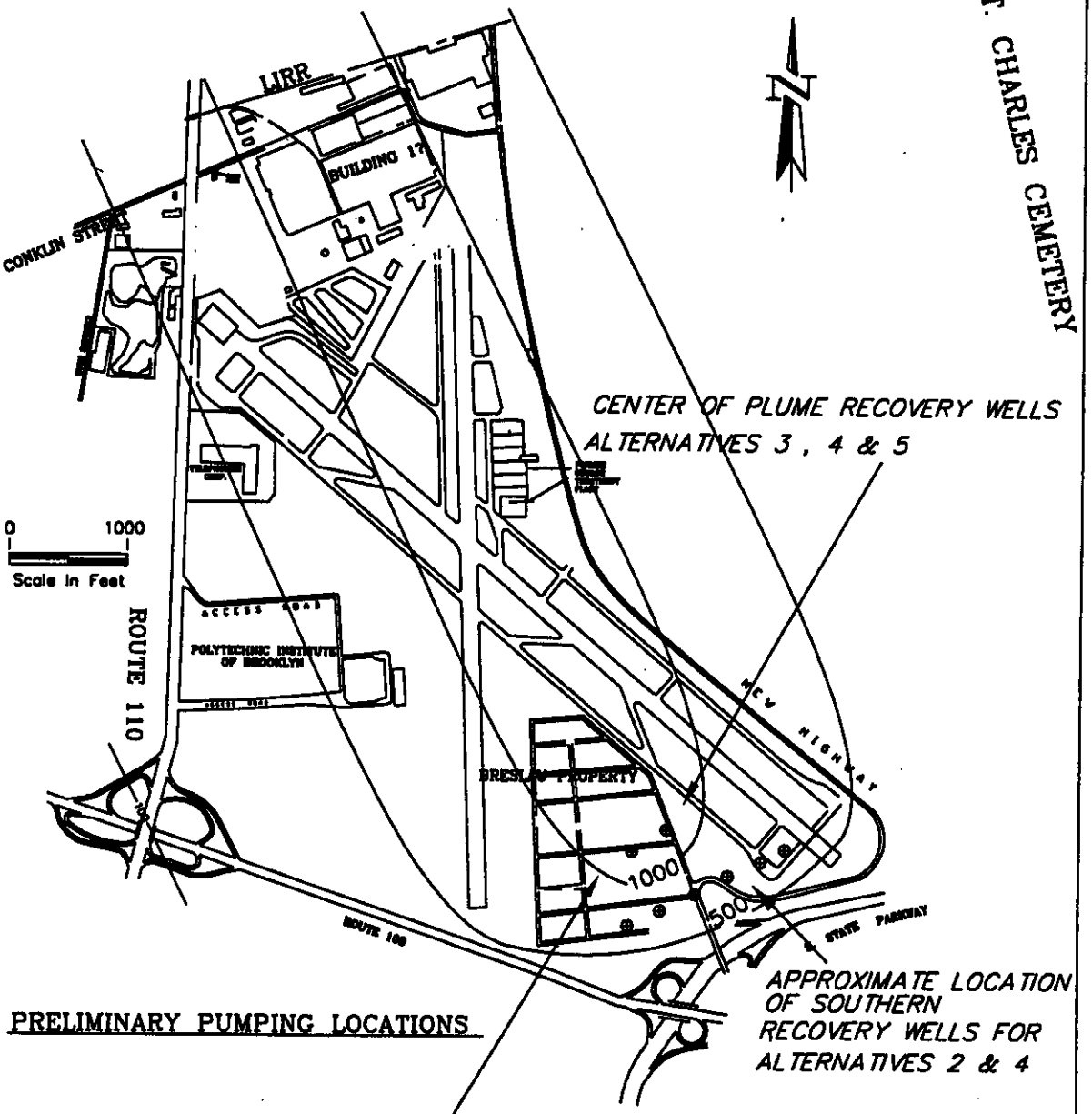
FILE
FE10.DWG

DATE
02/08/96

FIGURE 5



FAIRCHILD REPUBLIC MAIN PLANT SITE
Figure 6– Municipal Well Location
DIVISION OF HAZARDOUS WASTE REMEDIATION
REVISED:
DATE: 11/26/97 DRAWING: FRVBORD.DWG
East Farmingdale, Suffolk County Site No. 1–52–130



PRELIMINARY PUMPING LOCATIONS

NOTES

1. —20— DENOTES APPROXIMATE LOCATION OF CAPTURE ZONES BASED ON TOTAL VOCS (ppb).

FAIRCHILD REPUBLIC MAIN PLANT SITE
FIGURE 7- APPROXIMATE LOCATIONS FOR VARIOUS RECOVERY WELLS

DIVISION OF HAZARDOUS WASTE REMEDIATION

REVISED:
DATE: 12/17/97 DRAWING: FRP707.DWG

East Farmingdale, Suffolk County Site No. 1-52-130

APPENDIX A
RESPONSIVENESS SUMMARY
PROPOSED REMEDIAL ACTION PLAN
FAIRCHILD REPUBLIC MAIN PLANT SITE
SITE NUMBER 152130

A public meeting was held on February 10, 1998 at the East Memorial Elementary School, located in East Farmingdale, Suffolk County. The purpose of the public meeting was two-fold. First, the New York State Department of Environmental Conservation (NYSDEC) presented the Proposed Remedial Action Plan (PRAP). The second purpose was to receive comments from the public on the PRAP for consideration during the final selection of a remedy.

The Responsiveness Summary has been broken into three sections; those public comments raised during the public meeting regarding the Main Plant Site, those raised during the public meeting regarding the Old Recharge Basin, and written comments submitted to the Department during the public comment period.

A. Main Plant Site

1. Question/Comment: Doesn't Comprehensive Environmental Response (CERCLA) Law require drinking water standards be attained?

The National Contingency Plan (NCP) is the framework regulation that includes procedures and standards for responding to environmental concerns under CERCLA. The NCP requires that remedial alternatives be screened for protection of human health and the environment and their respective ability to comply with Applicable or Relevant and Appropriate Regulations as the threshold criteria. In the case of the Main Plant Site, the proposed Alternative 3 with Alternative 6, is protective of human health and the environment. However, none of the alternatives screened can clean up the groundwater to drinking water standards based on the extent of the plume and the presence of background concentrations of total volatile organic compounds. Therefore, CERCLA, as detailed in the NCP, allows for a waiver of attaining groundwater standards and groundwater will be treated, to the extent practicable, to pre-disposal conditions for the area that is treated. The remainder of the plume will, over time, naturally attenuate. Though not expected, should any of this contamination ever effect a public supply well, the potentially highest concentrations that may ever reach the well would be much lower, and the Record of Decision would allow the water districts to utilize the best available technology to remove these contaminants from the water supply.

2.Question/Comment: Are the monitoring wells there to warn us when the plume arrives?

Yes. The outpost monitoring wells would be strategically placed to allow for advance warning of groundwater contamination heading toward one or more of the public supply wells.

3. Question/Comment: How does the wellhead contingency work?

Based on the known and to be determined flow paths of groundwater, and hydrogeologic conditions in the upper glacial and Magothy aquifers, outpost wells, will be placed in such a way as to allow a two year advance warning that contamination would affect a public supply well.

4. Question/Comment: Can new wells be drilled instead of treatment? We had questioned why East Farmingdale had placed their wells where they did.

The decision to drill new wells is entirely up to the Water District. Currently the East Farmingdale wells are unaffected by the Main Plant Site groundwater contamination. The overall quality of the water in the deeper wells drilled by East Farmingdale is excellent, which is why the deeper wells at Route 109 were drilled there. In the unlikely event that either the outpost monitoring wells or the East Farmingdale Water District wells indicate that wellhead treatment is required, the technology can be put in place to provide potable water without any exposure or risk to the consumer. However, the evaluation of and the ultimate decision regarding the fate of the East Farmingdale Water District wells would be up to the District.

