MARCH 1983

INITIAL ASSESSMENT STUDY OF MARINE CORPS BASE CAMP LEJEUNE NORTH CAROLINA

FINAL DRAFT

NEESA 13-011

NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY

Port Hueneme, California 93043

NOT FOR PUBLIC RELEASE

to Cogdels Creek and the New River poses health and environmental risks. Leachate and seepage to Cogdels Creek have been observed.

2.4.10 Site No. 30: Sneads Ferry Road--Fuel Tank Sludge Area. This site (PWDM cooridnates 18, G12) contains sludge and/or washout from storage tanks at the industrial area fuel farm. When the contents of two 12,000-gallon tanks were changed from leaded to unleaded fuel in 1970, sludge and/or washout was drained from the tanks by a private contractor and disposed of along a tank trail which intersects Sneads Ferry Road. Based on knowledge of tank capacity below tank outflow ports, about 600 gallons of sludge and washout were dumped. It is possible that the site has been used for similar wastes from other tanks. Therefore, the 600-gallon amount must be considered a minimum quantity estimate. Composition of sludge and/or washout is unknown and may vary from substantial amounts of tetraethyl lead to mostly cleaning compounds. Soils in the area are sandy and conducive to migration toward French Creek, about 1,500 feet away.

2.4.11 Site No. 35: Camp Geiger Area Fuel Farm. The site is at PWDM coordinates 12, C11. A leak in an underground fuel line occurred in the late 1950s (probably 1958) near the pad supporting the overhead tanks. Amount of fuel is estimated to be in the thousands of gallons and the fuel moved east toward Brinson Creek. Holes were dug to the water table. Where fuel was floating on the groundwater surface, it was ignited and burned. Fuel contaminating Brinson Creek also was ignited and burned. Distance from the fuel farm to Brinson Creek is approximately 400 feet.

2.4.12 Site No. 36: Camp Geiger Area Dump Near Sewage Treatment Plant. The site (PWDM coordinates 12, D13/E13) received mixed industrial and municipal wastes from 1950 and 1959. These were burned and later covered; however, some materials may have been dumped on the ground surface and covered unburned. The site is near Brinson Creek and a small roadside drainage ditch is located on the opposite side of the dump. The site covers 25,000 square feet and rises 10 to 12 feet above grade.

Estimated volume is 14,000 cubic yards. Wastes of concern are hydrocarbons (solvents, waste oils, and hydraulic fluids) that were generated at Camp Geiger or MCAS New River. As many as 10,000 to 15,000 gallons may have been disposed of over 9 years. Most were probably burned.

2.4.13 Site No. 41: Camp Geiger Dump Near Former Trailer Park. This dump (at PWDM coordinates 13, E2-3) was active from 1953 to 1970. According to interviews with MCAS New River and Camp Lejeune Base personnel, it received POL compounds, solvents, old batteries, other assorted municipal waste, some ordnance and, in 1964, bags of Mirex. The site is estimated to cover 15 acres and to contain 110,000 cubic yards of waste. The amount of solvents and oils disposed of is estimated to be about 10,000 to 15,000 gallons; the amount of Mirex is estimated to be several tons. The amount of ordnance is not known.

2.4.14 Site No. 45: Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm. This site is at PWDM coordinates 23, O13-14/P13-14. The two facilities are on each side of White Street and on the north side of Campbell Street. In 1978, 200 to 300 gallons of Avgas were spilled or leaked from this facility. It is estimated that during 1981-1982 more than 100,000 gallons of fuel leaked into the surrounding soil due to corrosion of underground lines at the JP Fuel Farm. These lines have been replaced with an aboveground system. Although the volume of Avgas loss is low, the estimate may be conservative.

2.4.15 Site No. 48: MCAS New River Mercury Dump Site. This area is at PWDM coordinates 23, D17/E17. From 1956 to 1966, metallic mercury from the delay lines of the radar units was reported to have been buried around the photo lab, Building 804. One gallon per year was disposed of in this area. More than 1000 pounds may be dispersed over approximately 20,000 square feet adjacent to the New River.

2.4.16 Site No. 54: Crash Crew Fire Training Burn Pit. This site (PWDM coordinates 23, O24-25/P24-25) is an area off Runway 5-23 that has

3.4.11 Site No. 35: Camp Geiger Area Fuel Farm. Hazardous chemicals in residuals from past fuel spills may presently exist in soils. Migration of these chemicals to nearby Brinson Creek could adversely impact the aquatic environment.

3.4.12 Site No. 36: Camp Geiger Area Dump Near Sewage Treatment Plant. Solvents, waste oils, and hydraulic fluids in the dump may move through the soil to contaminate nearby Brinson Creek or roadside drainage ditches flowing to Brinson Creek. Adverse effects on stream biota could then occur.

3.4.13 Site No. 41: Camp Geiger Dump Near Former Trailer Park. POL, solvents, Mirex, and lead from batteries are among hazardous substances which were disposed of at this site. These substances may migrate to tributaries of Southwest Creek, thereby causing environmental harm. Some ordnance was disposed of at this site and may pose a health hazard during on-site investigations or construction.

3.4.14 Site No. 45: Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm at MCAC New River. As a result of fuel spillage/leakage, tetraethyl lead and hydrocarbons may move through the soils to nearby drainage ditches and eventually to Southwest Creek or potable water wells.

3.4.15 Site No. 48: MCAS New River Mercury Dump Site. Mercury dumped on or in the ground near the New River may be migrating to the river causing toxic effects to stream biota and persons consuming fish.

3.4.16 Site No. 54: Crash Crew Fire Training Burn Pit at MCAC New River. Harmful substances (e.g., lead) in waste fuels, oils, and solvents may still remain in the soils near the pit. Potentially, they could migrate toward and into drainage ditches flowing to Southwest Creek and cause adverse impacts on aquatic systems.

Site No.: 36

Name: Camp Geiger Area Dump

Location: PWDM Coordinates 12, D13, E13; east of Camp Geiger Area Sewage Treatment Plant on south side of Brinson Creek

Figures and Photos: 2-1, 6-19, 6-20

Size: Area is about 25,000 square feet.

Previously Reported: No

Activity: Site was used for disposal of municipal wastes and mixed industrial waste from the air station. Most material was burned and buried, but some unburned material was buried.

