United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R02-86/029
Sept 1986

EPA

Superfund Record of Decision:

Caldwell Trucking, NJ

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA/ROD/R02-86/029		

4. TITLE AND SUBTITLE	5. REPORT DATE
SUPERFUND RECORD OF DECISION Caldwell Trucking, NJ	September 25, 1986
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS	13. TYPE OF REPORT AND PERIOD COVERED
U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460	Final ROD Report
	14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Caldwell Trucking Company site is a 12.2-acre property in Fairfield Township, Essex County, NJ which is bordered by light industry to the north, west, and southwest and is directly across from the Essex County Airport property. Approximately 45 small businesses are situated within one mile of the site. The nearest major residential area is about 1,000 feet northeast of the site. The Passaic River is located about 4,000 feet northeast and is used as a public water supply. Numerous residential wells north of the site are no longer in use and most of the residents now use municipal water. The Caldwell Trucking Company was incorporated by the State of NJ in 1946 for the purpose of cleaning residential septic tanks. For a number of years, Caldwell emptied septic systems and transported the waste to an old slaughter house property (now part of the Caldwell site) for disposal in one of the open, unlined lagoons present on site. Based on information supplied by Caldwell in 1973, wastes would be treated with a disinfectant such as sodium hypochlorite and allowed to settle. Later, the "clarified" liquid layer would be pumped out and transported by tank truck to a large seepage lagoon where the liquid would percolate quickly through the sandy soil. In the mid-1950s light industry, developing in the area, may have discharged hazardous substances into their septic systems to be subsequently pumped out and deposited on the Caldwell property. There were also other trucking companies who brought septic substances to the site, which may
(See Attached Sheet)

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Caldwell Trucking, NJ Contaminated Media: gw, sw, soil, sediment Key contaminants: PAHs, PCBs, PCE, TCE, VOCs, inorganics, lead		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
	None	66
	20. SECURITY CLASS *(This page)*	22. PRICE
	None	

EPA/ROD/R02-86/029
Caldwell Trucking, NJ

16. ABSTRACT (continued)

have been mixed with hazardous wastes. There are also indications that spent solvents and other industrial liquid wastes were disposed of in onsite lagoons. In 1972 seepage and odors from the site revealed that Caldwell was disposing of septic waste in this manner without the necessary permits. They were licensed to transport waste but were not an approved disposal facility. A 1973 application to operate as a sanitary landfill was denied by the NJDEP. Subsequently, Caldwell backfilled all lagoons except one, which was covered with plywood. At the start of the RI in 1982, the Caldwell property showed almost no visible signs of a septic waste disposal facility. The source of contamination, which had been deposited in unlined lagoons, had been backfilled 12 years earlier. The primary contaminants of concern include: VOCs, TCE, PCBs, PAHs, inorganics, and lead.

The selected remedial action includes: excavation and treatment, via heat addition, of approximately 28,000 cubic yards of contaminated soils and waste materials; disposal of treated soils in a secure landfill to be constructed at the site in accordance with RCRA requirements; restoration of a last potable water resource by providing treatment, via air stripping, of municipal public water supply well number 7; provision of an alternate water supply for residents potentially affected by ground water contamination from the site; preparation of a supplemental RI/FS to identify the extent and other sources of ground water contamination and to develop and evaluate appropriate remedial alternatives. Estimated capital costs for this remedial action are $5,490,000 with annual O&M costs of $48,000.

RECORD OF DECISION

REMEDIAL ALTERNATIVE SELECTION

Site

Caldwell Trucking Company, Township of Fairfield, Essex County, New Jersey

Documents Reviewed

I am basing my decision on the following documents, which provide a thorough analysis of the remedial alternatives considered for the Caldwell Trucking Company site:

- Results of investigations and sampling conducted by the New Jersey Department of Environmental Protection at or near the site over a period of years
- Remedial Investigation, Caldwell Trucking Company Site, prepared by NUS Corporation, June 1986
- Feasibility Study, Caldwell Trucking Company Site, prepared by NUS Corporation, June 1986
- Responsiveness Summary, August 1986
- Staff Summaries and Recommendations

Description of Selected Remedy

- Excavation and treatment, via heat addition, of approximately 28,000 cubic yards of contaminated soils and waste materials.
- Disposal of treated soils in a secure landfill to be constructed at the site in accordance with Resource Conservation and Recovery Act requirements.
- Restoration of a lost potable water resource by providing treatment, via air stripping, of municipal public water supply well number 7.
- Provision of an alternate water supply for residents potentially affected by ground water contamination from the site.
- Preparation of a supplemental remedial investigation and feasibility study to identify the extent and other sources of ground water contamination and to develop and evaluate appropriate remedial alternatives.

Declarations

Consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300, I have determined that the remedy described above, which includes operable units involving control of the source of contamination and restoration of a contaminated public water supply well, is cost-effective and consistent with a permanent remedy.

It is hereby determined that implementation of this remedy is the lowest cost alternative that is technologically feasibile and reliable, and which effectively mitigates and minimizes damages to and provides adequate protection of public health, welfare and the environment. Implementation of these actions is appropriate at this time, pending a determination of the need for any further remedial actions. It is also hereby determined that implementation of the selected remedy is appropriate when balanced against the availability of Trust Fund monies for use at other sites.

The State of New Jersey has been consulted and agrees with the selected remedy.

SEPTEMBER 25, 1986

Date

Christopher J. Daggett
Regional Administrator

SUMMARY OF REMEDIAL ALTERNATIVES SELECTION

CALDWELL TRUCKING COMPANY SITE

SITE LOCATION AND DESCRIPTION

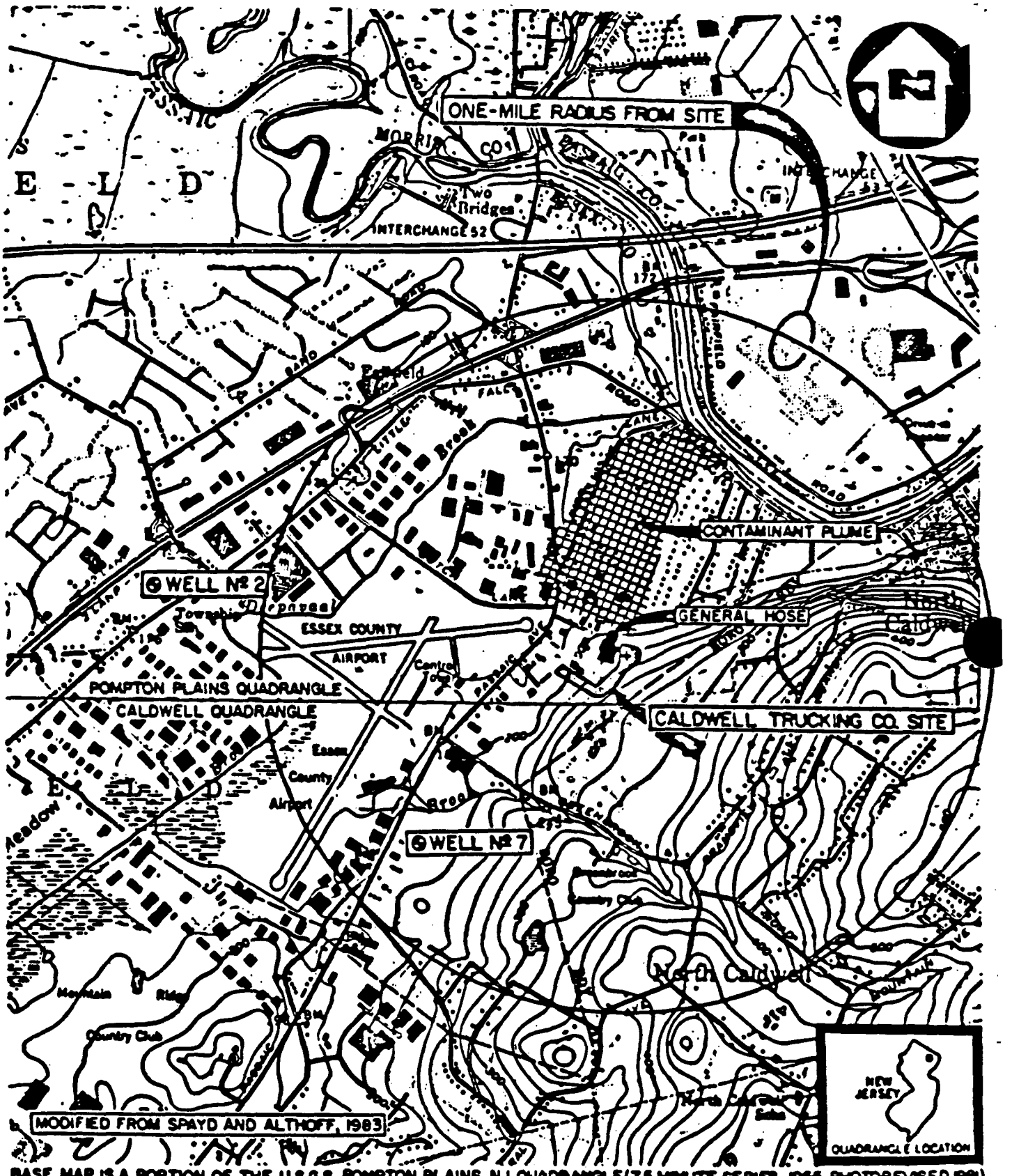
The Caldwell Trucking Company site is located at 222 Passaic Avenue in Fairfield Township, Essex County, New Jersey. This 12.2-acre property comprises Lot 17 of Block 2201 and Lots 18 and 20 of Block 2302 on local tax maps. The site is immediately adjacent to the General Hose Products facility at 30 Sherwood Lane, which is designated as Lot 7 of Block 2302.

The property is bordered by light industry to the north, west and southwest and is directly across from the Essex County Airport property. Approximately 45 small businesses are situated within one mile of the site (see Figure 1), most of them to the southwest and northwest. Several of these businesses have wells that supply water for various commercial operations. Also, several use well water as their potable-water source for employees.

The community facility nearest the site is the Essex Regional High School, located approximately 200 feet to the east but at a higher elevation. This school has approximately 1800 students in grades 7 through 12 and serves Fairfield, Roseland, North Caldwell, and Essex Fells. The school is supplied with water from the North Caldwell Water Department, which uses wells located in Essex Fells. Essex Fells is located approximately 3.5 miles south (upgradient) of the site.

The nearest major residential area is about 1000 feet northeast of the site. The Passaic River is located about 4000 feet northeast (downgradient) of the site and is used as a public water supply with an intake approximately 2.2 miles downstream. Numerous residential wells north of the site are no longer in use and most of the residents now use municipal water. Additionally, two Fairfield Township municipal wells (Nos. 2 and 7) were taken out of service in 1981 and 1982 due to ground water contamination.

The site is located on glacial deposits of clay, sand, gravel and boulders overlying the Preakness Mountain Basalt Formation, a fractured igneous rock. The ground water is used for public and private water supplies and for industrial purposes. The major component of ground water flow has been found to be north across the site and then north and east to the Passaic River. While much of Fairfield is situated on an extensive flood plain of the Passaic River, the site itself is located in a hilly area in the eastern part of the Township well above the floodplain.



BASE MAP IS A PORTION OF THE U.S.G.S. POMPTON PLAINS, NJ QUADRANGLE (7.5 MINUTE SERIES, 1955, PHOTOREVISED 1981) AND A PORTION OF THE CALDWELL, NJ QUADRANGLE (7.5 MINUTE SERIES, 1954, PHOTOREVISED 1981). CONTOUR INTERVAL 20.

FIGURE - 1

LOCATION MAP

CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

SCALE: 1" = 2000'

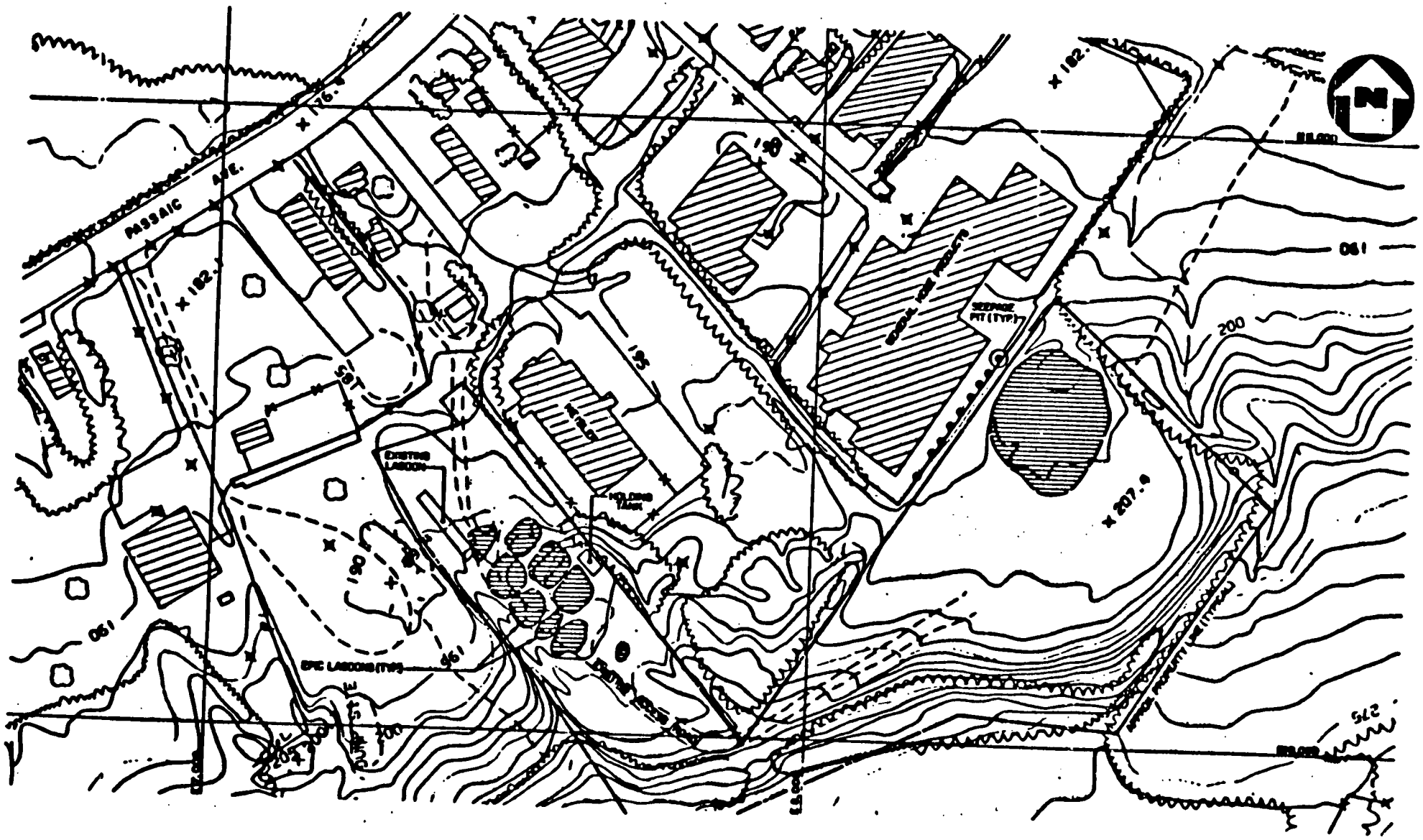
NUS CORPORATION

A Halliburton Company

SITE HISTORY

The Caldwell Trucking Company (Caldwell) was incorporated by the State of New Jersey on May 17, 1946 for the purpose of cleaning residential septic tanks. For a number of years after World War II, Caldwell emptied septic systems and transported the waste to an old slaughterhouse property for disposal. Between 1948 and 1954, Caldwell acquired the various parcels that make up Lots 17 & 20 to the rear of 222 Passaic Avenue and angle around the back of Heisler Machine and Tool Company (Heisler) and General Hose Products (General Hose). Figure 2 shows the relative locations of these properties. Due to the rural nature of the Fairfield area up through the mid-1950's, it is unlikely that anything other than septic waste would have been brought to the site prior to 1954. Similarly, 1954 would be the earliest date that septic waste could have been deposited in one of the open, unlined lagoons on Lot 17 (south of Heisler). Based on information supplied to the New Jersey Department of Environmental Protection (NJDEP) by the Caldwell Trucking Company in March 1973, wastes would be treated with a disinfectant such as sodium hypochlorite and allowed to settle. Later, the "clarified" liquid layer would be pumped out and transported by tank truck to the large seepage lagoon at the rear of Lot 20, near General Hose, where the liquid would percolate quickly through the sandy soil.