5. Question/Comment: Are the public wells contaminated? Will the drinking water be degraded or at least not protected by the proposed alternative?

There are three public drinking water supply wellfields located downgradient from the MPS. These include: the East Farmingdale Water District Route 109 Wellfield, and the Suffolk County Water Authority Albany Avenue and Tenety Avenue Wellfields. Two additional Suffolk County Water Authority Wellfields, North Fifth Street and Lambert Avenue are much further downgradient and should not be affected by the Main Plant Site plume. VOCs, were detected in the shallow wells at the Albany Avenue Wellfield in 1977. The contaminated wells, were taken out of service in early 1977 and remain off-line. Organic chemical contamination has never been detected in the three deep wells at Albany Avenue, or any other downgradient wellfields.

In addition, as part of the remedy, Fairchild will be required to track and model the fate of the plume not intercepted by the groundwater recovery system. This is in addition to outpost monitoring and the long term monitoring associated with the remediation and will include actual analytical data points gathered on a routine basis combined with plume tracking/modeling and plume tracking/modeling updates to show that the residual plume is indeed attenuating and/or poses no threat to the public supply wells.

6. *Question/Comment: Is 1,000 parts per billion (ppb) the groundwater standard?*

No, the groundwater standard for trichloroethylene and tetrachloroethylene is 5 ppb each and the groundwater standard for total volatile organics compounds (VOCs) is 50 ppb.

7. *Question/Comment: What are total volatile organic compounds (VOCs) drinking water standards?*

The drinking water standards for total VOCs, or unspecified organic contaminants (VOCs) is 50 ppb.

8. *Question/Comment: We disagree with the remedy and want a clean up closer to groundwater standards.*

A remedy that is protective of human health and the environment, is technically feasible and is implementable is the basis of an acceptable remedy for the Main Plant Site. A groundwater remedy that approached groundwater standards was screened out as technically unfeasible due to the magnitude of groundwater that was contaminated. In order to allow the higher cleanup criteria for the Main Plant Site, the PRP will be required to track and model the portion of the contaminant plume left unremediated in the groundwater.

9. *Question/Comment: Is granular activated carbon (GAC) effective and how long has this technology been use?*

Granular activated carbon is a highly effective technology for removing the contaminants of concern from the groundwater supply. This carbon technology has been in use for more than ten years.

10. Question/Comment: Are the chromium results speciated in the groundwater samples? Cr +6 and Cr +3 makes a big difference. Is it all Cr +6?

The groundwater samples from the Main Plant Site were analyzed for total chromium only. These results indicated that the Main Plant was not a source of chromium contamination to groundwater. In addition, the specific soil areas with elevated chromium concentrations were subjected to the Toxicity Characteristic Leaching Procedure (TCLP). If chromium was leaching into groundwater or chromium was present at hazardous waste levels, the soils would fail the TCLP test; which they did not.

11. *Question/Comment: Who will pay for all this?*

Under CERCLA and New York State regulations promulgated under 6 NYCRR Part 375, Fairchild, the Potential Responsible Party (PRP) will be required to pay for the implementation of this remedy.

12. *Question/Comment: Can East Farmingdale wells become impacted?*

As covered in the Proposed Remedial Action Plan, the East Farmingdale Water District Wells have the *potential* to become impacted by the groundwater contamination from this Site. No one can say for certain that these wells will ever be effected by this groundwater contamination.

13. *Question/Comment: Are you aware that Long Island has an elevated cancer rate?*

The New York State Cancer Registry keeps track of all newly diagnosed cancer cases in New York State. For the period 1989-1993, the most recent period for which cancer incidence statistics are available, incidence rates for all types of cancer combined, among males in Nassau and Suffolk Counties, were comparable with the rate for the State as a whole, excluding New York City. (New York City is generally excluded from comparisons of this type due to its unique ethnic and racial composition.) Incidence rates among females in Nassau and Suffolk Counties were somewhat higher that the rate for the State, excluding New York City (see table below). In fact, while the overall incidence rate in Nassau County for males was slightly higher than the rate for New York State, excluding New York City, the overall incidence in Suffolk County for males was slightly lower than the rate for New York State, excluding New York City.

While the incidence rate of all types of cancers combined is a convenient number for comparing cancer rates in different areas or over time, it is not very meaningful when trying to understand the reasons for differences in rates, or in trying to plan cancer control strategies. Cancer is not a single disease, but a collection of different diseases, each with its own set of risk factors and, presumably, causes. What is more useful is to look at the incidence of individual types of cancer across areas.

The table below also compares the incidence of the most common types of cancer among males and females in New York State, exclusive of New York City, and Nassau and Suffolk Counties. From this it can be seen that while rates of colon and rectal cancers, and prostrate cancer in males is higher in Nassau County than New York State, excluding New York City, rates of lung cancer among Nassau County males are lower than in the remainder of the State, while lung cancer rates are comparable and colon and rectal cancer rates are somewhat elevated. Among females, breast cancer rates are higher in both Nassau and Suffolk Counties.

Average annual age-adjusted[1] cancer incidence rates per 100,000 people.

	New York State Excluding NYC		Nassau County		Suffolk County	
	Males	Females	Males	Females	Males	Females
Total Cancers	451.9	348.8	463.4	377.9	447.7	365.4
Colon and Rectal	60.2	42.4	66.6	46.0	65.1	44.9
Lung	84.8	45.3	74.4	46.3	87.5	50.4
Breast	----	105.7	----	117.1	----	110.6
Prostrate	109.4	----	115.2	----	88.5	----

14. *Question/Comment: Shouldn't we be most concerned about contamination and not cost?*

Yes. The primary concern is the potential exposure to human health and the environment from these site related contaminants in the groundwater. The selected remedy meets the criterion of protection of human health and the environment.

15. *Question/Comment: Who is overseeing the sampling at the public well samples?*

The East Farmingdale Water District and the Suffolk County Water Authority sample their respective wells for the contaminants of concern on a quarterly basis. In addition, Suffolk County Department of Health Services samples the municipal wells on an annual basis.

16. *Question/Comment: Can we see the results from the public supply wells?*

Yes. Analytical results from any and all sampling events at any of the public wells is public information. These results can be made available upon request from either the East Farmingdale Water District and/or the Suffolk County Water Authority.

[1]Rates age-adjusted to the 1970 U.S. population. Source of data: New York State Cancer Registry.

17. *Question/Comment: It is unacceptable that the East Farmingdale Supply Well casing is in contact with contamination.*

The purpose of the wellhead treatment contingency is to protect the public from potential exposure to Main Plant Site related groundwater contamination. Based on information from the remedial investigation, the screens are separated by at least one low permeability clay layer and over five hundred feet of the Magothy aquifer. It is not expected that the East Farmingdale Water District Route 109 wells will ever be affected. However, if the water supply is compromised, the wellhead treatment contingency will be implemented to prevent any potential exposure.

18. *Question/Comment: What if the 1,000 part per billion plume is at the East Farmingdale well? Why not pump and treat over there?*

The information that is currently known about the location of the groundwater plume concentrations is based on data that is approximately 3 to 5 years old. Hence the need to require a predesign study to define the current contamination isoconcentration lines. The predesign study will determine the locations for the groundwater extraction and treatment system, which may be near the East Farmingdale supply wells.

19. *Question/Comment: How much clay is there between the East Farmingdale Wells and the plume?*

At the location of the East Farmingdale municipal wells, it is known that at least one clay layer approximately 25 feet thick exists between the horizontally moving contaminated groundwater and the underlying clean portion of the Magothy Aquifer. In addition, the screened interval of the East Farmingdale Water District wells is at least 500 feet deeper than the maximum known depth of the groundwater contamination.

