

INSTALLATION RESTORATION PROGRAM

DECISION DOCUMENT FOR IRP SITE NO.1 OLD AEROSPACE GROUND EQUIPMENT (AGE) SHOP

162nd COMBAT COMMUNICATIONS GROUP
and 149th COMBAT COMMUNICATIONS SQUADRON
NORTH HIGHLANDS AIR NATIONAL GUARD STATION
CALIFORNIA

FEBRUARY 1996

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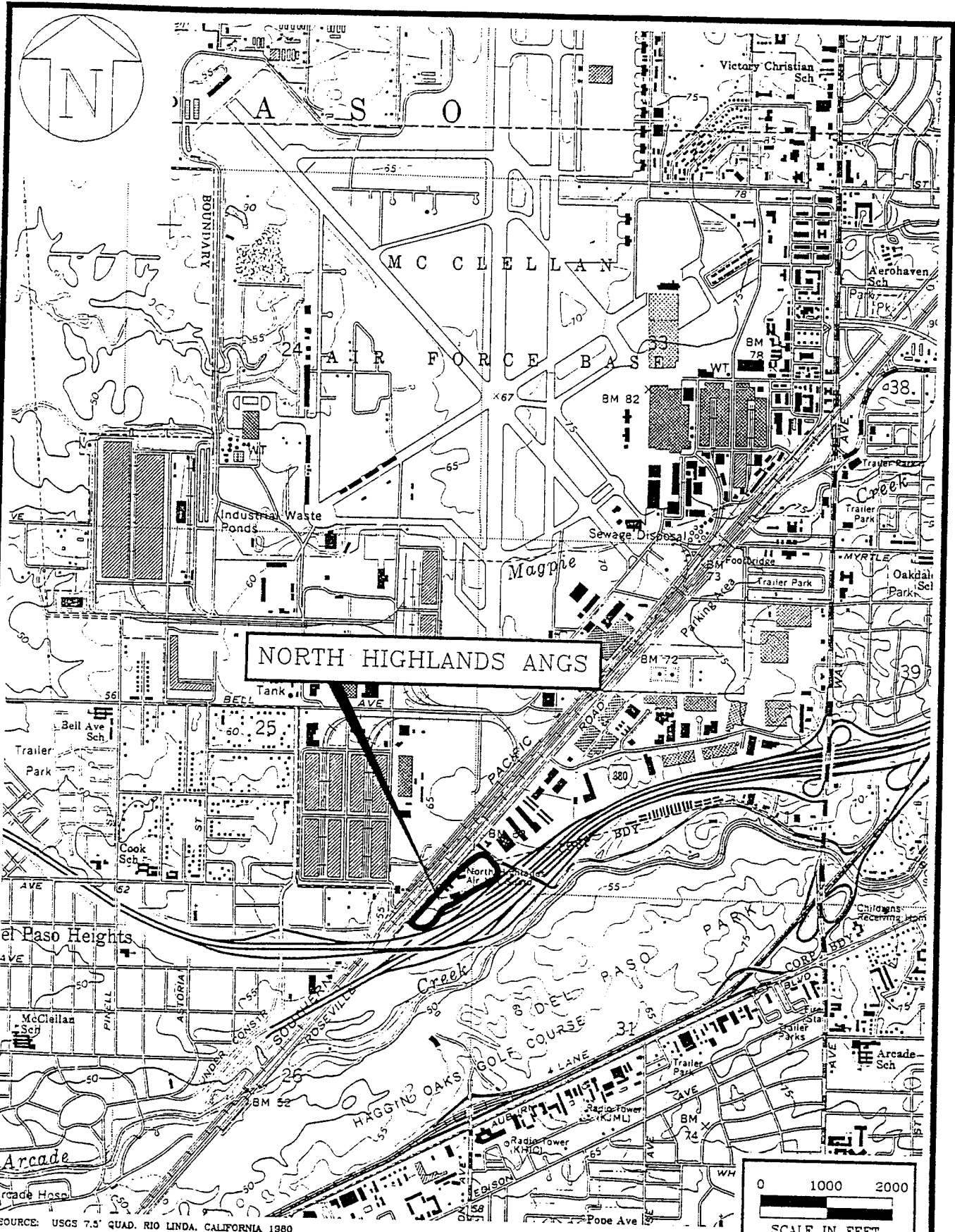
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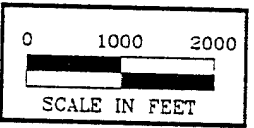
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INSIDE
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STATION LOCATION MAP
162nd CCG & 149th CBCS
North Highlands ANG
California

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FEBRUARY 1996

REPORT DOCUMENTATION PAGE

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Decision Document for IRP Site No. 1, California Air National Guard, 162nd CCGP & 149th CCSQ, North Highlands Air National Guard Station, North Highlands, CA. The sites were investigated under the Installation Restoration Program. Soil and groundwater samples were collected and analyzed. This document summarizes the information in the Site Investigation Report and is the official recommendation for No Further Action at the IRP Site..

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**162nd COMBAT COMMUNICATIONS GROUP
and 149th COMBAT COMMUNICATIONS SQUADRON
NORTH HIGHLANDS AIR NATIONAL GUARD STATION
CALIFORNIA**

FEBRUARY 1996

Prepared For

**HQ ANG/CEVR
ANDREWS AFB, MARYLAND**

Prepared By

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AND CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

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Decision Document for IRP Site No. 1, Old AGE Area
162nd CCG and 149th CBCS
North Highlands ANGS, California

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Decision Document for IRP Site No. 1, Old AGE Area
162nd CCG and 149th CBCS
North Highlands ANGS, California

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Decision Document for IRP Site No. 1, Old AGE Area
162nd CCG and 149th CBCS
North Highlands ANGS, California

LIST OF ACRONYMS

AFB	Air Force Base
AGE	Aerospace Ground Equipment
ANGS	Air National Guard Station
ARAR	Applicable or Relevant and Appropriate Requirement
BH	Borehole
BLS	Below Land Surface
CBCS	Combat Communications Squadron
CCG	Combat Communications Group
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm/sec	Centimeters per second
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
EO	Executive Order
HHEM	Human Health Evaluation Manual
HQ ANG/CEVR	Headquarters Air National Guard Installation Restoration Program Branch
IRP	Installation Restoration Program
mg/kg	Milligrams per kilogram
MSL	Mean Sea Level
ND	Non-Detect
OpTech	Operational Technologies Corporation
PA	Preliminary Assessment
ppmv	Parts per million by volume
SARA	Superfund Amendments and Reauthorization Act
SI	Site Investigation
SVOC	Semivolatile Organic Compound
TDL	Total Designated Level
TPH	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

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DECISION DOCUMENT

INSTALLATION RESTORATION PROGRAM SITE NO. 1, OLD AEROSPACE GROUND EQUIPMENT (AGE) AREA

SECTION 1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this Decision Document is to describe the history, evaluate analytical data, and document actions taken that have led to a recommendation of no further action for Installation Restoration Program (IRP) Site No. 1, the Old Aerospace Ground Equipment (AGE) Area located at the 162nd Combat Communications Group (CCG) and 149th Combat Communications Squadron (CBCS), California Air National Guard, North Highlands Air National Guard Station (ANGS), California.