Sometime in the mid-1950's, light industry began to develop in the Fairfield area, although sewer mains were not installed until the late 1970's. Some of these industries may have discharged hazardous substances into their septic systems, to be subsequently pumped out and deposited on the Caldwell property. There were also other trucking companies who brought septic substances to the site, which may have been mixed with hazardous wastes. Finally, there are indications that spent solvents and other industrial liquid wastes were disposed of in on-site lagoons. In 1972, seepage and odors from the site revealed that Caldwell was disposing of septic waste in this manner without the necessary permits. The company was licensed to transport such materials but was not an approved disposal facility. A 1973 application to operate as a sanitary landfill was denied by the NJDEP. Alternatively, Caldwell purchased several large tanks that allowed it to transport and store septic waste, but not physically dispose of it. Subsequently, the Company backfilled all lagoons except one, which was covered with plywood. As of 1984, when the U.S. Environmental Protection Agency (EPA) initiated its remedial investigation and feasibility study (RI/FS), these storage tanks were empty and the Company's operations reduced to that of a transporter with no active storage capability.



GENERAL ARRANGEMENT
CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

FIGURE 2

100 0 100
SCALE IN FEET

NUS CORPORATION
A Halliburton Company

Ground water contamination in the area first became apparent around 1970, when chlorinated hydrocarbons were detected in an industrial well near the site. In the mid-1970's, private wells on Orlando Drive, 1200 feet north of the site, were shown to contain carbon tetrachloride and trichloroethylene and hence were closed. In 1980, the NJDEP began an extensive sampling program of private wells in the area. On February 4, 1982, the Fairfield health officer was notified that wells on Pier Lane, 2400 feet north of the site, showed extremely high levels of several chlorinated hydrocarbons. In March 1982, the NJDEP recommended that public water be provided to all residents between the site and the Passaic River. Connection was not mandatory, but most of the residents with contaminated water connected to the public supply. The plume area, as estimated in 1982, extended from the site to the Passaic River and was approximately 1300 feet wide, as shown on Figure 1.

The investigation into the source of the contamination intensified in 1980. The investigation indicated that Caldwell was a source of contamination, but not necessarily the only source. On March 12, 1981, NJDEP staff inspected and sampled the lagoons on Caldwell's property and noted spillage of solvents on General Hose's property. Sample analyses showed significant concentrations of solvents in both the lagoon sludge at Caldwell and soil samples associated with the spillage at General Hose. In June 1981, both companies were instructed by NJDEP to install monitoring wells on their property. While General Hose stated it would not install the wells, Caldwell complied and the monitoring well installations were completed on February 15, 1982. Samples collected by NJDEP on February 23, 1982 from Caldwell showed substantial ground water contamination with chlorinated hydrocarbons.

On February 1, 1983, General Hose Products entered into a Administrative Consent Order with NJDEP requiring the installation of monitoring wells and the remediation of ground water contaminated by its facility. On April 13, 1983, NJDEP sampled four of the twelve septic pits at General Hose. The analyses revealed the presence of chlorinated hydrocarbons. Consequently, in the summer of 1983, General Hose installed three monitoring wells on its property as part of the Consent Order. Soil and ground water samples from these wells showed significant levels of solvents.

From September 1980, when the well on Heisler Machine and Tool Company's property was found to be contaminated, until the spring of 1982, 25 domestic, 14 industrial and all of Fairfield's municipal wells were tested. Many were found to be contaminated with similar hazardous solvents, including two of the municipal wells. Municipal well No. 7 (MW-7), the most productive well

in the Township, rated at 400 gallons per minute (gpm), was shut down in June 1981. Municipal well No. 2, which has a much smaller capacity (50 gpm), was closed in early 1982, but the NJDEP believed that it had not been contaminated by the site. Although MW-7 is 3300 feet south of, and thus hydraulically upgradient from, the site, heavy pumping may have drawn contaminants from Caldwell by reversing the gradient.

At the start of the investigation, the "L"-shaped Caldwell property showed almost no visible signs of a septic waste disposal facility. Only a few tank trucks, a hose extending from a buried storage tank, and a dried-up lagoon covered over with plywood were observed. The source of contamination, which had been deposited in unlined lagoons, had been backfilled twelve years earlier.

CURRENT SITE STATUS

The Superfund State Contract, an agreement between the State of New Jersey and EPA defines, among other things, the scope of the investigation to be carried out under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). In the case of Caldwell, the site was very broadly defined in that agreement, namely:

> "The Caldwell Trucking Company site consists of Caldwell Trucking's facility, General Hose Products' facility, the area of the plume of contamination flowing from Caldwell Trucking north to the Passaic River, surface runoff into Deepavaal Brook, Deepavaal Brook, the Passaic River, Municipal Well No. 7, and the surrounding areas to the extent necessary to evaluate the problem (the "Site")."

Because this definition encompasses an area of more than two square miles, the actual site was restricted in size so that a study could be performed within a reasonable period of time and cost. On a complex site such as this, a phased approach allows EPA and NJDEP to move quickly on source control while developing a more accurate perception of the problem and the final remedial measures required. Accordingly, EPA's initial investigation and study, thus, focused on Caldwell, clearly the main source of contamination, and included an elaborate pumping test to determine the connection between the site and MW-7. However, the study also developed additional data on the contamination on the General Hose property, in the surface streams leading to the Passaic River, the river itself, and in residential wells in the plume area.

From the information available on the site, EPA's contractor, NUS Corporation, prepared a detailed risk analysis for this site. The extensive Remedial Investigation (RI) implemented by NUS at the Caldwell site included the following major tasks:

- Drilling and installation of nineteen monitoring wells to determine subsurface conditions, particularly southwest of the site, to provide observation wells for a pump test, and to provide ground water sampling points.

- Drilling and sampling of eighteen soil borings in the former lagoon areas on-site to characterize the vertical and horizontal extent of contamination.

- Sampling of: seven residential wells in the contaminant plume area north of the site; seven of the ten seepage pits behind General Hose's plant; eight surface water and sediment locations in Deepavaal Brook, the Passaic River and other surface waters downstream of the site; and the four holding tanks and the one visible lagoon that remains on-site.

- Surveying of on-site and off-site sampling locations, including an on-site sampling grid, and all monitoring wells.

- Collection of six air samples on-site during completion of soil boring B-1 to provide air-quality data associated with ground disturbances on-site.

- Two sampling rounds for the nineteen NUS-installed monitoring wells and the six existing monitoring wells.

- An aquifer pumping test of MW-7 to investigate the effect of long-term pumping on the hydraulic gradient between the site and the well. Gas chromatography screening for both volatile organics in the pumping well and selected monitoring well water samples was performed, in an on-site mobile laboratory, to monitor changes in contaminant concentrations during the test.

- In-situ soil gas screening to investigate areas of surface and near-surface soil contamination.

- Sampling and analysis of eighteen surface soil and ten sediment locations on- and off-site. Screening for volatile organics and polychlorinated biphenyls (PCBs) was performed on-site by a mobile laboratory for rapid turnaround of results.

In total, 220 samples were sent to EPA-certified laboratories for detailed analysis, while the mobile lab on-site tested another 60 samples for volatile organics and PCBs. Air samples taken during drilling indicated that the volatiles present dissipated very rapidly after release into the air. Extrapolation of these data indicate that even large-scale excavation of the

backfilled lagoons, which are high in volatiles, would not cause a health risk to the nearest population center (the high school).

An RI of this scope, which resulted in a four-volume report, can only be summarized here. The report's highlights can be more readily assimilated if grouped and discussed in the same order as they are in the Feasibility Study (FS). Site remediation consists of several discrete operable units, which together constitute a complete remedy. However, because NUS refers to these units as remedial components in the FS, both terms will be used here to avoid confusion. The findings of the RI are:

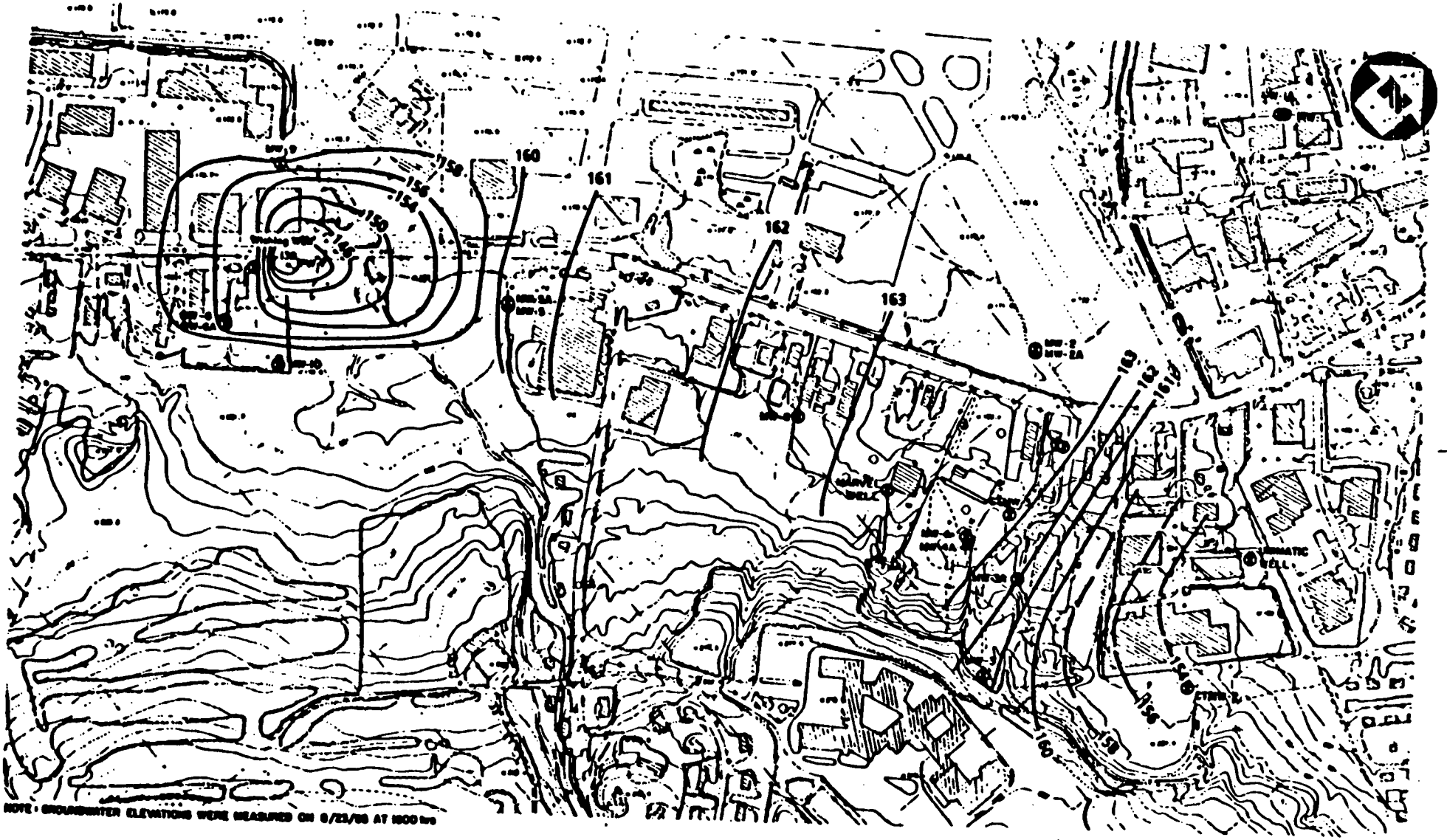
Operable Unit I (Remedial Component I) - Findings related to Municipal Well No. 7.

Operable Unit II (Remedial Component II) - Findings related to the downgradient plume, surface waters and sediments.

Operable Unit III (Remedial Component III) - Findings related to or impacting the site.

Operable Unit (or Remedial Component) I - The major findings of the RI for this segment were based largely on the pump test and monitoring data from the upgradient wells. They are as follows:

- Geology in the area consists of unconsolidated glacial sediments overlying basalt bedrock.
- Ground water occurs in both the glacial deposits and in fractured bedrock. These two aquifers are hydraulically connected.
- The hydraulic gradients in both aquifers are significantly influenced by pumping of local industrial and municipal wells. (Figure 3 shows the hydraulic gradient change or competition when two large capacity wells are pumping.)
- The normal direction of ground water flow can be reversed by sustained, heavy upgradient pumping, such as MW-7 pumping at 390 gpm.
- Ground water contamination was detected upgradient of the site in the area of MW-7, downgradient of the site, and at the site. However, ground water contamination was not detected in monitoring wells between the site and MW-7 (see Figure 4) indicating the possible presence of another source or sources of contamination.

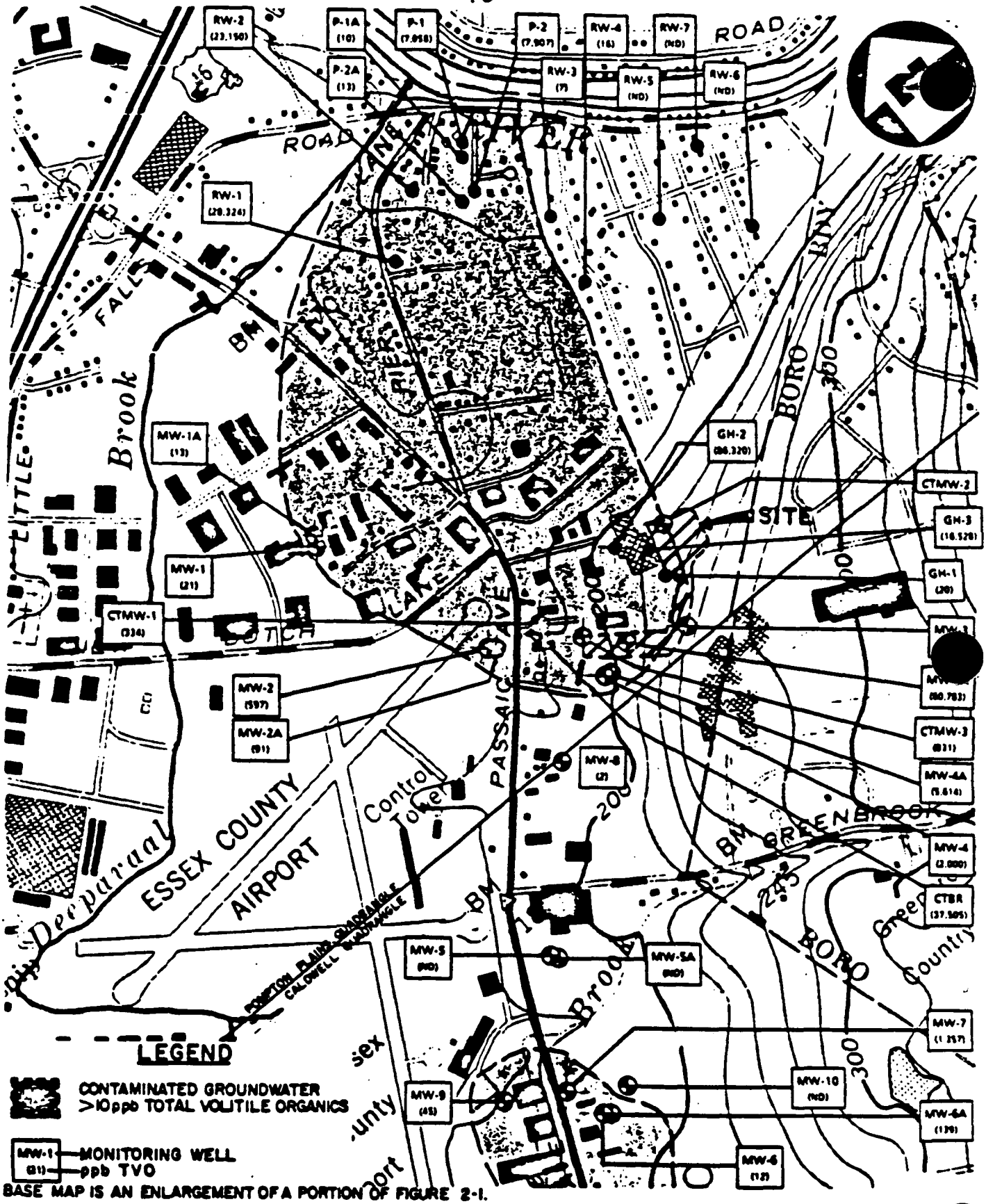


GROUNDWATER CONTOURS IN THE DEEP BEDROCK AQUIFER WITH THE UNIMATIC WELL AND PW-7 PUMPING
CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

FIGURE 3

400 0 400
SCALE IN FEET

NUS CORPORATION
A Halliburton Company



BASE MAP IS AN ENLARGEMENT OF A PORTION OF FIGURE 2-1.