Materials Involved: Garbage, trash, waste oils, solvents, hydraulic fluids

Quantity: According to interviews, less than 5 percent of all hydrocarbons used at the air station were disposed of in dumps. The rest was used for dust control on roads or went directly into storm drains. Based on interviews, a conservative estimate is that 700 to 1,000 gallons per week were used on roads. A smaller but undetermined amount was washed into the storm drains. Using a 5-percent estimate for dumping over 9 years, about 25,000 gallons of material could have been dumped into storm drains. Assuming this amount was split between this site and the trailer park dump (Site No. 41), an estimated 10,000 to 15,000 gallons of solvent and oil were placed here. Most probably were burned.

When: Late 1940s to late 1950s

Comments: Movement of contaminants via water table aquifer and surface runoff will be toward Brinson Creek or roadside drainage ditch south of dump. The site covers about 25,000 square feet and rises 10 to 12 feet above grade. Estimated volume is 14,000 cubic yards, based on an average depth of fill of 15 feet.

Note: Size estimates are based on map and photograph information. Field estimates may have been made, but no field measurements have been performed. Estimates are provided for general guidance only.

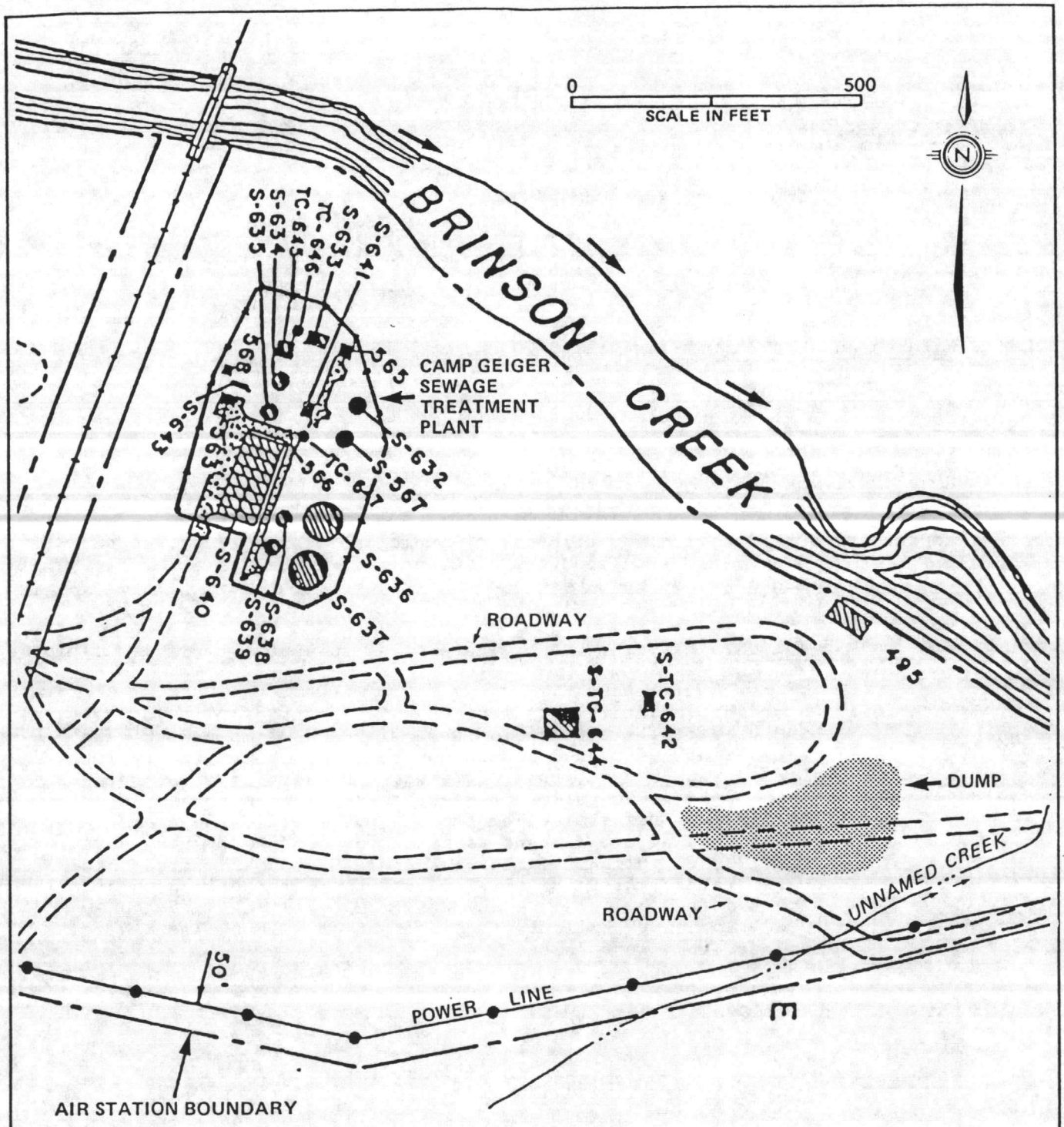


FIGURE 6–20
Detail of Site No. 36, Camp Geiger Area Dump (near STP)

SOURCE: BASE PUBLIC WORKS DEVELOPMENT MAP, SHEET 12 OF 24, JUNE 30, 1979.

that approximately 500 gallons of pesticides were released from the deposition of the bags. Approximately 2,200 gallons of pesticides, contained in drums, were deposited at the site. It is estimated that 1,100 gallons of PCB-containing oil were buried at the site.

2.2.6 Operable Unit No. 6 (Sites 35, 36, 41, and 86)

Site 35 (Camp Geiger Area Fuel Farm), Site 36 (Camp Geiger Area Dump Near the Sewage Treatment Plant), Site 41 (Camp Geiger Dump Near Former Trailer Park), and Site 86 (Tank Area AS419-AS421 at Marine Corps Air Station) will be investigated as an Operable Unit. These sites are described below.

Site 35 - Camp Geiger Area Fuel Farm

Camp Geiger Area Fuel Farm is located north of the intersection of G and Fourth Streets, approximately 400 feet southwest of Brinson Creek. This 2,500-square-foot site was used in 1957 and 1958 for storing and pumping fuel. Gas was released to the soil through a leak in an underground line near an above-ground storage tank and tank pad. The Camp Lejeune Fire Department has estimated the amount of fuel released to be in the thousands of gallons. Exact quantities released cannot be determined because the records were destroyed. The spill migrated east and northeast toward and into Brinson Creek. Fuel at the surface of the shallow aquifer was disposed of by digging holes to the water table and igniting the fuel. Fuel which contaminated Brinson Creek was also ignited and burned.

