DOE/ID/12584–244
GJPO–OXN–04

Summary Environmental Site Assessment Report for the U.S. Department of Energy Oxnard Facility, Oxnard, California

February 1996

U.S. Department of Energy
Grand Junction Projects Office

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Work Performed Under DOE Contract No. DE–AC04–94AL96907 for the U.S. Department of Energy

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Summary Environmental Site Assessment Report for the U.S. Department of Energy Oxnard Facility Oxnard, California

February 1996

Prepared for
U.S. Department of Energy
Albuquerque Operations Office
Grand Junction Projects Office
Grand Junction, CO

Prepared by
Rust Geotech
Grand Junction, Colorado

MASTER

Work Performed Under Contract No. DE–AC04–94AL96907

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1.0 Overview

This report summarizes the investigations conducted by Rust Geotech[1] at the U.S. Department of Energy (DOE) Oxnard facility, 1235 East Wooley Road, Oxnard, California (Figure 1). These investigations were designed to locate, identify, and characterize any regulated contaminated media on the site. The effort included site visits; research of ownership, historical uses of the Oxnard facility and adjacent properties, incidences of and investigations for contaminants on adjacent properties, and the physical setting of the site; sampling and analysis; and reporting.

These investigations identified two friable asbestos gaskets on the site, which were removed, and nonfriable asbestos, which will be managed through the implementation of an asbestos management plan. The California primary drinking water standards were exceeded for aluminum on two groundwater samples and for lead in one sample collected from the shallow aquifer underlying the site; remediation of the groundwater in this aquifer is not warranted because it is not used. Treated water is available from a municipal water system. Three sludge samples indicated elevated heavy metals concentrations; the sludge must be handled as a hazardous waste if disposed. Polychlorinated biphenyls (PCBs) were detected at concentrations below remediation criteria in facility soils at two locations. In accordance with U. S. Environmental Protection Agency (EPA) and State of California guidance, remediation of the PCBs is not required. No other hazardous substances were detected in concentrations exceeding regulatory limits.

2.0 Site Description

The Oxnard facility occupies 13.75 acres (5.6 hectares) in an industrial park (zoned M-2 warehouse-industrial) within the incorporated city limits of Oxnard, California. Seven buildings on the Oxnard facility property enclose approximately 86,000 square feet (7,990 square meters) of covered floor space (Figure 2). Both paved and unimproved open land areas are located on the site. The legal description for the property is presented on reproductions of the property deeds in Appendix A, Section 3.0. Bordering the facility are industrial maintenance, manufacturing, and agricultural packaging operations.

The site was used as farmland until 1949, when Allis-Chalmers built a plant to manufacture farm implements. Activities at the site included founding (foundry casting), forging, machining, welding, cutting, sanding, grinding, painting, and coating. In 1982, DOE assisted Precision Forge (a private company providing specialty nonferrous metalworking products to DOE) in relocating to the Oxnard property. In 1984, DOE acquired Precision Forge and operated the facility through Rockwell International, DOE's Rocky Flats prime contractor. EG&G succeeded Rockwell International as prime contractor at the Rocky Flats facility in 1989. Kaiser-Hill Company has operated the Oxnard facility since the second quarter of 1995. Metalworking at the Oxnard facility has involved stainless steel, titanium, aluminum, copper alloys, tantalum, molybdenum, and tungsten.

[1] Rust Geotech is the prime contractor for DOE at the Grand Junction Projects Office.

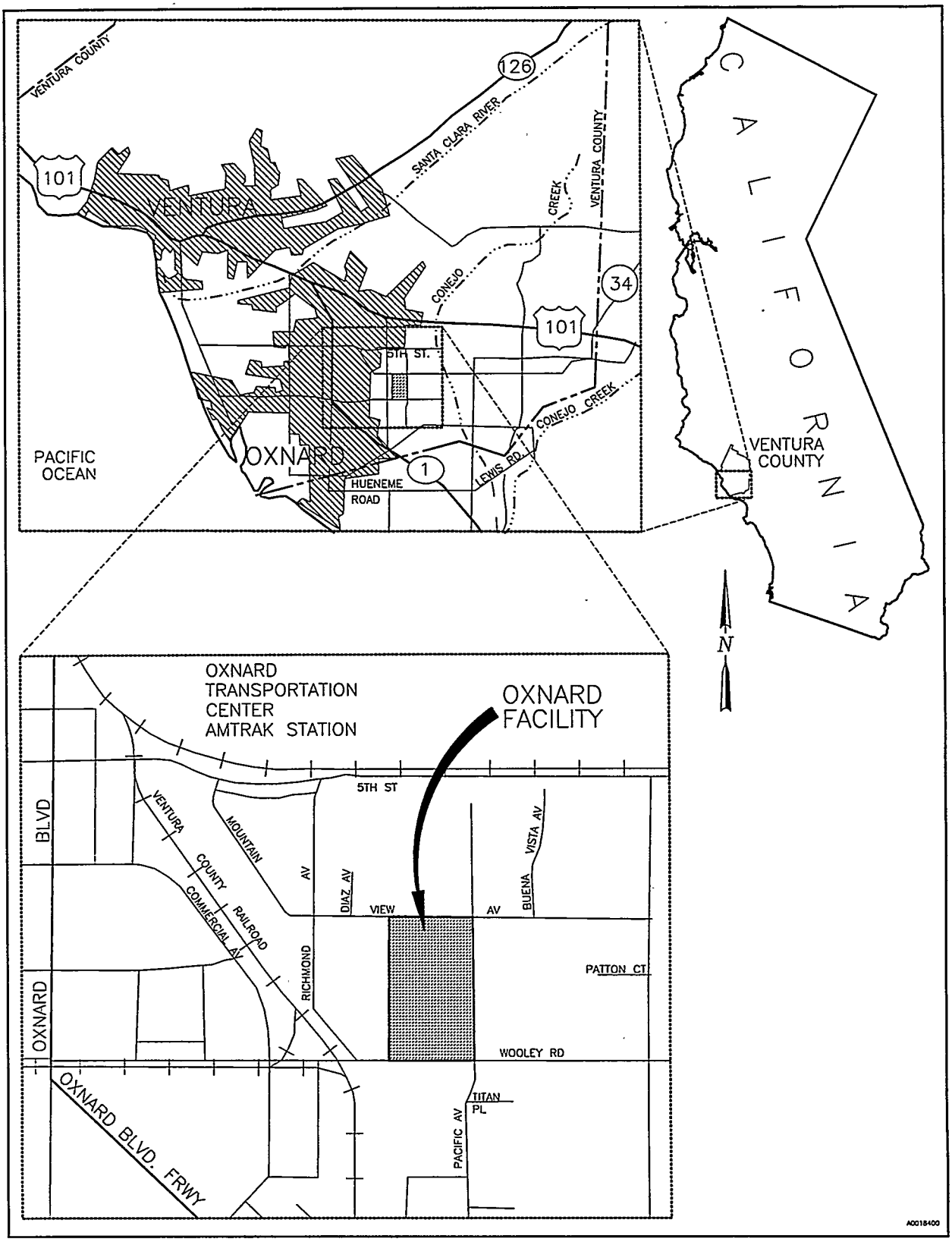
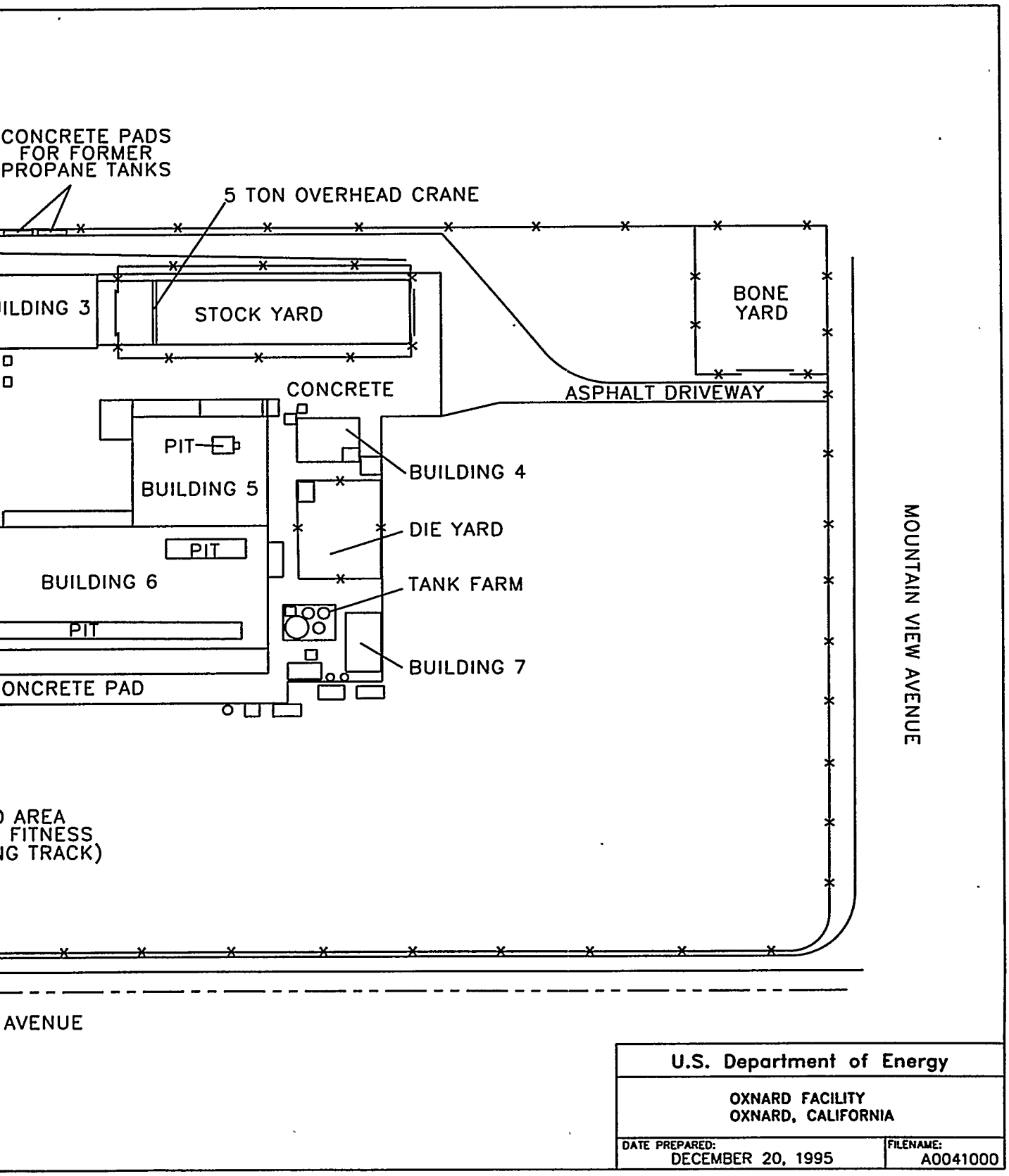