FIGURE 4

EXTENT OF CONTAMINATION IN GROUNDWATER
CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

SCALE: 1" = 1000'

NUS CORPORATION
A Halliburton Company

Operable Unit (or Remedial Component)II - The major findings for this segment, listed below, are based on the current RI, including a mail survey of residential well owners. However, NJDEP investigations and sampling of residential wells in the early 1980's were fully utilized in the RI/FS analysis (see Figures 5, 6, 7, 8, 9).

- Regional ground water flow in both aquifers is to the northeast, toward the Passaic River.

- There is a plume of contaminated ground water from the site to the Passaic River. The lateral extent of the plume to the northwest is not well defined at this time.

- The RI results have shown that the current contaminated ground water discharge into the Passaic River does not significantly impact the quality of that body of water.

- Chlorinated aliphatic compounds are the major ground water contaminants in the area. Of these, trichloroethylene and related compounds constitute the greatest proportion.

- Surface water and sediments in the vicinity of the site are contaminated to varying degrees with contaminants similar to those detected at the site. However, all but one of these locations are most likely contaminated from sources other than the Caldwell Trucking Company site.

- The major health risk stemming from the site is associated with ingestion or domestic use of contaminated ground water. Although no residents or workers in the plume area are currently at risk, this could change as a result of localized pumping influences or dispersion of the contaminant plume.

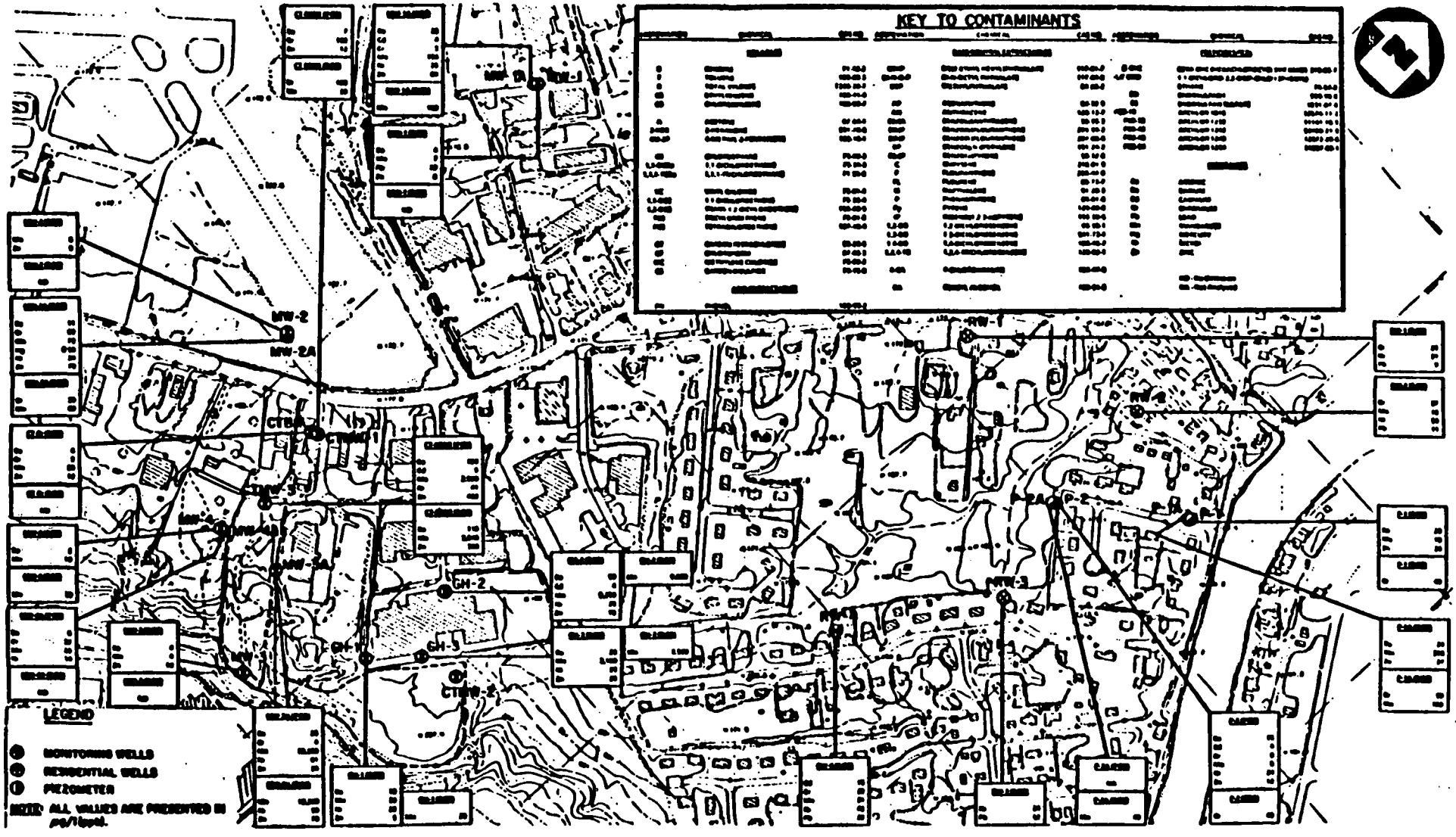


FIGURE 5

INORGANIC GROUNDWATER CONTAMINATION IN DOWNGRADIENT WELLS
CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

400 0 400
SCALE IN FEET

NUS CORPORATION
A Halliburton Company

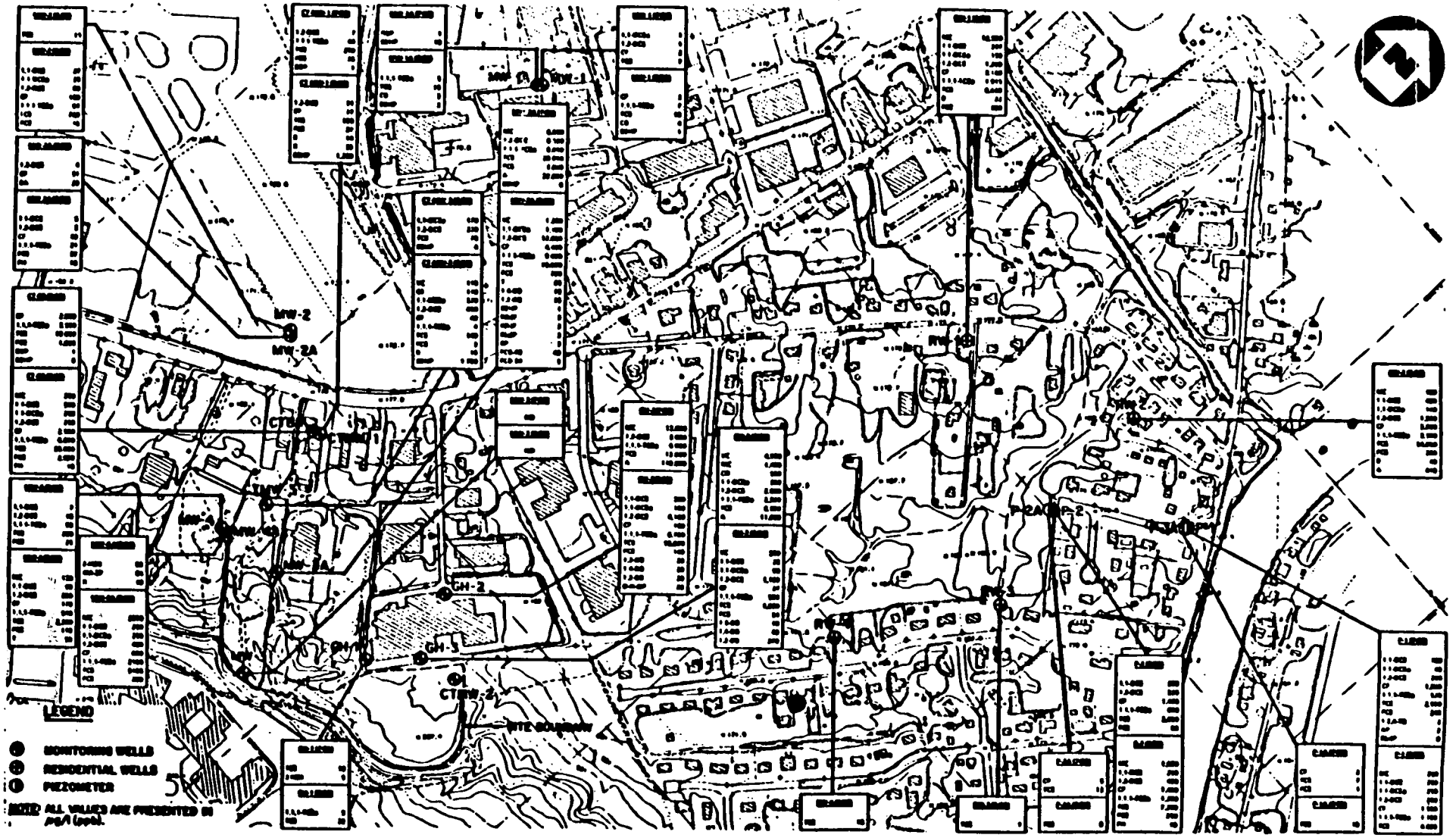
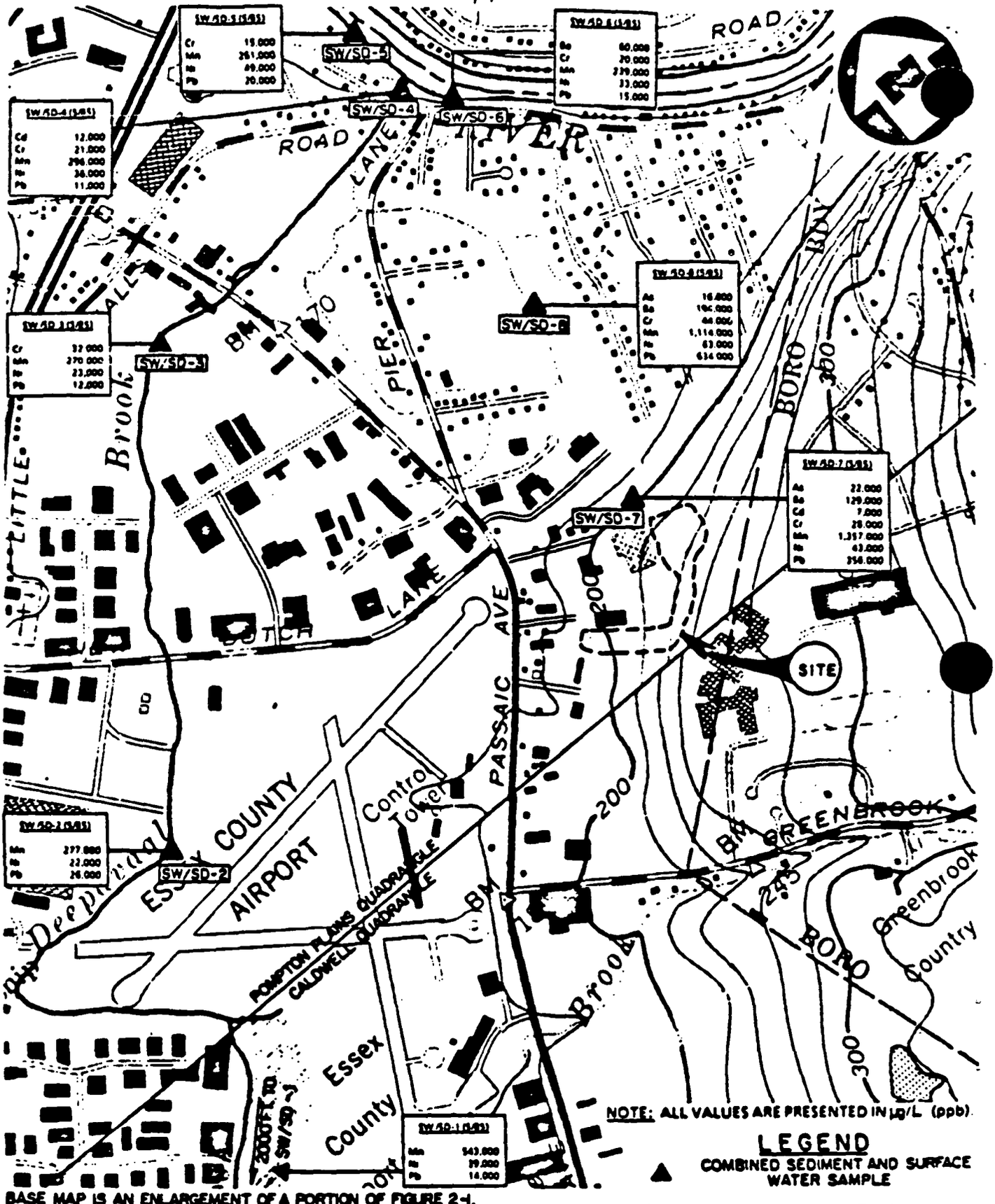


FIGURE 6

ORGANIC GROUNDWATER CONTAMINATION IN DOWNGRADIENTS WELLS
CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

400 0 400
SCALE IN FEET

NUS CORPORATION
A Halliburton Company



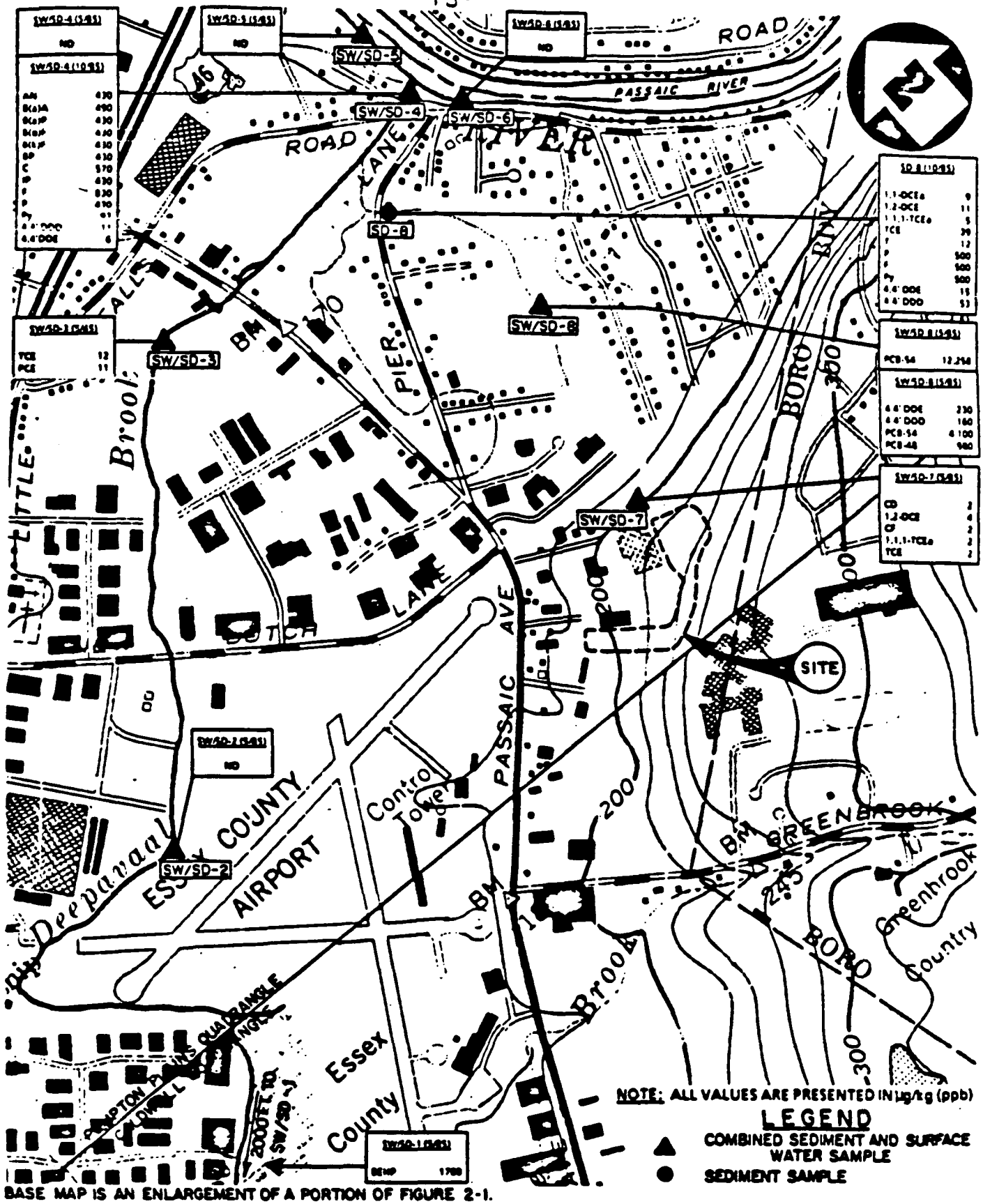
BASE MAP IS AN ENLARGEMENT OF A PORTION OF FIGURE 2-1.