The Defense Environmental Restoration Program (DERP) was established in 1984 to promote and coordinate efforts for the evaluation and cleanup of contamination at Department of Defense (DoD) installations. On 23 January 1987, Presidential Executive Order (EO) 12580 assigned specific responsibility to the Secretary of Defense for carrying out the DERP within the overall framework of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. The IRP was established under DERP to identify, investigate, and clean up contamination at DoD installations. The IRP focused on cleanup of contamination associated with past DoD activities to ensure that threats to public health were eliminated and natural resources were restored for future use. Within the Air National Guard, the Headquarters Air National Guard Installation Restoration Program Branch (HQ ANG/CEVR) manages the IRP and related activities.

Conclusions contained in this Decision Document are based on evaluation of information provided in the following documents:

- Operational Technologies Corporation, 1995. Installation Restoration Program (IRP) Site Investigation Report For IRP Sites No. 1 and No. 2, 162nd CCG and 149th CBCS, California Air National Guard Station, Sacramento, California. San Antonio, Texas.

- Science and Technology, Inc., 1991. Installation Restoration Program Preliminary Assessment, North Highlands ANGS, California. Prepared for National Guard Bureau, Andrews Air Force Base, Maryland.

1.2 LOCATION

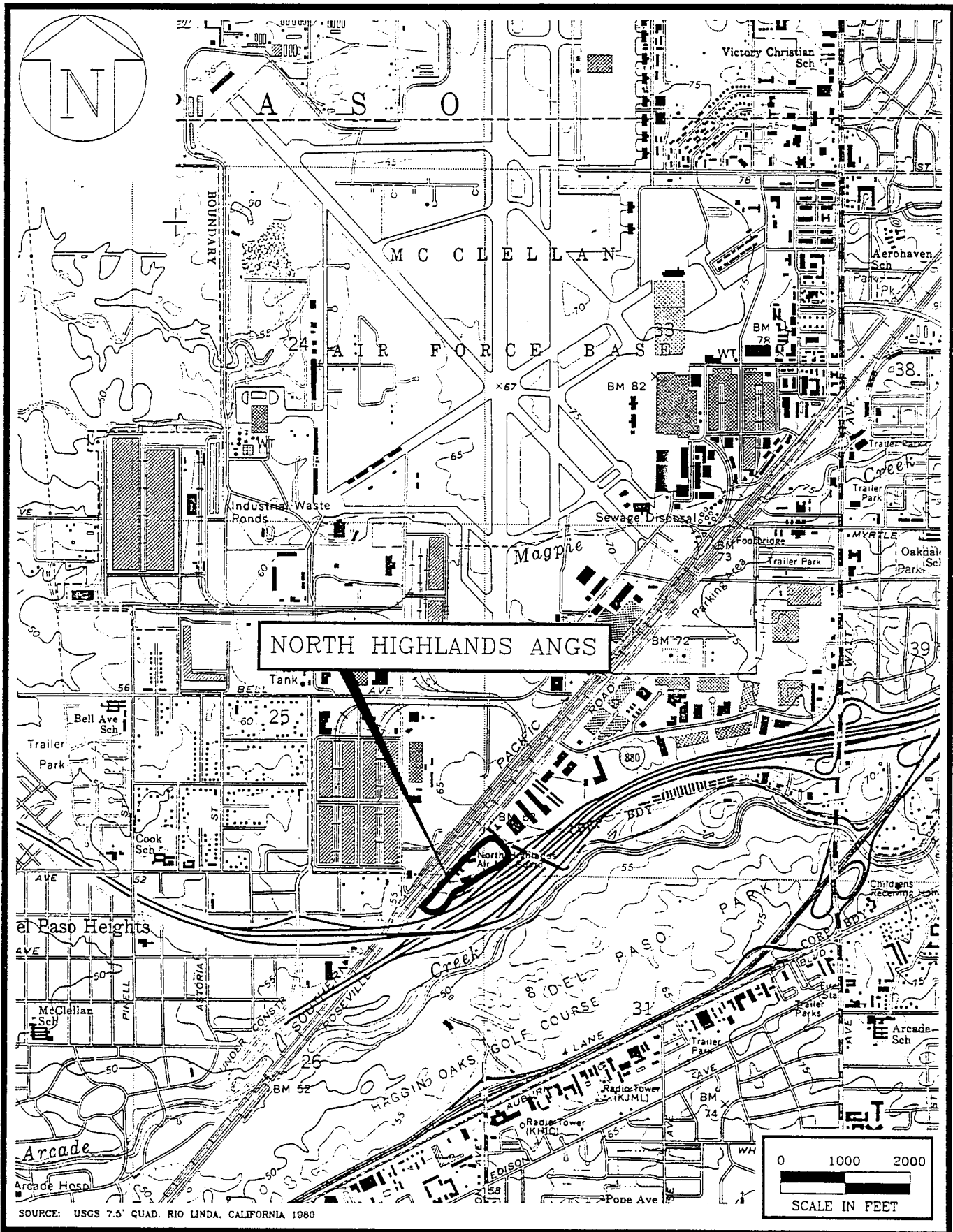
North Highlands ANGS is located in Sacramento County, approximately six miles northeast of downtown Sacramento and adjacent to McClellan Air Force Base (AFB), as shown in Figure 1. The Station occupies approximately eight acres of relatively flat terrain just to the south of McClellan AFB. Roseville Road and the Southern Pacific railroad tracks are located approximately 100 feet to the north and west of the Station, and Interstate 80 borders the Station on the south and east. The mission of the 162nd Combat Communications Group is to install, operate, and maintain mobile communication facilities providing interbase and intrabase communications in support of tactical air forces and state emergencies.

1.3 ENVIRONMENTAL SETTING

North Highlands ANGS is located in Sacramento County in the northern one-third of the Central Valley of California, which is referred to as the Sacramento Valley. The Central Valley, trending in a north/northwest to south/southeasterly direction, extends from the Klamath Mountains near Redding for some 400 miles, with an average width of 50 miles. The valley is bordered on the east by the Sierra Nevada Mountains, on the west by the Coast Range Mountains, and to the south by the Tehachapi Mountains. Much of the area within the Valley is level and appears as a broad, open plain. North Highlands ANGS is located on relatively flat terrain with a surface elevation of 60 feet above mean sea level (MSL), with gentle slopes of less than 1 degree toward the west.

As previously described, the Central Valley lies between two major mountain ranges in an asymmetrical, structural trough. Sediments in the trough range in age from Late Jurassic to Holocene and are predominantly the result of periods of uplift in the Sierra Nevada, followed by erosion of these highlands to the valley floor. As much as ten vertical miles of sediment have been deposited within this valley. Along the flanks of the valley, which correspond to the flanks of the trough, deposits are generally thinner.