Figure 1. Location of the DOE Oxnard Facility, Oxnard, California



the DOE Oxnard Facility

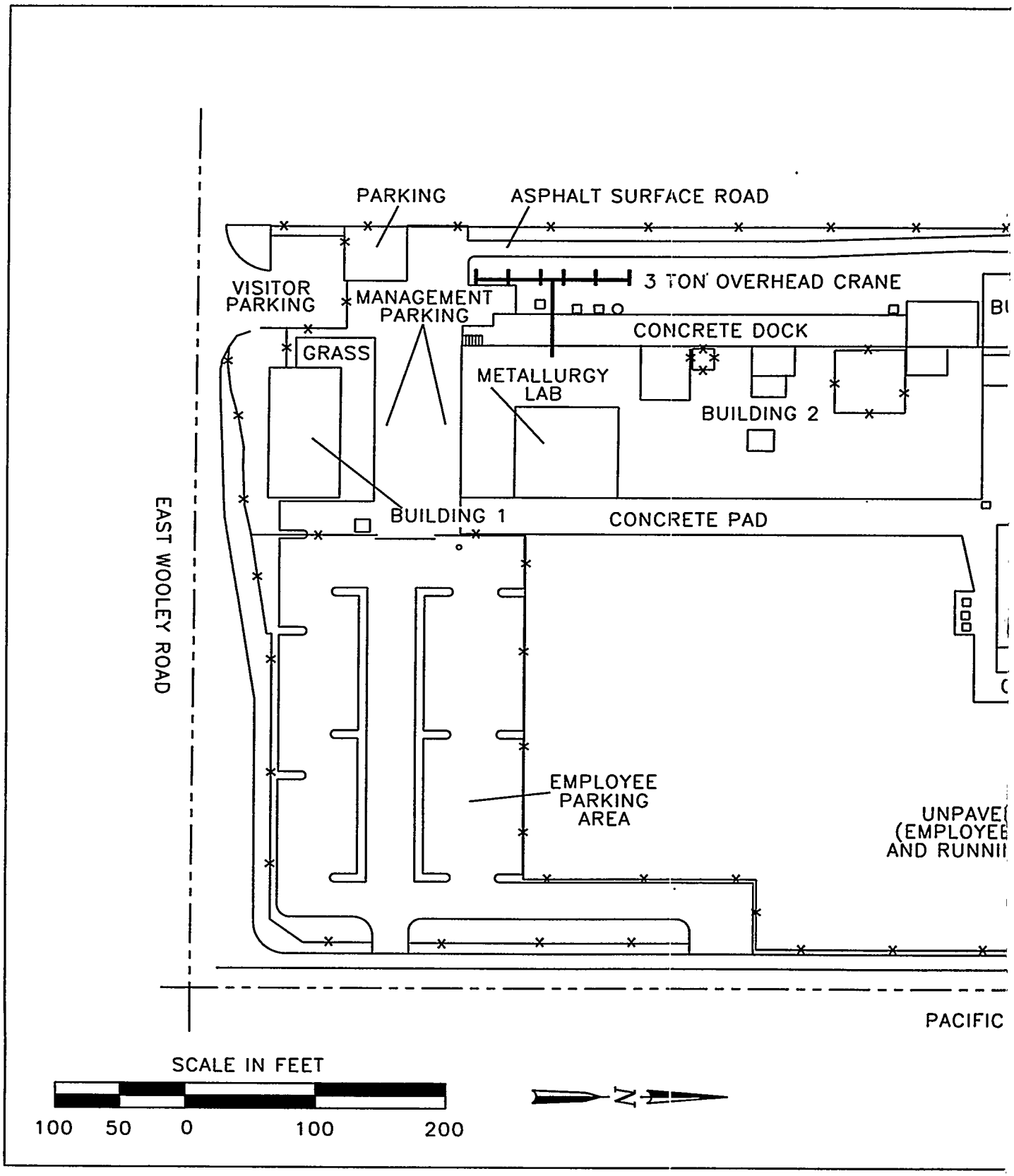


Figure 2. Site Layout o

3.0 Objectives

Potential hazardous wastes were identified on the basis of historical and current activities at the site. The applicable or relevant and appropriate requirements (ARARs) are shown in Table 1.

Table 1. ARARs for the DOE Oxnard Facility

Medium	ARARs
Asbestos	Toxic Substances Control Act , 40 CFR 763 Title 8, CAL/OSHA, Sections 341.15, 341.6, and 1529 Ventura County Air Pollution Control District Rule 62.7
Groundwater	Title 22, CCR[a], Division 4.5, Chapter 15, Section 66265.97 Title 22, CCR, Division 4, Chapter 15, Section 64431 Title 22, CCR, Division 4.5, Chapter 11, Article 3, Section 66261.24
Soil	Title 22, CCR, Division 4.5, Chapter 11, Article 3, Section 66261.24
Sludge/Oil	Title 22, CCR, Division 4.5, Chapter 11, Article 3, Section 66261.24

[a]CCR = California Code of Regulations

All activities conducted by Rust were reviewed for National Environmental Policy Act compliance and were determined to be categorically excluded from requirements to prepare an Environmental Assessment or Environmental Impact Statement.

4.0 Work Performed

Site investigations conducted by Rust began in June 1994 with an Environmental Site Assessment (ESA) Preliminary Evaluation site tour. Results of the Preliminary Evaluation indicated the need for a Phase I and Phase II ESA.

A nonintrusive site inspection and data gathering effort in August 1994 identified "areas of concern" at the facility (Appendix A, Table 6-1). The results of this investigation were presented in the *Phase I Environmental Site Assessment for the EG&G Rocky Flats Oxnard Facility* (Appendix A). The findings of the Phase I ESA indicated the need to conduct sampling and analysis activities to determine whether asbestos was present in the physical plant and whether regulated contaminants were present in the soil, groundwater, and in the oil and sludge collection and treatment systems at the facility.

Results of the Phase II intrusive ESA investigation, conducted in January and February 1995, were presented in the *Phase II Environmental Site Assessment Report for the Kaiser-Hill Company LLC Oxnard Facility, Oxnard, California* (Appendix B). This assessment included sampling and analyses for asbestos, and for hazardous contaminants in groundwater, in the surface and subsurface soils, and in the sludge and oil. Sample locations were selected by identifying locations with the greatest potential for detecting the presence of hazardous substances. Additional investigation was required when detectable concentrations of PCBs were identified in two soil samples.

suggested regulatory action level (Appendix C). Analytical results are presented in Appendix B, Tables D–2 and D–5, and Appendix C, Table 2.

A survey of the shipping and receiving area was conducted for beta-gamma contamination. No above-background activities were detected (Appendix B).

Analytical results of sludge and oil samples indicated levels of chromium and nickel (one sample), lead and zinc (one sample), and lead (one sample) exceeding soluble threshold limit concentrations when tested by the California Waste Extraction Test. The sludge from these locations could be classified as a hazardous waste if removed for disposal from site processes. Analytical results are presented in Appendix B, Tables D-3 and D-4.

6.0 Waste Volumes Generated

Results of analyses of samples collected of soil, groundwater, and monitoring well development water indicated that these materials did not contain hazardous substances in concentrations exceeding regulatory limits. All soil and water samples were disposed of on site following laboratory analysis. Samples collected for identification of asbestos and the associated personal protective equipment will be handled as asbestos-containing material and disposed of properly.

The oil and sludge samples were managed by Truesdail Laboratories.

7.0 Risk Assessment

A risk assessment, modeled after CERCLA guidance, was performed to determine the exposure of site workers to elevated metals detected in the oil/sludge samples and the PCB and metal concentrations in the soils. The pathways of exposure were ingestion, inhalation, and absorption. On-site exposure to groundwater was considered to be an incomplete pathway because treated municipal water is supplied. The risk of off-site exposure to groundwater was considered insignificant because of the low concentrations of detected metals and because the water in the shallow aquifer is not used for domestic purposes and is separated from the underlying potable water source by low-permeability clays.

The Hazard Index (HI) for noncarcinogens was 8.9×10^{-4}. The risk to human health from carcinogens was 3.2×10^{-6} (Appendix C, Section 4.0). These are conservative risk determinations. An HI for noncarcinogens below a value of 1 is considered insignificant. The requirement for action at a site with a risk from carcinogens of between 1×10^{-4} and 1×10^{-6} must be decided on a site-specific basis in concert with EPA.

U.S. Department of Energy, 1995. *Sampling and Analysis Plan for the Phase III Environmental Site Assessment of the Oxnard Facility, U.S. Department of Energy Oxnard, California*, P–GJPO–2204, prepared by Rust Geotech for the U.S. Department of Energy Grand Junction Projects Office, Grand Junction, Colorado, September 1995.

Appendix A

Phase I Environmental Site Assessment for the EG&G Rocky Flats Oxnard Facility

Phase I Environmental Site Assessment for the EG&G Rocky Flats Oxnard Facility

September 30, 1994

Prepared By:

RUST Geotech Inc.
P.O. Box 14000
Grand Junction, Colorado 81502

Prepared for the
U.S. Department of Energy
Grand Junction Projects Office
under DOE Contract No. DE-AC04-86ID12584

Phase I Environmental Site Assessment for the EG&G Rocky Flats Oxnard Facility

September 30, 1994

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Appendix C Summary of Hazardous Waste Streams 1989-1993
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Appendix F Hazardous Materials Map and Hazardous Materials Chemical Descriptions

1.0 INTRODUCTION

On June 8, 1994, an Environmental Site Assessment (ESA) Preliminary Evaluation (PE) was conducted at the EG&G Rocky Flats Oxnard Facility (Oxnard Facility). (Note: A copy of the PE trip report is found in Appendix A.) The facility is located at 1235 East Wooley Road, Oxnard, California. This PE determined that information had been generated over various years, but that the potential or real presence of environmental contamination on the "real property" was not well documented. The PE trip report (Section 5.0) further recommended the preparation of a Phase I and Phase II ESA.

During the week of August 8, 1994, a "due diligence" Phase I ESA was performed. The Phase I included:

- Determination of site ownership and location
- Property title search
- Review of historical site photographs
- Plant site personnel interviews
- Detailed plant site tour
- Drive-by tour of surrounding facilities
- Record reviews at the following regulatory agencies

  - City of Oxnard - Source Control Program

  - Ventura County Air Pollution Control District (VCAPCD)

  - Ventura County Department of Environmental Health Hazardous Waste & UST (VCDEH)

  - California Environmental Protection Agency Department of Toxic Substances Control (DTSC)

This Phase I ESA was conducted by RUST Geotech Inc., contractor to the U.S. Department of Energy Grand Junction Projects Office (DOE-GJPO). Participants included:

Sam Campbell	Environmental Sciences
Donald Koch	Environmental Standards & Oversight
Jack McCaslin	Technical Support

This Phase I ESA recommends that a full Phase II ESA be conducted to further reduce the uncertainties associated with the areas of concern identified in Section 6.0 of this report. This further investigation should resolve concerns pertaining to two abandoned underground storage tanks, a pit area beneath Building 6 previously used by Allis-Chalmers, asbestos-containing material in the

seven on-site buildings, several previously polychlorinated biphenyl (PCB) contaminated areas, and a trench/sump collection system located in the forging and press shops.

2.0 SITE DESCRIPTION

2.1 Site Ownership

The Oxnard facility is a nonferrous metalworking (forging, machining, welding, cutting, grinding, wheelabrating, and painting) facility. The facility is owned by the U.S. Department of Energy (DOE) and is operated by EG&G Rocky Flats.

2.2 Physical Location/Setting

The Oxnard facility occupies 13.75 acres and is located in an industrial park within the incorporated city limits of Oxnard and within the county of Ventura (Figure 2-1). The facility is bordered by industrial maintenance, manufacturing, and agricultural packaging facilities. The City of Oxnard operates a vehicle maintenance garage and trash receptacle storage yard on Pacific Avenue to the east. Deardorff-Jackson Inc. and Boskovich Corp. are vegetable/fruit packers located on Mountain View Avenue to the northwest and northeast, respectively. Kingstone Wheel Corp. (previously Del Manufacturing) is a metal wheel fabricator located on the southwest. A steel fabricator and machinist owned by Gold Coast Steel is located on the northwest. To the south, across Wooley Road, Told Corporation owns property which was previously used as farmland. This property is presently being marketed for commercial development.

The facility is comprised of seven buildings with approximately 86,000 square feet of covered floor space (Figure 2-2). The seven buildings include:

Building #1	Administrative Offices
Building #2	Machine Shop, Engineering, Quality Control, Metallurgical Laboratory, Production Control Office, Maintenance Offices, and lunch room
Building #3	Saw Shop
Building #4	Grinding Shop
Building #5	Press Shop, Wheelabrator Room, Dye Penetrant Room
Building #6	Forge Shop
Building #7	Tank Farm/Lubrication Stores