INORGANIC CONTAMINANT CONCENTRATIONS IN SURFACE WATER CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

SCALE: 1" = 1000'

FIGURE 7

NUS CORPORATION
A Halliburton Company



BASE MAP IS AN ENLARGEMENT OF A PORTION OF FIGURE 2-1.

FIGURE 8

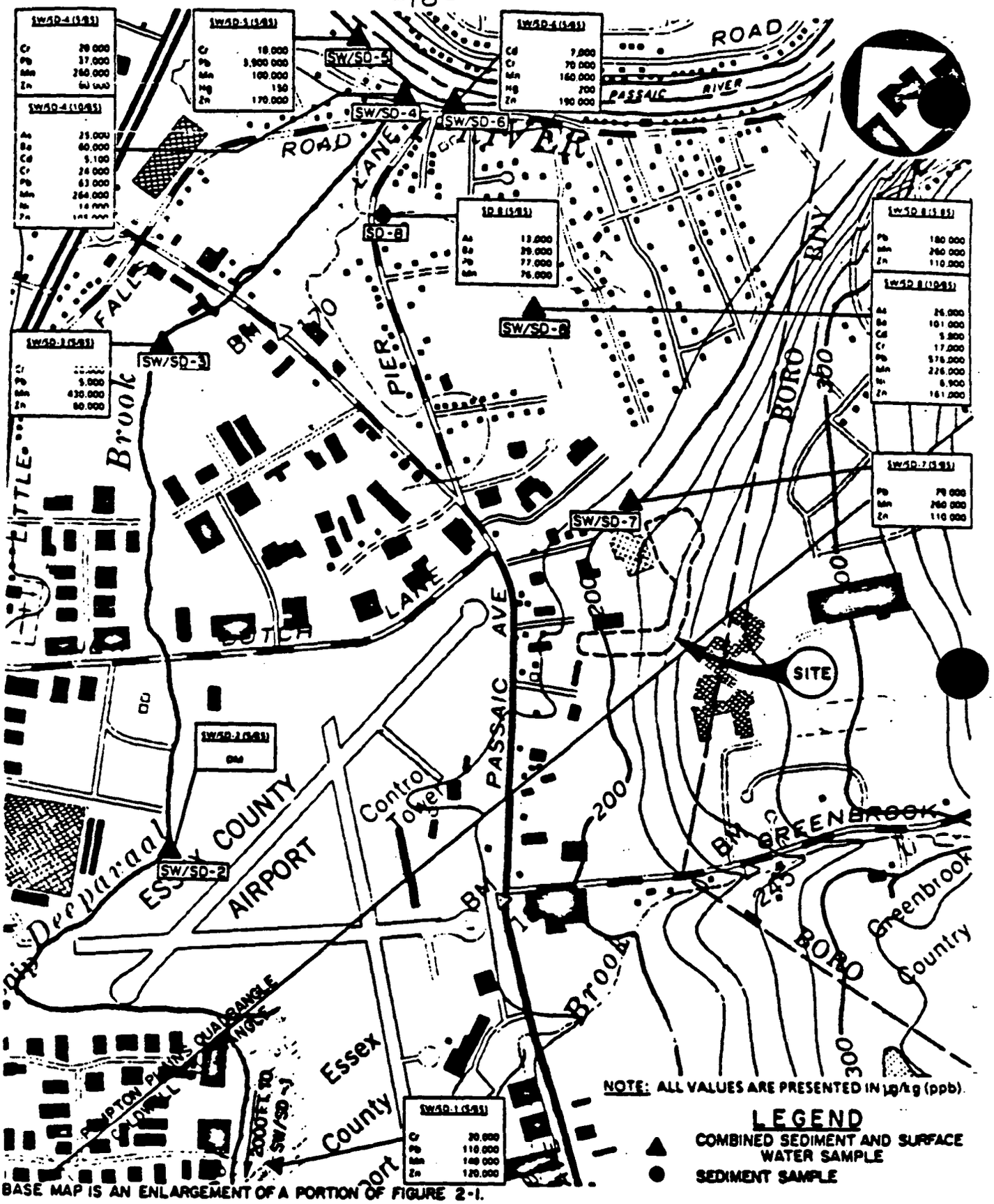
ORGANIC CONTAMINANT CONCENTRATIONS IN SEDIMENT

CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

SCALE: 1" = 1000'

NUS CORPORATION

A Halliburton Company



BASE MAP IS AN ENLARGEMENT OF A PORTION OF FIGURE 2-1.

FIGURE 9

INORGANIC CONTAMINANT CONCENTRATIONS IN SEDIMENT

CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

SCALE: 1"=1000'

NUS CORPORATION

A Halliburton Company

Operable Unit (or Remedial Component) III - Using historical aerial photographs, a dozen buried lagoons were identified and sampled down to bedrock. Based on extensive sampling of surface and subsurface soils, ground water and air emissions, the on-site RI findings (Table I, Figures 10 & 11) can be summarized as follows:

- Surface soils throughout the site are contaminated with varying levels of PCBs and lead.
- On-site subsurface soils in the former lagoon areas are contaminated with chlorinated aliphatic and polynuclear aromatic hydrocarbons and lead.
- Environmental receptors (biota) may be affected by the site. Inorganic compounds are the primary contaminants of concern for aquatic biota. PCBs and lead in on- and off-site surface soils could potentially affect terrestrial biota.

Additionally, sediment samples taken from concrete seepage pits at the rear of General Hose's property revealed considerable levels of volatile organics, and one contained PCBs.

ENFORCEMENT

Under CERCLA, parties reponsible for the release or threatened release of hazardous substances into the environment at a given facility may be liable for all monies expended by the federal government in taking necessary response actions at that facility: investigative, planning, removal and remedial actions. Such parties may also be held liable for any enforcement costs incurred by the government. Potentially Responsible Parties (PRP's) include current and past owners and operators, as well as persons who generated or were involved in the transport, treatment, or disposal of hazardous substances at the facility. It is EPA's policy to negotiate with PRP's to encourage them to accept their responsibility and undertake the implementation of the remedy.

EPA sent Notice Letters in June 1986 to three PRP's - the owner/ operator of Caldwell Trucking, plus the present and former owners of General Hose. To date, all parties have refused to undertake any of the remedial alternatives presented in the FS and again at the public meeting. However, EPA is continuing to investigate records to either identify additional PRP's or further substantiate the liability of the PRP's already identified.

TABLE 1

SUMMARY OF SUBSURFACE SOIL CONTAMINATION FOUND IN THIS INVESTIGATION
CALDWELL TRUCKING COMPANY SITE

	Subsurface Soils			
PP #	CAS #	Contaminant Name	Concentration Range (µg/l)	Number of Occurrences/ Number of Samples*
30V	156-60-5	Trans-1,2-Dichloroethene	3.1 - 21,000	10/58
23V	67-66-3	Chloroform	2.5 - 14,000	4/58
10V	107-06-2	1,1-Dichloroethane	180 - 30,000	3/58
11V	71-55-6	1,1,1-Trichloroethane	4.0 - 240,000	6/58
87V	79-01-6	Trichloroethene	100 - 790,000	9/58
85V	127-18-4	Tetrachloroethene	4.1 - 840,000	17/58
86V	108-88-3	Toluene	1,600 - 94,000	8/58
38V	100-41-4	Ethylbenzene	7.7 - 66,000	4/58
7V	108-90-7	Chlorobenzene	9	1/58
29V	75-35-4	1,1-Dichloroethene	160	1/58
65A	108-95-2	Phenol	280-15,000	4/56
62B	62-75-9	N-Nitrosodiphenylmine	410	1/58
26B	541-73-1	1,3-Dichlorobenzene	240 - 6,800	3/58
27B	106-46-7	1,4-Dichlorobenzene	260 - 16,000	7/58
25B	95-50-1	1,2-Dichlorobenzene	410 - 44,000	6/58
8B	120-82-1	1,2,4-Trichlorobenzene	190 - 3,400	2/58
55B	91-20-3	Napthalene	190 - 3,100	6/58
77B	208-96-8	Acenaphthylene	940	1/58
1B	83-32-9	Acenaphthene	180 - 2,800	4/58
20B	86-73-7	Fluorene	540 - 3,600	3/58
81B	85-01-8	Phenanthrene	350 - 8,900	5/58
68B	84-79-2	Di-n-butylphthalate	280 - 380	2/58
39B	206-44-0	Fluoranthene	240 - 4,800	5/58
84B	129-00-0	Pyrene	230 - 9,000	4/58
67B	85-68-7	Butylbenzylphthalate	220	1/58
66B	117-81-7	Bis(2-ethylhexyl)phthalate	180 - 9,000	16/58

TABLE 1
SUMMARY OF SUBSURFACE SOIL CONTAMINATION FOUND IN THIS INVESTIGATION
CALDWELL TRUCKING COMPANY SITE
PAGE TWO

	Subsurface Soils			
PP #	CAS #	Contaminant Name	Concentration Range (µg/l)	Number of Occurrences/ Number of Samples*
93P	72-55-9	4,4'-DDE	620	1/58
94P	74-54-8	4,4'-DDD	8.4 - 4,000	2/58
92P	50-29-3	4,4'-DDT	120 - 28,000	2/58
106P	53469-21-9	Arochlor 1242	930 - 360,000	8/58
110P	12672-29-6	Arochlor 1248	340	1/58
107P	11097-69-1	Arochlor 1254	180 - 3,600	4/58
NP	75-15-0	Carbon disulfide	3.6	1/58
		Total xylenes	3.7 - 280,000	8/58
NP	95-48-7	2-Methylphenol	9,700 - 14,000	2/58
NP	106-44-5	4-Methylphenol	2,400 - 14,000	3/58
NP	65-85-0	Benzoic acid	1,100	1/58
NP	91-59-6	2-Methylnaphthalene	260 - 3,400	5/58
NP	132-64-9	Dibenzofuran	290 - 2,800	4/58

Notes:

* Data includes all LSS samples (except 002 and 006) and SS001, SS004 - 008

NP = Non-Priority Pollutant

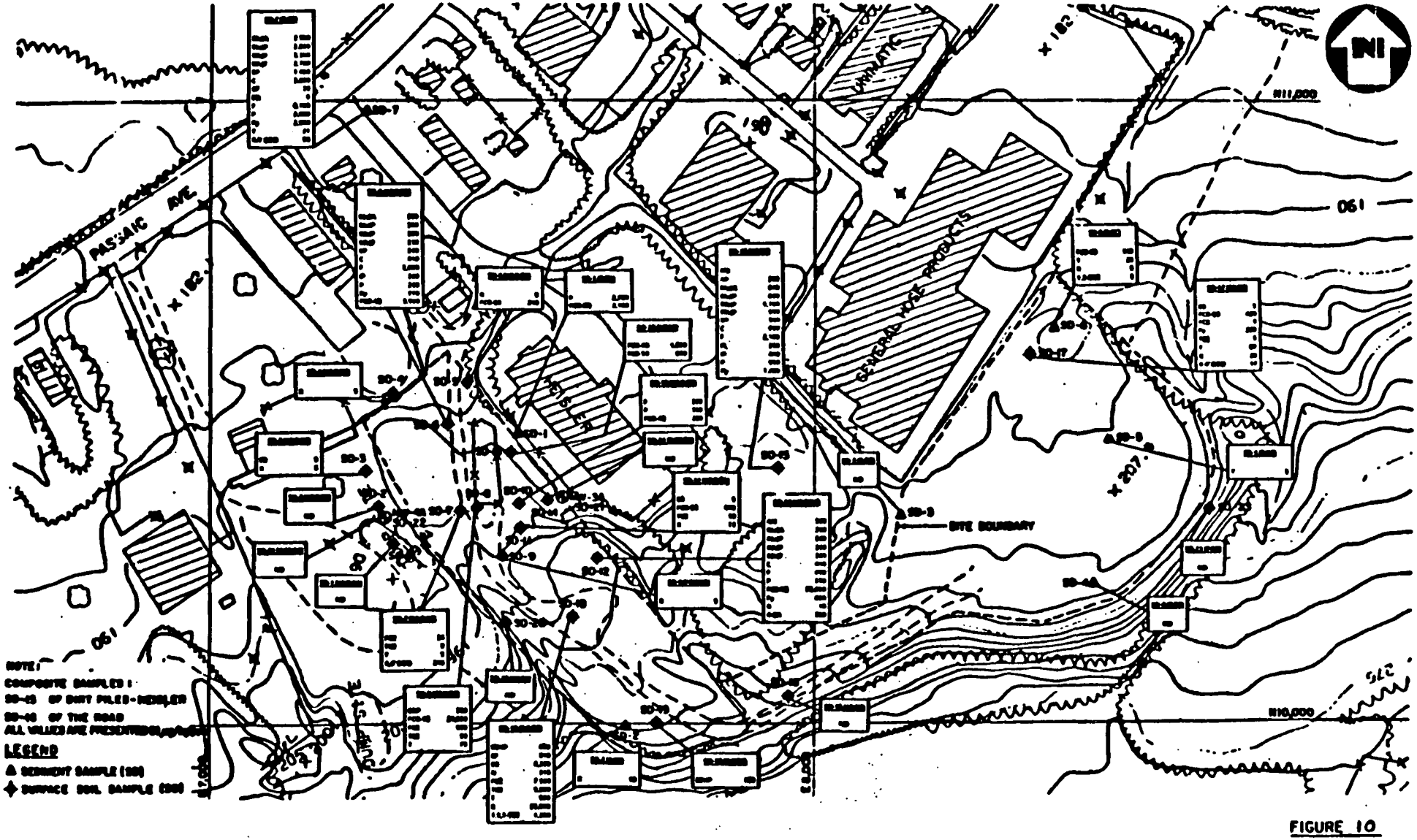


FIGURE 10

ORGANIC CONTAMINATION IN ONSITE SURFACE SOILS AND SEDIMENTS
CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

150 0 150
SCALE IN FEET

NUS CORPORATION
A Halliburton Company

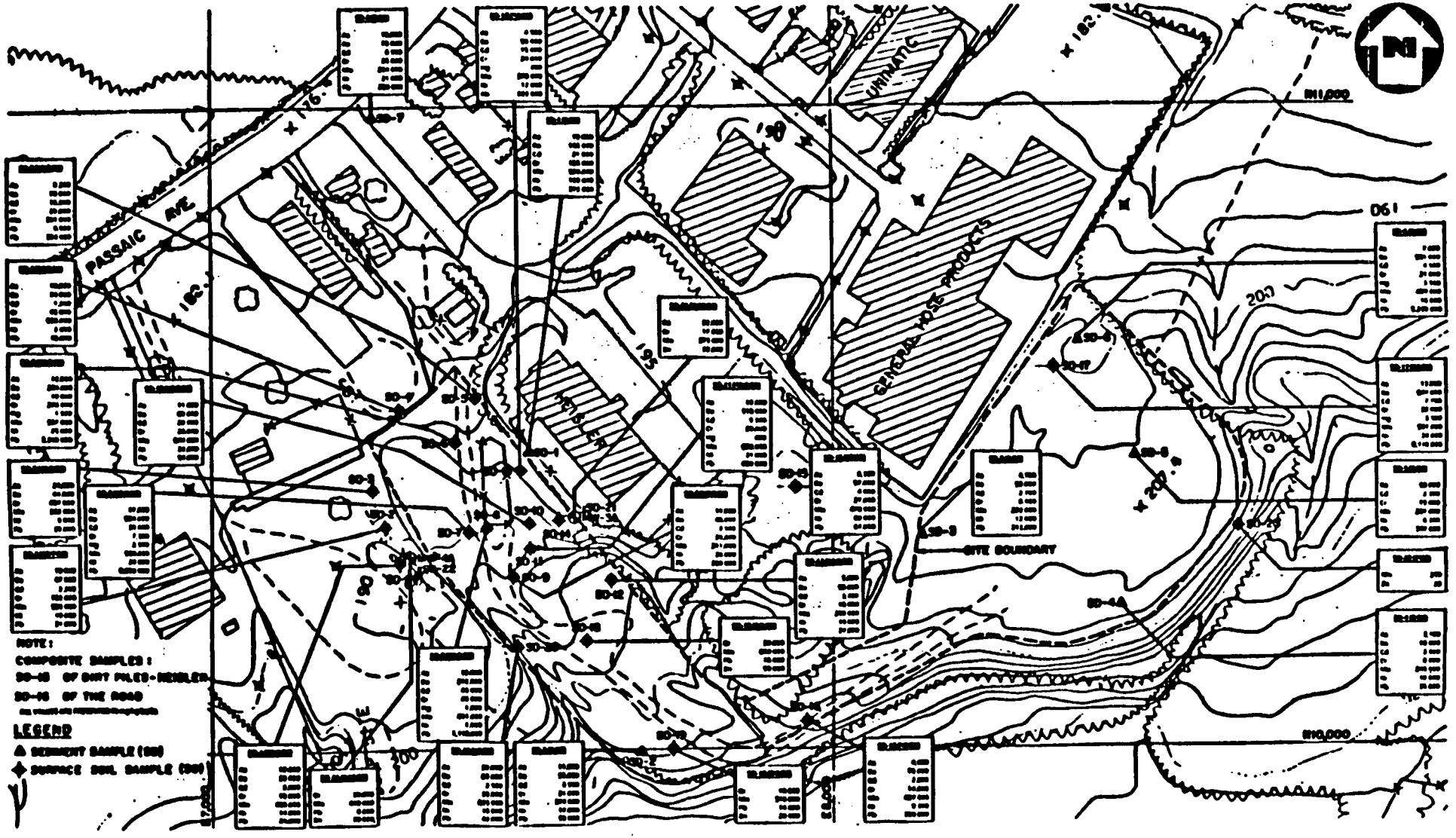


FIGURE 11

INORGANIC CONTAMINATION IN ONSITE SURFACE SOILS AND SEDIMENTS
CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ

150 0 150
SCALE IN FEET

NUS CORPORATION
A Halliburton Company

EVALUATION OF ALTERNATIVES

The purpose of the Feasibility Study (FS) is to develop and assess remedial action alternatives based on site-specific conditions. At a minimum, one alternative should be developed for each of five categories outlined in the National Contingency Plan and EPA's FS Guidance Document. The process is as follows:

Identify General Response Actions

- Identify site problems and pathways of contamination (Remedial Investigation).