Site 36 - Camp Geiger Area Dump near Sewage Treatment Plant (STP)

The Camp Geiger Area Dump is located east of the Camp Geiger STP approximately 200 feet on the south side of Brinson Creek, downstream of Site 35. An unnamed ditch is located less than 100 feet southeast of the filled area. Site 36 was used for the disposal of municipal wastes and mixed industrial wastes including garbage, trash, waste oils, solvents, and hydraulic fluids from the air station from the late 1940s to the late 1950s. Most of the material was first burned and then buried. However, some unburned material was buried. According to interviews conducted during the IAS process, less than 5 percent of all hydrocarbons used at the air station were disposed of at the site. The remainder was used for dust control on roads or went directly into storm drains. A conservative estimate of the quantities used for dust control is 700 to 1,000 gallons per week. A smaller but undetermined amount was washed down the storm drains. Using a 5 percent estimate for dumping over the 9 years of operation,

approximately 25, 000 gallons of material could have been disposed of in the landfill areas. If it is assumed that this amount was split between this site and the trailer park dump (Site 41), 10,000 to 15,000 gallons of solvents and oils may have been placed into Site 36. The records state that all waste solvents and oils were burned after disposal at this site.

The site covers about 25,000 square feet and rises about 10 to 12 feet above grade. Based on an average depth of fill of 15 feet, the estimated volume of the disposal area is 14,000 cubic yards. These estimates are based on map and photographic information only. No field measurements have been performed for this purpose.

Site 41 - Camp Geiger Dump near Former Trailer Park

The Camp Geiger Dump is located south of the terminus of Robert L. Wilson Boulevard and south of the abandoned trailer park. The area lies between an unnamed creek and Tank Creek. This 30-acre disposal area was operated from 1946 to 1970, and was used as an open burn dump that received mixed industrial waste, commercial waste, construction debris, waste oils, solvents from the air station, garbage, trash, asphalt, concrete, old batteries, Mirex, and ordnance. The size estimate for Site 41 is based on map and photographic information. Field estimates have been made, but no field measurements were performed.

Based on interviews with MCAS New River and Camp Lejeune personnel, it is estimated that 10,000 to 15,000 gallons of waste oils and solvents were disposed of at this site. Most of these wastes were probably burned. The number of old lead-containing batteries disposed of is assumed to be relatively small. Tons of Mirex in bags were disposed of in 1964. The disposed quantity of ordnance is estimated to include thousands of mortar shells. At least one case of grenades and one 105mm howitzer shell were also reported to have been disposed of within the filled area. In the mid-1960s over a 1- to 2-year period, at least two waste disposal incidents occurred during which two truckloads of drummed wastes were unloaded at the site. These wastes were described as being similar to those disposed of at the Rifle Range Chemical Dump (Site 69). No other information concerning drum content was obtained. Based on an estimated fill depth of 5 feet, the total estimated volume of the site is approximately 110,000 cubic yards.

TABLE 3-2

UPCOMING FY 93-97 OPERABLE UNIT IRP ACTIVITIES

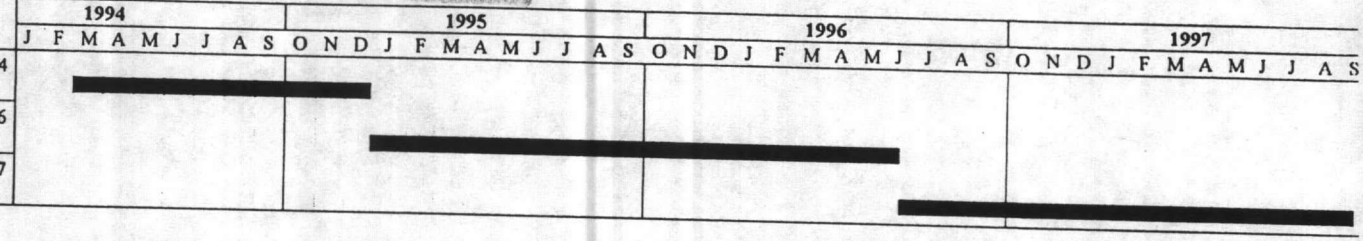
Operable Unit	Site No.	Activity	Planned Start Up	Planned Completion
6	35, 36, 41, and 86	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 94 FY 95 FY 96	FY 95 FY 96 FY 97(2)
7	1, 28 and 30	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 93 FY 94 FY 95	FY 94 FY 95 FY 96(2)
8	16	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 93 FY 94 FY 95	FY 94 FY 95 FY 97(2)
9	73	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 94 FY 95 FY 96	FY 95 FY 96 FY 97(2)

(1) Remedial construction activities must commence within 15 months following the Record of Decision.
(2) Final Remedial Action Work Plans to be completed and construction activities initiated.

Table 4-7: Site Management Schedule

Sites 35, 36, 41, and 86 (Operable Unit No. 6) - MCB Camp Lejeune, NC

Task	Days	Start	Finish
RI/FS Project Plan (1)	300d	3/1/94	12/26/94
RI/FS, PRAP, and ROD (2)	536d	12/26/94	6/14/96
RD/RA (3)	457d	6/14/96	9/14/97



(1) RI/FS Project Plans include the preparation of a Preliminary Draft, Draft, Draft Final, and Final RI/FS Work Plan, Sampling and Analysis Plan, and Health and Safety Plan. Government review times are based on the FFA. Notice to proceed (March 1, 1994) is an estimation.

(2) RI/FS, PRAP, and ROD duration is based on similar projects (e.g., same as Operable Unit No. 2) and include Government review times specified in the FFA for Primary and Secondary documents.

(3) Remedial Design (RD) duration is approximately 15 months. Section 120(e)(2) of CERCLA requires that remedial action (i.e., construction activities) begin 15 months following the ROD.