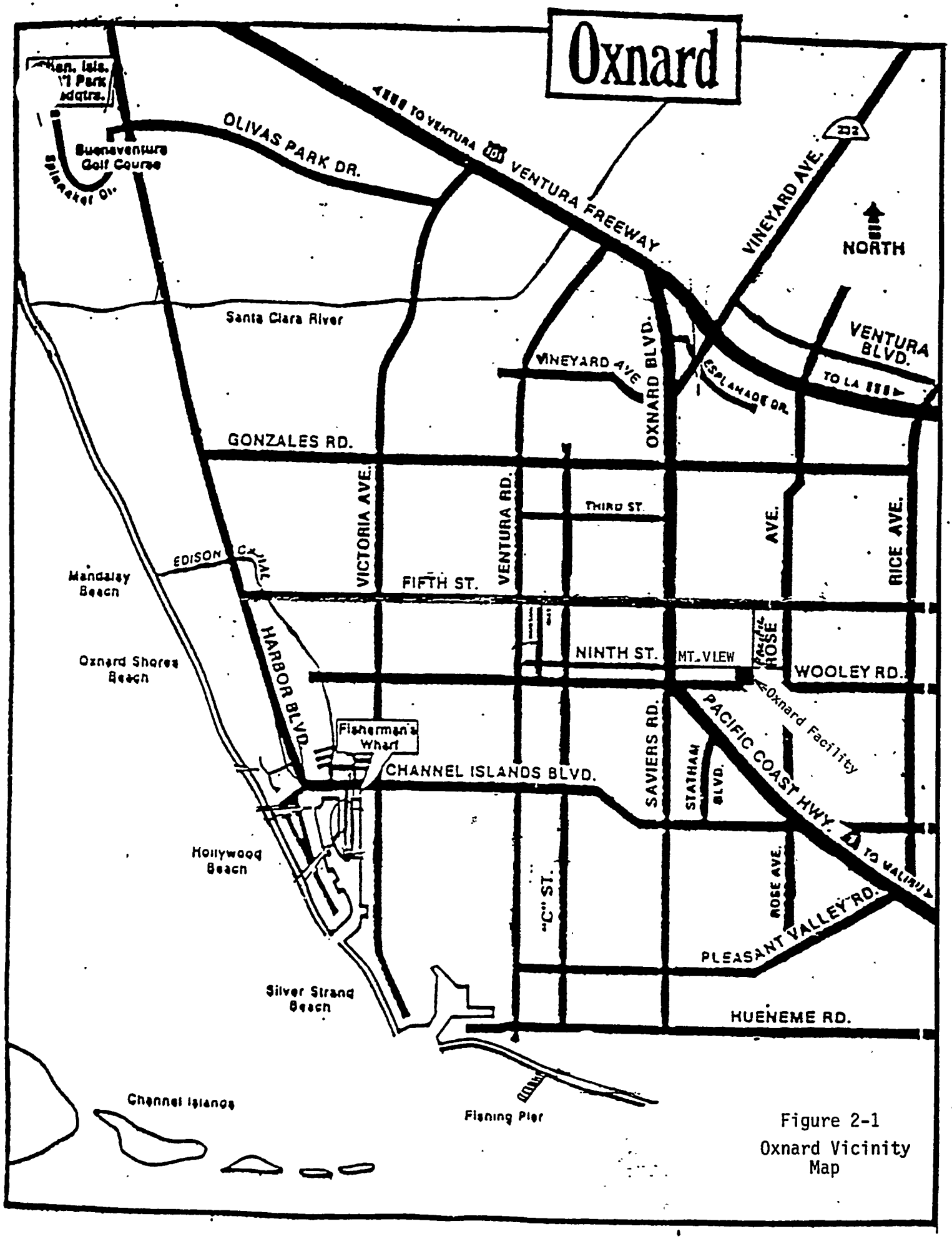


Figure 2-1
Oxnard Vicinity Map

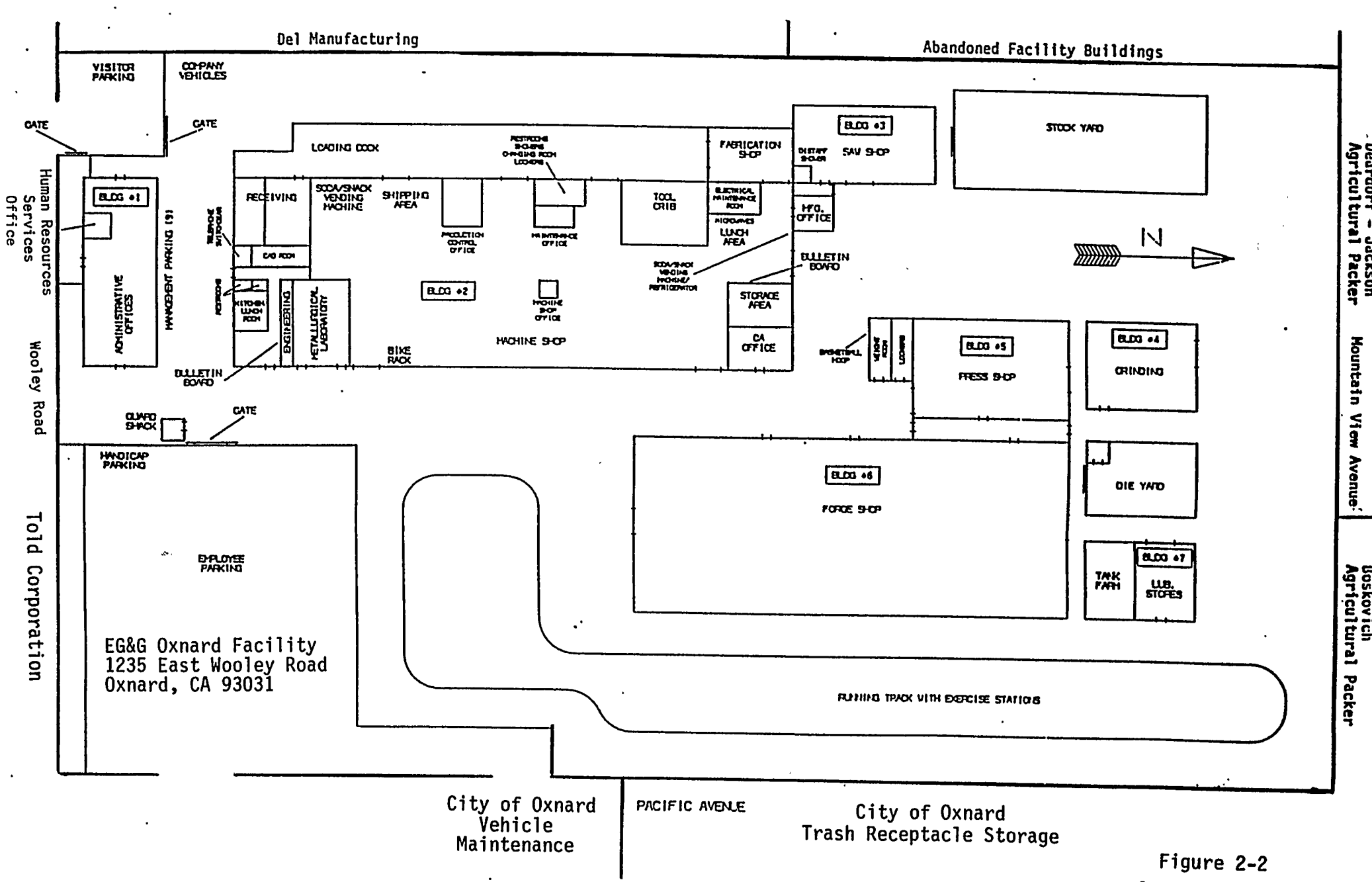


Figure 2-2
Oxnard Facility

2.3 Utilities

The plant's utilities currently operate well below their design potential. Prime utilities were designed during construction to allow for future expansion. Capacity and current supply availability includes:

Electrical - two 2500 ampere switchboards. Systems exist in place to double this capacity in a short period of time.

Water - An eight-inch supply line furnishes water in excess of either current needs or any reasonable expansion requirements for this facility.

Natural gas - A 5-inch main at 5 pounds per square inch (psi) fed by 223 psi from the street services the plant. The most significant limitation on gas availability and usage is the Ventura County Air Pollution Control District's emission regulations. The District currently permits an annual consumption not to exceed 50 million cubic feet (MMcf) of natural gas in all combustion equipment.

The Oxnard facility currently contracts services with the following utilities:

Electrical:	Southern California Edison P.O. Box 600 Rosemead, CA 91771-0001
Natural Gas:	Southern California Gas Company P.O. Box C Monterey Park, CA 91756
Telephone:	Cellular One P.O. Box 78132 Phoenix, AZ 85062-8132
	GTE California P.O. Box 215 Newbury Park, CA 91319
Water:	City of Oxnard Water Resource Dept. 305 West Third Street Oxnard, CA 93030
Sewer:	City of Oxnard Wastewater Division 6001 South Perkins Road Oxnard, CA 93030

2.4 Geology

Regional Setting

Oxnard is located in the Pacific border physiographic province. The predominant trend of mountain ranges in this province is north-northwest. Oxnard is situated on the west side of the Transverse Ranges, an anomalous east-west trending group of mountains. The bedrock in this region consists mostly of Mesozoic and Cenozoic sediments, volcanics, and metamorphic sequences, tectonically accreted to the western margin of North America.

Local Setting

The Oxnard facility is situated on a flat area of deep alluvial fill known as the Oxnard Plain. The Santa Clara River, and smaller streams draining the Santa Monica Mountains, have deposited alluvium in a prograding alluvial fan. This fan forms the westward bulge in the shoreline from Ventura to Point Mugu. The Quaternary alluvium (less than 2 million years) covers downfaulted rocks similar to those exposed in the adjacent Santa Monica Mountains.

Lithologically, the alluvium of the Oxnard Plain consists of an upper (less than 6 feet below land surface) unit of light brown, silty sand top soil overlying grey, course-grained sands and gravels interbedded with grey, fine-grain sand and clayey silts.

In 1982 Buena Engineers, Inc. under contract with Precision Forge (former owner to the DOE) drilled three borings to identify the immediate geology for the proposed construction of Building 6. A sketch identifying the location of the three borings and the boring logs are provided in Appendix B. The logs show the presence of free water for the shallow unconfined zone to exist between 5 feet and 8.5 feet. Furthermore, boring No. 1 identified trash and debris in the top 5 feet. The trash and debris are believed to be part of a foundry cast disposal pit used by the former owner, Allis-Chalmers.

2.5 Seismology

There are a number of major, northeast-southwest trending faults exposed in the Mountains and hills in the vicinity of the Oxnard facility. These include the Oak Ridge Fault to the north, the Simi Fault to the east, and the Sycamore Canyon Fault to the southeast. The Simi Fault projects beneath the alluvium of the Oxnard Plain, and therefore is most relevant.

The Simi Fault is a north-dipping reverse fault that strikes northeast. Most of the 5,300 feet of displacement on this fault occurred between 16 million to 10,000 years ago. Although no recent (<10,000 years) displacement on the Simi Fault has been recognized, there have been small magnitude (M<2.5) earthquakes recorded.

2.6 Groundwater

The Oxnard facility lies about 40 feet above sea level on a silty, sand-soil base. The shallow unconfined groundwater is encountered at a depth of 5 to 10 feet. This shallow unconfined groundwater has been described as perched by previous consultants because of its limited extent and because it is underlain by low permeability clays. Recharge for this perched zone is provided by local precipitation and agricultural irrigation. The potable aquifer lies approximately 120 feet below ground surface. According to Underground Storage Tank (UST) investigations at Gold Coast Steel and the City of Oxnard, the deep aquifer is not in hydraulic communication with the perched zone; and the groundwater was not impacted by leaking underground tanks at both properties. The groundwater flow direction in the perched zone is to the southwest toward the Pacific Ocean.

No evidence exists which would indicate salt water intrusion of either the perched or the potable zone aquifers beneath the Oxnard facility.

2.7 Surface Hydrology

No surface waters are on or within 1,000 yards of the Oxnard facility.

2.8 Demography

The 1990 population census for the City of Oxnard exceeded 150,000. The Ventura County population was about 700,000 including the City of Oxnard.

3.0 TITLE SEARCH

The title search for the Oxnard facility involved a review of applicable files at the County of Ventura's Recorder's Office, Treasurer-Tax Collection Office and Assessor's Office. Research indicates the following:

- On March 20, 1946, Edwin L. Carty and Doris C. Carty granted all real property (Lots 1 and 8 and East 158.65 feet of Lots 2 and 7, Block C, Virginia Parks together with all and singular the tenements, hereditaments and appurtenances) to Allis-Chalmers Manufacturing Company, a Delaware Corporation.

- On May 3, 1946, Edwin L. Carty and Doris C. Carty granted a 6.25/130 interest in a water well, pumping plant and distribution system to Allis-Chalmers Manufacturing Company, a Delaware Corporation.

- On August 3, 1982, PERFCO Leasing Company granted a street right-of-way to the City of Oxnard, a Municipal Corporation.

- On December 3, 1983, PERFCO Leasing Company granted an exclusive easement for waterlines and related appurtenances to the City of Oxnard, a Municipal Corporation.

- On January 18, 1983, PERFCO Leasing Company granted an easement and right-of-way for electrical utility use to Southern California Edison Company, a California Corporation.

- On June 26, 1984, PERFCO Leasing Company granted the same property described in the Deed dated, March 20, 1946, to Charles D. Pearce and K. Thomas Rose as Trustees for Security Pacific Leasing Corporation.

- On June 24, 1984, Charles D. Pearce and K. Thomas Rose as Trustees for Security Pacific Leasing Corporation, granted the same property described by the Deed dated, June 26, 1984, to the United States of America. The above described Real Property was acquired for the Department of Energy.

Concerns noted during the title search include:

- No record could be found identifying a deed transaction between Allis-Chalmers and PERFCO, assuming PERFCO was the next title owner.

- PERFCO Leasing Company could not be determined as a company owned and operated by Precision Forge.