A very complex fluvial environment was created in the vicinity of North Highlands ANGS by the variation in climatic conditions and the sediment generated by successive periods of glaciation during the Pliocene and Pleistocene epochs in the Sierra Nevadas. The geologic



SOURCE: USGS 7.5' QUAD, RIO LINDA, CALIFORNIA 1980

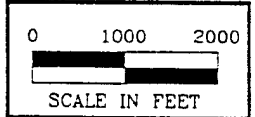


FIGURE 1

STATION LOCATION MAP
162nd CCG & 149th CBCS
North Highlands ANG
California

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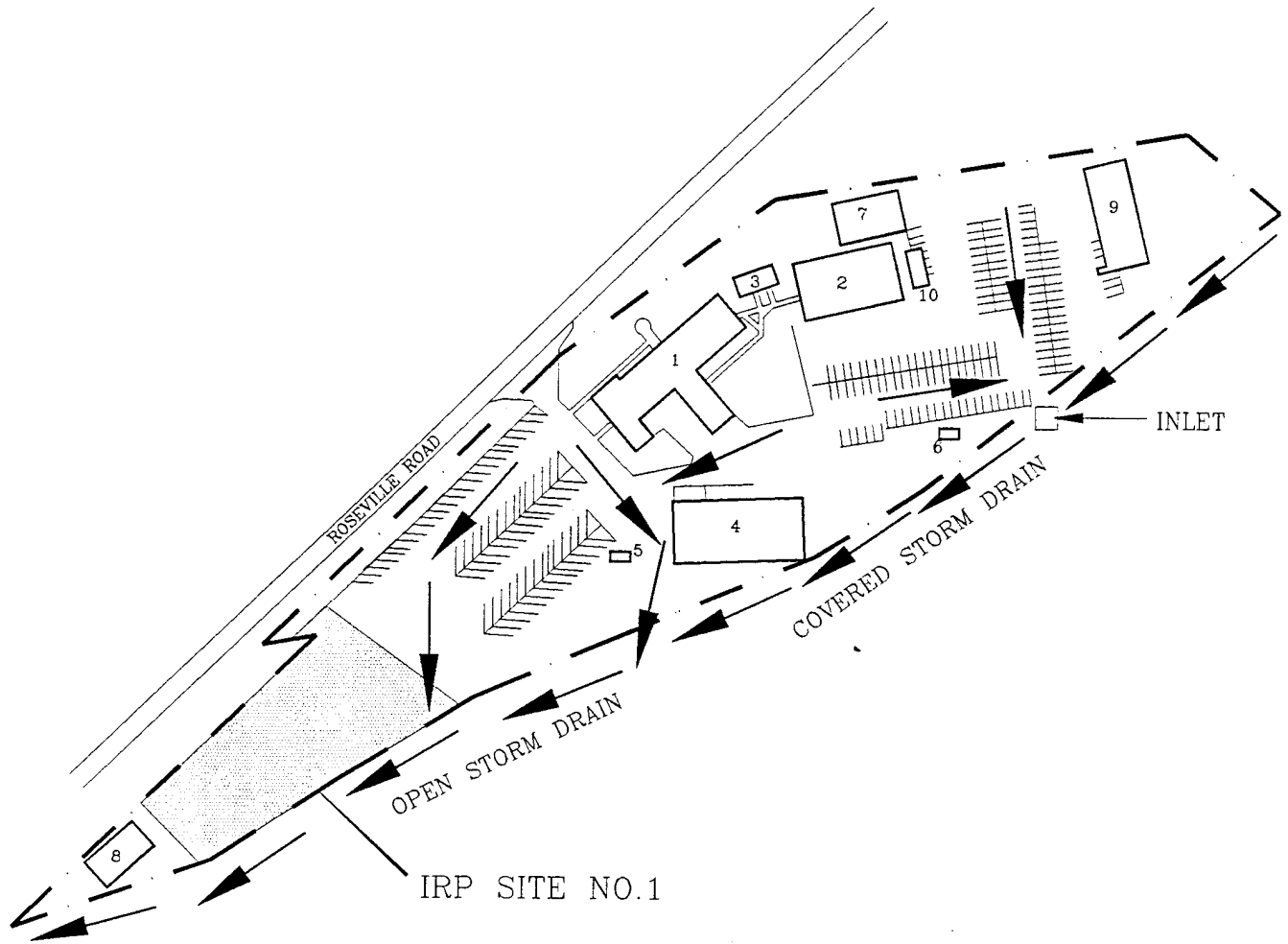
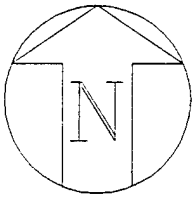
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sequence is a series of gently sloping alluvial plain sediments that consist of channel fills, sand bars, oxbow lake deposits, and widespread flood deposits. As a result of the processes occurring in the alluvial environment, deposits consisting of any one lithologic type are limited in horizontal and vertical extent. Coarse deposits may grade laterally into fine deposits, and fine into coarse across short distances (less than 25 feet). The interbedded and gradational deposits formed are heterogeneous in grain size distribution, texture, porosity, and permeability over short distances. Although individual beds are discontinuous, some deposits may locally occur adjacent to or overlying deposits of similar porosity and permeability.


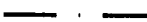


The soil at North Highlands ANGS is of the San Joaquin association, which is a moderately shallow sandy loam that occurs on gentle slopes (three to eight percent) in old valley plains cut by small drainageways. The surface soil has an average thickness of six inches and is a light brown or reddish brown, strongly to medium acid sandy loam that dries out moderately hard. The upper subsoil extends to depths of 12 to 30 inches and is a light clay loam, slightly more acid than the surface soil. The deeper subsoil is a reddish-brown or brown, compact clay that becomes more gray with depth and then turns olive-gray immediately above the impervious hard pan layer which varies in depth from 15 to 42 inches below land surface (BLS). Surface soil permeability is moderate (4.45×10^{-4} centimeters per second (cm/sec) to 1.41×10^{-3} cm/sec), but subsoil/substratum permeability is very low (less than 4.24×10^{-5} cm/sec). The erosion hazard is slight. The information pertaining to soil was derived from the Soil Survey of Sacramento Area, California (U. S. Department of Agriculture, Soil Conservation Service, Series 1941, No. 11, August 1945).

Aquifers containing fresh groundwater are principally heterogenous, unconsolidated, continental deposits (primarily alluvium). The lower unit of the Mehrten Formation yields little water due to the impermeable nature of the tuff-breccia and many of the clay beds. Much of the water is in a state of semi-confinement. Conversely, the upper unit yields large quantities of potable groundwater and is a primary source for many public supply wells.

North Highlands ANGS is located in the Sacramento/American River drainage basin approximately five miles east (up river) of the intersection of the Sacramento and American Rivers. Surface flow off the facility is through storm drains and/or directly into open ditches flowing westward into Arcade Creek (see Figure 2). Arcade Creek flows toward the river intersection. North Highlands ANGS has been classified as being outside the 100-year floodplain.



LEGEND

	Building		Station Boundary
	IRP Site NO.1		Surface Drainage

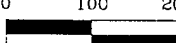
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SCALE IN FEET

FIGURE 2

SURFACE WATER DRAINAGE MAP
162nd CCG & 149th CBCS
North Highlands ANGS
California

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According to records maintained by the California Department of Fish and Game Natural Diversity Database, no endangered or threatened species of flora or fauna have been identified within a one-mile radius of the Station (Science and Technology, Inc., 1991). There are approximately 123.7 acres of wetlands within 4 miles of the site.