20. *Question/Comment: As citizens, we disagree with the cleanup numbers.*

The cleanup criteria for this site was established by screening out remedial alternatives that were unable to attain groundwater standards and were therefore deemed unfeasible. Reducing the cleanup number would not reduce the possibility that one or all of the municipal wells may be effected in the future. However, Fairchild will be required to track and model the groundwater plume in order to show that the portion of the groundwater left unremediated will not affect public health or the environment.

21. *Question/Comment: Are my children at risk now and in the future?*

No one is currently at risk from the groundwater as there is no contamination in any of the public supply wells. In addition, the purpose of this remedy is to prevent any future risk from exposure to site related contaminants through the drinking water supply.

22. *Question/Comment: Are the SONY theaters involved in this site contamination? There are rumors in the neighborhood that the theater is not safe.*

The SONY movie theaters are safe and there is absolutely no exposure to any patrons or employees to Site contamination. The soils of the Main Plant Site have been remediated and the groundwater contamination migrating from the Main Plant Site is moving to the South away from the theaters, with the water table more than thirty feet deep. There are no surface or indoor air problems associated with the contaminated plume.

23. *Question/Comment: The Proposed Plan is the lowest cost option. You (NYSDEC) are "whipping boys" for the community, then you (NYSDEC) go home and select what you want.*

The proposed remedy is protective of public health and the environment. Cost is an evaluation criteria that comes into review only after public health, the environment and the other evaluation criteria have been considered. The purpose of the public meeting is to present the outcome of the evaluation criteria to the public in the form of the Proposed Remedial Action Plan.

24. *Question/Comment: What is the "best" remedy?*

The "best" remedy is one that is protective of human health and the environment, complies with standards, criteria and guidance, offers long term effectiveness and permanence, can reduce toxicity, mobility and volume of contamination, is implementable and is cost effective. Alternative 3 with Alternative 6 meets these criteria.

25. *Question/Comment: How wide is the plume?*

The Main Plant Site plume migrating beneath Republic Airport is approximately 1/4 mile wide.

26. *Question/Comment: Who is looking at Republic Airport runoff?*

Republic Airport is regulated by several different State and County Agencies. These agencies regulate the Airport with respect to runoff discharges.

27. *Question/Comment: How are the jet fuel spills handled at the Airport?*

If a jet fuel spill occurs at Republic Airport, the New York State Department of Transportation (NYSDOT) is required to notify the NYSDEC Division of Environmental Remediation Spill Response Unit. Either the onsite NYSDOT response team or an environmental contractor would be called to the scene immediately if some response action is required.

28. *Question/Comment: The documents in the library are too voluminous.*

Unfortunately, as is the case on many inactive hazardous waste disposal sites, the reporting requirements, amount of site data generated, and in this case the area covered by the investigation requires the Responsible Party to submit a substantial amount of information. Much of the information for the Main Plant Site is backup data to the main text in Volume 1 of the Remedial Investigation Report. It is suggested that you review just Volume 1 in conjunction with the Proposed Remedial Action Plan to gain a thorough understanding of the site.

29. *Question/Comment: What is the time line for this process?*

The public comment period closed on February 27, 1998 and the Department has prepared a Responsiveness Summary. The Record of Decision will be signed before March 31, 1998. After the Record of Decision is signed, the NYSDEC enforcement attorney will continue the ongoing negotiations with Fairchild to execute an Order on Consent to implement the remedy detailed in the Record of Decision. Any consent order prepared will contain a time line for the remedial design and the remedial construction.

30. *Question/Comment: Why were Main Plant Site soils used in filling in the basin?*

The Record of Decision for the Old Recharge Basin (ORB) called for fencing with signs posted to keep people out. One option for Fairchild was to elect to fill the Old Recharge Basin; an option that was enthusiastically embraced by many of the residents at the Old Recharge Basin Proposed Remedial Action Plan public meeting.

In order for Fairchild to generate enough material needed to fill in the Old Recharge Basin, the former Main Plant Site demolition material was considered. The DEC did not want to use 500,000 cubic yards of virgin soil because that is not the best use of a natural resource. Fairchild was required to sign an order, pay for a full time Environmental Monitor, and perform rigorous testing of demolition materials prior to placing in the ORB. This testing demonstrated to the NYSDEC satisfaction that the Main Plant Site demolition materials were acceptable to use in filling in the Old Recharge Basin. No hazardous wastes were placed in the ORB.

31. *Question/Comment: Why aren't the Water Districts here?*

A representative of the Suffolk County Water Authority was at the public meeting. Though they were invited, the East Farmingdale Water District did not attend the February 10, 1998 public meeting.

32. *Question/Comment: Why did New York State permit such environmental damage? Is New York State still letting companies pollute?*

Most of the contamination that is present in the groundwater that is attributable to Fairchild was disposed of prior to regulations that made these disposals illegal. However, CERCLA deals with this issue by making the generator responsible for past disposal practices. Under current regulations,

the State no longer allows companies to pollute in the manner that created many of these environmental problems in the first place.

33. *Question/Comment: What about iron in my water?*

Iron can be a problem in many of the public supply wells on Long Island. It is naturally occurring. This is not a contaminant of concern for the Main Plant Site and will not be addressed by the selected remedy for this site.

34. *Question/Comment: Can there be another public meeting prior to the implementation of the proposed remedy? There should be another meeting.*

Another public meeting will be held during the remedial design phase of this project. More meetings may be held during the remedial action phase of this project.

35. *Question/Comment: I live in East Farmingdale and didn't get a notice. Public Notice letters should have gone to all East Farmingdale Water District consumers. Can East Farmingdale send notices with their bill?*

Public notification for site meetings is conducted in a number of ways. The direct mailing for this site included more than 4,000 notices. This was the largest mailing for any site of this nature in the State of New York. For this specific site, this mailing was based on the geographic proximity, areas downgradient where residents may have private wells, local elected officials and the local media. The NYSDEC did not feel it was appropriate to notify all of the East Farmingdale Water District customers as they are not in proximity to the site. To require the Water District and/or the Authority to take on the task of sending out public notices is beyond their responsibility for this project.

36. *Question/Comment: Why wasn't the contact list larger?*

The NYSDEC has a mailing list for this Site that includes over 4,000 addresses. This is the largest mailing list by far for any remedial project anywhere in New York State. While no public contact list can reach everybody, the Department notifies the local media in the hope that an article or announcement is published to cover any residential area not covered by the mass mailing.

B. OLD RECHARGE BASIN

1. *Question/Comment: We had questioned the presence of the "Blue Lagoon". We are not happy about the "lack of clean up." (The "Blue Lagoon" refers to the Old Recharge Basin.)*

Fairchild has elected to fill in the Old Recharge Basin (ORB) in lieu of fencing and posting. The possibility of taking this action was well received by the residents at the Old Recharge Basin

Proposed Remedial Action Plan public meeting. Once the filling of the Old Recharge Basin is complete, the sediments will be encapsulated providing a permanent remedy.

2. *Question/Comment: We had complained for a long time about the Basin. It's a shame that we had to wait until now to get something done over there.*

There were a number of technical and legal issues that had to be resolved and/or approved before filling in the Old Recharge Basin could commence. According to the current project schedule, the Old Recharge Basin should be completely filled in by August of 1998.

3. *Question/Comment: There was soil contamination along East Carmans Road from flooding.*

Soil samples were collected from several locations along East Carmans Road, including two residential properties. This sampling demonstrated that East Carmans Road was not affected by any discharges to the Old Recharge Basin and contaminants related to the Old Recharge Basin were not detected in any of these samples.

4. *Question/Comment: The mud (sediments) from the Basin should have been removed and replaced with clean fill.*

Removing the sediments from the ORB was screened out as a remedial alternative during the Old Recharge Basin Feasibility Study. It was determined that sediment removal was not implementable or cost effective.