- An unexplained change in the Assessor's Parcel Number occurred in the 1983-84 tax year. The previous number APN201-0-301-02 was changed to APN201-0-301-03.

STATE OF CALIFORNIA }
COUNTY OF VENTURA } SS

On this 1st day of March, 1946, before me, the undersigned, a Notary Public in and for said County, personally appeared MARY J. SKINTON, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged that she executed the same.

WITNESS my hand and official seal.

(Notarial Seal)
Ventura Co.

R.W. GRAY
Notary Public in and for said County and State.

RECORDED AT REQUEST OF TITLE INSURANCE & TRUST CO. at 9:00 A.M. May 6, 1946
No. 11000
Fee: $1.00 Folio: 3 JOHN S. LOCKE.....RECORDER
G.S.
COMPARED: BD

---------ooo-------

GRANT DEED

-o-

EDWIN L. CARTY and DORIS C. CARTY, husband and wife, of Oxnard, Ventura County, California,, hereby grant to

ALLIS-CHALMERS MANUFACTURING COMPANY, a corporation organized and existing under the laws of the State of Delaware, and having its principal place of business in the City of Milwaukee, County of Milwaukee, State of Wisconsin, in consideration of the sum of $16,265.00, receipt of which is hereby acknowledged, all that certain real property in the City of Oxnard, County of Ventura, State of California, bounded and described as follows:

Lots 1 and 8 and east 158.65 feet of Lots 2 and 7, Block C, Virginia Park as shown on "Map of Virginia Park", recorded in Book 11, Miscellaneous (Maps) Records of Ventura County, California, at page 28, and more particularly described as follows:

Beginning at the Northeast corner of Lot 1, Block C, of Virginia Park; thence,

1st: - South 0° 01' West 1231.59 feet along the easterly line of Lots 1 and 8, to the southeasterly corner of Lot 8, of said Block C; thence,

2nd: - North 89° 57' West 489.92 feet along the southerly line of Lot 8 and Lot 7, Block C, to a point; thence,

3rd: - North 0° 01' East 1231.59 feet parallel to the easterly line of Lots 7 and 2, and 158.65 feet therefrom to the northerly line of Lot 2; Block C; thence,

4th: - East 489.92 feet along the northerly line of Lots 2 and 1 to the northeasterly corner of Lot 1, Block C, the place of beginning and containing 13.852 acres.

TOGETHER with all and singular the tenements, hereditaments and appurtenances thereunto belonging, or in anywise appertaining.

WITNESS their hands this 20th day of March, 1946.

U.S.I.R.S. $17.05 Cancelled
T.I. & T. 5/6/46

EDWIN L. CARTY
DORIS C. CARTY

STATE OF CALIFORNIA }
COUNTY OF VENTURA } SS

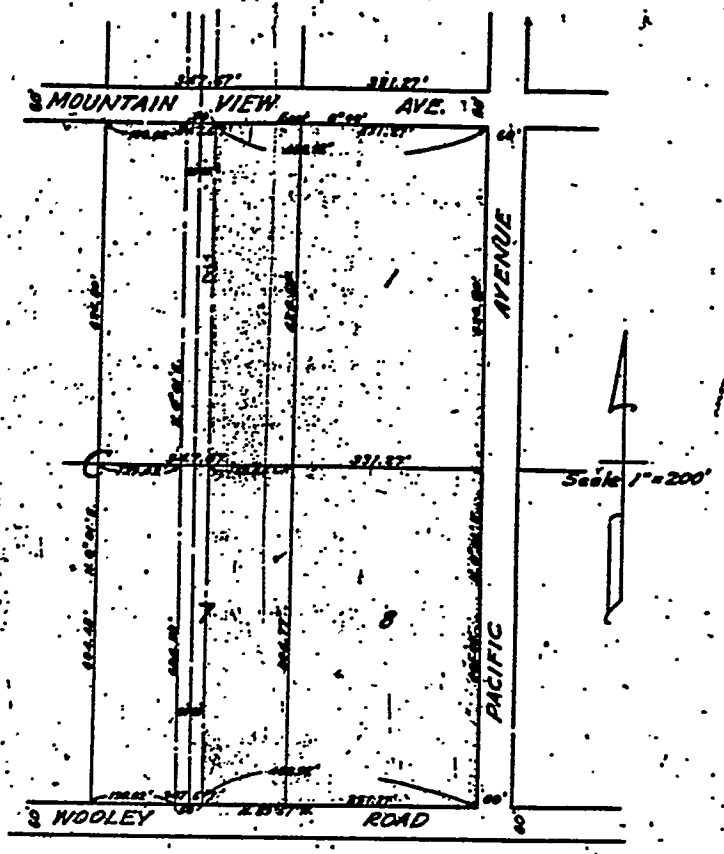
On this 20th day of March, 1946, before me, the undersigned, a Notary Public in and for said County and State, personally appeared EDWIN L. CARTY and DORIS C. CARTY, husband and wife, known to me to be the persons whose names are subscribed to the foregoing instrument and acknowledged to me that they executed the same.

WITNESS my hand and official seal.

(Notarial Seal)
Ventura Co.

HELEN R. SMITH
Notary Public in and for said County and State

(See other side for map)



RECORDED AT REQUEST OF TITLE INSURANCE & TRUST CO. at 9:00 A.M. May 6, 1946
No. 11001
Fee: $3.00 Folio: 6
JOHN B. LOCKE.....RECORDER
COMPARED: G.S.

----------ooo----------

yards, dog kennels, or anything unsightly, incidental or appurtenant thereto, shall be constructed or permitted on said property except as they are screened from the view of building sites higher on the hill by means of trees, vine covered trellises, arbors or walls, or by some other means that shall be effectual and of attractive appearance.

4. That no part of said premises shall ever at any time be sold, conveyed, leased or rented to any person other than one of the white or Caucasian race.

5. That no part of said premises shall ever at any time be used or occupied, or be permitted to be used or occupied, by any person other than one of the white or Caucasian race, except such as are in the employ of the owner or tenants of said premises residing therein.

PROVIDED, that the foregoing restrictions numbered 1 to 5 inclusive, shall in all respects terminate and end and be of no further effect upon and after January 1, 1947.

PROVIDED, that a breach of any of the foregoing conditions shall cause said premises to revert to the said Vendor, its successors, or assigns, each of whom respectively shall have the right of immediate re-entry upon said premises in the event of any such breach.

PROVIDED, also, that a breach of the foregoing conditions or any re-entry by reason of such breach, shall not defeat or render invalid the lien of any mortgage or deed of trust, made in good faith and for value, as to said premises, or any part thereof; but said conditions shall be binding upon and effective against any owner of said premises whose title thereto is acquired by foreclosure, trustee's sale or otherwise, and who violates the same.

IN WITNESS WHEREOF, said McKevett Corporation has this 10th day of September, 1945, hereunto caused its corporate name and seal to be affixed by its President and its Assistent Secretary thereunto duly authorized by its Board of Directors.

McKEVETT CORPORATION, a Corporation.
BY MILTON M. TEAGUE, Its President.
BY I. J. HOSWELL, Its Assistent Secretary.

(CORPORATE SEAL)
McKevett Corp.

U.S.I.R.S. $1.10--Cancelled.
T. I. & T. — 5/4/46

STATE OF CALIFORNIA,)
)ss.
COUNTY OF VENTURA.)

On this 20th day of September, 1945, before me, the undersigned, a Notary Public in and for the said County of Ventura, State of California, residing therein, duly commissioned and qualified, personally appeared Milton M. Teague, known to me to be the President and I. J. Hoswell, known to me to be the Assistent Secretary of McKevett Corporation, the corporation that executed the within and foregoing instrument, and known to me to be the persons who executed the said instrument on behalf of said corporation and they acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in said County of Ventura, the day and year in this certificate first above written.

GLADYS B. BOYLES
NOTARY PUBLIC in and for the County of Ventura, State of California.
My Commission Expires Oct. 12, 1948.

(NOTARIAL SEAL)
Ventura Co.

RECORDED AT REQUEST OF TITLE INSURANCE & TRUST CO., at 9:00 A.M., MAY 4, 1946.

JOHN S. LOCKE.....RECORDER.

NO.10963.
Fee: 1.70 Folio: 13.
V.C.W.
COMPARED: [illegible]

- - - - -o- - - - -

* * GRANT DEED * *

* * * *

IN CONSIDERATION of $1.00, receipt of which is acknowledged,

EDWIN L. CARTY AND DORIS C. CARTY, husband and wife, do hereby grant to

ALLIS-CHALMERS MANUFACTURING COMPANY, a corporation, organized and existing under the laws of the State of Delaware and having its principal place of business in the City of Milwaukee, County of Milwaukee, State of Wisconsin, the real property in the County of Ventura, State of California, described as:

A 6.25/130 interest in and to that certain water well, and the water therein and flowing therefrom, and the pumping plant connected therewith, including the pump, fixtures, connections and appliances, located upon Lots 9 and 10 in Block "B" of Virginia Park, near the Northwest corner of Lot 9 and the Southwest corner of the Easterly 22.50 feet of said Lot 10, together with a like interest in and to the irrigating and distribution system located upon and used for irrigating

lands in said Virginia Park, and a necessary and convenient right of way to [illegible] said well and pumping plant and distributing system for conducting water [illegible] well to the parcel of land conveyed to said Grantee by Deed from Grantor [illegible] 20th, 1946, recorded concurrently herewith.

Said interest in said well, pumping plant and distributing system [illegible] hereby sold and conveyed, subject to the terms, conditions, agreements and [illegible] set forth in Deed from Mary N. Moriarty et al, recorded March 6th, 1946 in Book [illegible] page 223 of Official Records.

Dated this 3rd day of May, 1946.

EDWIN L. CARTY
DORIS C. CARTY

STATE OF CALIFORNIA, }
COUNTY OF VENTURA. } ss.

On this 3rd day of May, 1946, before me, the undersigned, a Notary Public in and for said County, personally appeared Edwin L. Carty and Doris C. Carty, known to me to be the persons whose names are subscribed to the foregoing instrument and acknowledged that they executed the same.

WITNESS my hand and official seal.

(NOTARIAL SEAL)
Ventura Co.

R. W. GRAY
NOTARY PUBLIC in and for said County and State.

RECORDED AT REQUEST OF TITLE INSURANCE & TRUST CO., at 9:00 A.M., MAY 6, 1946.

NO.11002.
Fee: 1.00 Folio: 4.
VCO.W.
COMPARED: OZL

JOHN S. LOCKE.....RECORDER.

- - - -o- - - -

* * GRANT DEED * *

* * * * *

BOND R. SHANDS and FRANCES C. SHANDS, husband and wife, In consideration of Ten and No/100 Dollars to them in hand paid, the receipt of which is hereby acknowledged, do hereby grant to:

ROBERT D. EVANS and MARY A. EVANS, his wife as joint tenants, all that real property situated in the City of Oxnard, County of Ventura, State of California, described as follows:

Lot 13, Block 3, Oxnard Park Subdivision, Recorded in Book 19, Miscellaneous Maps, Records of Ventura County, California at page 63.

SUBJECT TO: Second installment City and County general and special taxes for fiscal year 1945-46.

Covenants, conditions, restrictions, reservations, rights, rights of way and easements of record;

Deed of Trust as per its terms of record in favor of Bank of America, Culver City, California.

NOTE: Said land lies within the Oxnard Harbor District.

WITNESS our hands this 5th day of March, 1946.

U.S.I.R.S. $3.30--Cancelled.
T.I. &T. -- 5/6/46.

BOND R. SHANDS - FRANCES C. SHANDS

STATE OF CALIFORNIA, }
COUNTY OF VENTURA. } ss.

On this 5th day of March, 1946, before me, the undersigned, Notary Public in and for said County, personally appeared Bond R. Shands and Frances C. Shands, known to me to be the persons whose names are subscribed to the foregoing instrument and acknowledged that they executed the same.

WITNESS my hand and Official Seal.

(NOTARIAL SEAL)
Ventura Co.

L. MELEY - NOTARY PUBLIC in and for said County and State. My Commission Expires Sept. 27, 1949.

RECORDED AT REQUEST OF TITLE INSURANCE & TRUST CO., at 9:00 A.M., MAY 6, 1946.

NO.11007.
Fee: 1.00 Folio: 3.
V.C.W.
COMPARED: OZL

JOHN S. LOCKE.....RECORDER.