SITE SUMMARY REPORT
FINAL

MARINE CORPS BASE
Camp Lejeune, North Carolina

Contract No. N62470-83-B-6101

Prepared For:

Naval Facilities Engineering Command
Atlantic Division

Prepared By:

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
Plymouth Meeting, Pennsylvania

ESE PROJECT NO. 49-02036

September 1990

3.11 SITE 36 - CAMP GEIGER AREA DUMP NEAR SEWAGE TREATMENT PLANT (STP)

3.11.1 SITE BACKGROUND

The Camp Geiger Area Dump (Figure 36-1) is located east of the Camp Geiger STP approximately 200 feet on the south side of Brinson Creek, downstream of Site 35 (PWDM Coordinates 12, D13, E13). An unnamed ditch is located less than 100 feet southeast of the filled area. Site 36 was used for the disposal of municipal wastes and mixed industrial wastes including garbage, trash, waste oils, solvents, and hydraulic fluids from the air station from the late 1940's to the late 1950's. Most of the material was first burned and then buried. However, some unburned material was buried. According to interviews conducted during the IAS process, less than five percent of all hydrocarbons used at the air station were disposed of at the site. The rest was used for dust control on roads or went directly into storm drains. A conservative estimate of the quantities used for dust control is 700 to 1,000 gallon per week. A smaller but undetermined amount was washed down the storm drains. Using a 5-percent estimate for dumping over the nine years of operation, approximately 25,000 gallons of material could have been disposed of in the landfill areas. If it is assumed that this amount was split between this AOC and the trailer park dump (Site 41), 10,000 to 15,000 gallons of solvents and oils may have been placed into Site 36. The records state that all waste solvents and oils were burned after disposal at this AOC.

The site covers about 25,000 square feet and rises about 10 to 12 feet above grade. Based on an average depth of fill of 15 feet, the estimated volume of the disposal area is 14,000 cubic yards. These estimates are based on map and photographic information only. No field measurements have been performed for this purpose.

The site is underlain primarily by silty sand, with layers of silty clayey sand, clay, and coarse sand. A geologic cross section (Figure 36-2) is drawn on a east west line (Figure 36-3). The surface of the shallow groundwater lies within the silty sand at depths ranging from 4.23 to 5.02 feet below land surface. The groundwater contour map (Figure 36-4) indicates that

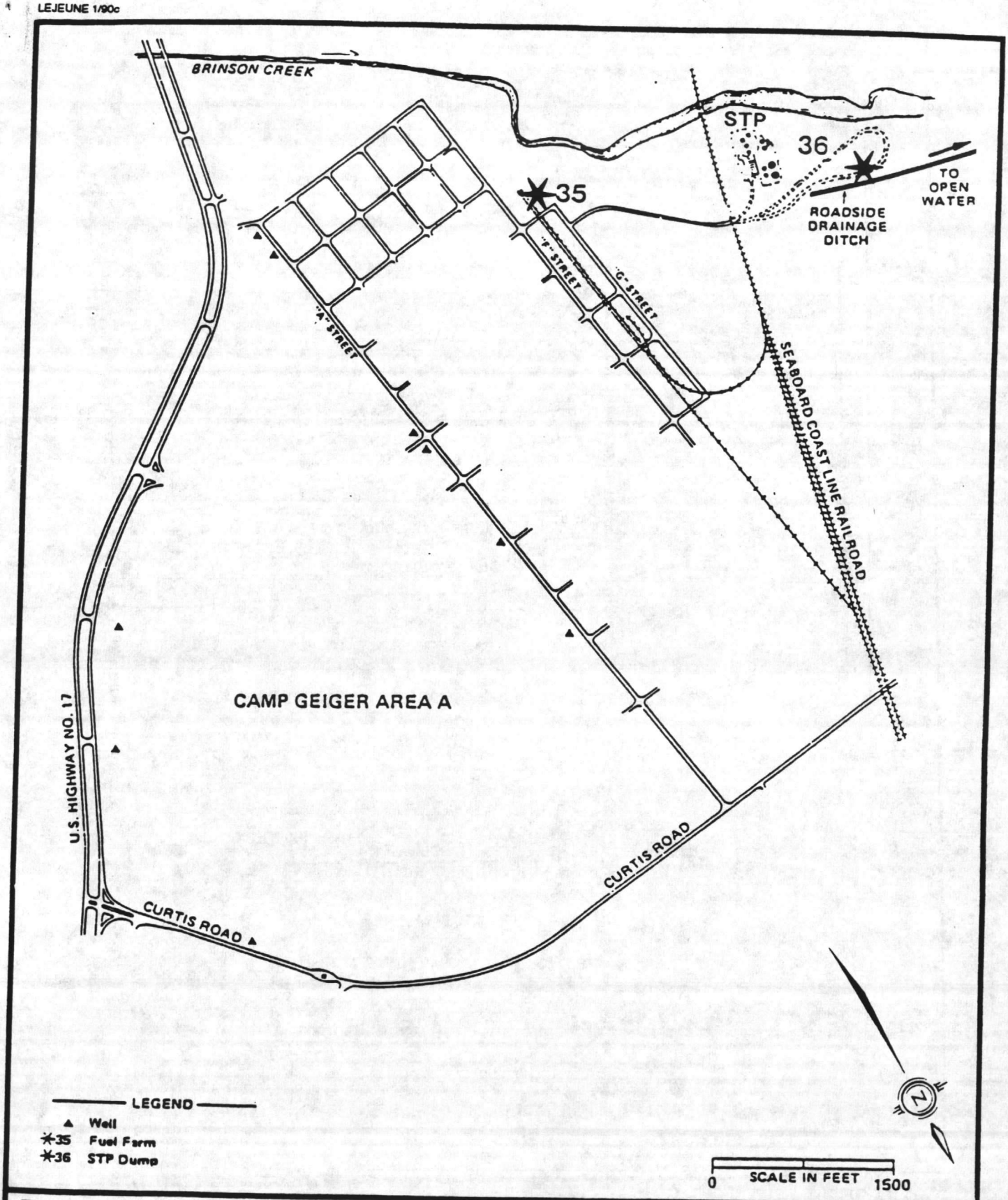


Figure 36-1
SITE LOCATION, SITE 36
CAMP GEIGER AREA DUMP (NEAR STP)

SOURCES: WATER AND AIR RESEARCH, INC., 1983; ESE, 1990.