5. *Question/Comment: There is a surcharge into the Basin from the fill and concrete pushing the contaminants into the groundwater.*

The water in the Old Recharge Basin is at equilibrium with the groundwater table of the surrounding area. Filling in the Old Recharge Basin will not create any water surges since the fill is placed in slowly over time. Once the Old Recharge Basin is completely filled in, the sediments at the bottom of the Old Recharge Basin will be encapsulated.

6. Question/Comment: The concrete being placed in the basin is hazardous waste.

Any concrete going into the Old Recharge Basin must come from the Main Plant Site and have been demonstrated by Fairchild, to the satisfaction of the NYSDEC, that the material was acceptable for use as inert fill material. Concrete placed in the Old Recharge Basin must be five feet above the water table. There is also a size restriction of 18 inches for concrete debris. No hazardous waste has been or will be placed in the basin.

7. Question/Comment: What about the people along East Carmans Road near the Basin?

The possibility of exposure to contaminants in the Old Recharge Basin is significantly reduced since a fence around the Site prevents access, and the contaminants are in the sediment at the bottom of the basin, where the water is 20 to 40 feet deep. Once the basin is filled, the contaminants will be covered with clean soil greater than 10 feet deep and thus would be unavailable for human exposure.

8. Question/Comment: Are the soils along the bottom of the basin still a problem?

The soils and sediment at the bottom of the basin have now been encapsulated. The contaminants present in these sediments are not mobile, are more than 20 feet below grade and will remain in place forever now that Fairchild has elected to completely fill in the Old Recharge Basin.

9. Question/Comment: Are the soils going into the Basin being tested?

The soils going into the Old Recharge Basin have been tested to insure that only acceptable materials are being used as fill. Any soils not meeting DEC requirements are rejected and disposed of at a permitted facility.

10. Question/Comment: What about homes and yards? My home and others around the ORB have not been tested.

The homes and yards adjacent to the Old Recharge Basin that requested testing in 1996 were sampled. None of the sampling revealed contaminants from the Old Recharge Basin sediments in the yards of any of the homes.

11. Question/Comment: What about odors from the filling in of the Basin?

Odors from filling in the basin are from organic matter, such as decayed foliage, that may have been disturbed. As these problems arise, the contractor for Fairchild is notified by the onsite NYSDEC environmental monitor to correct the problem.

12. Question/Comment: Are contaminated soils from the Main Plant Site going into the Basin?

The soil source areas for volatile organic contamination on the Main Plant Site were remediated by the soil vapor extraction system. Fairchild submitted a soil sampling plan that was approved by the NYSDEC. The sampling plan required extensive testing of the Main Plant Site soils. All of the sampling efforts were overseen by NYSDEC personnel. The results indicated that all of the Main Plant Site soils were usable as fill for the Old Recharge Basin.

Discrete areas of near surface soils contained chromium contamination above guidance values for surface soils but were not a hazardous waste based on the Toxicity Characteristic Leaching Procedure (TCLP). None of the chromium soils samples exceeded the levels already found in some of the sediments of the Old Recharge Basin. These soils from the Main Plant Site with chromium

will be placed in the ORB and restricted to five feet above the water table and ten feet below grade in an area that will not be disturbed by future development.

C. RESPONSES TO COMMENT LETTERS RECEIVED ON THE PRAP

RESPONSES TO SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES COMMENT LETTER OF FEBRUARY 20, 1998:

The NYSDEC agrees with Suffolk County Department of Health Services (SCDHS) that the plume downgradient of the Main Plant Site has never been fully delineated. This fact was acknowledged by all participants involved in this project when the Feasibility Study was being finalized. At that time, the question was whether there was enough information to screen remedial alternatives for the Main Plant Site Feasibility Study. The answer to this question was yes.

However, important concerns were raised about the fate and transport of the remaining groundwater contamination during the public comment period for the Main Plant Site Proposed Remedial Action Plan. Therefore, in response to these concerns, the NYSDEC is adding plume tracking and plume modeling to the scope of work for the selected remedial alternative in order to identify the fate and transport of the unremediated portion of the Fairchild plume. This is in addition to the long term monitoring in Alternative 3 and the outpost monitoring in Alternative 6.

Plume tracking will involve the sampling of existing groundwater monitoring wells, possible hydropunch data points and/or the installation of new monitoring wells. This information will then be used to track the plume and run a groundwater model. The results will identify the fate and transport of the unremediated portion of the groundwater plume.

The SCDHS also has raised the concern on behalf of, and in addition to, the Suffolk County Water Authority (SCWA) of assessing the need to outpost monitor the Suffolk County Water Authority (SCWA) Great Neck Road public supply wells. This specific issue will be addressed by the plume tracking and groundwater modeling effort. The Great Neck Road Wellfield was never raised as a water supply at potential risk for contamination from the Main Plant Site groundwater plume. These wells were always judged to be side gradient based on existing hydrogeological data. However, the SCWA has raised the concern of increased pumpage not evaluated previously with respect to potential impacts to the water supply. While it does not appear that the Great Neck Wellfield is at risk from the Main Plant Site groundwater plume, the plume tracking/groundwater modeling will be specifically tasked to determine, among other things:

1. whether the Great Neck Wellfield is at risk based on plume tracking and modeling results incorporating the increased pumping rates, and

2. whether outpost monitoring at the Great Neck Wellfield is warranted.

If it is determined that the Great Neck Road Wellfield could potentially be impacted by the Main Plant Site groundwater contamination, provisions will be made to include the Great Neck Road Wellfield in the outpost monitoring and wellhead treatment contingency through a modification to the Record of Decision.

RESPONSES TO SUFFOLK COUNTY WATER AUTHORITY COMMENT LETTER OF FEBRUARY 27, 1998:

Paragraph 1: The Department agrees with the Suffolk County Water Authority (SCWA) that Fairchild should come to an equitable settlement with the SCWA and the East Farmingdale Water District prior to the public supply well(s) becoming contaminated. This would allow them to take immediate action without the potential of burdening their customers with an undo expense in the process of providing potable water.

Paragraph 2: The NYSDEC agrees with the SCWA that an outpost monitoring system is valuable for a number of reasons. Accordingly, any agreement reached between the SCWA and the East Farmingdale Water District with Fairchild shall not include outpost monitoring and the NYSDEC will require that the outpost monitoring be implemented by Fairchild as part of the ROD.

Paragraph 3: The Great Neck Road Wellfield was never raised as a water supply at potential risk for contamination from the Main Plant Site groundwater plume. These wells were always judged to be side gradient based on existing hydrogeological data. However, the SCWA has raised an issue of increased pumpage not evaluated previously with respect to potential impacts to the water supply. While it does not appear that the Great Neck Wellfield is at risk from the Main Plant Site groundwater plume, the plume tracking/groundwater modeling will be specifically tasked to determine:

1. whether the Great Neck Wellfield is at risk based on plume tracking and modeling results incorporating the increased pumping rates, and

2. whether outpost monitoring at the Great Neck Wellfield is warranted.

If it is determined that the Great Neck Road Wellfield could potentially be impacted by the Main Plant Site groundwater contamination, provisions will be made to include the Great Neck Road Wellfield in the outpost monitoring and wellhead treatment contingency through a modification to the Record of Decision.

RESPONSES TO MAIROLL INC./FAIRCHILD CORPORATION COMMENT LETTER OF FEBRUARY 26, 1998:

Comment No. 1& 2: Review of the Old Recharge Basin Remedial Investigation "Nature and Extent of Contamination" identifies the surface water of the Old Recharge Basin to contain perchloroethylene (PCE) and dichloethylene (1,1-DCE) above New York State surface water standards. Therefore, even if at the time of the Old Recharge Basin Remedial Investigation Report writing, there were potential impending upgradient sources of contamination, the Old Recharge Basin was determined by the Old Recharge Basin Remedial Investigation Report to be a low level source of groundwater contamination.