- Identify general response actions that address site problems and satisfy remediation goals and objectives.

Identify and Screen Technologies and Develop Remedial Alternatives

- Identify possible technologies in each general response action and screen the technologies to eliminate inapplicable and infeasible technologies based on site conditions.

- Assemble the technologies that pass the screening into complete alternatives.

Table 2 lists various response actions with the related remedial technologies considered in this study. The more advanced or innovative of these techniques were considered under the last two response actions--namely, Treatment of Contaminated Soils and Treatment of Liquid Wastes. With contaminated soil, key considerations are the volume to be handled and whether it involves primarily surface or subsurface contamination. In the case of Caldwell, with approximately 25,000 cubic yards (CY) of subsurface contamination, in-situ soil treatment would be expected to be more cost-effective than excavation. Hence, both solvent extraction and biodegradation were considered. However, solvent extraction was eliminated because of the problems anticipated in flushing through glacial till containing large boulders, thus possibly diverting solvent through the bedrock and into the ground water.

TABLE 2

GENERAL REPONSE ACTIONS AND REMEDIAL TECHNOLOGIES
CALDWELL TRUCKING COMPANY SITE

General Response Actions	Associated Remedial Technologies	
No Action	Monitoring	
Containment	Capping	
Diversion and Collection	Ditches, berms, sedimentation basins regrading, and revegetation	
Restrict Access	Fencing of areas with contaminated surface soils	
Partial Removal	Excavation of wastes, contaminated soils, and tanks	
Complete Removal	Excavation of wastes, contaminated soils, and tanks	
Disposal	Landfilling	
Alternative Water Supply	Treatment of MW-7, alternate water supply for the plume area	
Treatment of Contaminated Soils	Post-excavation °Incineration - Rotary kiln - Fluidized bed - Multiple hearth °Solidification - Lime based - Cement based - Thermoplastic - Glassification	In-Situ °Solvent extraction °Biodegradation
Treatment of Liquid Wastes	Powdered Activated Carbon Treatment (PACT) Activated carbon Air stripping Ion exchange Filtration Biological	

Similarly, biodegradation presented a number of obstacles, including the array of organics to be removed, expected interference with metals, and the need to treat both the saturated and unsaturated layers. As a result, it too was eliminated.

Volume of material is also important in screening post-excavation techniques. Large volumes translate to high costs and, with the current limited number of fully permitted incinerators, lengthy remediation timeframes. Incineration is an effective technique to address all priority pollutants except for heavy metals. Since heavy metals exist at Caldwell, incineration would have to be followed by a solidification process to stabilize the metal-containing ash residue. Direct solidification of the excavated soil without incineration was also considered, but placing the matrix back in the ground in direct contact with the ground water leaves some long-term uncertainties. Hence, direct solidification was screened out. As to treatment of liquid wastes, the techniques listed would only be analyzed and screened in any detail if the liquids were to be treated on-site. At Caldwell, the liquid wastes, found only in storage tanks, represented only about 20,000 gallons and hence could easily be removed to a PACT facility. The other techniques are used selectively, depending upon the nature of contaminants and the results of any treatability studies. However, both air stripping and activated carbon adsorption were proposed to control vapor phase contamination under different alternatives.

In summary, the complexity of the site problems, the widespread contamination in the area, and the presence of other potential sources of contamination complicated the development of a comprehensive remedial program to address all the problems in the area. Therefore, the alternatives were divided into remedial components (operable units), based on the particular problem being considered. Three remedial components were developed along with eleven remedial action alternatives. These remedial components and the corresponding alternatives are as follows:

<u>Remedial Component I - Remediation of Municipal Well No. 7</u>

- Remedial Action Alternative No. 1 - No Action
- Remedial Action Alternative No. 2 - Purchase of Water from Passaic Valley Water Commission
- Remedial Action Alternative No. 3 - Wellhead Treatment of Municipal Well No. 7

Remedial Component II - Remediation of Downgradient Contaminant Plume

- Remedial Action Alternative No. 4 - No Action with Monitoring
- Remedial Action Alternative No. 5 - Alternative Water Supply and Sealing of Private Wells

Remedial Component No. III - Remediation of On-site Wastes and Contaminated Soils

- Remedial Action Alternative No. 6 - No Action
- Remedial Action Alternative No. 7 - Capping
- Remedial Action Alternative No. 8 - Excavation and Disposal in an Off-Site Landfill
- Remedial Action Alternative No. 9 - Excavation and Disposal in an On-Site Landfill
- Remedial Action Alternative No. 10 - Excavation and Off-Site Incineration
- Remedial Action Alternative No. 11 - Excavation, On-Site Incineration and Solidification

Each of these alternatives is described more fully in the following pages, by remedial component (operable unit), along with the related capital and operating costs developed in the Feasibility Study.

Remedial Component I - Remediation of Municipal Well No. 7

Remedial Action Alternative No. 1 - No Action

If no remedial action is taken under CERCLA, the Township of Fairfield would most likely continue to purchase water from the Passaic Valley Water Commission (PVWC) to replace the capacity lost from MW-7. Hence, the risk associated with the ingestion of contaminated water from MW-7 would be effectively eliminated. Under this remedial alternative, the Township continues to bear the financial burden, and PVWC the added burden on its water resources.

Remedial Action Alternative No. 2 - Purchase of Water from Passaic Valley Water Commission

In this alternative, the water that the Township of Fairfield is currently purchasing from the PVWC will be paid for by the State and/or Federal government. Again, the risk associated with the consumption of contaminated water from MW-7 will be effectively eliminated. This alternative relieves the financial burden on the Township, but does not relieve the water resource burden on the PVWC.

The cost of this alternative is estimated at $23,690 per year, based on an average annual water purchase of 46 million gallons. However, if Alternative No. 5 is also implemented, an additional 15 million gallons per year will be needed to meet the demand created by additional tap-ins to the Township's water system. The projected costs for 61 million gallons per year would be $31,415 at current prices.

Remedial Action Alternative No. 3 - Wellhead Treatment of Municipal Well No. 7

The treatment of the contaminated water at MW-7 was evaluated prior to this FS in a study of water treatment alternatives by Malcolm Pirnie, Inc., under contract to the Township of Fairfield.

Malcom Pirnie selected an air-stripping unit designed to match the full capacity of MW-7, plus some reserve, or 220 million gallons per year. For comparison purposes with Alternative 2, NUS pro-rated the capital and operation and maintenance (O&M) costs of this larger unit with one capable of treating 61 million gallons plus the Township's peak summertime demand. The smaller unit is estimated to cost $222,000 with an O&M of $7,000 per year. This alternative would remove the present burdens from both the Township and the PVWC. Additionally, by treating and upgrading the contaminated ground water to potable standards, the alternative is remediating a currently unusable resource.

Remedial Component II - Remediation of Downgradient Contaminant Plume

While the objective of Component II was to remediate the downgradient contaminant plume, the information collected in the RI/FS was not sufficient to address the entire problem. Hence, a further study will be needed to characterize the contaminant plume and determine if General Hose, and possibly other sources, have contributed materially to the ground water contamination. Accordingly, Component II is limited to protecting those people in the plume area who are currently or imminently at risk through the use of their private wells.

Remedial Action Alternative No. 4 - No Action with Monitoring

While many of the residences in the area have been provided with municipal water, some may continue to use private wells for potable and non-potable domestic water. However, the NJDEP will implement restrictions on installing any new wells in this area.

At a minimum, monitoring would be provided in the plume area and on the perimeter of the plume. This will detect contaminant migration over time and alert regulatory agencies to the potential exposure to residents of contaminated water. No capital costs are anticipated for this alternative because existing monitoring and residential wells will be used for the monitoring program. The total (O&M) cost of the monitoring program is estimated to be $35,040 per year for 30 years.

Remedial Action Alternative No. 5 - Alternative Water Supply and Sealing of Private Wells

Analysis of State and RI data led to the identification of 100 homes in the plume area that were currently or potentially at risk via ingestion of contaminated water from private wells. In addition to hooking up these people to municipal water, there was concern about leaving the wells intact for non-potable usage, thus imposing the risk of fume inhalation. The safest course would be to seal up 90 percent of these wells with the remainder left open for future monitoring. The capital costs associated with this alternative are estimated at $269,480. There would be no annual operation and maintenance costs for this alternative.

Remedial Component III - Remediation of On-Site Wastes and Contaminated Soil

Remedial Action Alterative No. 6 - No Action

Under this alternative, site wastes and contaminated soils, routes of off-site contaminant migration, and human and environmental exposure pathways will all remain unchanged. In addition, subsurface soils and wastes will continue to contaminate the ground water via the infiltration of precipitation and the leaching of hazardous constituents.

Remedial Action Alternative No. 7 - Capping

The primary intent of this alternative is to provide a source-control remedy. It entails the removal and/or treatment of the on-site storage tanks, the installation of a 24-inch compacted soil cap over areas with contaminated surface soils, and the installation of a multimedia cap (several feet thick and highly impervious) over areas with subsurface soil contamination. The purpose of any cap is to eliminate direct (human) contact and to prevent infiltration of rainwater which, in turn, would carry the contaminants into the ground water. The capping of contaminated surface soils also prevents migration of these soils from the site via surface run-off and wind erosion. This alternative also includes silt fencing, an upgradient diversion wall to protect the multimedia cap, and ground water monitoring, using existing wells to gauge the long-term effectiveness of the remedy. The capital costs for this alternative are estimated at $740,485, with an annual O&M of $18,120.

Remedial Action Alternative No. 8 - Excavation and Disposal in an Off-Site Landfill

Alternatives 8-11 each involve the handling of buried tanks and the excavation of an estimated 28,000 cubic yards of soil for ultimate disposal. Under Alternative No. 8, the excavated material is trucked to a permitted landfill while the site would be regraded and backfilled with clean soil. Excavation is not expected to generate air pollution problems on-site.

All contaminated materials except the tank contents would be hauled to a licensed Hazardous Waste Management Facility (HWMF). While the actual disposal site would be approved by the EPA, subject to availability, a HWMF in Buffalo, New York was chosen for costing purposes. Accordingly, the full cost of this remedy was estimated at $18,188,000, with an O&M of $26,200 a year for ground water monitoring. Implementation of this remedy would take about six months, and would eliminate both the direct-contact hazard and the source of ground water contamination.

Remedial Action Alternative No. 9 - Excavation and Disposal in an On-Site Landfill

This alternative involves the construction of a secure on-site landfill for the containment of the excavated material. The preliminary location selected is on the eastern end of the Caldwell property. The landfill, including embankments, comprises approximately 3.4 acres. Dimensions are roughly 300 by

500 feet with a design capacity of 30,000 cubic yards. The construction of this landfill would conform to specifications under the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA). In this alternative, the top of the cap will be covered with grass and the rest of the site graded and revegetated. While the primary purpose of these measures is erosion control, the whole site is simultaneously upgraded and made more pleasing in appearance. The cost for this remedy is estimated at $3,166,000 with an O&M of $41,000 a year due to extensive monitoring. The remedy would take twelve months to implement.

To reduce or eliminate hazardous waste whenever practical, a low-temperature vaporization loop can be inserted between the excavation and landfilling steps. This will drive off the volatiles, leaving only the more stable organics and metals in the soil to be landfilled. As these residual compounds are relatively immobile, they constitute a safer and hence more suitable landfill burden. The separated volatiles are then collected in activated carbon canisters and shipped off-site. The cost of this system, including one year of operation, is $500,000. Addition of the loop would extend the overall construction timetable by three months and bring the combined cost of this alternative to $3,666,000.

This alternative would effectively eliminate the human health hazard and permanently seal off the residual contaminated material in a RCRA landfill, built completely above-grade for maximum security.

Remedial Action Alternative No. 10 - Excavation and Off-Site Incineration

In this alternative, the excavated waste materials are destroyed via incineration and the remaining ash is disposed of properly by the operators of the off-site incinerator. For costing purposes, a commercial incineration facility in southern New Jersey was chosen. The final selection of an off-site incineration company would be approved by EPA. More importantly, however, the availability of an off-site incineration facility is currently uncertain because of the large backlog of wastes and limited loading capacities of existing units (currently one to two tons per hour). The time required to implement this alternative at these loading rates, is approximately three to six years. The estimated capital costs for this alternative are $49,056,421 with annual O&M costs of $26,200.

Upon completion of this remedy, the direct contact risks would be eliminated and the site itself would cease to be a source of ground water pollution. However, excavation and stockpiling of this material over a period of years imposes direct contact risks throughout these operations.

Remedial Action Alternative 11 - Excavation, On-Site Incineration and Solidification

A mobile incineration system is considered to be a viable option for soil/waste volumes of less than 100,000 cubic yards, as is the case with Caldwell. Currently, only one company has a fully operating and permitted mobile unit available, so it was used for design and costing purposes. The unit can be transported to the site, set up, and soil decontamination begun within a few months. The mobile unit incorporates the use of a well established incineration technology, the rotary kiln, and all necessary ancillary equipment, including stack gas and waste water treatment. The incineration system can handle four to five tons per hour of contaminated soil. The temperature within the rotary kiln, approximately 2000°F, will be sufficient to either destroy or drive off all of the organic contaminants. The volatilized contaminants that are not destroyed in this chamber will be subjected to nearly 2300°F in a secondary combustion chamber. The residual metals and ash would be solidified on-site to facilitate final disposal. The capital cost of this alternative is estimated at $42,463,335. Operation and maintenance costs are estimated at $26,200 per year. The estimated time to implement this alternative is 2.5 years.

Subject to the availability and size of these mobile units, this alternative would, over a period of years, eliminate both the source and direct contact risks.

All the above alternatives are summarized in Table 3, which affords a comparison of both their respective capital costs and 30-year present worth calculations.

COMMUNITY RELATIONS

The first public meeting on the site was held by EPA in January 1985 when EPA and its contractor reviewed the scope of the RI/FS (Remedial Investigation and Feasibility Study) prior to beginning field work. In May 1986, when the study was completed, EPA sent copies of the reports to three different repositories where they could be reviewed by the public. The 6-volume study was forwarded to Fairfield's public library, the Municipal Building (town hall), and the West Orange Office of the NJDEP.