- - - -o- - - -

(1)

097378

RECORDING REQUESTED BY

CITY OF OXNARD

AND WHEN RECORDED MAIL TO

Name
Street Address
City & State

Oxnard City Attorney
305 W. Third Street
Oxnard, CA. 93030

OFFICIAL RECORDS
OF VENTURA COUNTY RECORDER
ROBERT L. HAMM
Oct 15 8 30 AM '82

FREE — 3

MAIL TAX STATEMENTS TO

Name
Street Address
City & State

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Corporation Grant Deed

THIS FORM FURNISHED BY TICOR TITLE INSURANCE

A.P.N.

TS 1021 CA (12-78)

The undersigned grantor(s) declare(s):
Documentary transfer tax is $
( ) computed on full value of property conveyed, or
( ) computed on full value less value of liens and encumbrances remaining at time of sale.
( ) Unincorporated area: ( ) City of , and
FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

PREFCO LEASING COMPANY

a corporation organized under the laws of the State of California hereby GRANTS to

THE CITY OF OXNARD, a Municiple corporation

the following described real property in the County of Ventura, State of California:

Street, right-of-way for public use on the following described property:

See attached

In Witness Whereof, said corporation has caused its corporate name and seal to be affixed hereto and this instrument to be executed by its President, and Secretary thereunto duly authorized.

Dated: August 3, 1982

PREFCO LEASING COMPANY

By Jack A. Yoblin President

By Secretary

STATE OF CALIFORNIA } ss.
COUNTY OF Los Angeles

On August 3, 1982 before me, the undersigned, a Notary Public in and for said State, personally appeared JACK A. YOBLIN known to me to be the President, and SECRETARY of the Corporation that executed the within instrument, known to me to be the persons who executed the within instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within instrument pursuant to its bylaws or a resolution of its board of directors.

WITNESS my hand and official seal.

Signature Linda J. Stimpson

OFFICIAL SEAL
LINDA J. STIMPSON
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
My Commission Expires OCT. 23, 1982

(This area for official notarial seal)

Title Order No. Escrow or Loan No.

MAIL TAX STATEMENTS AS DIRECTED ABOVE

[redacted]

A portion of Lots 7 and 8, Block C, Virginia Park as shown on "Map of Virginia Park", recorded in Book 11, page 28 of Miscellaneous Records of Ventura County, California described as follows:

Beginning at the intersection of the westerly line of Pacific Avenue, 60.00 feet wide, with the northerly line of Wooley Road, 60.00 feet wide; thence from said point of beginning and along the northerly line of Wooley Road,

1st: North 89° 57' 00" West 405.03 feet to the beginning of a tangent curve concave to the northwest and having a radius of 945.00 feet; thence,

2nd: Northeasterly along said curve thru a central angle of 7° 54' 14" an arc distance of 130.36 feet to the beginning of a reverse curve concave to the southeast and having a radius of 1055.0[illegible] feet; thence,

3rd: Northeasterly along said curve thru a central angle of 7° 54' 14" an arc distance of 1[illegible]5.54 feet; thence,

4th: South 89° 57' 00" East 104.97 feet to the beginning of a tangent curve concave to the northwest and having a radius of 25.00 feet; thence,

5th: Northeasterly along said curve thru a central angle of 90° 02' 00" an arc distance of 39.28 feet to a point in the westerly line of said Pacific Avenue; thence along same,

[illegible]: [illegible] 89° 57' 00" West [illegible] feet to the point of [illegible]

97378

(2)

117614

Order No.
Escrow No.
Loan No.
RECORDED AT REQUEST OF:

WHEN RECORDED MAIL TO:

Oxnard City Attorney
300 West Third Street
Oxnard, California 93030

OFFICIAL RECORDS OF VENTURA COUNTY, CALIFORNIA
ROBERT L. HAMM
DEC 16 9 34 1982

FREE - 4

SPACE ABOVE THIS LINE FOR RECORDER'S USE

MAIL TAX STATEMENTS TO:

DOCUMENTARY TRANSFER TAX $_____
..... Computed on the consideration or value of property conveyed; OR
..... Computed on the consideration or value less liens or encumbrances remaining at time of sale.

Signature of Declarant or Agent determining tax — Firm Name

CORPORATION GRANT DEED

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

PREFCO LEASING COMPANY

a corporation organized under the laws of the State of California, does hereby

GRANT to THE CITY OF OXNARD, a Municipal Corporation

the real property in the City of Oxnard
County of Ventura, State of California, described as

An exclusive easement for waterlines and related appurtenances for the construction, reconstruction, repair, maintenance, replacement, removal and other related operational activities in, on, over, under and across the following described property:

See Exhibit A
Attached hereto and
made a part hereof.

Dated December 3, 1982

PREFCO LEASING COMPANY

By Jack A. Yoblin
Jack A. Yoblin, President

By Ronald G. Peterson
Ronald G. Peterson, Secretary

STATE OF CALIFORNIA
COUNTY OF _____ } ss.

On _____
before me, the undersigned, a Notary Public in and for said State, personally appeared _____
known to me to be the _____ President, and
known to me to be the _____ Secretary of the corporation that executed the within instrument, and known to me to be the persons who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

Signature _____

(This area for official notarial seal)

DEC 16 1982

MAIL TAX STATEMENTS AS DIRECTED ABOVE

1144 (10/69)

[redacted]

SENT BY:STEWART TITLE TSG 08-29-94 09:11AM 8182437215→ 17146607644 # 4

EXHIBIT A

A portion of Lots 1, 2, 7 and 8, Block C, Virginia Park, as shown on "Map of Virginia Park," recorded in Book 11, page 28 of Miscellaneous Records of Ventura County, California, described as follows:

Parcel 1: The westerly 20.00 feet of the easterly 158.65 feet of Lot 2 and the westerly 20.00 feet of the northerly 479.62 feet of the easterly 158.65 feet of Lot 7.

Parcel 2: The northerly 15.00 feet of the southerly 125.00 feet of the easterly 158.65 feet of Lot 7 and the northerly 15.00 feet of the southerly 125.00 feet of Lot 8.

Parcel 3: The southerly 15.00 feet of the northerly 424.59 feet of the easterly 170.00 feet of Lot 1.

Parcel 4: The westerly 15.00 feet of the easterly 255.50 feet of the northerly 215.00 feet of the southerly 340.00 feet of Lot 8.

Parcel 5: The westerly 15.00 feet of the easterly 261.50 feet of the southerly 125.00 feet of Lot 8.

The grantor shall not burden the surface of the easement herein granted with any above ground fences, buildings or structures, which covenant and condition shall be observed by the grantor, its successors or assigns.

117914

SENT BY:SIEWERT TITLE TSG 08-29-94 09:12AM 8182437215→ 17146607644 # 5

* RECEIVE STOPPED *

6639
2596
IDENTITY
2-2524
MAP DISC
58-68

APPROVED
N/W & LAND
DEPARTMENT
BY
NTW
DATE
1-13-83

SEE ATTACHED EXHIBIT "A" FOR LEGAL DESCRIPTION

The Grantor agrees for itself, its successors and assigns not to erect, place or maintain, nor to permit the erection, placement or maintenance of any building, planter boxes, earth fill or other structures except walls and fences on the above described real property. The Grantee, and its contractors, agents and employees, shall have the right to trim or cut tree roots as may endanger or interfere with said systems and shall have free access to said systems and every part thereof, at all times, for the purpose of exercising the rights herein granted; provided, however, that in making any excavation on said property of the Grantor(s), the Grantee shall make the same in such a manner as will cause the least injury to the surface of the ground around such excavation, and shall replace the earth so removed by it and restore the surface of the ground to as near the same condition as it was prior to such excavation as is practicable.

EXECUTED this 18 day of Jan, 1983

PREFCO LEASING COMPANY

By Jack A. Hall
President

By [signature]
Secretary

STATE OF CALIFORNIA
COUNTY OF VENTURA } ss.

On JANUARY 18, 1983, before me, a Notary Public in and for said State, personally appeared JACK A. JOBLIN, known to me (or proved to me on the basis of satisfactory evidence) to be THE President, and R. S. PETERSON, known to me (or proved to me on the basis of satisfactory evidence) to be THE Secretary, of PREFCO LEASING COMPANY, the corporation that executed the within instrument, and known to me (or proved to me on the basis of satisfactory evidence) to be the persons who executed the within instrument on behalf of the said corporation, and acknowledged to me that such corporation executed the same pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

Pamela W. Ford

OFFICIAL SEAL
PAMELA W. FORD
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
VENTURA COUNTY
My Commission Exp. Dec. 28, 1984

JAN 25 1983

SENT BY:SIEWART TITLE TSG 08-29-94 09:12AM 8182437215→ 17146607644 # 6

(3)

007886

RECORDING REQUESTED BY

SOUTHERN CALIFORNIA EDISON COMPANY

WHEN RECORDED MAIL TO
SOUTHERN CALIFORNIA EDISON COMPANY
P. O. Box 4757
Ventura, CA 93004

ATTENTION: R/W Dept.

RECORDS OF
VENTURA COUNTY RECORDER
RICHARD D. DEAN, II

JAN 25 1 17 PM '83

FEE $4 2

PAID BY CK

APN 201-0-301-02

SPACE ABOVE THIS LINE FOR RECORDER'S USE

GRANT OF EASEMENT (CORPORATION)

DOCUMENTARY TRANSFER TAX $ None (no consideration)
[signature] SO. CALIF. EDISON CO.
SIGNATURE OF DECLARANT OR AGENT DETERMINING TAX. FIRM NAME

PREFCO LEASING COMPANY

a corporation (hereinafter referred to as "Grantor"), hereby grants to SOUTHERN CALIFORNIA EDISON COMPANY, a corporation, its successors and assigns (hereinafter referred to as "Grantee"), an easement and right of way to construct, use, maintain, operate, alter, add to, repair, replace, reconstruct, inspect and remove at any time and from time to time underground electrical supply systems and communication systems (hereinafter referred to as "systems"), consisting of wires, underground conduits, cables, vaults, manholes, handholes, and including above-ground enclosures, markers and concrete pads and other appurtenant fixtures and equipment necessary or useful for distributing electrical energy and for transmitting intelligence by electrical means, in, on, over, under, across and along that certain real property in the County of Ventura, State of California, described as follows:

DISTRICT
Ventura
WORK ORDER
6639
2596
IDENTITY
2-2524
MAP DIST.
58-68
APPROVED R/W & LAND DEPARTMENT
BY
NTW
DATE
1-13-83

SEE ATTACHED EXHIBIT "A" FOR LEGAL DESCRIPTION

The Grantor agrees for itself, its successors and assigns not to erect, place or maintain, nor to permit the erection, placement or maintenance of any building, planter boxes, earth fill or other structures except walls and fences on the above described real property. The Grantee, and its contractors, agents and employees, shall have the right to trim or cut tree roots as may endanger or interfere with said systems and shall have free access to said systems and every part thereof, at all times, for the purpose of exercising the rights herein granted; provided, however, that in making any excavation on said property of the Grantor(s), the Grantee shall make the same in such a manner as will cause the least injury to the surface of the ground around such excavation, and shall replace the earth so removed by it and restore the surface of the ground to as near the same condition as it was prior to such excavation as is practicable.

EXECUTED this 18 day of Jan., 1983

PREFCO LEASING COMPANY

By Jack A. Joblin President

By [signature] Secretary

STATE OF CALIFORNIA
COUNTY OF VENTURA } ss.

On JANUARY 18, 1983, before me, a Notary Public in and for said State, personally appeared JACK A. JOBLIN, known to me (or proved to me on the basis of satisfactory evidence) to be THE President, and R. S. PETERSON, known to me (or proved to me on the basis of satisfactory evidence) to be THE Secretary, of PREFCO LEASING COMPANY, the corporation that executed the within instrument, and known to me (or proved to me on the basis of satisfactory evidence) to be the persons who executed the within instrument on behalf of the said corporation, and acknowledged to me that such corporation executed the same pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

[signature]

OFFICIAL SEAL
PAMELA W. FORD
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
VENTURA COUNTY
My Commission Exp. Mar. 30, 1984

Attn: Diana or Jo

EXHIBIT "A"

A strip of land 8 feet wide lying within Lot 8 of Block C of Virginia Park, as per map recorded in Book 11, page 28 of Miscellaneous Records (Maps), in the office of the County Recorder of said County; the centerline of said strip of land is described as follows:

Beginning at a point in the easterly line of said Lot 8 that is 373 feet northerly of the centerline of Wooley Road, 60 feet wide as it now exists; thence North 89° 59' West 15 feet to a point hereinafter referred to as Point "A".

Also two (2) strips of land, each 6 feet wide; the centerlines are described as follows:

STRIP NO. 1: Beginning at Point "A" hereinbefore referred to; thence North 89° 59' West 160 feet to a point hereinafter referred to as Point "B"; thence continuing North 89° 59' West 10 feet; thence North 45° 00' West 15 feet; thence North 0° 01' East 190 feet to a point hereinafter referred to as Point "C"; thence North 89° 59' West 25 feet; thence North 0° 01' East 37 feet more or less to the exterior wall of a building.