MARINE CORPS BASE
CAMP LEJEUNE

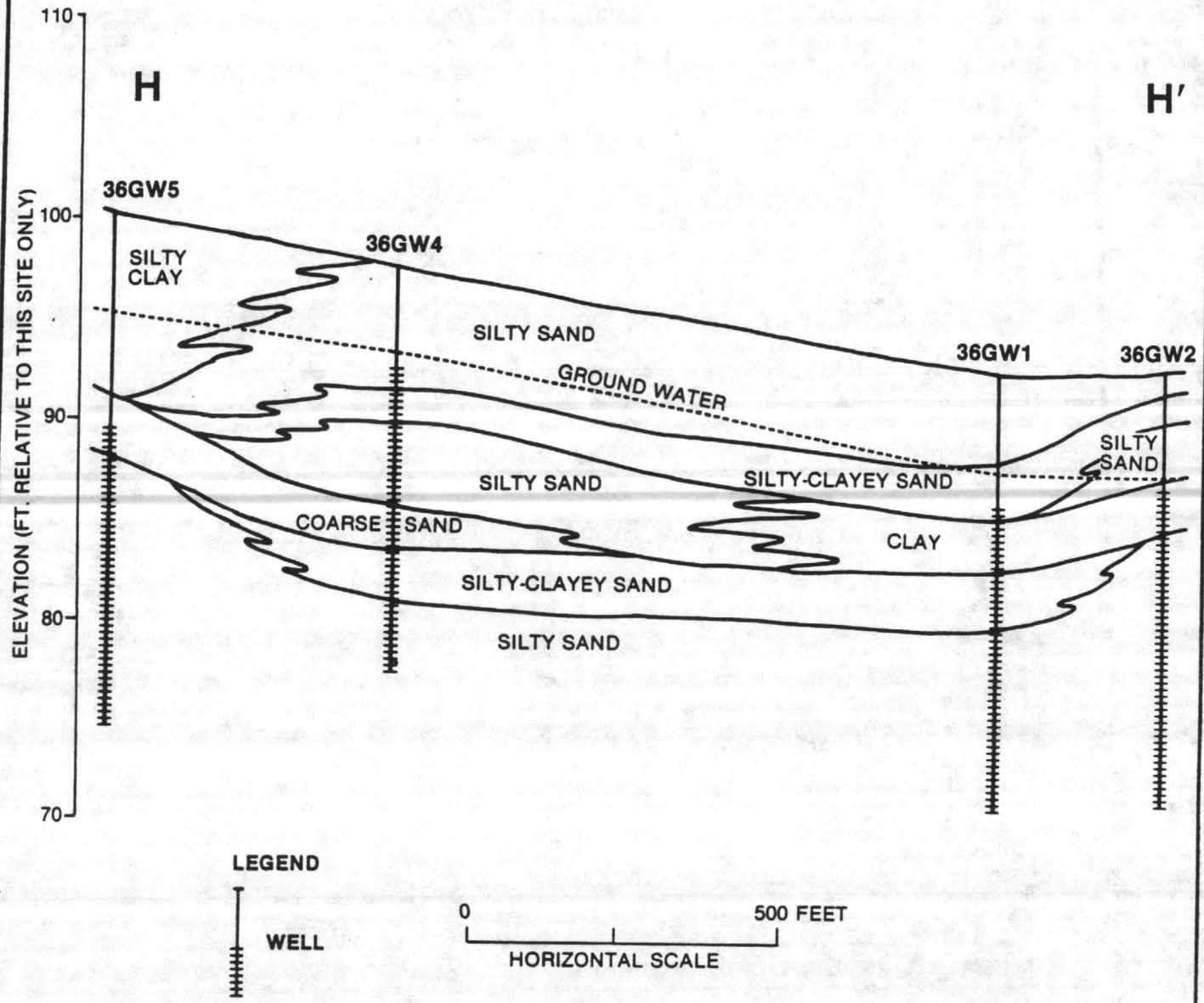
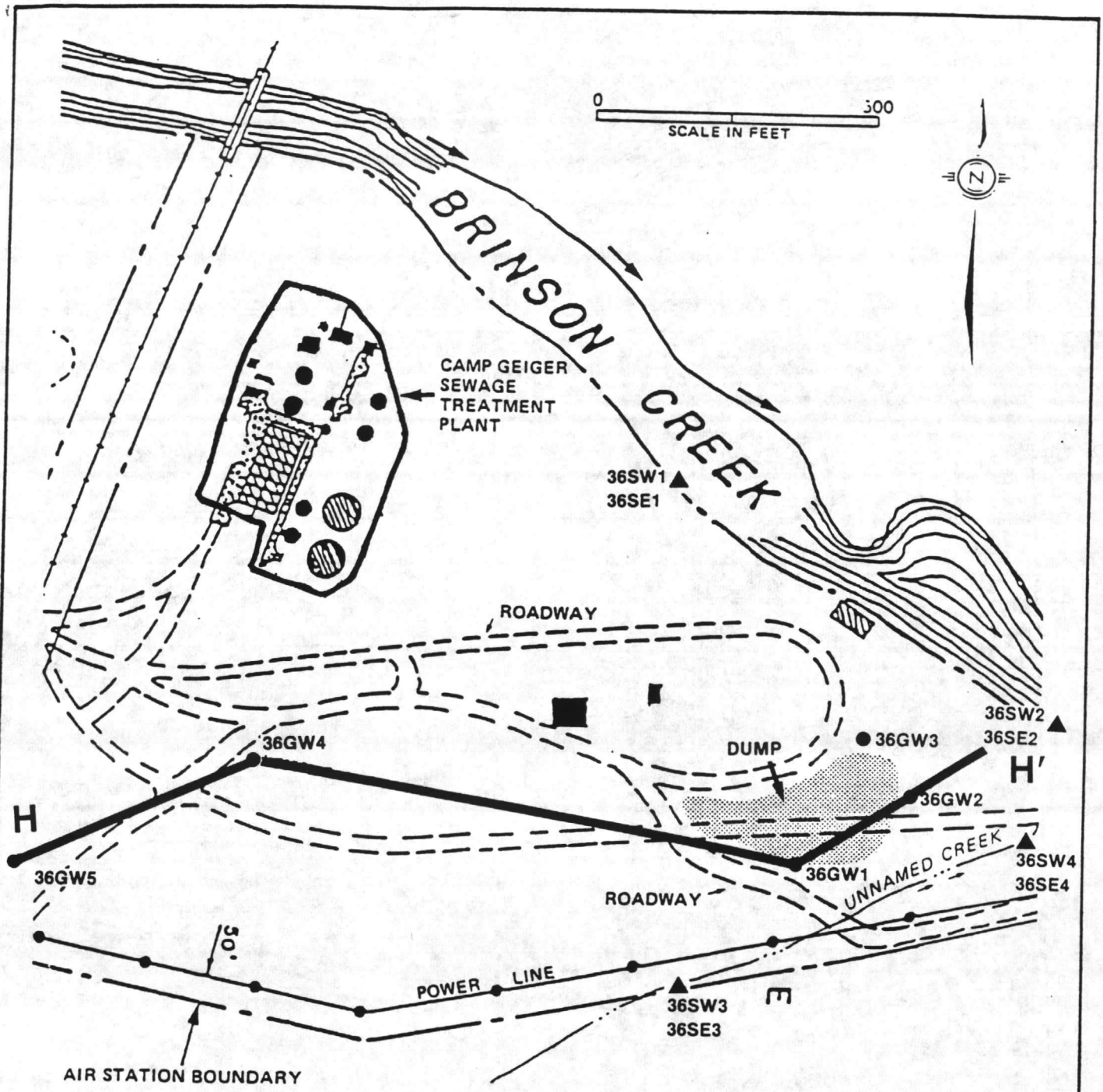