Further review of the Old Recharge Basin data tables shows trichloroethylene at higher concentrations in downgradient monitoring well 9S in comparison to monitoring well 11S. This clearly indicates that the Old Recharge Basin was historically a low level source of trichloroethylene to the groundwater. Years of unmonitored wastewater discharges contaminated with chlorinated organics, which was the largest inflow to the Old Recharge Basin, is the obvious source. Therefore, the discussion in the Record of Decision must remain as is; that the the Old Recharge Basin was historically a low level source of groundwater contamination.

Comment No. 3: The NYSDEC agrees with Fairchild that the connection of private wells to the municipal water was not an Interim Remedial Measure (IRM). The connection of the private homes will instead be added to the Site History Section of the Record of Decision. The Site History discussion will state that the previous connections were made through the Town of Babylon and that Fairchild agreed to fund this operation. However, by doing so, the Fairchild Corporation was not confirming that the contamination in these wells was from Fairchild, nor were these connections made in response to any water quality problems necessarily attributable to Fairchild.

The summary of the selected remedy will extend the program to connect any private well to municipal water. The same condition will apply that Fairchild is not confirming that the contamination in these wells was from Fairchild, nor would these connections be made in response to any water quality problems necessarily attributable to Fairchild.

Comment No. 4: The Fairchild comment states that the PCE tank contamination could not have started before 1975 due to the fact that the Main Plant Site did not start using PCE until that date. The NYSDEC agrees with Fairchild on this point. However, as documented by the tank removals during the excavation of site soils during February 1998, two old abandoned underground 550 gallon storage tanks were found within the boundaries of the inactive hazardous waste disposal site.

One of the recently discovered tanks was next to the vapor degreaser. Based on the results from sludge samples, the leaking tank was used to store trichloroethene. The tank location was within the zone of influence of the soil vapor extraction system. No one will ever know what quantities were stored, how long this tank was used for this purpose before it was abandoned, or how much

of a TCE source to the groundwater this tank was. But overall, the end result is that the Main Plant Site was a source of trichloroethylene contamination to the groundwater.

The second 550 gallon tank uncovered during the Main Plant excavation also contained a sludge material. The analysis showed the contents to be waste paint.

The remedial investigation for the Main Plant Site did not specifically address whether the Main Plant Site was responsible for any of the chlorinated organic contamination in the Albany Avenue Wellfields. The time rate of travel argument presented by Fairchild applies to the perchloroethylene but not so for trichloroethylene. However, a more conservative estimate of groundwater flow rate in the Upper Glacial Aquifer in the region of Fairchild is 1.5 feet per day.

Based on the hydrogeology present south of the Main Plant Site and Republic Airport, a majority of the contaminated groundwater would be expected to migrate south beneath the Gardiners Clay and into the Upper Magothy Aquifer. However, by diffusion some less amount of contamination would also be expected to make its way into the Upper Glacial Aquifer. However, no data currently exists to say whether at some point historically any of the Main Plant Site contamination made its way to the Upper Glacial Aquifer south of the Southern State Parkway. The plume tracking and plume modeling should resolve this question.

Comment No. 5: One of the major problems with the Fairchild initial model was that Fairchild would not consider the Main Plant as a source of trichloroethylene groundwater contamination. The extrapolated end of the groundwater plume had never been determined and therefore fell short of actual site conditions. Now that the Main Plant has been determined to be a source of trichloroethylene as well as perchloroethylene, coupled with plume tracking and real time data to be used in future modeling, a more realistic picture of the fate and transport of the Main Plant Site plume is possible.

It is the NYSDOH and NYSDEC position that the actual contaminated groundwater concentrations be used to calculate health risks rather than the modeled results used by Fairchild. What was being termed speculative wasn't necessarily the model but rather using the modeled concentrations to determine the health risks. However, the NYSDOH and NYSDEC allowed Fairchild to forego revising the risk assessment as long as Fairchild agreed to establishing remedial action objectives for groundwater that would be protective of human health and the environment.

Comment No. 6: The Main Plant Site plume, based on the RI data, is more than 200 feet deep at the southern end of Republic Airport. The Main Plant Site plume is poised to go beneath the Gardiners Clay that begins at the southern end of the Airport. This is one of the main reasons that all the participants involved in this project agreed that the three downgradient public supply wells can be potentially impacted by the Main Plant Site groundwater plume within the next thirty years.

The Main Plant Site Remedial Investigation Report discusses other groundwater plumes, and the NYSDEC PRAP acknowledges that the western portion of the plume under Republic Airport has

commingled with a plume from another unknown upgradient source. However, Fairchild is the major contributor to contamination in this region.

The NYSDEC, in conjunction with the Suffolk County Department of Health Services, will continue to identify, investigate and remediate other upgradient and side gradient plumes as these sites are identified. However, under CERCLA, there is joint and several liability. Fairchild is only going to address the highly contaminated portion of the groundwater plume attributable to Main Plant Site.

RESPONSES TO TOWN OF BABYLON COMMENT LETTER OF FEBRUARY 26, 1998:

Comment No. 1: The NYSDEC agrees with the Town of Babylon that the southernmost extent of the Fairchild plume has never been established. However, Fairchild Republic has installed monitoring wells and temporary hydropunch groundwater samples more than one mile downgradient of the Main Plant Site. There was also the ongoing disagreement between Fairchild and the NYSDEC as to what constituted the end of the Fairchild plume. Rather than continue with this disagreement and the investigation phase of this project, it was agreed by all involved with the project that there was enough information collected from the remedial investigation to be able to screen applicable remedial alternatives.

The NYSDEC and the NYSDOH are concerned about the toxicity of the Main Plant Site plume. Therefore, unlike the Record of Decision for Operable Unit 2 of the Babylon Landfill, a wellhead treatment alternative was added to the Feasibility Study and the wellhead treatment contingency alternative was part of the Proposed Remedial Action Plan of the Main Plant Site. In order to determine the fate and transport of the remaining groundwater contamination, the NYSDEC is adding plume tracking and plume modeling to the scope of work for the selected remedial alternative. Plume tracking will involve taking actual data points and/or the installation of actual monitoring wells to identify the real time position of the groundwater contamination.

The NYSDEC and the NYSDOH are fully aware of the potential toxicity of the contaminants in the Fairchild plume. The production of vinyl chloride from the breakdown of PCE, TCE and DCE is always a concern. There is always the potential with tetrachloroethylene, trichloroethylene and dichloroethylene that vinyl chloride, depending on the anaerobic conditions and hydro-geochemistry, can be produced in the groundwater. Vinyl chloride has been detected sporadically in monitoring wells installed by the remedial investigation; generally at low levels not consistent with concentrations that would be expected with elevated levels of tetrachloroethylene and trichloroethylene that favor vinyl chloride production. Therefore, vinyl chloride production, while expected to be low due to unfavorable conditions, must be monitored by the plume tracking, modeling, and long term monitoring of the selected remedial alternative and the outpost monitoring of the public supply wells.

Comment No. 2: Additional homes with private wells have been identified that are in or around the area of concern. Steps are being taken to have these homes connected to public water.

Comment No. 3: The concentrations of chromium in specific areas of the Main Plant Site are above guidance levels for surface soils, but below Toxicity Characteristic Leaching Procedure (TCLP) levels which is one way to characterize a hazardous waste. Therefore, rather than leave these soils at the surface in an uncontrolled condition, these soils are being placed in such a way as to prevent any human contact. The soils from the Main Plant Site that contain chromium are being placed 10 feet below grade and 5 feet above the water table in the Old Recharge Basin within an area that will

not be developed other than for parking. None of the chromium results for soils exceeded the 907 ppm concentrations that already exist in the sediments of the Old Recharge Basin.