TABLE 3

REMEDIAL ACTION ALTERNATIVES COST SUMMARY
CALDWELL TRUCKING COMPANY SITE
(Costs are in 1986 Dollars)

Remedial Action Alternative	Capital Cost ($1,000)	Present-Worth Costs ($1,000) Baseline
Remedial Component I		
1. No action	-0-	-0-
2. Purchase of water from Passaic Valley Water Commission	-0-	297
3. Wellhead treatment of Municipal Well No. 7	222	288
Remedial Component II		
4. No action/monitoring	-0-	332
5. Alternative water supply and sealing of private wells	269	269
Remedial Component III		
6. No action	-0-	-0-
7. Capping	740	911
8. Excavation and offsite landfill	18,188	18,434
9. Excavation and onsite landfill	3,166	3,554
• With low temperature vaporization loop	3,666	4,053
10. Excavation and offsite incineration	49,056	49,302
11. Excavation, onsite incineration, and solidification	42,463	42,709

The reports were delivered on June 3, 1986 with the notice of a 3-week comment period ending June 25. A second public meeting was held on June 16 where a summary of the reports was provided and public questions and comments were received. A responsiveness summary addressing the comments received at the meeting is attached.

CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

To the extent practicable, it is EPA's intention to develop remedies that comply with all applicable and relevant Federal public health and environmental laws and regulations. Other Federal criteria, advisories, guidances, and State standards are also considered.

For Remedial Component I (Alternatives 1, 2 and 3), the lack of data to characterize the extent of the ground water contamination around MW-7 suggests that these alternatives may only provide a partial or interim remedy. A permanent remedy will be evaluated in a future study. Because these alternatives may be interim remedies, they would not necessarily be expected to comply with all applicable and appropriate requirements.

Alternative 1, No Action, would probably result in the Township continuing to purchase water and the continued "non-use" of the aquifer. Under EPA's ground water protection strategy, the aquifer in the area of MW-7 would be classified a Class 1 or Class 2 aquifer. These designations would prompt EPA to evaluate alternatives to restore the aquifer to a useable condition. As such, the No Action alternative would not be consistent with the ground water protection strategy nor would Alternative 2. Alternative 3, however, would allow the aquifer to be used by treating the water, but would not necessarily restore the aquifer in a true sense. To the extent that the aquifer would be restored, Alternative 3 would be considered a permanent remedy under the ground water protection strategy.

Under Alternative 3, the standards to consider in developing treatment or effluent limits would be the proposed maximum contaminant levels (MCL's) promulgated under the Safe Drinking Water Act (SDWA) and the State's "Interim Action Levels and Recommendations for Responses for Selected Organics in Drinking Water", developed pursuant to recent amendments to the State's safe drinking water act. This Act is commonly referred to as A-280.

Based on treatability studies performed for the Township and a comparison of the contaminants found with the MCL's, trichloroethene (trichloroethylene or TCE) appears to be the critical contaminant for determining the design paramaters for an air

stripper. The MCL for TCE is 5 micrograms per liter (ug/l). To meet this effluent criterion, the removal efficiency would have to be greater than 99 percent (influent concentration is approximately 500 ug/l). At this removal efficiency for TCE, the other contaminants which have proposed MCL's would also be expected to have effluent concentrations below their MCL's. From the available literature on actual field applications of air strippers, a 99+ percent removal is technically feasible. The proposed MCL's would, therefore, be appropriate and practical to use as the design effluent criteria.

The State's A-280 level 2 criteria could also be used for effluent design criteria. Of the contaminants detected in Well No. 7, only one compound (trans-1,2-dichloroethylene) has an A-280 action level (148 ug/l), although it does not have a proposed MCL. Two other compounds--1,1,1-trichloroethane and carbon tetrachloride--have A-280 levels lower than their MCL's. 1,1,1-trichloroethane has an A-280 level of 110 ug/l and an MCL of 200 ug/l, while carbon tetrachloride has an A-280 level of 2.7 ug/l and a MCL of 5 ug/l. The 99+ percent removal efficiency for trichloroethene required to meet the MCL would also be expected to result in 99+ percent removal efficiencies for 1,1,1-trichloroethane and carbon tetrachloride, which would bring the effluent levels well below the A-280 levels. In fact, the discharge concentrations can be brought down to the minimum action levels for these compounds as set by the NJDEP.

Since the A-280 levels can be achieved by designing the treatment system to meet the MCL's, EPA will use the proposed MCL's for the design effluent criteria, to be consistent with the SDWA.

Again, because of the lack of ground water data for the down-gradient plume, the alternatives in Remedial Component II are considered to be interim remedies at this time. As with Alternative 1, Alternatives 4 and 5 would not be consistent with EPA's ground water protection strategy. Both alternatives do, to different degrees, satisfy a primary goal of CERCLA and other environmental laws--i.e., to protect public health. For Alternative 4, the MCL's and the A-280 action levels would be appropriate to use to determine if a particular residence should be supplied with alternate water. Because of the time involved between sampling and receiving the results, EPA feels it would be prudent to use the more stringent level of A-280 "no-action" levels and the MCL's to determine if a residence should be supplied with municipal water. However, since some of the A-280 "no-action" levels are below the current routine detection limits, the detection limit would be the action level. For Alternative 5, consistency with both Federal and State drinking water standards would be ensured through existing regulations governing the water purveyors.

For Remedial Component III, the alternatives are intended to be permanent remedies for the materials found at Caldwell. Therefore, EPA policy dictates an evaluation of the alternatives vis-a-vis all other applicable environmental laws. The applicable and appropriate Federal requirements for Remedial Component III include the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA).

Alternative 6, No Action, would not comply with RCRA or TSCA. The presence of EP toxic waste and PCBs in the waste materials dictate disposal in a facility meeting RCRA and TSCA requirements. The current placement of the waste on-site does not comply with RCRA or TSCA disposal requirements. Alternative 7 would comply with existing RCRA closure requirements for landfills. Alternatives 8, 9, 10, and 11 are designed to be in full compliance with the technical requirements of both RCRA and TSCA. EPA's off-site disposal policy would ensure that the off-site facility for Alternatives 8 and 10 is in compliance with RCRA and TSCA. For Alternative 11, on-site incineration, to be in full compliance with RCRA, the incinerator residue or ash would have to be re-designated as a non-hazardous waste prior to placing the solidified ash on-site.

Other Federal criteria, advisories, guidances and State standards to be considered for Remedial Component III would include: State hazardous waste regulations, State air pollution regulations, Federal sole-source aquifer requirements, State Hazardous Waste Facility Siting Criteria, State solid waste regulations, State waste water discharge regulations, and local construction requirements.

Since the State hazardous waste regulations are an extension of RCRA, the two should be in close accord. However, in case of conflict, the Federal standard will apply.

Alternative 8, Off-Site Landfill, appears to be affected only by local construction regulations, such as run-off control, fire and building codes. EPA intends to comply with the technical requirements of those regulations.

For Alternative 9, On-Site Landfill, it would be appropriate to consider other State regulations and the Federal sole source aquifer requirements. The vaporization loop option in this alternative is intended to comply with State air pollution regulations. Although little to no leachate would be expected in the landfill's leachate collection system, treatment and disposal of any leachate would be designed to comply with State water pollution regulations. The site is located at the boundary of the area of concern for the Buried Valley Aquifer

System Sole Source Aquifer. The intent of the sole source aquifer designation is to protect the quality of the ground water, to allow its continued use as a safe potable water supply.

Alternative 9 satisfies this intent by removing a primary source of ground water contamination. To ensure that the on-site landfill would not become another source, the landfill would be double-lined and equipped with a leachate collection system. Any leachate that might migrate through the first liner would be collected in the leachate collection system and be properly disposed of. Locating the on-site landfill above existing grade allows for monitoring of the liners and collection system to ensure they are functioning properly. Adding the vaporization loop option to Alternative 9 provides further protection in that it removes significant amounts of the more mobile contaminants (volatile organics) and reduces the moisture content of the material. Reducing the moisture content reduces the amount of water available to produce leachate. Reducing the volatile organics decreases significantly the contaminants that can most easily migrate or leach from the waste. EPA feels that the design requirements for a RCRA secure landfill suffice to protect the ground water quality under the site, and therefore fulfill the intent of the sole source aquifer requirements. The vaporization loop would provide additional safeguards in that it would greatly reduce the likelihood of leachate being formed.

The construction of an on-site RCRA disposal facility under Alternative 9 would not comply fully with the State's Major Hazardous Waste Facility Siting Criteria. However, these criteria were developed for siting new commercial hazardous waste treatment and disposal facilities. Such criteria were not intended to be applied to remedial actions that correct an existing pollution problem. They are, in part, intended to prevent such occurrences, by helping to ensure proper disposal and to protect the health of nearby residents. EPA feels that the on-site landfill will properly dispose of the on-site wastes. EPA will also implement the necessary safeguards to protect the health of the residents in the area during and after construction.

Alternative 10, as well as Alternatives 8 and 9, will comply with local construction codes.

Alternative 11, On-Site Incineration, is intended to comply with State air pollution regulations. As with Alternative 9, it would not be in full compliance with State siting criteria. Solidification and placement of the ash on-site, although in compliance with RCRA, would not be in compliance with State solid waste regulations and may not satisfy the intent of the sole source aquifer requirement. Additional studies on the leachability of the contaminants from the solidified matrix

would be needed in order to evaluate the environmental impact of on-site deposition in relation to the solid waste regulations and the intent of the sole source aquifer requirements. Quench or scrubber water would be treated and disposed of according to State water pollution control regulations. As with all the excavation alternatives, all remedial activities would be performed in accordance with local construction requirements.

RECOMMENDED ALTERNATIVE

For Remedial Component I, Alternative 3, wellhead treatment, is the recommended alternative. Treatment of MW-7 allows for the continued use of local ground water, a very important resource for the area. This alternative will also relieve the burden on the Township of purchasing water to supplement the loss of MW-7.

Implementing a ground water treatment system is, in part, a step towards permanent remediation of the ground water in the area and consistent with EPA's ground water strategy. Additional studies to discover and mitigate other potential sources of contamination are also recommended. Pumping MW-7 will aid in any future investigations by controlling the ground water flow regime and also clean up an identified plume of contaminated ground water. Since the area between MW-7 and the site is not contaminated, pumping should prevent the contamination around the well from migrating north into this area. Conversely, to prevent MW-7 from drawing contamination from the site into this area, the well should not be pumped at a flow rate that would extend the cone of depression beyond Monitoring Well No. 8. Considering the present pumping pattern of industrial wells in the area EPA recommends that MW-7 flow rates not exceed 200-300 gpm, and that Monitoring Well No. 8 be maintained as and "Early Warning System" signaling any significant changes in this pattern in the future. Further pumping tests of MW-7 may be appropriate to determine the optimium pumping rate that would satisfy the Township's water demand without drawing contaminants back from the site.

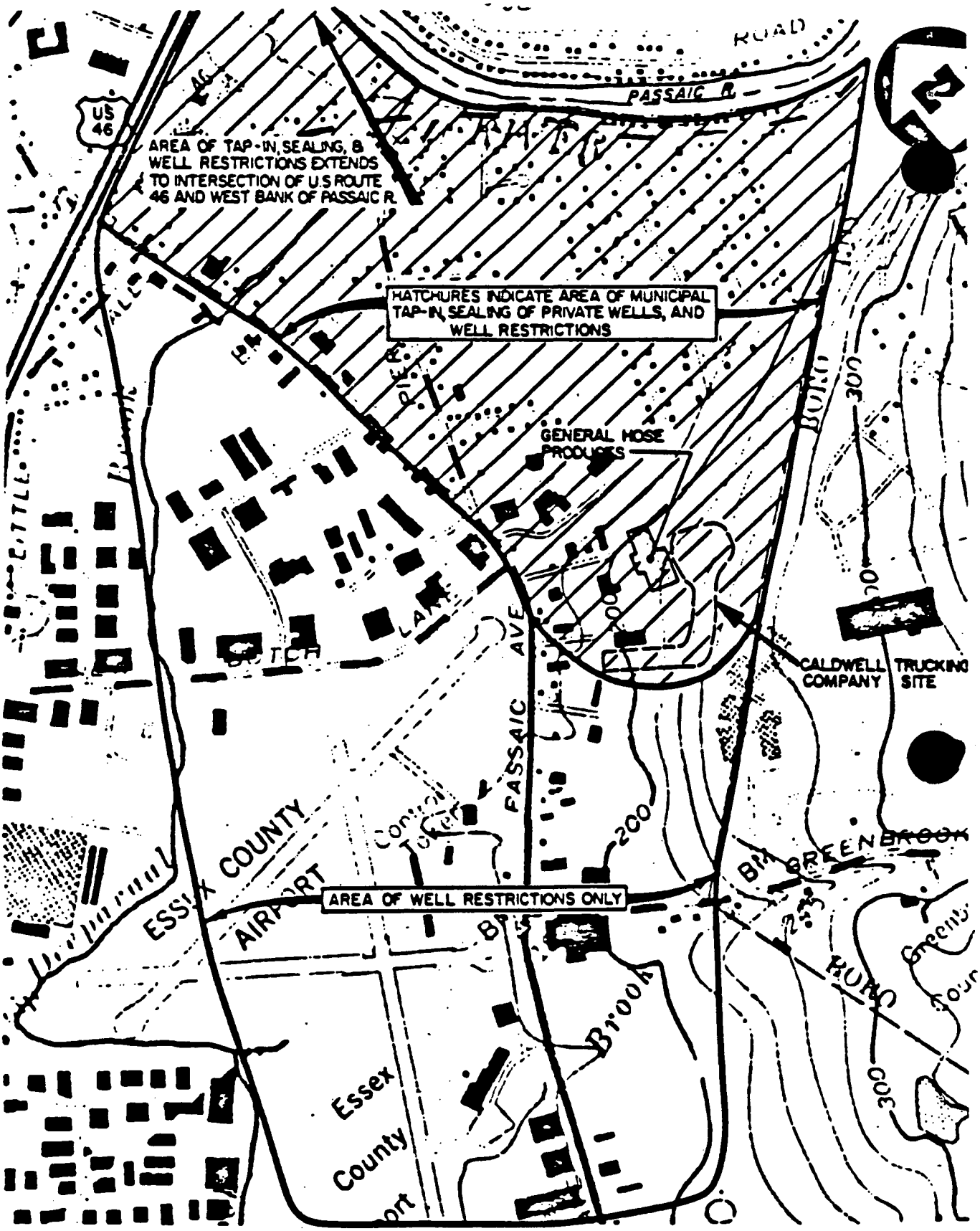
In summary, Alternatives 1 and 2 would allow the continued migration of contaminants and would not relieve the burden on the water resources of the area. As Alternative 3 involves capital equipment, it is necessarily more expensive than Alternative 2 in the short term. However, with lower operation and maintenance (O&M) expenses, it becomes more cost-effective over the long term, $288,000 over 30 years versus $297,000 for Alternative 2 (see Table 4).

For Remedial Component II, Alternative 5 is the recommended alternative. The data indicate that the downgradient plume is migrating laterally toward the private wells on the edge of the plume (see Figure 12). Since many wells within the plume are shut down, continued pumping of wells along the edge of the plume may be diverting the contaminants and extending the width of the plume. Connecting the homes north of the site and

TABLE 4

REMEDIAL ACTION ALTERNATIVES COST SUMMARY
CALDWELL TRUCKING COMPANY SITE
(Costs are in 1986 Dollars)

Remedial Action Alternative	Capital Costs ($1,000)	Annual O&M Costs ($1,000) Includes Monitoring and Post-Closure Maintenance (30 years)	Present-Worth Costs ($1,000)		
			Low	Baseline	High
Remedial Component I					
1. No action	-0-	-0-	-0-	-0-	-0-
2. Purchase of water from Passaic Valley Water Commission	-0-	31.5	—	297	—
3. Wellhead treatment of Municipal Well No. 7	222	7.0	—	288	—
Remedial Component II					
4. No action/monitoring	-0-	35.0	—	332	—
5. Alternative water supply and sealing of private wells	269	-0-	223	269	293
Remedial Component III					
6. No action	-0-	-0-	-0-	-0-	-0-
7. Capping	740	18.1	783	911	1,123
8. Excavation and offsite landfill	18,188	26.2	9,625	18,434	27,441
9. Excavation and onsite landfill	3,166	41.0	2,664	3,554	4,752
• With low temperature vaporization loop	3,666	41.0	3,115	4,053	5,300
10. Excavation and offsite incineration	49,056	26.2	34,496	49,302	69,375
11. Excavation, onsite incineration and solidification	42,463	26.2	41,783	42,709	43,964



AREAS FOR MUNICIPAL TAP-IN, SEALING OF PRIVATE WELLS, & WELL USE RESTRICTIONS
CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., NJ
SCALE: 1" = 1000'

FIGURE 12

NUS CORPORATION
A Halliburton Company

sealing their wells would protect the residents from future exposure and should retard the lateral expansion of the downgradient plume. Again, in this remedial component, a tradeoff exists between an immediate capital investment (Alternative 5) and long-term monitoring costs (Alternative 4). As can be seen in Table 4, Alternative 5 is more cost-effective over time, and has the advantage of removing 100 households from risk almost immediately.