Figure 36-2
GEOLOGIC CROSS SECTION, SITE 36—
CAMP GEIGER AREA DUMP (NEAR STP)

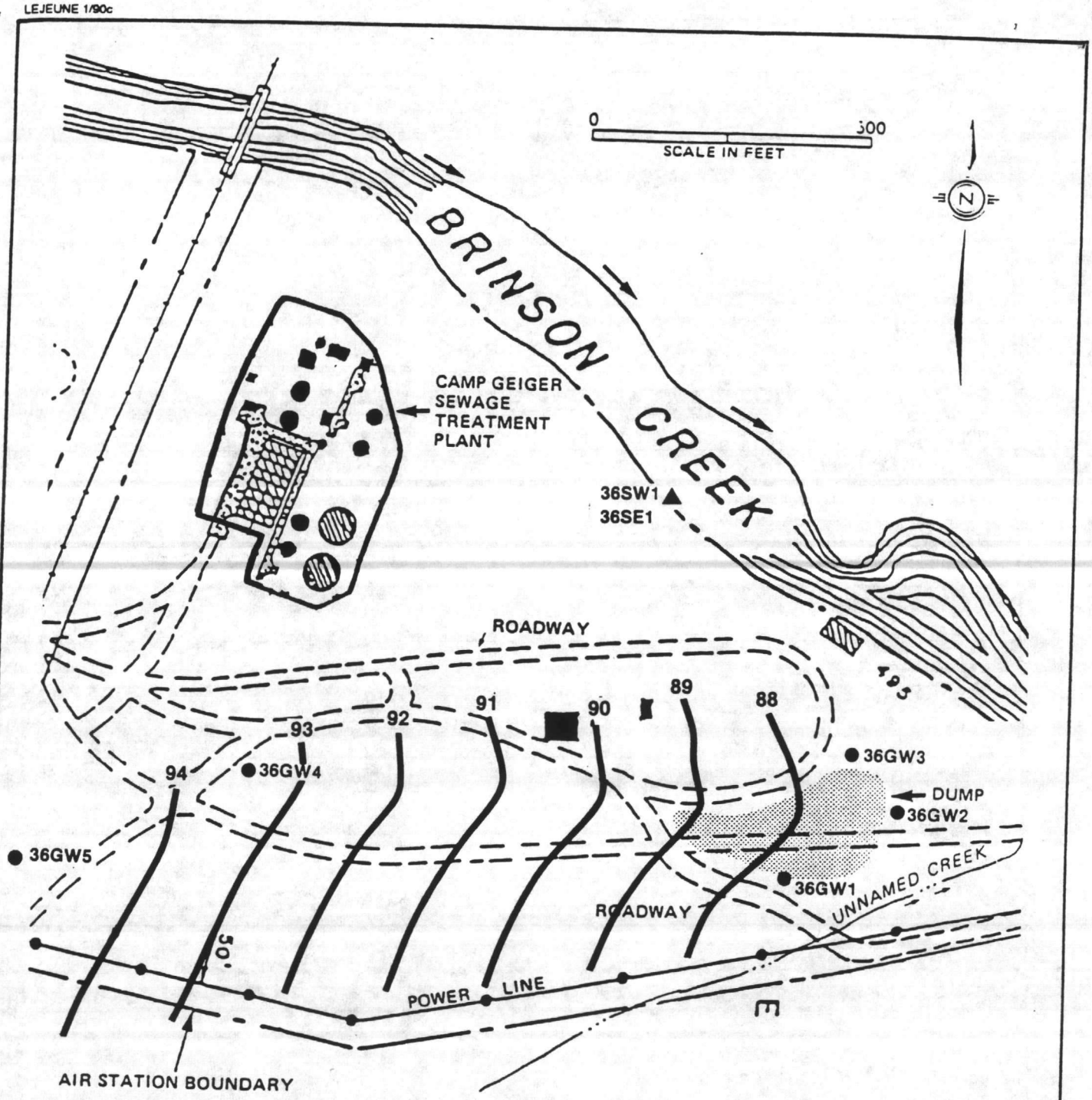
MARINE CORPS BASE
CAMP LEJEUNE



SOURCES: Water and Air Research, Inc., 1983.
ESE, 1987.

Figure 36-3
GEOLOGIC CROSS SECTION LOCATION, SITE 36—CAMP GEIGER AREA DUMP (NEAR STP)

MARINE CORPS BASE
CAMP LEJEUNE



LEGEND

● MONITOR WELL

CONTOUR INTERVAL 1'
ALL ELEVATIONS RELATIVE TO THIS SITE ONLY

SOURCES: Water and Air Research, Inc., 1983.
ESE, 1987.