STRIP NO. 2: Beginning at Point "B" hereinbefore referred to; thence North 45° 00' West 15 feet; thence North 0° 01' East 60 feet.

Also a strip of land 56 feet wide, lying 17 feet easterly and 39 feet westerly of the following described line:

Beginning at Point "C" hereinbefore referred to; thence North 0° 01' East 25 feet.

7886

JUN 25 1980

SENT BY:STEWART TITLE TSG 08-29-94 09:14AM 8182437215→ 17146607644 # 1

EXHIBIT "A"

A strip of land 8 feet wide lying within Lot 8 of Block C of Virginia Park, as per map recorded in Book 11, page 28 of Miscellaneous Records (Maps), in the office of the County Recorder of said County; the centerline of said strip of land is described as follows:

Beginning at a point in the easterly line of said Lot 8 that is 373 feet northerly of the centerline of Wooley Road, 60 feet wide as it now exists; thence North 89° 59' West 15 feet to a point hereinafter referred to as Point "A".

Also two (2) strips of land, each 6 feet wide; the centerlines are described as follows:

STRIP NO. 1: Beginning at Point "A" hereinbefore referred to; thence North 89° 59' West 160 feet to a point hereinafter referred to as Point "B"; thence continuing North 89° 59' West 10 feet; thence North 45° 00' West 15 feet; thence North 0° 01' East 190 feet to a point hereinafter referred to as Point "C"; thence North 89° 59' West 25 feet; thence North 0° 01' East 37 feet more or less to the exterior wall of a building.

STRIP NO. 2: Beginning at Point "B" hereinbefore referred to; thence North 45° 00' West 15 feet; thence North 0° 01' East 60 feet.

Also a strip of land 56 feet wide, lying 17 feet easterly and 39 feet westerly of the following described line:

Beginning at Point "C" hereinbefore referred to; thence North 0° 01' East 25 feet.

Security Pacific Leasing Corp
P.O. Box 7722
San Francisco, CA 94111
Attn: John Votruba, Esq.

Rockwell International Corporation
P.O. Box 464
Golden, CO 80402
Attn: Mr. W.H. Shannon

30 PAST 1 PM JUN 28 1984
RICHARD D. DEAN, COUNTY RECORDER

PAID BY CK

TRANSFER TAX PAID CODE # 4
SURVEY MON. FUND FEE $10.00

SPACE ABOVE THIS LINE FOR RECORDER'S USE

Corporation Grant Deed

TRIS FORM FURNISHED BY TICOR TITLE INSURED

A.P.N. 201-301-030

The undersigned grantor(s) declare(s):
Documentary transfer tax is $ 3,520.00.
(X) computed on full value of property conveyed, or
( ) computed on full value less value of liens and encumbrances remaining at time of sale.
( ) Unincorporated area: (X) City of Oxnard, and
FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

PREFCO LEASING COMPANY,

a corporation organized under the laws of the State of California, hereby GRANTS to
CHARLES D. PEARCE AND K. THOMAS ROSE AS TRUSTEES
FOR SECURITY PACIFIC LEASING CORPORATION

the following described real property in the City of Oxnard,
County of Ventura, State of California:

See Exhibit "A" attached hereto and made a part hereof.

In Witness Whereof, said corporation has caused its corporate name and seal to be affixed hereto and this instrument to be executed by its Vice President and Secretary thereunto duly authorized.

Dated: June 26, 1984

PREFCO LEASING COMPANY

By [signature] Vice President

By [signature] Secretary

STATE OF CALIFORNIA } ss.
COUNTY OF Los Angeles

On June 26, 1984 before me, the undersigned, a Notary Public in and for said State, personally appeared James M. Nicolai known to me to be the Vice President, and Trischa L. Bennett known to me to be Secretary of the Corporation that executed the within instrument, known to me to be the persons who executed the within instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

Signature Diana W. Shulman

OFFICIAL SEAL
DIANA W. SHULMAN
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My Comm. Expires March 4, 1988

OFFICIAL SEAL
DIANA W. SHULMAN
NOTARY PUBLIC - CALIFORNIA
LOS ANGELES COUNTY
My Comm. Expires March 4, 1988

(This area for official notarial seal)

Title Order No. 356438 Escrow or Loan No.

MAIL TAX STATEMENTS AS DIRECTED ABOVE

RECORDING REQUESTED BY

TICOR TITLE INS. CO.
OF CALIFORNIA - 71

72305

NO. 404 004

EXHIBIT "A"

LEGAL DESCRIPTION

Parcel A shown on Parcel Map No. 83-2 filed in Book 37 pages 94 and 95 of Parcel Maps in the Office of the County Recorder of Ventura County.

72305

SENT BY:STEWART TITLE 08-22-94 02:19PM 17146607644 # 4
NO.404 D05

Street Address: P. O. Box 928
City & State: Golden, CO 80401

MAIL TAX STATEMENTS TO

Name: Not Applicable
Street Address:
City & State:

FIRST
RICHARD D. DEAN, COUNTY RECORDER

SURVEY
MON. FUND
FEE $10.00

FEE
$5

SPACE ABOVE THIS LINE FOR RECORDER'S USE

CAT. NO. NN00582
TO 1923 CA (2-83)

Individual Grant Deed

THIS FORM FURNISHED BY TIGER TITLE INSURERS

A.P.N. 201-301-030

The undersigned grantor(s) declare(s):
Documentary transfer tax is $ exempt
( ) computed on full value of property conveyed, or
( ) computed on full value less value of liens and encumbrances remaining at time of sale.
( ) Unincorporated area: ( ) City of _____, and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, to wit: $3,256,320.00, Charles D. Pearce and K. Thomas Rose as Trustees for Security Pacific Leasing Corporation

hereby GRANT(S) to
the United States of America and its assigns

the following described real property in the City of Oxnard, County of Ventura, State of California:

Parcel A shown on Parcel Map No. 83-2 filed in Book 37 pages 94 and 95 of Parcel Maps in the Office of the County Recorder of said County.

Being the same property which Prefco Leasing Company, a California corporation, by its deed dated June 26, 1984 and recorded June 29, 1984 as document No. 72305 in the Office of the County Recorder of said County, granted to Charles D. Pearce and K. Thomas Rose as trustees for Security Pacific Leasing Corporation.

The above-described real property is being acquired for the Department of Energy.

Dated: June 24, 1985

Charles D. Pearce and K. Thomas Rose as Trustees for Security Pacific Leasing Corporation

Charles D. Pearce
K. Thomas Rose

STATE OF CALIFORNIA
COUNTY OF San Francisco } ss.
On June 24 1985 before me, the undersigned, a Notary Public in and for said State, personally appeared Charles D. Pearce and K. Thomas Rose personally known to me or proved to me on the basis of satisfactory evidence to be the person s whose names are subscribed to the within instrument and acknowledged that they executed the same.
WITNESS my hand and official seal.

Signature [signature]

OFFICIAL SEAL
GAIL D. [illegible]
Notary Public-California
City and County of
SAN FRANCISCO
My Commission Expires May 5, 1988

(This area for official notarial seal)

Title Order No. 363161-JB Escrow or Loan No. _____

MAIL TAX STATEMENTS AS DIRECTED ABOVE

SENT BY:STEWART TITLE 08-23-94 02:19PM → 17146607644 # 5

RECORDED IN OFFICIAL RECORDS

VERIFIED

069121

RECORDING REQUESTED BY

TICOR TITLE INS. CO.
OF CALIFORNIA - 71

AND WHEN RECORDED MAIL TO

* DENOTES OWNER OF RECORD AS OF MARCH 1 — 1977-78 ASSESSMENT ROLL COUNTY OF VENTURA

ASSESSED AT 25% OF FULL VALUE

LAND	IMPROVEMENTS	PERSONAL PROPERTY	INVENTORY	EXEM TYPE	EXEMPTION	NET VALUE	RATES		LEVIES	PENALTIES AND COSTS
15500						15500	GEN 9.4002	1ST	743.35	
KETHER WILLIAM B-NATALIE S							L&I .1916	2ND	743.35	
WICHMAN ARLEN J-EMILY J							LAND			COST
1140 E MOUNTAIN VIEW DR								TOTAL	1,486.70	
OXNARD CALIF 93030	AGENT NUMBER						TOTAL FULL VALUE	62,000		
* SEA-COR CORPORATION										
9375	2000					11375	GEN 9.4002	1ST	545.52	32.73
*FIGUEROA ERNEST-IRENE							L&I .1916	2ND	545.52	32.73
315 E NECTARINE ST			01300026				LAND			COST 3.00
OXNARD CALIF 93030	AGENT NUMBER 5200							TOTAL	1,091.04	
* FIGUEROA ERNEST-IRENE							TOTAL FULL VALUE	45,500		
22125	12750					34875	GEN 9.4002	1ST	1,672.56	100.35
EVANS E J							L&I .1916	2ND	1,672.56	100.35
BANK OF AMERICA EX TR 55946							LAND			COST 3.00
P O BOX 3635 TERMINAL ANNEX								TOTAL	3,345.12	
LOS ANGELES CALIF 9003:	AGENT NUMBER						TOTAL FULL VALUE	139,500		
* EVANS E J										
21250						21250	GEN 9.4002	1ST	1,019.12	61.14
FOREMOST-MC KESSON INC							L&I .1916	2ND	1,019.12	
ONE POST ST							LAND			COST 3.00
SAN FRANCISCO CALIF 94104	AGENT NUMBER							TOTAL	2,038.24	
* FOREMOST-MC KESSON INC							TOTAL FULL VALUE	85,000		
26250	31250					57500	GEN 9.4002	1ST	2,757.63	165.45
LEDESMA RAYMOND G-HORTENSE R							L&I .1916	2ND	2,757.63	165.45
LEDESMA SALVADOR-LUCINA							LAND			COST 3.00
P O BOX 629								TOTAL	5,515.26	
OXNARD CALIF 93032	AGENT NUMBER 0646						TOTAL FULL VALUE	230,000		
* LEDESMA RAYMOND G-HORTENSE R										
72500	132225	84500	276450 INV	138225		427450	GEN 9.4002	1ST	20,286.69	1,217.20
ALLIS CHALMERS MFG CO							L&I .1916	2ND	20,286.69	1,217.20
P O BOX 5246							LAND			COST 3.00
OXNARD CALIF 93030	AGENT NUMBER							TOTAL	40,573.38	
* ALLIS CHALMERS MFG CO							TOTAL FULL VALUE	2,262,700		
30500						30500	GEN 9.3802	1ST	1,459.69	87.58
DIEDRICH INVESTMENTS							L&I .1916	2ND	1,459.69	87.58
1928 E FIFTH ST							LAND			COST
OXNARD CALIF 93030	AGENT NUMBER							TOTAL	2,919.38	
* DIEDRICH INVESTMENTS							TOTAL FULL VALUE	122,000		
30500	250		HOME	1750		29000	GEN 9.3802	1ST	1,389.57	83.37
DIEDRICH JOHN MILTON							L&I .1916	2ND	1,389.57	83.37
1560 MOUNTAIN VIEW							LAND			COST 3.00
OXNARD CALIF 93030	AGENT NUMBER							TOTAL	2,779.14	
* DIEDRICH JOHN MILTON							TOTAL FULL VALUE	123,000		

* DENOTES OWNER OF RECORD AS OF MARCH 1 — 1977-78 ASSESSMENT ROLL COUNTY OF VENTURA

ASSESSED AT 25% OF FULL VALUE

LAND	IMPROVEMENTS	PERSONAL PROPERTY	INVENTORY	EXEM TYPE	EXEMPTION	NET VALUE	RATES		LEVIES	PENALTIES AND COSTS
DIEDRICH JOHN M-EDWIN J							GEN 9.3802	1ST		
1560 MOUNTAIN VIEW							L&I .1916	2ND		
										COST 3.00