Additional study is needed to determine if other sources (such as General Hose) may be contributing significantly to the plume and how to remediate the ground water problem that currently exists.

For Remedial Component III, Alternative 9, with the vaporization loop, is the recommended alternative. The No Action and capping alternatives would allow for the continued contamination of the ground water. Of the excavation alternatives, Alternative 9 is the most cost-effective alternative by which the wastes would be contained and prevented from contaminating the ground water. The vaporization loop adds a treatment step to the recommended alternative (See Figure 13). The loop would significantly reduce the concentration of volatile organics and therefore reduces the overall mobility of the waste to be contained on-site. The organics driven off by the heating process are collected in granular activated carbon canisters which, when fully loaded, are returned to the manufacturer for regeneration.

Alternative 8 costs appoximately $14 million more than Alternative 9 without providing any greater environmental benefit. It also adds an increased risk to public health during transportation. Alternative 10 presents a similar increased risk during transportation. Further, Alternative 10 was deemed not cost-effective since it provides only a small increase in environmental benefit at more than ten times the cost. Alternative 11, on-site incineration, was also considered to be not cost-effective since the degree of environmental benefit is not proportionately greater. In fact, future availability and capacity of incineration units, on- or off-site, are speculative at best.

In summary, the alternatives recommended at this time for the Caldwell site may not include all of the components associated with a permanent remedy for the site in its entirety. However, they do effectively address the three remedial components (or operable units) of the site, namely:

I. Restoring a lost water resource by providing well-head treatment, via air stripping, of MW-7.

II. Removing people from risk in the downgradient plume by providing municipal hook-ups and taking private wells out of service.

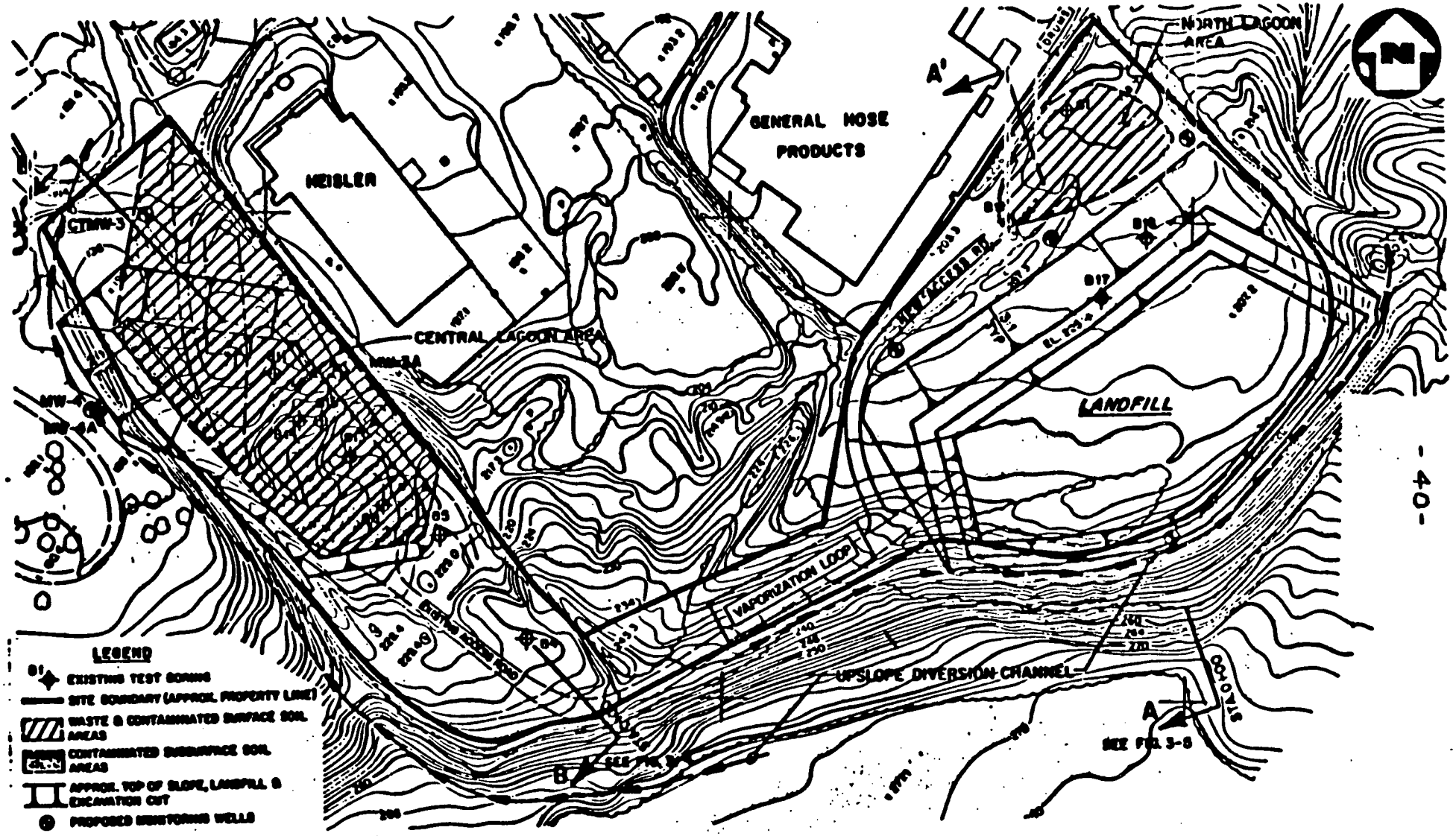


FIGURE - 13

ONSITE LANDFILL AND EXCAVATION PLAN
CALDWELL TRUCKING CO. SITE, FAIRFIELD TWP., N.J

SCALE IN FEET

NUS CORPORATION
A Halliburton Company

III. Effectively sealing off the Caldwell property as a source of future ground water contamination. The cost elements related to this alternative are shown in Table 5.

Ground water contamination in the vicinity of the site still remains to be addressed. Therefore, a supplemental Remedial Investigation and Feasibility Study should be performed to determine the full extent of ground water contamination, the contribution of the General Hose Products Company and other sources to that contamination, and what remedial measures need to be developed to remediate the ground water problems. If the study finds contaminated soil at General Hose that needs to be removed, it should be integrated with the Caldwell landfill if at all feasible.

TABLE 5

Selected Remedial Alternative (9) Capital Costs

Activity	Costs
Site Preparation	87,758
Landfill Construction	1,593,675
Tank Removal	150,057
Excavation & Backfill	701,654
Engineering & Contingencies (25%)	633,286
Sub-Total	$3,166,000
Vaporization Loop	500,000
Total Capital Costs	$3,666,000
Preparation of Detailed Design	500,000
Additional On-Site Investigation*	150,000
Construction Phase Costs:	
S&A by COE (.06 x $3.7 million)	222,000
E&D Changes (.01 x $3.7 million)	37,000
Bid Contingencies (.15 x $3.7 million)	555,000
Construction Change Orders/Claims (.08 x $4.5 million)	360,000
Total Funds Required	$5,490,000

Note: *As noted in the Feasibility Study, additional subsurface borings, surface samples, and the related lab analyses will be needed in the design stage to more precisely define the perimeter and volume of soils to be excavated and treated.

OPERATION & MAINTENANCE

Operation and Maintenance (O&M) will be required under two of the operable units (I and III) to ensure their continued effectiveness and reliability. As shown in Table 4, the O&M costs for Operable Unit I are estimated at $7,000 per year. These are solely for the operation of the air stripper. O&M costs for Operable Unit III are estimated at $41,000 per year and would include both post-closure and long-term monitoring, and general maintenance of the site such as ground and landfill care, fence repair, etc.

SCHEDULE

As noted below, post Record of Decision activities are contingent upon reauthorization of Superfund or advance match funding by the State of New Jersey.

Activity	Date
Approve Remedial Action	September 1986
Award IAG for Design	Pending Reauthorization or State Advance Funding
Amend State Superfund Contract for Design	"
Start Design**	"
Complete Design	"
Award IAG for Construction	"
Amend State Superfund Contract for Construction	"
Start Construction	"
Complete Construction	"

** The specifications for tap-ins to municipal water can be finalized first in the design phase and/or let separately for construction if desired.

FUTURE ACTIONS

As recommended here and in the RI/FS report, an additional study is needed to characterize the area's ground water contamination and to determine if treatment of the plume would be both feasible and cost-effective. The study should focus on the General Hose property as a potential plume source. In addition, to the extent practical, other contributors (sources) would be identified in the course of the above investigation.

RESPONSIVENESS SUMMARY
FOR THE
CALDWELL TRUCKING COMPANY SITE

TOWNSHIP OF FAIRFIELD
ESSEX COUNTY, NEW JERSEY

BASED ON COMMENTS FROM THE
PUBLIC MEETING OF
JUNE 16, 1986

INTRODUCTION

This Responsiveness Summary for the Caldwell Trucking Company Site outlines key community concerns regarding the Remedial Investigation and Feasibility Study (RI/FS) Report and the proposed alternatives for site remediation. These public comments will be taken into consideration when the U.S. Environmental Protection Agency (EPA) makes its final selection of the preferred remedial action. The Responsiveness Summary is prepared by the EPA to address these comments and is incorporated into the Record of Decision, which states the selected remedial alternative.

Major questions and comments that were made to the EPA during the public meeting of June 16, 1986, and comments that were submitted to the EPA in writing are summarized in this report. Comments with the EPA's response are categorized under separate topics.

ORAL COMMENTS

The following comments were made by citizens at the public meeting.

Topic: Well Sampling

Issue: Where was the screening on the monitoring wells?

Response: The bedrock wells were open bore-hole to the bottom of the line; the shallow wells were screened above the bedrock. I think we had 20 feet of screen, but I'm not exactly sure; it was right above the bedrock.

Issue: When you sampled the residential wells in the plume, were the residents notified that the wells would be sampled?

Response: We sampled 6 or 7 wells in the plume area. The residents knew that we were going to sample their wells. When we received phone calls from interested citizens, we told them that if we had any negative results, we would certainly get in touch with them right away. If there was no problem, we would not notify them as such.

Issue: When were the private wells sampled?

Response: We sampled them in May 1985.

Issue: My house is the last one on the left on your map, and we never received any calls notifying us that our well would be sampled. In fact, if any well should have been sampled, it should have been ours, because we're right in the center of the plume.

Response: Our objective was not to sample every well; we know the plume is there, we know where it is located, and we know at what level it lies. We simply wanted to confirm earlier sample results and sample a few houses that were not previously sampled.

Issue: I didn't know anything about the well-sampling. I knew nothing about this until yesterday when I read the article in the paper. The EPA said that I had to have my well sampled on my own if I wanted it sampled.

Response: Do you have a private well? What is your address?

[Citizen Comment]: About 2 or 3 years ago, all of the homes were checked out. I live next to you, and your well was checked.

Response: As we begin to explain the remedial alternatives, you will see that no one in this area is ignored. We know that the contamination is there, and we plan to address it.

Issue: Have you sampled any wells to the right of the plume? How have you ascertained the extent of the plume?

Response: Historically, the wells have been sampled within this area, and we sampled four of them as well. The wells are clean; we did not find any contamination in this area. However, this whole area is going to be addressed in a remedial alternative.

Issue: North of the site, where was the first monitoring well installed, if any?

Response: We have piezometers near the Passaic River, but we do not have monitoring wells north of the site.

Issue: Why is that?

Response: This is further reason why we feel that additional studies are needed. We did not have the time or the resources to encompass this area in our study because we were focusing on the relationship between the site and municipal well No. 7.

Issue: Would it be fair to say that, lacking information at present, there may possibly be other sources of the contamination that you found at your piezometers near the river?

Response: I would say that it is possible for other additional sources, but I would not say that there are other sources instead of the Caldwell Site.

Topic: Alternative Water Supply/Water Hook-ups

Issue: What are you going to do if a person doesn't want to be hooked up? My water is fine. At one one point, I could have switched, but at this point in life, I don't want to.

Response: There are two alternatives. You can continue to drink contaminated water, or we could require that the well be condemned.

Issue: If the well is clean, will it be condemned anyway?

Response: You are looking at a plume of contamination that is moving underground. Even if your well is not contaminated today, it could be by tomorrow.

Issue: How many homes are left that are not hooked up? We have millions of dollars being spent, but for what?

Response: We said that we--the EPA--will pay for any hook-ups.

Issue: How did you delineate the area that you recommended for water hook-ups? How did you establish the boundaries?

Response: We started with the plume area that we defined. The state DEP (Department of Environmental Protection) provided additional information about residential wells in other areas. We are dealing with an unknown. It is difficult to pinpoint exactly where a contamination zone is that you cannot see. It is silly to say that someone on one side of the street is going to get hook-ups and that someone living on the other side is not. We tried to come up with a general idea of where the plume is and then, being a little conservative in our approach, fanned out to include everyone who is potentially affected.

Issue: What about those of us on the eastern side of the plume who aren't eligible for hook-up? What about our health?

NJDEP
Response: On the eastern side of the plume--beginning at Carlos Drive--the State has been sampling wells in that area for the past 3 or 4 years, and the results have consistently shown no detectable or very low levels of contamination. The levels should remain the same over the next 9 to 12 months. Over the short term, your health should be okay.

Issue: Do you know for a fact that it should be okay, or are you just telling us that?

NJDEP
Response: We have quite a bit of data--since 1982--in that area. It would cost too much to sample every house; instead, we chose representative houses. I would suggest that if you feel uncomfortable with the data, then have a sample taken or contact the health department. The water is potable now, but over the long-term, it could become a problem.

Issue: If the residents in those areas close to the plume decided to connect to the hook-up at their own expense, would they be reimbursed once the money was appropriated?

Response: You could get reimbursed under the State's Spill Fund, but Superfund does not reimburse homeowners.

Issue: Could the hook-up be expedited in any way?

Response: The problem right now in expediting anything is that we are in limbo relative to Superfund reauthorization. Certainly, as soon as the funds are available, we will expedite the hook-up immediately.

Issue: If the people who are eligible for a hook-up did not want one, could they have the government put the money aside, which they could use if the problem was determined to exist?

Response: I would find it hard to believe that someone in the plume area would want to drink contaminated water. It would be to the benefit of homeowners to hook up to the public water supply to increase their property values. I'm not certain whether you would have a choice if you were in the middle of the plume area. The state has the authority to put the area under a well restriction, which would mean that all current wells would be sealed and no new wells would be constructed.

Topic: Remedial Investigation/Feasibility Study Results

Issue: What is the total volume of contaminated soil at the site?

Response: The volume is approximately 28,000 cubic yards. That would include several different areas.

Issue: What are the soil action levels--the approximate concentrations?

Response: For which compounds? You have a different action level for each compound, and these are in the report. I do not have the numbers off the top of my head.

Issue: Are these EPA levels or DEP levels?

Response: They are risk base levels primarily, and where there are action levels that exist either through EPA guidance or the state action levels, we use those.

Issue: Could you give us the approximate levels of concentration for lead and PCBs detected in the soil?

Response: The highest PCB level was 360 parts per million. There were several high readings like that, and they occurred in both the surface and subsurface soils but not outside certain areas. The highest level found in surface soil was 75 parts per million; the highest level found in subsurface soil was 360 parts per million and that was almost 15 feet.

Issue: Were the PCBs isolated in pockets, or were they fairly distributed?

Response: No, there isn't too much distribution. We were taking samples all the way down to 30 feet, and maybe only in one strata would we find PCBs. We did not find them all the way down.

Issue: What were the concentrations for lead?

Response: I think maybe 400 or 500 parts per million. They vary a lot.

Issue: Is that contamination more evenly distributed?

Response: No, it is the same situation as with the PCBs. We took as many samples as we could take. Some of the samples that we analyzed had very high levels of lead and PCBs. Exactly how the contaminants are distributed, I couldn't tell you. The difference is that we would detect lead in the surface as well as in the subsurface soil, but only rarely would we detect PCBs of any concentration in the surface soil.

Issue: Would the capping alternative include installation of a slurry wall?

Response: In this area, the land slopes in this direction. If the capping alternative were to be implemented, there would be a subsurface diversion wall keyed into the bedrock in this area so that any water that infiltrated and flowed through the soil or along the bedrock surface would not go underneath the cap. It would be diverted around the contaminated area.

Issue: Under one situation described (a remedial alternative), this land would not be usable forever? Or would there be some new technology to clean up the site?

Response: That is going to be the case with all of the alternatives except for total excavation.

Issue: The contamination that is in the ground--would that just be allowed to dissipate?

Response: The purpose of the cap is to minimize contaminant migration from the subsurface soils into the groundwater. Once you do that, it is not going to move appreciably.