Figure 36-4
GROUND WATER CONTOUR MAP—
SHALLOW AQUIFER, SITE 36—
CAMP GEIGER AREA DUMP (NEAR STP)

MARINE CORPS BASE
CAMP LEJEUNE

shallow groundwater flows east towards the unnamed creek and Brinson Creek, with a gradient of approximately 0.018 ft/ft.

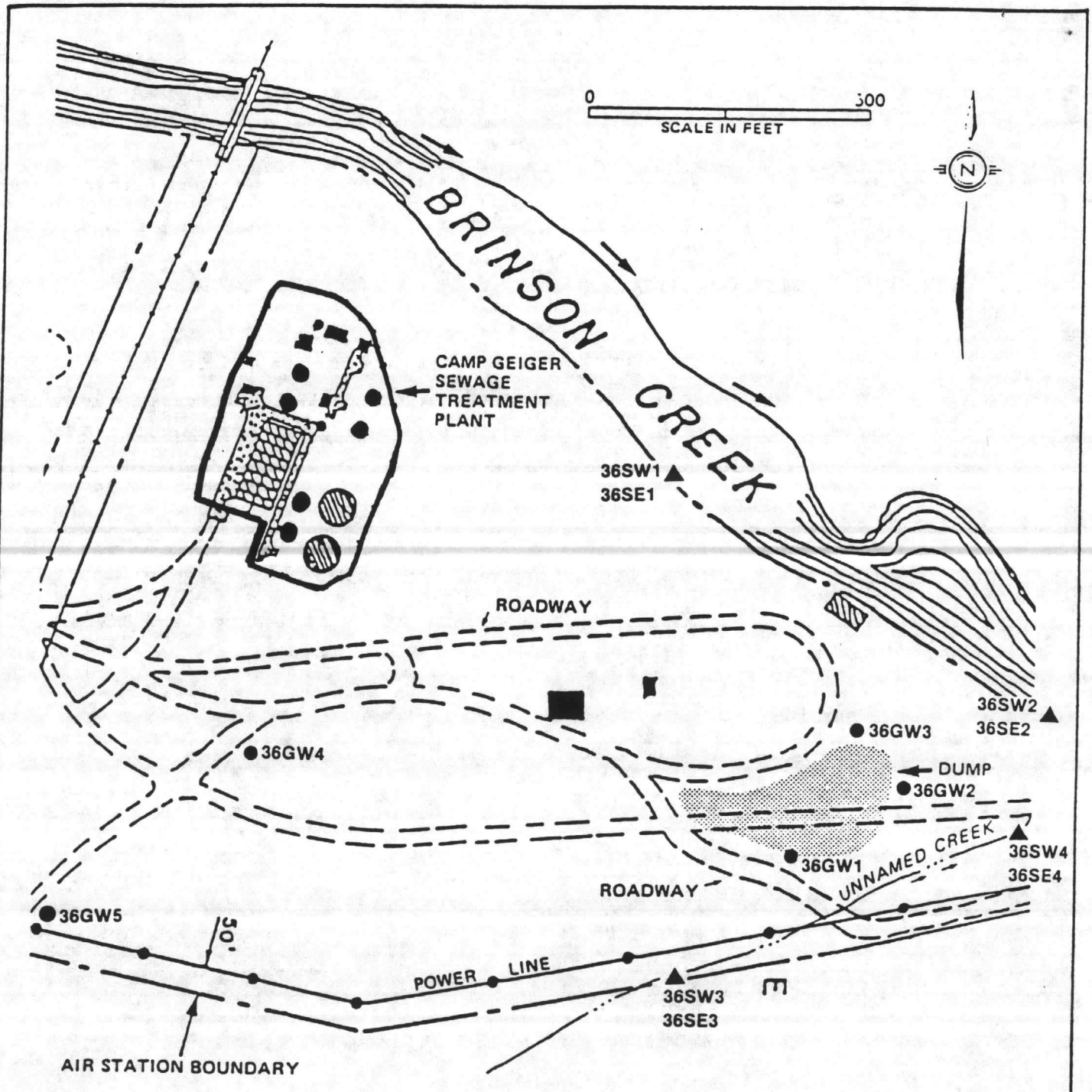
3.11.2 SITE INVESTIGATION

GROUNDWATER

Five shallow groundwater monitoring wells were installed at Site 36, four in 1984 and one in 1986. Well 36GW1 was placed on the southern side of the disposal area. Wells 36GW2 and 36GW3 were placed on the east and northeast sides of the disposal area between the disposal area and Brinson Creek. Well 36GW4 was installed as a background well approximately 300 feet to the west (upgradient) of the disposal area. Well 36GW5 was placed to the west of the site as an additional upgradient monitoring point. Figure 36-5 presents the location of each well. The samples from these monitoring wells were analyzed for the following target compounds:

- Cadmium
- Chromium
- Hexavalent chromium (1986/87 only)
- Lead
- Volatile organics (VOC)
- Oil and grease (O&G)
- Total phenol
- Ethylene dibromide (EDB) (1986/87 only)
- Xylene (1986/87 only)
- Methyl ethyl ketone (MEK) (1986/87 only)
- Methyl isobutyl ketone (MIBK) (1986/87 only)

Appendix A lists all individual target analytes and their abbreviations. Table 36-1 presents the analytical results for those analytes that were detected above the applicable method detection limits. Cadmium, chromium, lead, and phenols were detected in all four monitoring wells in July 1984. The detected concentrations in all four monitoring wells were similar, including Well 36GW4, the upgradient well. Well 36GW4 was the only well that indicated detectable levels of VOCs. These chemical data support the burning/burial of metallic objects throughout the dump and the probable



SOURCES: Water and Air Research, Inc., 1983.
ESE, 1987.

Figure 36-5
SAMPLING LOCATIONS, SITE 36—
CAMP GEIGER AREA DUMP (NEAR STP)

MARINE CORPS BASE
CAMP LEJEUNE

TABLE 36-1.