SECTION 2.0 BACKGROUND

2.1 SITE HISTORY

IRP Site No. 1 is located on the southwest side of North Highlands ANGS (see Figure 3). The site is approximately 120 feet wide and approximately 320 feet long (see Figure 4). The site is covered with compacted, rocky soil producing a sparse, vegetative cover. An antenna is located in the southwest portion of the Station. Asphalt borders the site to the northeast and a six-foot high security fence bounds the site to the southeast, southwest, and northwest. Located outside the Station boundaries, an open storm drain parallels the fence line southeast of the site, and drainage ditches parallel the fence lines located to the southwest and northwest.

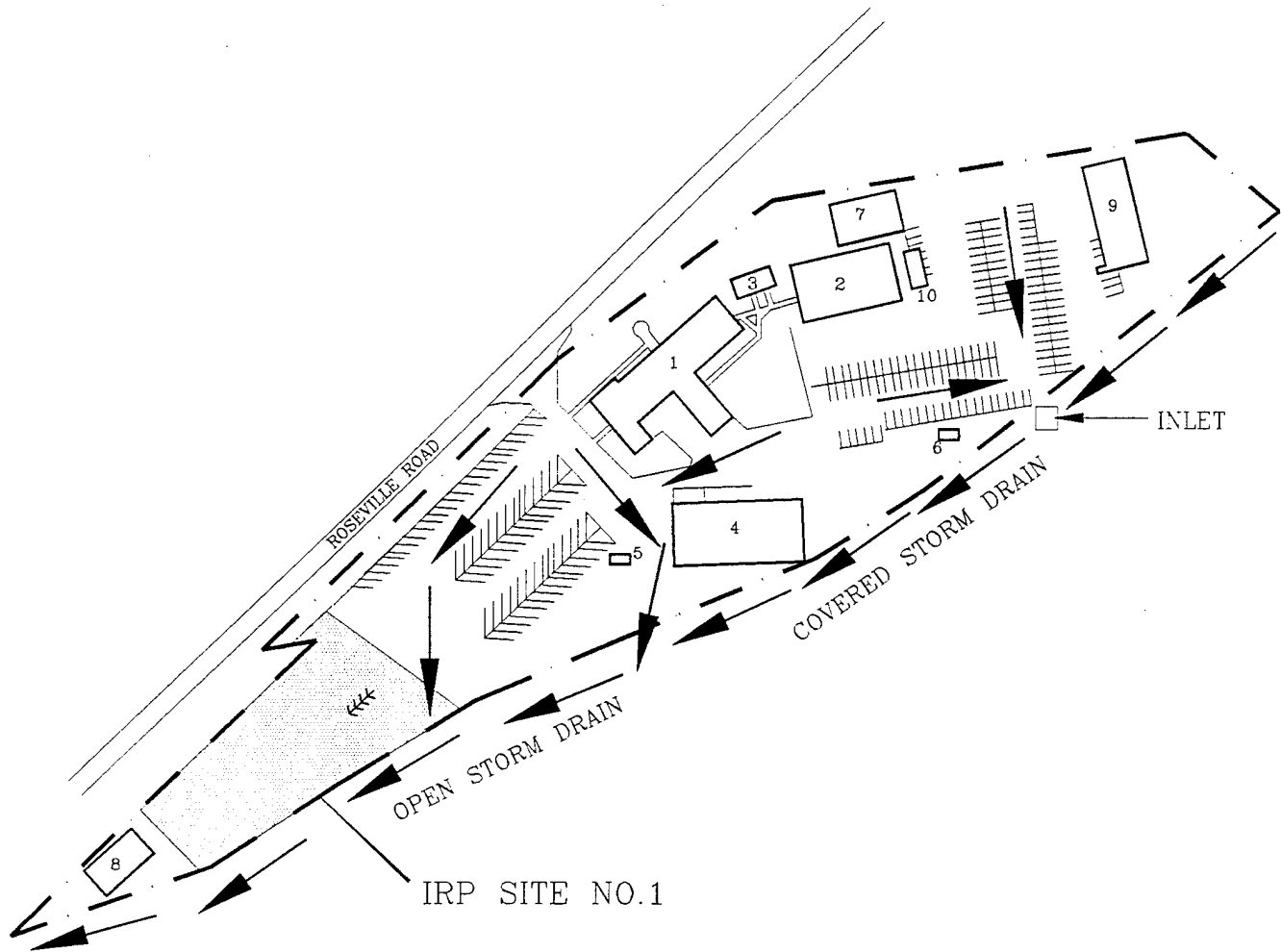
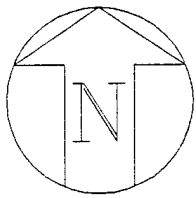
The site was used predominantly for the maintenance of ground equipment, including vehicles and generators, from the early 1960s until 1982 when the new AGE Shop was constructed. Those maintenance operations resulted in frequent releases of small amounts of waste oils, solvents, fuels, paint, and thinners. The actual quantities of the releases are unknown.

Two environmental studies have been conducted at North Highlands ANGS that included the Old AGE Area. These are summarized in Section 2.2 in chronological order.

2.2 INVESTIGATION RESULTS

2.2.1 Preliminary Assessment

A Preliminary Assessment (PA) of the 162nd CCG and the 149th CBCS, North Highlands ANGS was conducted by Science and Technology, Inc., in April 1990. Information obtained through interviews, review of Station records, and field observations resulted in the identification of two potentially contaminated disposal and/or spill sites, one of which is IRP Site No. 1 (Old AGE Area), the other is IRP Site No. 2 (Area Behind Vehicle Maintenance). Maintenance operations at IRP Site No. 1 resulted in frequent releases of small amounts of waste oils, solvents, fuels, paints, and thinners. Because the potential for contaminant migration exists at