Issue: But what about the problem that is already in the plume?

Response: We have a problem with people drinking contaminated water, so we have to provide an alternative water supply somehow; the way we'd like to do that is to connect everybody who is potentially affected to a public water supply. The second piece of this puzzle is that we have contamination on the site, and the cap deals with containing this contamination. Beyond that, there is a plume of contamination underground that we haven't fully defined. We are deferring our decision on how exactly to deal with that because we feel that there has to be additional testing to make sure we accurately define it and verify that there aren't any additional sources causing the problem. We are not writing off the groundwater problem, but we are deferring that decision until we get some more data. We will start that task as soon as possible; the only thing holding us back is Congressional approval of Superfund reauthorization.

Issue: In the alternative citing excavation and construction of a landfill, how much of the money--of the total cost involved--is for the construction and reinterment of the soil into the landfill?

Response: It will cost $3.2 million to do everything--that is, excavating the soil, constructing the landfill, putting the contaminated soil into the landfill, capping the landfill, and revegetating the area.

Issue: Couldn't you spend a small amount of money to better define where the concentrations of heavy metals and PCBs are, isolate those pockets, and vaporize the soil so as to be able to use the land for construction instead of a landfill?

Response: There are two problems. First, the nature of the material is such that unconsolidated material is glacial material with boulders and rocks. It is very difficult to get a good sample. We sampled as much as we could, but there were a lot of zones that we missed just because of mechanical difficulties. Therefore, we are unclear as to the exact distribution of the contaminants. However, their presence in the soil column is, no doubt, a large presence, and we have to assume that, at least at this point, they are somewhat evenly distributed. We are also obligated to follow regulations concerning PCB wastes, and we have to landfill that waste.

Issue: You said that the volatilization temperature was around 160 degrees. That seems very low, like "warm" on the oven.

Response: It is 160 degrees Fahrenheit. These chemicals have very high vapor pressures. We will have to refine that temperature and perform a pilot study to determine the exact temperature.

Issue: Will this volatilization process lead to air pollution?

Response: The gases coming from the dryer (in the air stripper system) will be contained in a knock-out drum, to remove moisture, and from there, they will go to a carbon adsorption container. At that point, all of the volatilization is picked up, and the air that is released is clean air.

Issue: How long would you maintain groundwater monitoring?

Response: We are deferring our decision on the groundwater problem until we collect more data and perform additional testing.

Issue: I'm concerned that your success will lead to your failure; that is, you are going to resolve the onsite problem but not the groundwater. As you take care of the onsite problem, the plume crisis will become less of a crisis in light of the national problem with the Superfund list, and this plume will wind up decreasing in terms of importance.

Response: We would not let that happen because we do not change the priority as a result of taking partial remedial action.

Issue: It is a concern because we would like to see the plume addressed before the plume moves any farther.

Response: We do not see that as a problem because the plume is not moving that quickly.

Issue: How far has the plume extended from the site already?

Response: It extends longitudinally about 4,000 feet all the way to the Passaic River; it measures approximately 1,500 feet in width.

Issue: The northwest part of the plume is not defined. Could you give us an idea as to what plans you have to discern where that plume is and what timetable you are operating on?

Response: Our contract with NUS terminates September 30, 1986, but NUS will be part of another team of contractors working for the EPA. Our plans would be to install some additional wells in that area. We are in a slowdown until Congress reauthorizes the funding--that is the only thing stopping us right now. The DEP has data available defining this area; a lot of work has already been done.

Issue: Did you say that Caldwell Trucking is not responsible for the contamination of municipal well No. 7?

Response: Under normal conditions, when well No. 7 is not pumping, it appears that the normal direction of groundwater is away from the well, toward the site. In other words, the well would be upgradient of the site. We do know that, through a pumping test, when the well is pumping at a normal rate necessary to supply water, the normal gradiant that would take the material away from the well reverses itself. When the well is pumping, there is the potential that contaminants from the Caldwell Site are drawn toward that well.

The pumping test that was done showed an isolated plume around the Caldwell Site and another isolated plume around Well No. 7. The theory is that there may be another source contributing to the contamination of well No. 7. Some of the contaminants in well No. 7 may have come from the Caldwell Site. Certainly, if you turned well No. 7 on, it would draw contaminants from the site toward the well. As a conservative approach to things, we are providing treatment to well No. 7.. Part of the additional studies we will be doing would help determine whether there are other sources in the area around well No. 7 that are contributing to the contamination. It is not that black and white relative to the impact from the Caldwell Site.

Issue: You said earlier that if you turned on well No. 7, it would draw contaminants to it. Was a capture zone analysis conducted for that well?

Response: Certainly, you could pump the well at a lower rate and create a hydraulic barrier so that the contaminants would not move as far, but the system is extremely complex and dynamic, affected not only by municipal well No. 7 but also by other industrial wells in the area. We would not only have had to control well No. 7 but a lot of other wells in the area, also.

Issue: Did you monitor contaminant concentrations during that pumping test?

Response: Yes. The well was contaminated as soon as we started to pump it, at approximately 0.5 parts per million total volatile organics. It was sampled every few hours for 7 days, and the levels gradually increased to 1.5 parts per million by the end of the pumping test.

Issue: Is well No. 7 on airport property? I see ditches at the airport full of oil.

Response: No, it is not on airport property. The airport is one of the areas that we will investigate in the future to determine whether it is a source of contamination.

Issue: When you begin the additional groundwater studies, will you put a monitoring well on airport or county property?

Response: We will come back before we begin the groundwater study and conduct a scoping meeting to get your input as to what areas you feel we should investigate.

Topic: Administrative/Legal Concerns

Issue: If you are going to build an aeration tower at well No. 7, why not build one at Fairfield's distribution point, which provides water for the whole system?

Response: Right now, the first priority is to provide people with a safe source of drinking water. We can do that in several ways. We can have you purchase the water from Passaic Valley and maybe foot the bill for that, or we can turn on well No. 7, provide some treatment, and get a good quality source of water. We are not defining (the treatment of) well No. 7 as the way to clean up the groundwater plume, and we are not saying that we need air strippers all over the place. What we are saying is that as a method of providing these people with a safe source of drinking water, well No. 7 seems to be a viable alternative, and the pumping rate appears to satisfy the current need for that well.

The township would apparently like to increase the capacity for that well and is looking for a larger unit than the EPA could pay for under the Superfund Program. Certainly, the township can pay the difference to have a larger unit installed, but the EPA can only pay for the Superfund-related problem. Any expansion would be up to the town to decide and to pay the difference. Also, there is no reason to treat the whole system, as there are only two wells that are contaminated in the system--Wells No. 2 and No. 7. And Well No. 2 is very small in comparison, pumping 50 gallons per minute compared to 400 gallons per minute.

Issue: Are you going to try to force Caldwell Trucking and General Hose to pay for the $4.5 million in costs?

Response: We will deal with that after we complete the remedial action.

Issue: I am representing the County Administrator's Office and would like to inform you that we will be submitting written commments. However, I do have several questions to ask tonight. You haven't defined a time schedule for this remediation process.

Response: Superfund reauthorization is really holding us up right now. We know that we are going to provide people with hook-ups to a public water supply.

Issue: The final concern deals with the process of having these regularly scheduled meetings with the public and the meetings held lately. We would like to see regularly scheduled meetings with the public to provide updates on the status of the project.

Response: Do you mean like every 6 months or so? We can do that.

Issue: In determining present-worth costs, what discount rate did you use?

Response: Ten percent, which you cannot get anymore.

Issue: How does this site rank on the National Priorities List?

Response: It is in the top 10 percent.

Issue: I understand that this particular site overlies a sole-source aquifer. What priority does a site affecting a sole-source aquifer receive from the EPA?

Response: Normally, as a general guidance, we try to address sites on the National Priorities List in the order of their priority. Once the remedial investigation begins, there is no advantage to increasing or decreasing the priority. We are going to move as fast as we can through the process. The trigger date is the day we start; from then on, we are restricted by how long it takes to collect the samples and to receive sample results, how long it takes to find a contractor, and so on.

Topic: Other Concerns

Issue: On the map, there is no indication of the Jersey City water pipeline. The pipe has not been cleaned. A lot of water is going over the pipeline. I've lived here for 26 and have had a lot of problems with my septic line. The first time there was a problem, the people along Orlando Drive received free water hook-ups because nobody knew where the contamination was coming from. I think you should investigate the factories in the area of the pipeline and, if they are in violation, then say so. Please clean up the pipeline.

Response: Could you show us where that pipeline is on the map? We acknowledge that we have some contamination off site, and we will deal with that. We also accept the fact that we have not fully delineated the extent of groundwater contamination, that there may be other sources in the area that are causing problems. We will notify the public when we start the investigation of other sources.

Issue: There aren't many people here tonight, even though there was an article in the paper. And you had to read that article very carefully to even know that there was going to be a meeting. Why wasn't there anything in the article to inform people of the meeting and to get more people to attend? (This question was directed toward a local official.)

Township
Response: I believe that the news release was distributed to all of the local papers. I don't know why the article did not mention it to a greater degree. Actually, we are not running this meeting; it is being conducted by the EPA.

WRITTEN COMMENTS

Source of Comments - Passaic River Coalition

Issue: The Remedial Investigation did not accomplish the original objectives; namely, to accurately define the nature and extent of the ground water contamination downgradient from the site and Well #2, and the contribution to that contamination by General Hose Products Co.

Response: During the Remedial Investigation, it became apparent that sources other than Caldwell Trucking and General Hose Products were contributing to the area ground water contamination. To properly investigate all the potential sources would have resulted in a substantial increase in the scope of the remedial investigation with corresponding increases in time and costs. At that time, additional funding for this site was limited and it was decided to utilize the available resources to the maximum extent possible. Sufficient funds were available to properly investigate Well #7 and Caldwell Trucking. Caldwell Trucking was believed to be the major source of the contamination and Well #7 appeared to be the most significant impact caused by the site. So as not to delay action on the Caldwell Trucking property and Well #7 while awaiting additional funding, EPA proceeded with the feasibility study to determine the cost-effective remedial actions for those portions of the site.

EPA recognizes that additional investigation of the ground water contamination, including identification of other sources such as General Hose Products, is necessary. Further investigation of General Hose Products will be included in the future investigation.

In regard to Well #2, the National Priority List description of the Caldwell Trucking Company site did reference Well #2. However, prior to our initiating the Superfund action at this site, EPA was informed by the State that, based on its investigation, Well #2 did not appear to be impacted by the site. Therefore Well #2 was not included in EPA's study.

Issue: The public comment period after the public meeting was very short, indicating prior conclusions and a possible disinterest in substantive comment.

Response: It is EPA's policy to hold the public meeting in the middle of the public comment period. The primary purpose is to allow the public to review the documents before the public meeting so that EPA can receive substantive comments and respond to specific questions and concerns at the public meeting.

Issue: The study shows that pumping Well #7 induces flow from the site and, hence, whether the site contaminated Well #7 in the past or not, the site clearly contributes to the continued shutdown of Well #7. Therefore, the site is a proven source of ground water contamination which makes Well #7 non-potable. EPA should make that conclusion.

Response: The concentration of contaminants, regardless of their origin, is responsible for Well #7 being non-potable. The pumping of Well #7 indicates a potential for contaminants to migrate from the site to Well #7. Because of this potential, EPA evaluated remedial alternatives for Well #7.

Issue: Alternative No. 1, the No Action Alternative, is clearly untenable, a straw man.

Response: EPA policy requires an evaluation of the "No Action" Alternative. The comment on this alternative will be considered in EPA's selection of the remedial action.

Issue: Alternative 2, purchase of water, requires Fairfield to assume the burden of contamination caused by others.

Response: If EPA were to choose this alternative, the financial burden of purchasing water may be assumed by the government. The burden of replacing the resource lies with the Passaic Valley Water Commission. EPA has considered this in the selection of the remedial action.

Issue: Alternative 3, wellhead treatment, should include a mechanism for divorcing Well #7's cone of influence (depression) from Caldwell Trucking's plume, since treatment at the wellhead is not viable if additional contamination is induced from the site.

Response: The remedial investigation indicates a potential for contaminants to migrate from the site to Well #7. This potential was realized at a pumping rate of

390 gpm. Based on the present pumping pattern in the area, EPA estimates that the maximum flow rates for MW-7 be held to the 200-300 gpm range, with the further precaution of using well No. 8 to monitor the clean zone between the site and MW-7.

Issue: Alternative 3, treatment at the wellhead, must not substitute for aquifer decontamination.

Response: Treatment at the wellhead is not intended to be the sole action for aquifer decontamination. The remedial alternatives for aquifer decontamination will be evaluated in a future study.

Issue: Remedial Component II - remediation of the ground water plume. The alternatives in this component are totally insufficient to address the problem of the downgradient plume. Additional alternatives should be evaluated.

Response: Remedial alternatives to address the ground water contamination will be evaluated in a future study. EPA recognizes, and did not intend for the alternatives presented to be a complete remedy for the downgradient plume. The alternatives are intended to evaluate the need for an interim action (operable unit) to prevent the consumption and exposure to contaminants by residents.

Issue: Alternatives 6 and 7 are clearly inadequate to the problem.

Response: For this particular site, EPA agrees.

Issue: Remedial Component III, remediation of on-site wastes and contaminated soils. An option not listed is to remove the VOCs (volatile organic compounds) through vaporization and remove the remaining contaminants to a secure location.

Response: This alternative is identified as an option to Alternative 9. This is the selected alternative for the on-site material. The on-site landfill will be designed and built to comply with the specifications of a secure hazardous waste landfill pursuant to the Resource Conservation and Recovery Act (RCRA).

Issue: The Fairfield area is located within the Buried Valley Aquifer Systems sole source aquifer. Its use as a hazardous waste dump was not suitable in the past nor is it suitable now.

Response: The sole source aquifer in the vicinity of the site was considered in EPA's selection of the remedial action for the on-site wastes. EPA believes the disposal of the wastes in a secure landfill designed to RCRA specifications will adequately protect the ground water. A further discussion of this appears in the Record of Decision under, "Consistency With Other Environmental Laws".

Source of Comments - Attorneys for Caldwell Trucking (PRP)

Issue: One of the stated objectives of the RI, namely, "to determine the nature and degree of contaminant migration off-site and related environmental impacts and public health hazards", indicates that NUS Corporation had some preconceived ideas about the site's contribution to the plume.

Response: RI/FS contractors like NUS conduct technical studies without prejudice. They base their findings and assumptions on field data and hence their reports are free of words such as "alleged", "reportedly", etc. Similarly, while the contractor may have seen evidence of other sources in performing the RI, the scope of the RI did not include searching for these sources. This will be part of the scope of a future RI/FS.

Issue: Hydrogeology - The contractor indicates that ground water flow and elevations in the deep aquifer underlying the study area are reported to be primarily controlled by fracture zones and an isolated, laterally continuous strata within the basalt of fractured, sedimentary rock. The report lacks quantitative data to support this conclusion.

Response: This comment is difficult to understand since the report discusses extensively the continuity of flow, the movement of contaminants in the direction of flow and their location as a result of flow. There are some wells which exhibit anomalous water levels such as GH-1, MW10, MW1, MW2. These wells are explained by NUS as not tapping the more regional fracture zone in which the contaminants are generally found. Such situations are not uncommon in fractured rock and therefore should not be surprising. Indeed, further testing might satisfactorally explain all anomalies, but such activity was beyond the necessary scope of the report. In addition, it is our opinion that the data from the RI/FS yielded a reasonable picture of the hydrologic conditions at the site.

Issue: The attorneys for Caldwell Trucking make the following assertion, " the narrow scope of the present RI and resulting data are inadequate to support the proposed finding that the site is a source of the plume of contaminants. Furthermore, the other conclusions of the report, narrow as it is, demonstrate that this finding is tentative, lacking in supporting data and premature."

Response: It is our opinion that the RI/FS has demonstrated beyond all doubt that the high concentrations of contaminants found in the buried lagoons on the site are leaching into the shallow and bedrock aquifers creating a plume.

Issue: The report states that the pumping of Well No. 7 over time resulted in localized reversal of the hydraulic gradient between the well and the site. No quantitiative evaluation (such as a capture zone analysis) was provided concerning the potential for drawing contaminants from the site to the well.

Response: Capture zone analysis was preformed by NUS and is illustrated by figures 4-8 and 4-9 of the RI. However, the problem is complicated by the pumping of industrial wells in the area.

Issue: Alternative #5, which proposes hooking-up a 100 residences in the plume area, appears premature or excessive at this point.

Response: It is our technical determination that the RI and additional State data show that 100 homes, which will be supplied with an alternate water supply, are either currently contaminated or have a potential for future contamination of their well water.