SITE 36 - CAMP GEIGER DUMP AREA NEAR SEWAGE TREATMENT PLANT (STP) (Page 1 of 2)
DETECTED TARGET ANALYTES
GROUND WATER SAMPLES

DATE	NC GW STANDARD	36GW1 7/31/84	36GW1 7/31/84	36GW1 12/9/86	36GW2 7/31/84	36GW2 7/31/84	36GW2 12/9/89	36GW3 7/31/84	36GW3 7/31/84	36GW3 12/9/86
PARAMETER										
T-1,2-DICHLORO-ETHENE	70	<0.7	<0.7	<1.6	<0.7	<0.7	<1.6	<0.7	<0.7	<1.6
METHYLENE CHLORIDE	5	<0.6	<0.7	<2.8	<0.6	<0.7	<2.8	<0.6	<0.7	<2.8
1,1,2,2-TETRA-CHLOROETHANE	NONE	<0.5	<0.5	<4.1	<0.5	<0.5	<4.1	<0.5	<0.5	<4.1
CADMIUM	5	12	8	3	14	19	4	7	NA	<2.9
CHROMIUM	50	480	510	130	420	680	142	280	NA	12
LEAD	50	324	265	45	249	346	73	104	NA	29
PHENOLS	NONE	3	2	4	2	6	7	3	3	3
OIL & GREASE	NONE	<900	<1000	2000	<900	<900	2000	<1000	<1000	2000

NA - not analyzed

Values reported are concentrations in micrograms per liter (ug/L); this approximates parts per billion (ppb).

Source: ESE, 1990.

TABLE 36-1. SITE 36 - CAMP GEIGER DUMP AREA NEAR SEWAGE TREATMENT PLANT (STP) (Page 2 of 2)
DETECTED TARGET ANALYTES
GROUND WATER SAMPLES

DATE	NC GW STANDARD	36GW4 7/31/84	36GW4 7/31/84	36GW4 12/9/86	36GW5 12/9/86	36GW5 3/5/87
PARAMETER						
T-1,2-DICHLORO-						
ETHENE	70	2	1.2	<1.6	<1.6	<1.6
METHYLENE CHLORIDE	5	<0.7	7	<2.8	<2.8	<2.8
1,1,2,2-TETRA-						
CHLOROETHANE	NONE	4	3	<4.1	<4.1	<4.1
CADMIUM	5	9	NA	<2.9	<2.9	<3.5
CHROMIUM	50	510	NA	103	18.2	51
LEAD	50	217	NA	<27	<27	<27
PHENOLS	NONE	2	1	<2	<2	<2
OIL & GREASE	NONE	<900	<900	2000	1000	1000

NA - not analyzed.

Values reported are concentrations in micrograms per liter (ug/L);
this approximates parts per billion (ppb).

Source: ESE, 1990.

disposal of waste solvents in the western side of the disposal area. The presence of contamination in Well 36GW4 suggests that the disposal area extends farther to the west than first thought.

These four wells were resampled in December 1986 and an additional well was installed farther west of Well 36GW4. The analytical results of the December 1986 sampling effort were relatively consistent with 1984 results (Table 36-1). Most detected levels in 1986 were slightly lower relative to 1984. O&G was detected in all wells in 1986 and 1,1,2,2-tetrachloroethane was detected only in Well 36GW4. Chromium and O&G were detected in the new upgradient well 36GW5 which was sampled in March 1987.

SURFACE WATER

Four surface water samples were collected in 1986, two from Brinson Creek, one upstream and one downstream, and two from the unnamed creek, one upstream and one downstream. The sample locations are indicated on Figure 36-5. These samples were analyzed for the same target compounds as the groundwater. Detectable levels of trans-1,2-dichloroethane (2.5 ug/L), lead (39 ug/L), and total phenols (4 ug/L) were detected in the unnamed creek upstream sample (36SW3). This small stream passes through the southern portion of the filled area. The chemical data corroborate the widespread but low-level contamination of the groundwater. Lead (33.1 ug/L) was also detected in the upstream sample 36SW1 from Brinson creek at a concentration which is slightly above the freshwater standard of 25 ug/L.

SEDIMENT

Four sediment samples were collected in 1986 at the same locations as the surface water samples (Figure 36-5). The sediment samples were analyzed for the following parameters:

- Cadmium
- Lead
- Total Phenols
- Hexavalent chromium
- Chromium
- Oil & Grease (O&G)
- Ethylene dibromide (EDB)

Table 36-2 presents the analytical results for those target analytes that were detected above the applicable method detection limits. Chromium, lead, O&G, and phenols were detected in all four sediment samples. This suggests that accumulation of these analytes from either the continuous or episodic contamination of Brinson Creek and the unnamed stream has occurred. Cadmium was detected in trace levels in only one sample (36SE4).

3.11.3 SUMMARY AND CONCLUSIONS

The groundwater contour map (Figure 36-4) indicates that the shallow groundwater passing through the disposal area travels to and presumably discharges to Brinson Creek. This suggests that contamination detected adjacent to the fill area can migrate to Brinson Creek. Analytical results identified contaminants in the creek bed sediments but none in the associated surface waters. This may be attributed to the substantial dilution which may occur when the relatively low groundwater discharge encounters the relatively large surface water flow.

Metal and O&G contamination was identified in all groundwater samples. The concentrations of metals displayed a decrease over time. This could be the result of the continual leaching of metals into the groundwater over time. O&G was identified only in the 1986/87 samples. This may be the result of lower detection levels utilized in the 1986/87 analyses, or to the overall O&G levels identified throughout the Camp LeJeune complex. VOCs were identified in one well (36GW4).

3.11.4 RECOMMENDATIONS

The existing monitoring well network has detected low levels of VOC and metal contamination along the margins of this AOC. Additional information regarding contaminant strength and distribution within the filled area is required for both the shallow and deep groundwater as well as the soil. When these data are available, a Risk Assessment should be conducted to properly evaluate the risk to health and the environment.

TABLE 36-2. SITE 36 - CAMP GEIGER DUMP AREA NEAR SEWAGE TREATMENT PLANT (STP)
DETECTED TARGET ANALYTES
SEDIMENT SAMPLES

	36SE1	36SE2	36SE3	36SE4
DATE	12/9/86	12/10/86	12/10/86	12/10/86
PARAMETER				
CADMIUM	<0.879	<1.94	<0.59	0.722
CHROMIUM	8.49	14.2	5.29	5.44
LEAD	77.5	42.5	15.3	10.7
OIL & GREASE	1480	2410	1200	185
PHENOLS	2030	1950	1080	464

Values reported are concentrations in micrograms per gram (ug/g);
this approximates parts per million (ppm).

Note: There are no NC sediment standards.

Source: ESE, 1990.