Comment No. 4: The basis for the cleanup number is to remediate the hotspot of the total volatile organic compound plume yet give a definitive number that must be addressed by the remediation. The NYSDEC and NYSDOH are confident that the total VOC plume will be attenuated over time; the goal is to reduce concentrations below the drinking water standards. One reason for adding the groundwater modeling and plume tracking is to confirm the success of the remedial effort. See the response to Comment No. 2 with respect to the toxicity of vinyl chloride.

Comment No. 5: Currently, the NYSDEC is evaluating the applicability of the Natural Resource Damage claim to this project. A Natural Resource Damage claim is not tied to a selected remedy for any site. NRD is a claim made for irreversible damage to a natural resource regardless of the level of proposed remediation. The claim is not used for remedial purposes, but for protection of currently undamaged natural resources.

RESPONSES TO NEW YORK STATE DEPARTMENT OF TRANSPORTATION COMMENT LETTER OF FEBRUARY 20, 1998:

Comment No. 1: The final location of the extraction wells will be determined by the predesign study. However, in all likelihood, the extraction wells, some of the outpost wells, any recharge or infiltration basins, and/or any injection wells would be located somewhere on Republic Airport property. Any work done on Republic Airport property must be done with the review and approval of the New York State Department of Transportation. If negotiations with the Fairchild Corporation fail to reach a consent order, the remediation would be done by the New York State Department of Environmental Conservation State Superfund program. Republic Airport would not be liable for expenses of the remedial activities detailed in the Record of Decision.

Comment No. 2: The Record of Decision will allow the evaluation of any comparable remedial technology to groundwater extraction and recharge. One such technology is in-situ air stripping. This technology treats groundwater within a specially adapted well casing, directly recharging the groundwater without the need for recharge basin(s).

Comment No. 3: The New York State Department of Environmental Conservation will not require the New York State Department of Transportation to clean up contamination in groundwater from upgradient sources that is flowing beneath Republic Airport and/or other adjacent New York State Department of Transportation property.

COUNTY OF SUFFOLK

ROBERT J. GAFFNEY
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF HEALTH SERVICES

CLARE B. BRADLEY, M.D., M.P.H.
ACTING COMMISSIONER

February 20, 1998

Steven M. Scharf, P.E.
Bureau of Eastern Remedial Action
Division of Environmental Remediation
N.Y.S. Dept. of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

Dear Mr. Scharf:

RE: FAIRCHILD REPUBLIC MAIN PLANT (#152130)

On behalf of the Suffolk County Department of Health Services (SCDHS), I would like to offer the following comments on the Proposed Remedial Action Plan for the Fairchild Republic Main Plant, Farmingdale (Site #152130) dated January 22, 1998:

The preferred remedy, which includes intercepting the most-concentrated portion of the Fairchild plume, wellhead treatment contingencies for public supply wells, and the hookup of private wells to public water, should be protective of public health. However, the lack of a full delineation of groundwater contamination related to past Fairchild activities creates a number of potential difficulties, not least of which will be the design of an adequate outpost monitoring well network for downgradient public supply wells; the potential impact area for private wells also remains uncertain, and could extent beyond the area of responsibility defined in the PRAP.

The SCDHS therefore recommends that a detailed groundwater model be developed to aid in the outpost monitoring well design process, and that this model take into account all that is known about the history of site activities, and all the existing water quality data for the region downgradient of the site (including SCDHS test well data and Suffolk County Water Authority (SCWA) shallow production well data for the Albany Avenue wellfield). Potential impacts and the need for outpost wells for the SCWA's Great Neck Road wellfield should also be assessed, given the SCWA's plans to significantly increase pumpage at this wellfield. In addition, the area of Fairchild's responsibility for hookups to public water should be expanded to include the area surrounding the region specified in the PRAP.

DIVISION OF ENVIRONMENTAL QUALITY
OFFICE OF WATER RESOURCES
225 RABRO DRIVE EAST, HAUPPAUGE, N.Y. 11788-4290
TEL. (516) 853-3076
FAX (516) 853-3075

If you wish to discuss this site further, contact me at (516) 853-3196.

Very truly yours,

Sy F. Robbins, C.P.G.
County Hydrogeologist

cc: B. Becherer, NYSDEC Region 1
J. Crua, NYSDOH
G. Proios, Off. Co. Exec.
E. Rosavitch, SCWA
G. Veilson, E. Farmingdale W.D.

SUFFOLK COUNTY WATER AUTHORITY

Herman J. Miller
Deputy CEO for Operations

Administrative Offices: 4060 Sunrise Highway, Oakdale, NY 11769-0901
(516) 589-5200
Fax No. (516) 563-0358

February 27, 1998

Steven M. Scharf, P.E.
Bureau of Eastern Remedial Action
Division of Environmental Remediation
N.Y.S. Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233

Re: Proposed Remedial Action Plan
Fairchild Republic Main Plant, Farmingdale

Dear Mr. Scharf:

I have reviewed the Proposed Remedial Action Plan (PRAP) for the Fairchild Republic Main Plant in Farmingdale, Site #152130. I would like to offer the following comments on that plan.

The preferred remedy as referred to in the PRAP appears to be the most logical action. It should be sufficient to protect the residents down gradient of the contamination plume. I would recommend that the Mairoll/Fairchild Corporation be directed to reach an upfront settlement with the Suffolk County Water Authority and East Farmingdale Water District to provide for the increased monitoring and potential treatment system costs. This approach would insure that the customers of those water systems would not be saddled with the burden of those high costs. There would not be the same level of assurance if these costs were to be provided to water supplier after a certain contaminant threshold has been reached in a monitoring well.

While the outpost monitoring well system is valuable for a variety of reasons , it does not offer much benefit to the Authority. The only value to the Authority would be a little earlier notice that the contamination would be reaching our facility. Since the treatment systems used by the Authority are a standard design that we have used at a large number of stations, we would have no problem in installing the systems in a very short time. Therefore, the cost of the monitoring system should not impact the funding for the treatment systems and O & M costs for the water suppliers..

The plan offers no mention of the Authority's Great Neck Road Well Field which is located a short distance to the west of the Albany Avenue site. The Authority has recently installed an iron removal system at the Great Neck Road location. Due to that installation, there will be greatly increased pumpage from those wells. The plan should require a review of the hydrogeological data to see if the increased pumpage will draw the contamination to that property. If it appears that would be a likely scenario, then the treatment system and increased monitoring costs should be included for that location as well.

The Engineering staff at the Authority has estimated the cost to construct the treatment systems. The costs are different than what you have in your plan. Our estimated costs are as follows:

Albany Avenue	$1,089,000.00
Tenedy Avenue	$794,500.00
Great Neck Road	$1,089,000.00

We have not calculated for the O & M costs as of this time. I will forward them to you if they should be significantly different than that shown in the plan.

Having been through a number of situations like this one, I believe the modification I have suggested would offer the most acceptable approach for resolution of this problem as far as the community would be concerned.

If you have any questions, please feel free to contact me.

Very truly yours,

Herman J. Miller, P.E.
Deputy CEO for Operations

HJM/cc

SCWA

Mairoll, Inc.
300 West Service Road
P.O. Box 10803
Chantilly, Virginia 22021
703/478-5800

Fairchild

February 26, 1998

By Facsimile (518-457-4198) and Regular Mail

Mr. Steven M. Scharf, P.E.
Project Engineer
New York State Department of
Environmental Conservation
50 Wolf Road, Room 242
Albany, New York 12233-7010

Re: *Proposed Remedial Action Plan*
Fairchild Republic Main Plant Site
East Farmingdale, Suffolk County, New York
Site No. 1-52-130

Dear Steven:

Please find enclosed the comments of Mairoll, Inc. on the Proposed Remedial Action Plan for the Fairchild Republic Main Plant Site submitted by Mairoll.

We look forward to working with you towards completion of an appropriate Record of Decision for this site.