1977-78 ASSESSMENT ROLL COUNTY OF VENTURA

ASSESSED AT 25% OF FULL VALUE

IMPROVE-MENTS	PERSONAL PROPERTY	INVENTORY	EXEM TYPE	EXEMPTION	NET VALUE	RATES		LEVIES	PENALTIES AND COSTS	SPECIAL ASSESSMENTS	
E-NATALIE S					15500	GEN 9.4002	1ST	743.35	44.60		
						L&I .1916	2ND	743.35	44.60		
VIEW DR						LAND			COST 3.00		
93030	AGENT NUMBER				TOTAL FULL VALUE	62,000	TOTAL	1,486.70			
PROPERTIES											
2000					11375	GEN 9.4002	1ST	545.52	32.73		
-IRENE						L&I .1916	2ND	545.52	32.73		
NE ST			0100002E			LAND			COST 3.00		
93030	AGENT NUMBER 520C				TOTAL FULL VALUE	45,500	TOTAL	1,091.04			
ERNEST-IRENE											
12750					34875	GEN 9.4002	1ST	1,672.56	100.35		
DR EA TR 55946						L&I .1916	2ND	1,672.56	100.35		
TERMINAL ANNEX						LAND			COST 3.00		
CALIF 90051	AGENT NUMBER				TOTAL FULL VALUE	139,500	TOTAL	3,345.12			
KESCOM INC					21250	GEN 9.4002	1ST	1,019.12	61.14		
						L&I .1916	2ND	1,019.12	61.14		
DR						LAND			COST 3.00		
94104	AGENT NUMBER				TOTAL FULL VALUE	85,000	TOTAL	2,038.24			
KI INC											
31250					57500	GEN 9.4002	1ST	2,757.63	165.45		
MO G-HORTENSE R						L&I .1916	2ND	2,757.63	165.45		
DOR-LUCINE						LAND			COST 3.00		
93032	AGENT NUMBER 0646				TOTAL FULL VALUE	230,000	TOTAL	5,515.26			
RYMOND G-HORTENSE R											
138225	84500	276450	INV	138225	427450	GEN 9.4002	1ST	20,286.69	1,217.20		
E MFG CO						L&I .1916	2ND	20,286.69	1,217.20		
						LAND			COST 3.00		
93030	AGENT NUMBER				TOTAL FULL VALUE	2,252,700	TOTAL	40,573.38			
EPS MFG CO											
ESTMENTS					30500	GEN 9.4002	1ST	[illegible]	87.58		
ST						L&I .1916	2ND	[illegible]	[illegible]		
						LAND			COST 3.00		
93030	AGENT NUMBER						TOTAL	[illegible]			
INVESTMENTS					TOTAL FULL VALUE	122,000					
250		MOVE	1750		29000	GEN [illegible]	1ST	[illegible]	[illegible]		
MILTON						L&I [illegible]	2ND	[illegible]	[illegible]		
IN VIEW						LAND			COST [illegible]		
93033	AGENT NUMBER				TOTAL FULL VALUE	122,000	TOTAL	[illegible]			
MILTON											

1977-78 ASSESSMENT ROLL COUNTY OF VENTURA PAGE

ORD AS OF MARCH 1

ASSESSED AT 25% OF FULL VALUE

IMPROVE-MENTS	PERSONAL PROPERTY	INVENTORY	EXEM TYPE	EXEMPTION	NET VALUE	RATES		LEVIES	PENALTIES AND COSTS	SPECIAL ASSESSMENTS	PARCEL NUMBER
M-EDWIN J						GEN 9.3002	1ST				201-0-303-041 TRA 03035
						L&I .1916	2ND				
						LAND			COST 3.00		

4.0 PRIOR/CURRENT PROCESSES

4.1 Historical Production Processes

Prior to the forging operations by Precision Forge or the DOE, the site was used as farm land until 1949. Allis-Chalmers, a farm implement manufacturing company, purchased the property in 1949 and built a plant consisting of 6 buildings. Production activities included founding (foundry casting), forging, machining, welding, cutting, sanding/grinding and painting/coating. These activities resulted in the manufacture, assembly, and testing of non-motorized farm implements (plows, discs, harrows, bailers, cutters, rakes). The area now used as an exercise track was used by Allis Chalmers as the testing track for the farm equipment. A historical concern is a suspect pit that existed in the area of Building #6. This area allegedly received sand casts, slag and other debris during the Allis-Chalmers tenure. While drilling for geotechnical testing before the construction of Building #6, Buena Engineers, Inc. recorded fill material containing foundry operation debris in the upper five feet of the core.

4.2 Current Basic Production Process

The Oxnard facility is a nonferrous metalworking (SIC 3462 and 3463) (forging, machining, welding, cutting, grinding, Wheelabrating and painting) facility. Historically, Oxnard facility provided metalworking in stainless steel, titanium, aluminum and copper alloys. Presently, all metal working is with stainless steel, tantalum, molybdenum, and tungsten. The basic process involves the following:

- Cut stainless steel bars into specific lengths called billets.
- Grind and sand the billets to deburr the ends
- Wheelabrate to polish
- Coat with a dye lubricant–graphite lubricant or Delta glaze
- Heat with a furnace and forge by high energy rate forging hammers
- Water quench
- Wheelabrate and coat
- Re-forge/water quench
- Inspect

- Grind, sand, and wheelabrate
- Saw forgings/inspect
- Trim press
- Grind, sand or wheelabrate
- Machine
- Pull and test (metallurgical lab)
- Mark per customer finish drawings
- Package/ship

4.3 Current Building Descriptions and Specific Functions

The Oxnard facility occupies 13.75 acres in an industrially zoned park (M-2 warehouse/industrial). The facility possesses seven buildings housing a total of approximately 86,000 square feet of floor space and approximately 14 million dollars in capital equipment (un-depreciated). Figure 4-1 is a sketch of the seven buildings and their respective areas. The specific building functions are as follows:

- Administration Offices (Building #1)

  The Administration Offices house technical and administrative staff (accounting and purchasing), a conference room, human resources services, and reception area. Hazardous substances and wastes are neither stored, manufactured, processed, or otherwise used in the building. The building may contain asbestos containing materials (ACM), including: vinyl asbestos tile/mastic, heating ventilation and air conditioning (HVAC) wrapping, roof tiles, and ACM concrete walls in the plant vault.

- Machine Shop (Building #2)

  Building #2, the largest building, houses shipping and receiving, the production, planning, and control office, the 90-day hazardous waste generator accumulation area, the maintenance office, stock room, electrical maintenance room, lunch area, storage area, QA office, machining floor, metallurgical laboratory, and engineering/computer assisted drafting. Although not housed in Building #2, the loading dock and fabrication shop are attached to the west side of the building. The building may contain ACM, including: vinyl asbestos tile/mastic, HVAC wrapping, and roof tiles.

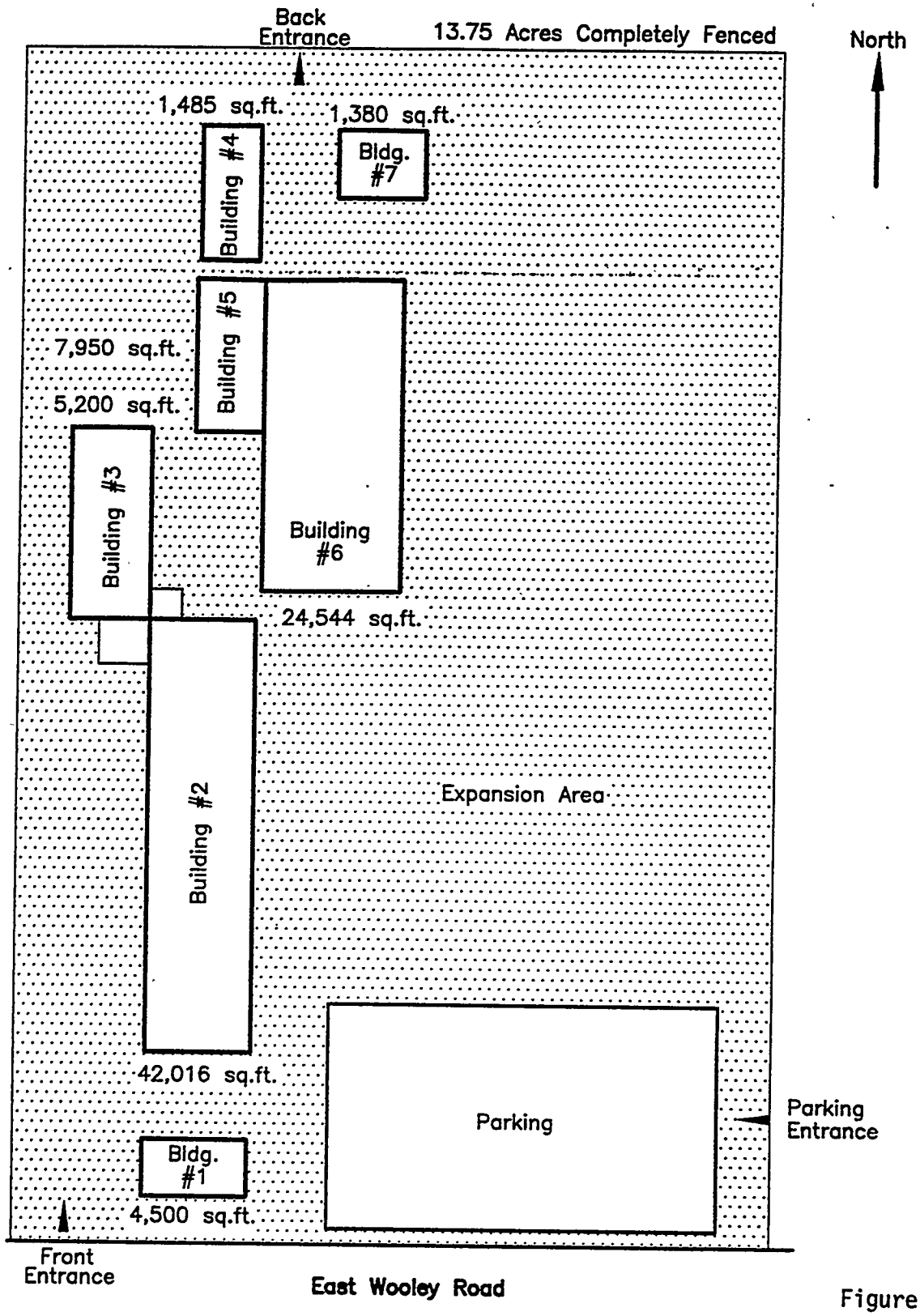


Figure 4-1
Building Plot Plan

OXFIG4—1

The 90-day generator accumulation area is operated under a VCDEH Waste Producer Permit to Operate issued February 1989 and in accordance with 40 CFR 262.34. The area is curbed and fenced and stores acids from the metallurgical lab, spent synthetic coolants/ lubricating oils from the machine shop, grinding shop cyclone fines, Wheelabrator baghouse fines, and various aerosol paint cans and paint wastes from several plant-wide locations. Waste is shipped off-site to Rollins Environmental, Deer Park, Texas, the Oil Process Co. (OPC), Los Angeles, California, a subsidiary of Rollins Environmental, and Petroleum Recycling Corporation in Signal Hill, California. The staging area for off-site pick-up is the south end of the loading dock. No known spills have been recorded in this area.

The fabrication shop contains a parts washer that uses a water-based detergent called Simple Green™. The shop previously contained a cold solvent degreasing tank that was owned by the Oxnard facility and serviced (drained and refilled periodically) by Safety Kleen of California. The solvent used by Safety Kleen is believed to have been a Stoddard agent. This tank has been removed from service due to a leak and has been disposed appropriately off-site. The flooring immediately beneath the tank showed no sign of staining.

Used oil filters are drained of free flowing oil and then stored in 55-gallon drums located along the west outside wall of the fabrication shop. These filters are sent to Petroleum Recycling Corporation (PRC), Signal Hill, California, for recycling. Historically, Oxnard has also used a company called Black Gold (owner and location unknown). The area where these drums are stored shows no signs of staining; however, the drums were showing signs of deterioration.

The metallurgical lab uses various acids (1-2 liters per month of acetic, nitric, hydrochloric and hydrofluoric) for destructive testing (acid etching of fabricated metal components). Acids were historically sent to the sink drain, which contained an inline calcium carbonate neutralization system upstream of the sewer outfall. This elementary neutralization process was discontinued due to deterioration of the wastewater transfer lines. (Transfer lines were believed to be cast iron.) Known leaks have been recorded in the area surrounding the deteriorated lines.

The machining floor contains various lathes, drill presses, milling and tooling machines, and an optical fabrication inspection station. Many of these machines use two chemical substances that result in two waste streams. These chemical substances include Mobil lubricating oil and a synthetic coolant (hexylene glycol). Minor leaks and preventative maintenance on the machining equipment result in spent lubricating oils which are collected and sent to the 90-day generator accumulation area for off-site disposal. Spent synthetic coolant, generated when machine

coolant becomes biologically contaminated, is drained into an appropriate storage container and sent to the 90-day generator accumulation area for off-site disposal. The machining floor showed no signs of spills or leaks. Additionally, machining and tooling generates metal cuttings. These cuttings are collected into recycling bins that sit on the loading dock ramp immediately west of Building #2. Historically, Weston reported that these cuttings were coated with soluble cutting oils which appeared to collect at the bottom of the bins and leaked onto the cement ramp below. Immediately west of this ramp, opposite bay door #13, is a storm water drain that services this area, the fabrication shop, and the area immediately north. During the Phase I tour a slag deposit was observed approximately 100 feet north of drain.