LEGEND

4	Building	- - - -	Station Boundary
[Shaded Box]	IRP Site NO.1	▶	Surface Drainage
▶▶▶▶	Antenna	0 100 200 SCALE IN FEET	

FIGURE 3

LOCATION OF IRP NO.1
 162nd CCG & 149th CBCS
 North Highlands ANGS
 California

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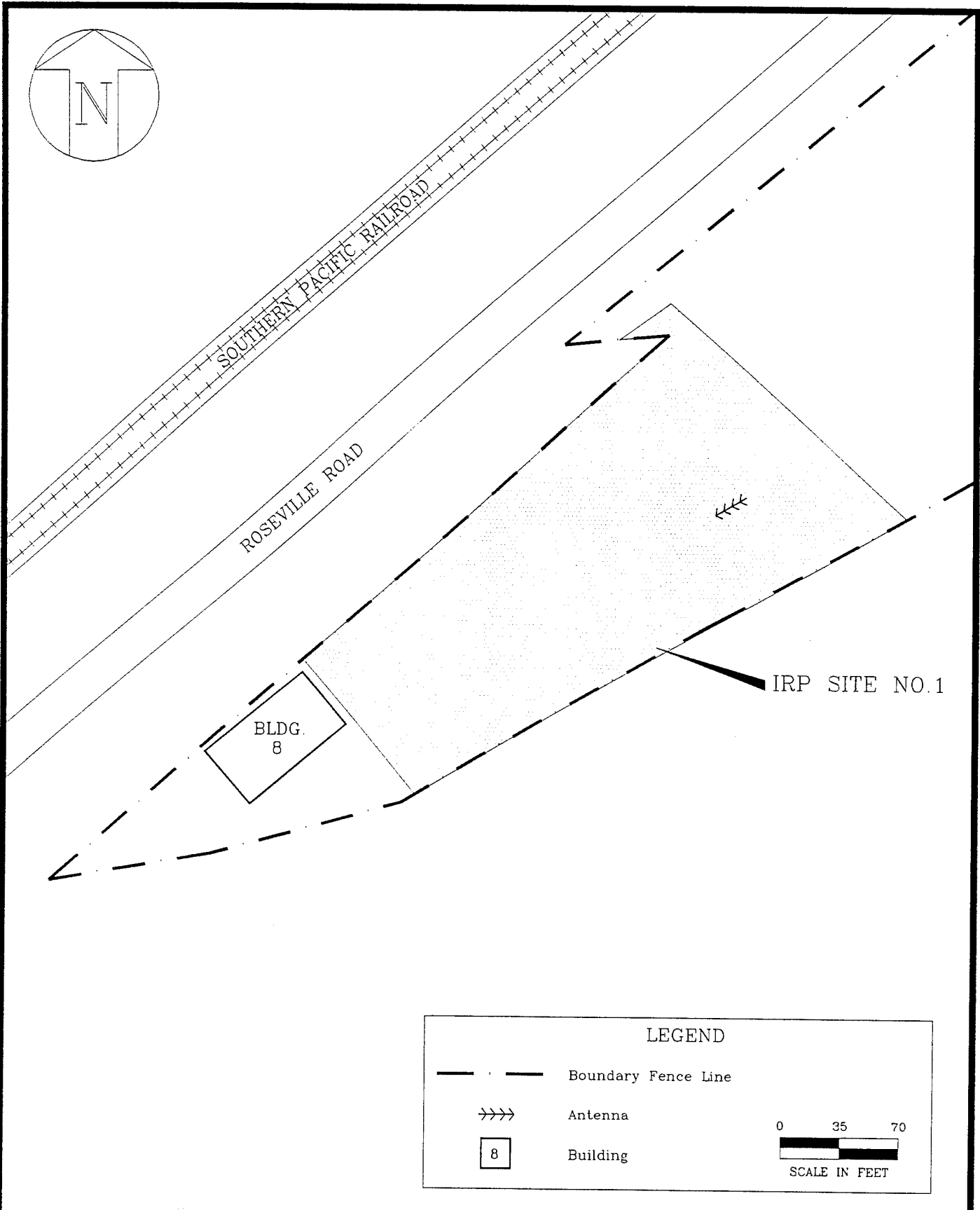


FIGURE 4

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IRP SITE NO.1 SITE PLAN
 162nd CCG & 149th CBCS
 North Highlands ANG
 California

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the two sites identified at North Highlands ANGS, each was recommended for further investigation under the IRP.

2.2.2 Site Investigation

The Old AGE Area (IRP Site No. 1) was one of the two sites investigated in a Site Investigation (SI) conducted by Operational Technologies Corporation (OpTech) from March 1994 to September 1995 at the 162nd CCG and the 149th CBCS. Investigative activities included twenty-eight soil vapor samples and five soil borings. Soil samples were collected and submitted for laboratory analysis for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Priority Pollutant Metals, total petroleum hydrocarbons (TPH), and Oil/Grease parameters at IRP Site No. 1. The locations of the soil borings at this site are shown on Figure 5.

Soil vapor samples were collected during the drilling of soil borings. Table 1 shows the maximum concentrations detected in the soil vapor samples at IRP Site No. 1. The highest concentrations of detected parameters were in soil vapor samples collected from soil boring BH01-03, located in the center of the site. Benzene and toluene were detected at maximum concentrations of 0.19 parts per million by volume (ppmv) and 0.13 ppmv, respectively, in the soil vapor sample collected from a depth of 11 feet BLS. Methylene chloride, ethylbenzene, and total xylenes were detected at maximum concentrations of 0.11 ppmv, 0.16 ppmv, and 0.15 ppmv, respectively, in the soil vapor sample collected from a depth of 21 feet BLS. TPH was detected at a maximum concentration of 3.0 ppmv in soil vapor samples collected from IRP Site No. 1. Parameters detected in the soil vapor sampling were not confirmed in the soil samples collected and submitted for laboratory analysis from IRP Site No. 1.

A Total Designated Level (TDL) was calculated for each metal using the Designated Level Methodology outlined in The Designated Level Methodology for Waste Classification and Cleanup Level Determination (California Regional Water Quality Control Board, Central Valley Region, 1989). Only those parameters detected in soil samples, reported at greater than the method reporting limit exceeding TDLs (derived for use as cleanup levels), are addressed in this subsection. Thallium was detected at concentrations exceeding its TDL. Table 2 shows the metals detected in the soil samples at IRP Site No. 1. Thallium was detected at a concentration of 34.0 milligrams per kilogram (mg/kg) in the soil sample collected from boring BH01-03 from a depth of 58 feet BLS and a concentration of 36.0 mg/kg in samples collected from borings BH01-02 and BH01-05 from a depth of 59 feet BLS. With the exception of thallium, all metals were detected at concentrations well below their respective TDLs. Eleven investigative soil