Sincerely,

B. Michael Hodge
Asst. General Counsel

Enclosure

cc: Susan D. McCormick
James Rigano, Esq.
Michael McEachern

in the area of the affected wells in the "Miller Avenue Study" but did not investigate potential industrial sources along Route 109.

Fairchild may voluntarily agree to provide funds for public water connections to homes using private wells without prejudice, or admission with respect to the source of any contamination that may be affecting these wells. The Company may also decline to fund such work and defer the connection responsibility to the State, the County or the Town of Babylon. The private well testing results clearly reveal that the wells are affected by a variety of organic and inorganic contaminants, including septage and gasoline. While Fairchild has, in the past, connected private citizens to the public water system, the future responsibility for rectifying such problems belongs to the community.

Comment #4- Page 8 Paragraph 2

The PRAP indicated that the Suffolk County Water Authority shut down the shallow wells at the Albany Avenue wellfield in 1977 because of VOC contamination and that this contamination could have come from Fairchild. The available data do not implicate the MPS because, like the private wells, the shallow public supply wells would have been affected by a shallow VOC plume. The MPS plume is deeper than these wells at the present southern plume extent and it would be still deeper by the time it would reach the wellfield. Furthermore, the wells were closed in 1977 and the MPS plume would have been much farther north in 1977 than it is today.

The particular VOCs that were found in the shallow SCWA wells at Albany Avenue were not mentioned in the PRAP and a chemical "fingerprint" was not presented. It must be pointed out that the former PCE tank at the MPS could not be the source of these VOCs because no halogenated solvents, including PCE, were stored in the tank before 1975. Even if the PCE tank began leaking in 1975, it would be impossible for any contamination to have travelled to the Albany Avenue wellfield, over 2.5 miles away, in two years.

The groundwater flow rate in the Upper Glacial Aquifer in the MPS vicinity is approximately 1 foot per day, based on the U.S. Geological Survey published data cited in the RI/FS. The MPS is about 14,000 feet upgradient of the Albany Avenue wellfield and it would therefore take over 38 years for groundwater to travel from the MPS to the wellfield. This means that a hypothetical release of VOCs on the MPS would have had to have taken place in the 1930s, at the latest, to have caused the shallow wells at Albany Avenue to become contaminated in 1977. There are no data that would support such a hypothesis and the

former vapor degreaser that was cited in the PRAP as a TCE source, was not constructed until at least 1942.

The closure of these shallow public supply wells is more logically explained by a shallow source or sources south of Route 109. Industrial development along and south of Route 109, including the former Zahn's Airport would be the likely area to look for such a source. One such source has been identified upgradient of the Albany Avenue wellfield, National Heatset, a State Superfund site and other sites are suspected given the wide area of low level VOC contamination south of Route 109.

Comment #5- Page 8 Paragraph 4

The PRAP states that the groundwater model used by Fairchild to predict the likelihood and degree of future public supply well impact was not acceptable to the Department because such models tend to be "highly speculative and may underestimate the health risks associated with exposure to contaminated drinking water". Fairchild would like to point out that despite several iterations of the model, using various conservative assumptions, results indicated that the public supply wells would not be at risk from the MPS plume. The model results also showed that even in the case of an assumed impact to the public supply wells, there would be ample time to track the plume and take action before the plume could be intercepted by the wells. Furthermore, the exposure scenario of the public being exposed to contaminated public drinking water would not arise, since the public wells are routinely monitored and are shut down if contamination is found above or even close to the drinking water standard.

Comment #6- Page 12 Paragraph 2 <u>Alternative 6: Wellhead Treatment Contingency</u>

The PRAP includes Alternative 6 as a backup contingency measure, recognizing that it may not be technically feasible to capture all of the VOC contamination attributable to the MPS. Fairchild would like to point out that there is another more compelling reason to adopt a public supply wellhead treatment contingency; the MPS groundwater plume is virtually surrounded by contaminant plumes that would threaten the public supply wells even if the MPS plume did not exist. Similarly, if Fairchild were able to remediate all VOC contamination in the MPS plume, the remediated groundwater would be replaced by contaminated groundwater from upgradient and sidegradient plumes.

The wellhead treatment technology, especially with granular activated carbon (GAC) is a readily available and easily implementable option that SCWA has been using extensively (over 60 stations to date). The GAC system does not have special engineering or permitting requirements that would delay implementation. While Fairchild believes that this is a desirable, "fail safe" contingency, the responsibility for funding or for providing surety of treatment if it is ever needed, should be shared by the various PRPs that have contributed to the regional VOC contamination and/or by the State through Superfund remediation of "orphaned" or unidentified PRP sites.

Fairchild

Comments of Mairoll, Inc.
on the NYSDEC PRAP
Fairchild Republic Main Plant Site

Comment #1- Page 3 Paragraph 7

NYSDEC stated, "The Old Recharge Basin historically introduced low level volatile organic compound (VOC) contamination to the groundwater beneath Republic Airport." Fairchild has maintained that there are no groundwater data supporting the above statement, nor are there any data that would indicate that the surface water in the basin contained VOCs at sufficient concentration to have caused measurable groundwater contamination. The VOC concentrations measured in wastewater are not representative of the eventual basin surface water or downgradient groundwater concentrations because the wastewater was being diluted by non-contact cooling water and stormwater. Moreover, methylene chloride was principal VOC found in the wastewater, and this compound was not found in groundwater beneath the airport, downgradient of the ORB.

Fairchild agrees that there is an unknown, upgradient source of groundwater contamination that has affected groundwater beneath the airport and that the Old Recharge Basin is not a current source of groundwater contamination.

Please note that this comment similarly applies to page 6, paragraph 8.

Comment #3 - Page 7 Paragraph 2

Section 4.2 : Interim Remedial Measures (IRMs) discusses the connection of private homes using private wells to the public water supply. Fairchild voluntarily funded two private water connections when such a request was made by NYSDEC and the Suffolk County Health Department, even though the available data have not implicated Fairchild in VOC contamination found in these private wells. Fairchild agreed to this in the interest of public health and because, reportedly, no public funds were available to make the connections.

Fairchild strongly objects to characterizing the water connections as an IRM because these connections were not made in response to any water quality problems attributable to the Main Plant Site or other Fairchild property. Briefly, the private wells tap a shallow portion of the Upper Glacial Aquifer that is not contaminated downgradient of Fairchild on the Republic Airport and the shallow groundwater contamination affecting the private wells comes from a source or sources south of the airport. One such source, National Heatset, a New York State Inactive Hazardous Waste Site is caused shallow aquifer contamination with VOCs, including PCE and is upgradient of a number of the affected wells. The Suffolk County Department of Health Services (SCDHS) found shallow aquifer VOC contamination

RICHARD H. SCHAFFER, Supervi

Town of Babylon

281 Phelps Lane, North Babylon, New York 11703-4006

February 26, 1998

Mr. Steven M. Scharf, P.E.
New York State Dept. of Environmental Conservation
Central Office
50 Wolf Road, Room 242
Albany, N.Y. 12233-7010

RE: COMMENTS - PROPOSED REMEDIAL ACTION PLAN (PRAP) FOR FAIRCHILD REPUBLIC MAIN PLANT

Dear Mr. Scharf:

The Town of Babylon has reviewed the PRAP for the Fairchild Main Plant Site and offers the following comments:

- Comprehensive sampling has never been implemented south of the Southern State Parkway. As such, the southern extent of the plume has never been established. The Town of Babylon has reservations with respect to this lack of information. Without this information it is not possible to conclusively determine whether significant contamination exists further south of the parkway. The Town Landfill plume that is comprised of compounds far less toxic than the Fairchild plume was required to be fully delineated. Both plumes originated at approximately the same time.