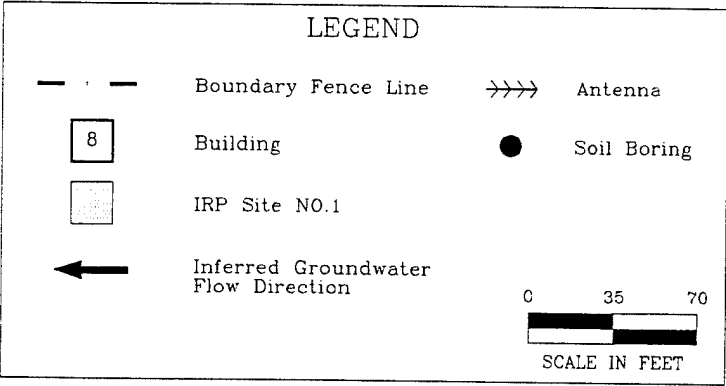
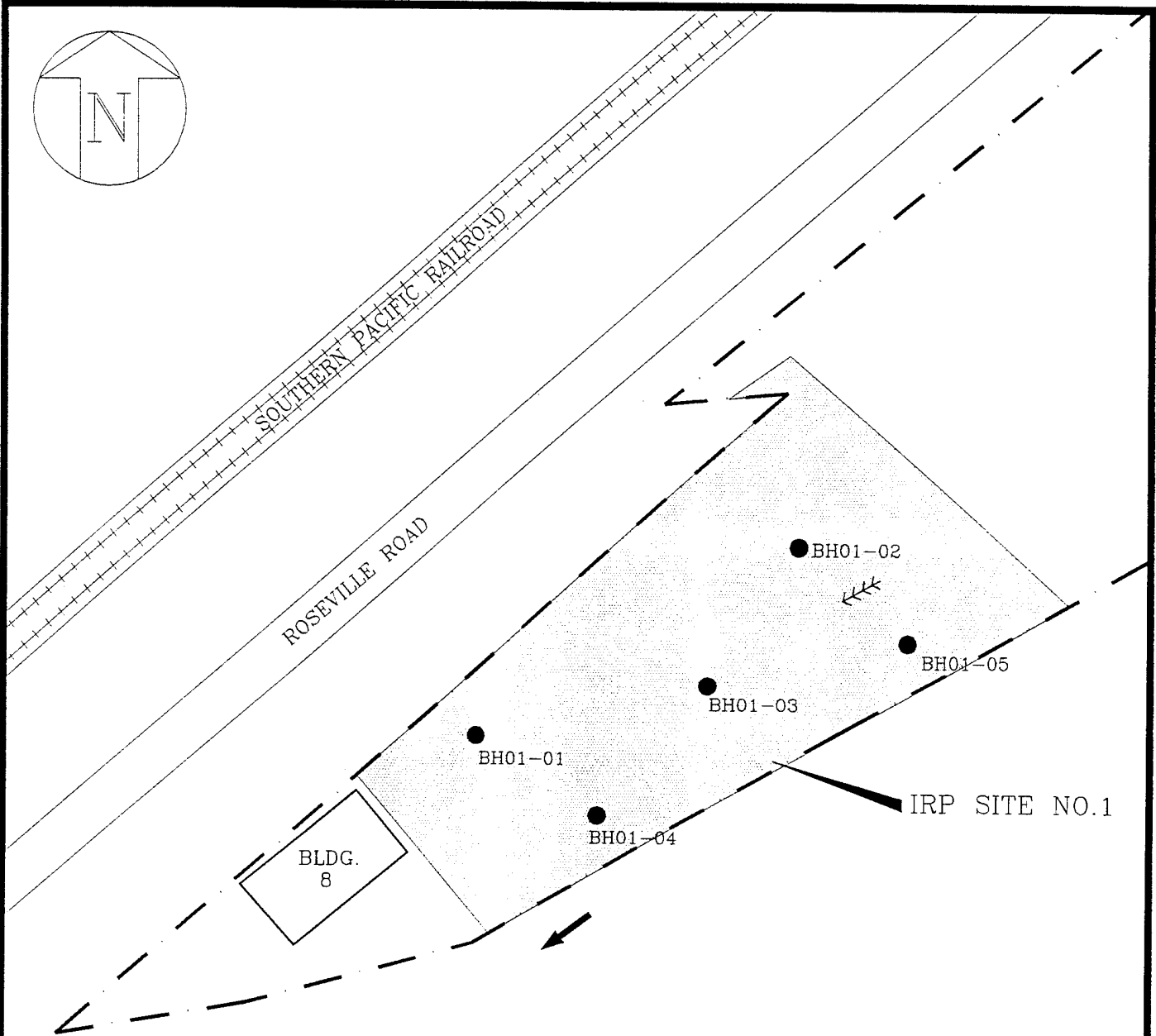
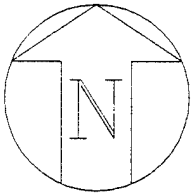


FIGURE 5

**SOIL BORING LOCATIONS
 AT IRP SITE NO.1**
 162nd CCG & 149th CBCS
 North Highlands ANGS
 California

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Table 1
Maximum Concentrations Detected in Soil Vapor Samples
Collected from IRP Site No. 1
162nd CCG and 149th CBCS, North Highlands ANGS, California

Analytical Parameter	Maximum Concentration Detected (ppmv)	Detection Limit (ppmv)
1,1-Dichloroethene	ND	0.01
Methylene Chloride	0.11	0.01
trans-1,2-Dichloroethene	ND	0.01
1,1-Dichloroethane	ND	0.01
Chloroform	ND	0.01
1,1,1-Trichloroethane	ND	0.01
Carbon Tetrachloride	ND	0.01
1,2-Dichloroethane	ND	0.01
Trichloroethene	ND	0.01
1,2-Dichloropropane	ND	0.01
Bromodichloromethane	ND	0.01
cis-1,3-Dichloropropene	ND	0.01
trans-1,3-Dichloropropene	ND	0.01
1,1,2-Trichloroethane	ND	0.01
Tetrachloroethene	ND	0.01
Benzene	0.19	0.01
Toluene	0.13	0.01
Ethylbenzene	0.16	0.01
Total Xylenes	0.15	0.01
Total Petroleum Hydrocarbons	3.0	1.0

ppmv – parts per million by volume.

ND – Not Detected.

samples, and one duplicate soil sample, were collected from the five soil borings at IRP Site No. 1. No VOCs, SVOCs, TPH, or oil/grease compounds were detected in the samples at IRP Site No. 1. Metals were detected above background levels but pose a minimal threat or any adverse effects upon human health or any ecological receptors.

2.3 PRELIMINARY RISK ASSESSMENT

The purpose of a preliminary risk assessment is to determine whether the presence of chemicals at 162nd CCG and 149th CBCS facilities pose an immediate or substantial hazard to human health or the environment that may require interim remedial action. This evaluation also addresses the impacts, if any, resulting from potential exposure to the site-related chemicals. This preliminary risk evaluation, which is based on a qualitative review of available soil data, characterizes the potential environmental hazards of the current soil conditions to determine if further investigation is needed.

Table 2
Metals Detected in Soil Samples
Collected from IRP Site No. 1
162nd CCG and 149th CBCS, North Highlands ANG, California

Sample ID Number*	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Silver (mg/kg)	Thallium (mg/kg)	Zinc (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)
BH01-01-12'	0.500U	0.500U	12.0	7.6	3.4	0.500U	0.500U	14.0	0.031	6.0
BH01-01-59'	0.500U	0.500U	15.0	13.0	3.2	0.500U	0.500U	24.0	0.040	21.0
BH01-02-12'	30.0U	5.0U	5.0U	5.5	5.0U	5.0U	30.0U	9.2	0.20U	50.0U
BH01-02-59'	73.0	61.0	90.0	76.0	68.0	5.0U	36.0	95.0	0.20U	50.0U
BH01-03-12'	55.0	5.0U	45.0	19.0	5.0U	5.0U	5.0U	52.0	0.018	50.0U
BH01-03-22'	30.0U	5.0	11.0	28.0	9.2	5.0U	30.0U	41.0	0.010U	50.0U
BH01-03-58'	31.0	5.0U	40.0	30.0	5.0U	11.0	34.0	62.0	0.20U	50.0U
BH01-03-58'-DUP	30.0U	5.0U	35.0	26.0	5.0	5.0U	30.0U	54.0	0.20U	50.0U
BH01-04-12'	0.500U	0.500U	4.0	3.5	1.8	0.500U	0.500U	5.9	0.027	3.0
BH01-04-59'	0.81	0.500U	12.0	11.0	2.9	0.500U	0.500U	20.0	0.038	18.0
BH01-05-42'	30.0U	5.0U	13.0	15.0	5.0U	5.0U	30.0U	37.0	0.20U	50.0U
BH01-05-59'	30.0U	5.0U	20.0	15.0	5.0U	5.0U	36.0	27.0	0.20U	50.0U
Maximum Background Concentrations	0.500U	0.500U	10.0	11.0	4.0	0.500U	0.500U	34.0	0.050	19.0
Total Designated Levels	500.0 ^b	100.0 ^b	500.0 ^b	10,000.0 ^c	500.0 ^b	500.0 ^b	10.0 ^a	50,000.0 ^e	20.0 ^b	1,000.0 ^a

mg/kg - milligrams per kilogram.