  This concern was raised and your agency indicated it does not share this concern. This was based on the NYSDEC's position that the difference in geology between the two sites would cause the Fairchild plume to migrate slower but deeper than the Landfill plume. This department still remains concerned with regard to this lack of information. The "older segment" of the plume has the potential to be more toxic than the delineated portion of the plume. This is due to the fact that the breakdown product of the compound that comprises this plume is vinyl chloride.

- Fairchild has connected homes within the area of concern with private wells to public water at no cost to the homeowner. This offer is being extended into the future. It may be possible that contaminated private wells are still being utilized in this area.

- Chromium contaminated soils are to be removed from the Main Plant Site and placed in the Old Recharge Basin. It is likely that this site will be developed in the future, whereby this soil will be disturbed during construction and be handled and/or removed from the site by the construction company. Unsuspecting workers could then be exposed to this soil.

  At the public meeting, the NYSDEC justified this practice stating that the soils being placed in the ORB are not classified as hazardous. The issues then become:

  1. What is the concentration of the chromium in the soil and at what level would it be considered hazardous?

  2. If the soils are not hazardous, why relocate the soil to the ORB?

- Alternative 3 was selected as the preferred remedy. This would leave the 500 ppb section of the plume untreated. This contamination is two orders of magnitude greater than the NYS drinking water standard. Is there any scientific analysis involved in the choice to treat the 1,000+ ppb section of the plume? This department remains concerned that significant contamination at levels likely to be categorized as hazardous will remain untreated. PCE is toxic; however, this compound breaks down into vinyl chloride which is even more toxic. The opinion of the NYSDEC is that natural attenuation combined with Alternative 6 will protect human health and the environment.

  While it is acknowledged that attenuation of the plume will continue to occur for a considerable period of time, has the NYSDEC established a target value for VOC contamination once attenuation has occurred over a set number of years? Such a forecast could be used to evaluate the success of the remedial effort.

- At the public meeting, it was mentioned that a Natural Resources Damages Claim was being evaluated for a more thorough cleanup. If the current cleanup is acceptable, why is this claim being evaluated? More information on this matter is requested.

Thank you for this opportunity to comment.

Sincerely yours,

Ronald C. Kluesener
Commissioner

RCK:rm

cc: Town Board

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION

7150 Republic Airport, Room 216
East Farmingdale, New York 11735-1580
(516) 752-7707 • FAX (516) 293-1429

February 20, 1998

Mr. Steven M. Scharf, P.E.
Project Engineer
Bureau of Eastern Remedial Action
Division of Environmental Remediation
New York State Dept. of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

Dear Mr. Scharf:

Thank you for providing me with a copy of the Proposed Remedial Action Plan for the Fairchild Republic Main Plant Site (1-52-130). It was reviewed by NYSDOT's Environmental Analysis Bureau and they see no problems for Republic Airport or the Department of Transportation with the plan.

We do, however, need further clarification:

- there is no mention as to whether the alternatives involve placing extraction wells or ground water monitoring wells on Republic Airport property. It is possible outpost monitoring wells could be installed at the Airport. The report gives no indication that Republic airport would be liable for any of the remedial activities.

- If the proposed remediation requires a pump and treat system on the Airport, Fairchild and/or NYSDEC will need to drill additional groundwater monitoring wells on the Airport to establish the extent of the contamination plume. In addition to the extraction wells the remedial action plan calls for a recharge basin. There is no information provided as to required size or location of the recharge basin. Obviously, the Airport urges the use of an alternative treatment process which would allow direct injection into the groundwater to avoid the potential impact on the development of the Breslau area.

- Since the DEC is requiring Fairchild to clean up the groundwater to 1000 ppb of total voc's, the Airport needs to obtain assurances from NYSDEC that in the event that groundwater standards are changed in the future, the Airport will not be required to assume any clean up responsibility.

Thank you for the opportunity to comment on the Remediation Plan. I understand that Ms. Susan McCormack of NYSDEC was very supportive of the Airport's efforts at the February 10th public meeting in allowing for monitoring wells and borings on the Airport. We appreciate her efforts.

Very truly yours,

Hugh D. Jones
Airport Director

HDJ/baf

cc: M. Corrado
T. Gilchrist
G. McVoy

APPENDIX B
FAIRCHILD REPUBLIC SITE ADMINISTRATIVE RECORD

1. Contingency Plan and Emergency Procedures Manual, November 1986, Fairchild Republic Company.

2. Phase II Investigation Work Plan, Fairchild Republic Company, February 1, 1987, Geraghty and Miller.

3. Phase II Hydrogeological Investigation, Volumes I and II, April 1988, Geraghty and Miller.

4. Main Plant Site Closure Plan Final report, June 1989, Eder Associates.

5. Summary of Environmental Investigations at the Main Plant, January 1992, Geraghty and Miller.

6. Work Plan for the RI/FS Study at the Fairchild Republic Main Plant Site, April 1992, Geraghty and Miller.

7. Main Plant Remedial Investigation Groundwater Plume Definition, Volumes I, II and III, March 1994, Eder Associates.

8. Main Plant Suspected Source Area Investigation, Volumes I, II, III, IV, V, VI, VII and VIII May, 1994, Eder Associates.

9. Petition for Delisting/Segmentation (Redefinition of Boundaries), Fairchild Republic Aircraft, July 1994, The Fairchild Corporation.

10. Preliminary Generic Environmental Impact Statement, Airport Plaza, Fairchild Republic Site, July 1994, Saccardi and Schiff, Inc.

11. Proposed Scope of Work for a Human health and Ecological Risk Assessment of the Chlorinated solvent plumes at the Fairchild Republic Company Site, April; 1995.

12. Soil Vapor Extraction Pilot Test Work Plan, August 1994, Eder Associates.

13. Final Generic Environmental Impact Statement, Airport Plaza, Fairchild Republic Site, September 1994, Saccardi and Schaff, Inc.

14. Response to the August 29, 1994 meeting, October 1994, Eder Associates.

15. Soil Vapor Extraction Pilot Study Report, Fairchild Main Plant, November 1994, Eder Associates.

16. Interim Remedial Measures Design, Operation and Maintenance Program, March 1995, Eder Associates.

17. Baseline Human Health Risk Assessment and Ecological Risk Assessment of the Fairchild Industries Site, April 1995, Eder Associates.

18. Fairchild Republic Main Plant Site Sampling Plan, November 1996, MAC Consultants.

19. Split Sampling for Site Sampling Plan, H2M Labs, Inc., November 1996.

20. Fairchild Republic Main Plant Site Remedial Investigation Report, May 1997.

21. Fairchild Republic Main Plant Site Feasibility Study Report, June 1997.

22. Main Plant Site Additional Sampling Report, October 1997, MAC Consultants.

23. Analytical Data from the two, Area Five underground Storages Tanks, February 1998.

24. Correspondence File that consists of the following:

    a. To Fairchild From NYSDEC listing the MPS Site as Class 2, September 13, 1989.

    b. To Fairchild from NYSDEC approving of RI/FS Work Plan, April 23, 1992.

    c. To Fairchild from NYSDEC approving Site boundary changes, November 23, 1994.

    d. To Fairchild from NYSDEC approving Additional Sampling Plan, Nov. 6, 1996.

    e. To Fairchild from NYSDEC establishing Remedial Action Objectives for the MPS Site, January 27, 1997.

    f. To Fairchild from NYSDEC approving Additional Sampling Plan Addendum, January 31, 1997.

    g. To Fairchild from NYSDEC approving closure of the SVE System, May 6, 1997.

    h. To Fairchild from NYSDEC approving Remedial Investigation Report, June 6, 1997.

    i. To Fairchild from NYSDEC approving Feasibility Study Report, July 17, 1997.

    j. To Fairchild from NYSDEC approving the Site Investigation Summmary Report, December 24, 1997.

25. Legal File that consists of the following:
    Fairchild Republic Main Plant Site RI/FS Order on Consent, March 1992