BH - Borehole.

U - Compound was analyzed for but not detected. Number preceding "U" indicates the detection limit.

* - Note: Sample ID numbers include the depth of the sample, expressed in feet below land surface.

ID - Identification.

DUP - Duplicate.

USEPA - United States Environmental Protection Agency.

^aDerived from USEPA Primary Maximum Contaminant Level (MCL) water quality goal.

^bDerived from California Department of Health Services Primary MCL water quality goal.

^cDerived from California Department of Health Services Secondary MCL water quality goal.

A risk assessment identifies potential migration and exposure pathways for site-related chemicals. Exposure to site-related chemicals in soils via primary pathways may occur through dermal contact, inhalation, or ingestion, while chemicals transported in the groundwater may be transported to any drinking water well located in the area. A storm drain is located in the vicinity of the Station; therefore, surface water runoff could become a potential pathway if surface contamination were to occur. This exposure pathway would not be of a threat to human receptors.

IRP Site No. 1 is covered with compacted rocky soil producing sparse vegetative cover. Site-related compounds in soils may be released via volatilization. This could result in potential exposures to human receptors through inhalation. This migration pathway is limited to VOCs found in the surface soils; therefore, VOC compounds detected in the exposure pathway associated with surface soils (i.e., windblown particulates) would not be of concern.

Groundwater samples collected from an already existing monitoring well located on the Station contained no analytes which were above action levels, with the exception of nickel, which was detected at 0.15 ppm during one sampling event, and at 0.28 ppm during a second sampling event. The Maximum Contaminant Level (MCL) for nickel is 0.10 ppm.

Exposure pathways to site contaminants for both human and ecological receptors is minimal. Public access to the Station is controlled by security personnel. Due to the absence of appropriate habitats for wildlife at the site, exposure for ecological receptors is also unlikely. At present, there are no future plans for use of the Station other than to continue as its current use.

No VOCs, SVOCs, TPH, or oil and grease were detected in soil samples collected at IRP Site No. 1. Concentrations of thallium were detected above the TDLs in three soil borings; however, these concentrations did not exceed the respective ranges of naturally occurring concentrations of these metals in the Sacramento area. Based on the evaluation of these data and the site conditions, these contaminants will not have a long-term adverse effect upon human health or any ecological receptors.

2.3.1 Conclusions and Recommendations

The metals present in the subsurface soils at North Highlands ANGS do not present an immediate or substantial hazard to human health or environmental receptors. Based on current knowledge of the Station and IRP Site No. 1, these areas do not present a significant threat to

health either presently or under a future-use scenario. The site will not have a significant impact upon important environmental receptors.

SECTION 3.0 CONCLUSIONS

Thallium was the only analyte detected in soil samples collected during the SI at concentrations exceeding Total Designated Levels (TDLs), derived for use as cleanup levels, in accordance with guidance published by the California Regional Water Quality Control Board, Central Valley Region. Three of the 12 samples (including the duplicate sample) exceeded the standard of 10.0 mg/kg. Thallium was detected at a concentration of 34.0 mg/kg in the soil sample collected from boring BH01-03 from a depth of 58 feet BLS and a concentration of 36.0 mg/kg in samples collected from borings BH01-02 and BH01-05 from depth of 59 feet BLS.

SECTION 4.0 RECOMMENDATION

Based on evaluation of the information contained in the above cited documents, and the decision of the California Department of Toxic Substances Control and the California Regional Water Quality Control Board (see Appendix), it is recommended that no further IRP action is necessary at IRP Site No. 1, Old AGE Area.

SECTION 5.0 DECISION

Based on evaluation of the information contained in the above cited documents, no further IRP action is warranted for IRP Site No. 1, Old AGE Area, 162nd Combat Communications Group and 149th Combat Communications Squadron, North Highlands Air National Guard Station, California.



DAVID C. VAN GASBECK
Chief, Environmental Division
Civil Engineer Directorate
Air National Guard

SECTION 6.0 REFERENCES

- California Regional Water Quality Control Board, Central Valley Region, 1989. The Designated Level Methodology for Waste Classification and Cleanup Level Determination. Sacramento, California.
- California Regional Water Quality Control Board, Central Valley Region, 1991. September 1991 Edition of "Water Quality Goals." Sacramento, California.
- California Regional Water Quality Control Board, San Francisco Bay Region, 1990. Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites.
- Operational Technologies Corporation, 1994. Installation Restoration Program (IRP) Site Investigation Work Plan For IRP Sites No. 1 and No. 2, 162nd CCG and 149th CBCS, California Air National Guard Station, Sacramento, California. San Antonio, Texas.
- Operational Technologies Corporation, 1995. Installation Restoration Program (IRP) Site Investigation Report For IRP Sites No. 1 and No. 2, Volume I, 162nd CCG and 149th CBCS, California Air National Guard Station, Sacramento, California. San Antonio, Texas.
- Science and Technology, Inc., 1991. Installation Restoration Program Preliminary Assessment, North Highlands ANGS, California. Prepared for National Guard Bureau, Andrews Air Force Base, Maryland.
- Shacklette, T. and Boerngen, J. G., 1984. Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States. U. S. Geological Survey Professional Paper No. 1270.
- U. S. Department of Agriculture, Soil Conservation Service, Series 1941, No. 11, August 1945. Soil Survey of Sacramento Area, California.
- U. S. Geological Survey. Geologic Map of the Sacramento Valley, California (Plate 1), (1986), in "Geology of the Fresh Groundwater Basin of the Central Valley, California," (Professional Paper 1401-C: Division of Mines and Geology) Washington, D. C.

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APPENDIX

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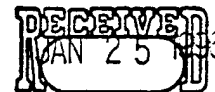
DEPARTMENT OF TOXIC SUBSTANCES CONTROL

REGION 1
10151 CROYDON WAY, SUITE 3
SACRAMENTO, CA 95827-2106



(916) 255-3565

January 19, 1996



162 CCG/EM
Colonel Edward C. Fager
3900 Roseville Road
North Highlands Air National Guard Station, California 95660-5794

APPROVAL OF THE FINAL SITE INVESTIGATION REPORT FOR INSTALLATION
RESTORATION PROGRAM SITES NO. 1 AND NO. 2, NORTH HIGHLANDS AIR
NATIONAL GUARD STATION

Dear Colonel Fager:

The Department of Toxic Substances Control's (DTSC) and the Central Valley Regional Water Quality Control Board (RWQCB) have reviewed and hereby approve the Final Site Investigation Report for the North Highlands Air National Guard Station (ANGS), dated September, 1995.

Pursuant to the California Health and Safety Code, Division 20, Chapter 6.8, DTSC, in concurrence with the RWQCB (see enclosure), has made the determination that, with regard to hazardous substances, no further action is required at the North Highlands ANGS. The State has made this determination based on review of the available information on the site. If additional information is discovered or gathered regarding this Site, further investigation and/or remediation may be required.

If you have any questions or comments regarding this matter, please contact Mr. Mark Malinowski at (916) 255-3717.

Sincerely,

Anthony J. Landis, P.E.
Chief, Northern California Operations
Office of Military Facilities

Enclosure

cc: See next page.



Colonel Edward C. Fager
January 19, 1996
Page Two

cc: Ms. Karen Bessette
Regional Water Quality Control Board
Central Valley Region
3443 Routier Road, Suite A
Sacramento, California 95827-3098

Mr. Mike Frey
HQ ANGRC/CEVR
3500 Fetchet Avenue
Andrews Air Force Base, Maryland 20331-5157

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION3443 Routier Road, Suite A
Sacramento, CA 95827-3098
PHONE: (916) 255-3000
FAX: (916) 255-3015

10 January 1996

Mr. Mark Malinowski
Department of Toxic Substances Control
10151 Croyden Way, Suite 3
Sacramento, CA 95827-2106*FINAL INSTALLATION RESTORATION PROGRAM (IRP) SITE INVESTIGATION REPORT
FOR IRP SITES NO. 1 AND NO. 2, NORTH HIGHLANDS AIR NATIONAL GUARD STATION
(ANGS), SACRAMENTO*

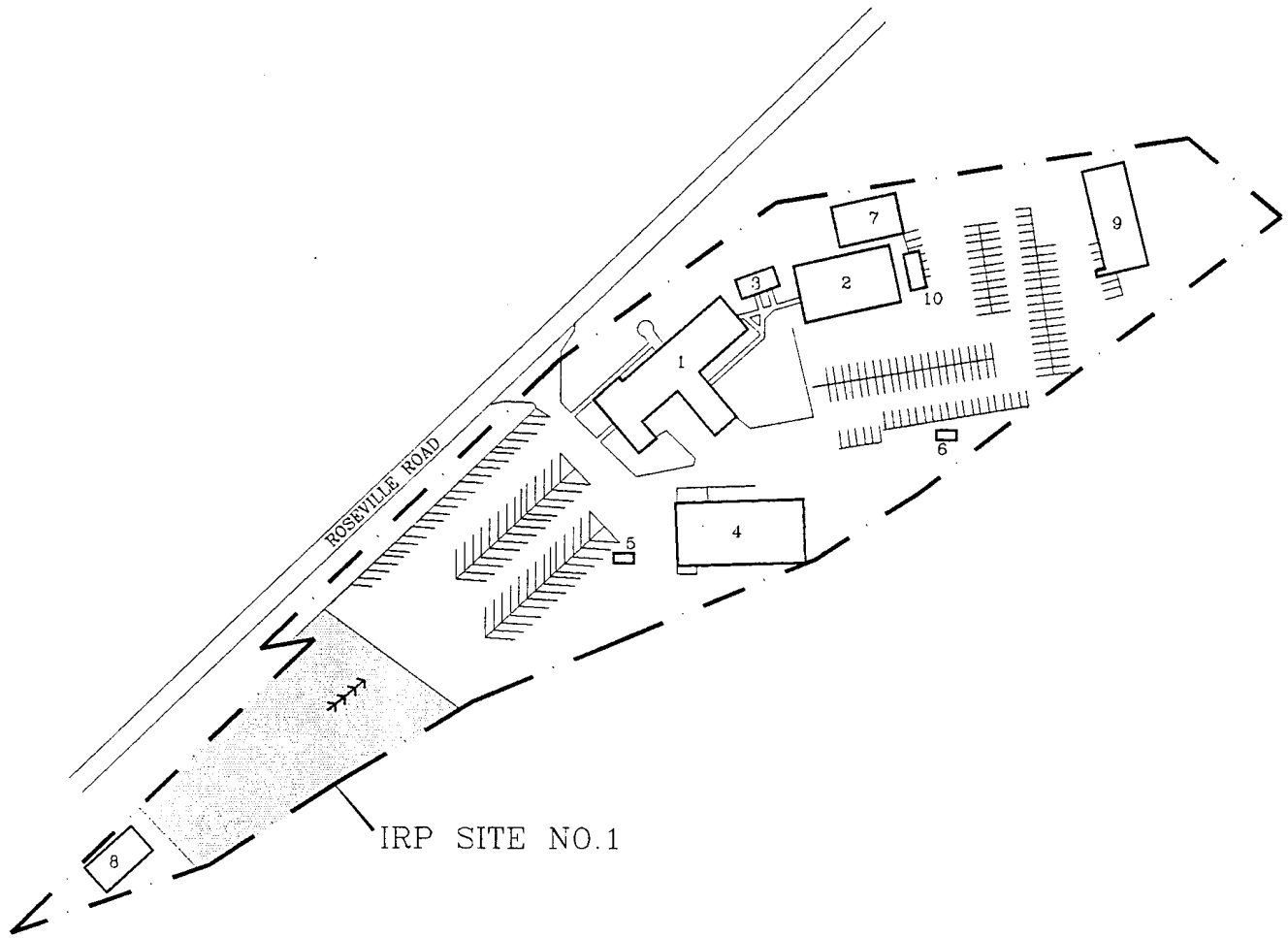
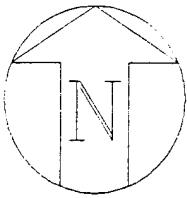
We have reviewed the Final Site Investigation Report (Final SI Report) submitted for North Highlands ANGS on 15 September 1995. Based on the site investigation results presented in this report, it appears that the extent of soil contamination present at both IRP Sites No. 1 and No. 2 is limited and does not pose a threat to the beneficial uses of the State's water. Based on the information provided in the Final SI Report, Board staff has determined that no further investigation, remedial action, or monitoring is required at this time at North Highlands ANGS.

Nothing in this determination shall constitute or be construed as a satisfaction or release from liability for any conditions or claims arising as a result of past, current or future operations at North Highlands ANGS. Nothing in this determination is intended or shall be construed to limit or preclude the Board, or any other agency, from taking any further enforcement actions. This letter does not relieve North Highlands ANGS of any responsibilities mandated under the California Health and Safety Code and the California Water Code if existing, additional, or previously-unidentified contamination at the site causes or threatens to cause pollution or nuisance or is found to pose a threat to public health or water quality.





If you have any questions, please call the Project Manager, Karen Bessette, at (916) 255-3065.


J. Lawrence Pearson, P.E.
Supervising WRC Engineer
Site Cleanup Section

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LEGEND

	Building		Station Boundary
	IRP Site NO.1		Antenna

0 100 200

SCALE IN FEET

INSIDE
BACK
COVER
NORTH\NHGH4-2L

LOCATION OF IRP SITE NO.1

162nd CCG & 149th CBCS
North Highlands ANGS
California

OPTTECH
OPERATIONAL TECHNOLOGIES
CORPORATION

FEBRUARY 1996