- Saw Shop (Building #3)

  The saw shop houses various band and utility saws used to saw off billets for forging and machining. This building contains a five-ton overhead bridge crane to transport raw materials between the steel stockyard and the shop. Historically, Building #3 housed a 110-gallon capacity tank and three 55-gallon drums of 111-trichloroethane (TCA) for die cleaning. Used or spent TCA was placed into 55-gallon drums, stored in the 90-day generator accumulation area and sent to an off-site recycler. The Weston report states that the tank area had no secondary containment. This report further states that the tank and drums were removed in August 1989. This area was investigated during Phase I and showed no signs of spillage.

- Grinding Shop (Building #4)

  The grinding shop houses numerous grinding stations with a vacuum collection system. This collection system is fitted with an air abatement particle separator (cyclone). This unit generates a very fine metal dust, which is collected in a drum beneath the cyclone. This metallic dust is a hazardous waste due to the presence of chromium (EPA D007). The dust, following containerization, is stored at the 90-day generator accumulation area and sent to Rollins for off-site solidification/stabilization and land disposal. Signs of metallic dust (i.e., presence of fines) were noted along the south outside wall of Building #4.

- Press Shop (Building #5)

  The press shop houses a 1600-ton mechanical press, a 3500-ton hydraulic press, a trim press, and three natural gas-fired furnaces. Beneath each press, is a press cellar pit in which oils (either leaked Shell Tellus-100 or Tellus-46) and metal fines accumulate. Spent oils from the 1600-ton press are containerized and stored in the 90-day generator

accumulation area for off-site recycle. Spilled oils beneath the 1600-ton press are pumped out and sent to the oily wastewater treatment plant located at the tank farm and lube stores (Building 7). Oils in the 3500-ton press are self-filtered. The filters are drained, containerized, and sent to the west wall of the saw shop for off-site recycle with PRC. Oils from the pit beneath this press are vacuum pumped and sent to the oily wastewater treatment plant. Because of the age and condition of the pits, no attempt was made to determine pit integrity. These pits and the soil interface beneath warrant further investigation. Design and as-built drawings for these press pits are found in Appendix E.

Located on the west side of the press shop is the Wheelabrator shop which houses four Wheelabrators. The Wheelabrators are enclosed rotating drums with small metallic balls used to polish metal components. Operationally, these machines create metallic fines that must be captured and properly disposed. The air emission/abatement system consists of two baghouse structures and stacks, each servicing two Wheelabrators. The baghouse dust (EPA D007) is collected in drum containers and sent to the 90-day generator accumulation area prior to off-site solidification/stabilization by Rollins Environmental. Bags are replaced when breakthrough occurs and are containerized for off-site disposal. Signs of metallic dust (i.e. presence of fines) were noted along the south outside wall of Building #4.

The dye penetrant and delta glaze room is also located on the west side of the press shop. The dye penetrant is used in quality assurance while the delta glaze is a lubricant coating applied prior to forging.

- Forge Shop (Building #6)

The forge shop houses 6 High Energy Rate Forging (HERF) hammers with 40,000 ft. lb. maximum energy, 3 HERF hammers with 100,000 ft. lb. maximum energy rating, 4 HERF hammers with 225,000 ft. lb. maximum energy rating and 3 HERF hammers with 300,000 ft. lb. maximum energy rating. Additionally, 13 natural gas fired furnaces and 5 mechanical trim presses are housed. The cellars of each hammer and press take the form of a large underground concrete collection trench that slopes north. This trench collects leaking oils from the large presses and is also the repository for the quench water from Buildings #5 and #6. At the northern end, a sump pump is used to vacuum pump oily water to the oily wastewater treatment system located at the tank farm and Building #7.

An investigation of the trench was conducted and photos were taken; however, due to the oily conditions within the trench, neither the integrity nor the construction of the trench could be ascertained. Review of the as-built drawings indicate the floor slab is 2-feet thick concrete,

the side walls are 3-feet 7-inches thick concrete and the walls and floor are reinforced with #5 rebar at 1-foot centers. The drawing showed no expansion joints and specifications required water-proofing of all side walls and floor. Design and as-built drawings for Buildings 5 and 6 are found in Appendix E.

- Tank Farm and Lubrication Stores

The tank farm is located north of Building 6. The tank farm consists of five tanks including:

Tank A
- Pit effluent tank (oil and water)
- Capacity = 10,000 gallons
- 12" vertical height = 750 gallons

Tank B
- Back-up Pit effluent tank (oil and water)
- Capacity = 1,500 gallons
- 12" vertical height = 150 gallons
- Tank not in service

Tank C
- Dirty oil tank
- Capacity = 2,000 gallons
- 12" vertical height = 200 gallons

Tank D
- Cleaned oil tank
- Capacity = 3,000 gallons
- 12" vertical height = 300 gallons

Tank E
- Steam cleaner water tank (reusable)
- Capacity = 5,000 gallons
- 12" vertical height = 200 gallons

Hydraulic fluids are collected from the press pits in Building #5 and the trench in Building #6 and pumped to the tank farm (Tank A) for initial treatment (gravity separation). Following separation dirty oil is pumped to Tank C for Treatment in Building #7 by cartridge filtration. The dirty water is sent to Tank E along with steam cleaning waters for treatment in Building #7 by ultra membrane filtration. The concentrate generated by ultra filtration is sent to the water "eater" evaporator for evaporation of free liquids under a DTSC Permit by Rule. The water is ultimately collected in two polyethylene tanks, tested and batch-released to the POTW.

The tank farm is built on a concrete slab surrounded by a 3-foot high concrete berm for secondary containment. Previous consultant reports indicate no tank spills have been recorded or reported. Rainwater collects in the containment; however, its management was not determined. Historically, the western wall of the containment berm leaked at the wall/slab interface and was replaced and sealed in 1989.

Building #7 contains the oil and wastewater filtration systems. These oil and water treatment systems receive oil from Tank C and water from Tank E, respectively, through temporary flex hosing. Discussions with the operator indicate that no recorded or reported spills have occurred during hook-up, fluid transfer or detachment of the hosing, nor have any spills or overflow occurred at the treatment facilities located in Building #7.

- Stockyard

The stockyard is located north of the saw shop near the western boundary of the site. The stockyard is an open air, concrete-paved storage facility that is used for the reception and storage of raw metal (stainless steel bars). No dry or liquid chemicals have been stored in this yard. During the Phase I tour, the concrete was observed to be rust-stained in locations surrounding the legs of the five-ton overhead bridge crane and the billet storage racks. The concrete was in excellent condition showing no signs of cracking, etching or spalling.

- Boneyard

A fenced, unpaved boneyard exists in the northwest corner of the plant site. During the site visits, the boneyard contained numerous steel and poly tanks.. All tanks were observed to be empty. Additionally, various pieces of scrap metal, old machinery and various assorted debris were being stored. Much of the old machinery was contaminated with oily residue and/or sludge. During the PE, several areas of petroleum or discolored soils were observed, even though the yard had overgrown with weeds and grass. During the Phase I, it was observed that the yard had been bladed and that all vegetation had been removed. The determination of a soil herbicide application could not be verified. According to DOE-furnished documentation, the yard historically stored polychlorinated biphenyl containers or articles. Details of the storage could not be found in the plant's records.

Finally, the asphalt road leading to the boneyard was originally a dirt road that may have been periodically oiled for dust control. This yard and surrounding area warrants further investigation.

5.0 REGULATORY AGENCY INFORMATION

5.1 Listing of Agencies/Properties of Concern

Environmental regulatory agencies with jurisdiction over the Oxnard facility were visited to determine and identify legally mandated permits, compliance violations, solid and hazardous material/waste inventories and active/closed corrective actions. The following agencies were visited to interview key personnel (permitting and inspection/enforcement) and review/copy records:

- City of Oxnard - Source Control Program
  6001 Perkins Road
  Oxnard, CA 93033
  Attention: Sally Mechuzak - File Search/Permitting

- Ventura County Air Pollution Control District (VCAPCD)
  702 County Square Drive
  Ventura, CA 93030
  Attention: Sue Megoalik - File Search
  Peter Lawson - Permits
  Dan Searcy - Inspection

- Ventura County Department of Environmental Health (VCDEH)
  Hazardous Waste & UST.
  800 South Victoria Avenue
  Venture, CA 93009
  Attention: Heather Ebersole - File Search
  Craig Cooper - Inspection
  Greg Smith - EH Supervisor

- California Environmental Protection Agency
  Department of Toxic Substances Control (DTSC)
  Region 3 - Burbank
  1011 North Grand Avenue
  Glendale, CA 91201
  Attention: Brenda Alley - File Search
  Scott Simpson - Permitting
  Jim McCamon - Permitting

The Regional Water Quality Control Board refused to be interviewed stating that no files existed for the properties of concern. The agency further noted that they have no interest in the Oxnard facility unless groundwater contamination is discovered during Phase II of the ESA. Each agency was interviewed for information and records pertaining to the following properties:

- EG&G Rocky Flats Oxnard Facility
  1235 East Wooley Road
  Oxnard, CA 93030-7330
  (805) 485-4881

- Kingstone Wheel Corporation
  (formerly Del Manufacturing)
  950 Richmond Avenue
  Oxnard, CA 93030-7330
  (805) 486-2601

- City of Oxnard, Vehicle Maintenance Facility
  1060 Pacific Avenue
  Oxnard, CA
  (805) 385-8051

- Gold Coast Steel
  (formerly J&S Engineering)
  1140 Mountain View Avenue
  Oxnard, CA
  (805) 483-1560

- Deardorff-Jackson Company
  1120 Mountain View Avenue
  Oxnard, CA
  (805) 487-7801

- Told Corporation
  1701 Pacific Avenue
  Oxnard, CA
  (805) 487-4300

This section is subdivided by property. Information existed for each property with the exception of Told Corporation and Boskovich Corp.

5.2 EG&G Rocky Flats Oxnard Facility

5.2.1 Solid/Hazardous Waste

The Oxnard facility is a hazardous waste generator (CA9890090401) operating under the 90-day generator accumulation rule. The facility applied for and was granted a Hazardous Waste Producer Permit to Operate #472 by the VCDEH. Under this permit, the facility generates, accumulates and manifests for off-site disposal or recycle the following identified streams:

Waste Stream/Classification	Management
• Waste Acids (hydrochloric, nitric, acetic) Waste Acid Liquid, N.O.S., Corrosive Material NA1760 CA Waste #792, EPA Waste #D002	Neutralization. Rollins Environmental
• Spent Coolant Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #132, EPA Waste #D007	Incineration. Rollins Environmental
• Wheelabrator Bag House Dust Grinding shop cyclone fines Hazardous Waste Solid, N.O.S., ORM-E NA9189 CA Waste #172, EPA Waste #D007	Solidification/ stabilization Rollins Environmental
• Oil (used) Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #221	Recycled Petroleum Recycling Corporation
• Wastewater Evaporative Concentrate Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #223	Incineration. Rollins Environmental
• Press Pit Sludge Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #223, EPA Waste #D007, D008	Incineration Rollins Environmental
• Paint Debris Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #352, EPA Waste #D007, D008	Incineration Rollins Environmental
• Paint Rinsate Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #134, EPA Waste #D007, D008	Incineration Rollins Environmental
• Press Pit Oily Water	Oily water treatment system Oxnard Facility
• Used Oil Filters	Recycled Petroleum Recycling Corporation
• Spray Cans Compressed Gas, N.O.S. Flammable Gas UN1954 CA Waste #331, EPA Waste #D001	Incineration Rollins Environmental

- Scrap Metal

On-site Bin Storage
Recycled with
- SOS Metals - LA
- Oxnard Recycling
- Eddie Recycling
- Standard Industries (carbon steel)

The DTSC authorized the Oxnard facility to operate the water "eater" evaporator, a fixed-treatment unit under the Permit by Rule (PBR) (Title 22 CCR 67450.2(b)(5)). This unit removes water from the concentrate generated by the waste water ultra membrane filtration unit. Furthermore, DTSC approved Oxnard's conditional exemption for the treatment of empty containers <110 gallons capacity (HSC25200.3 and 25201.5).

In discussions with DTSC, it appears that the facility submitted an Application for Hazardous Waste Facility Permit Variance on July 27, 1989, for the manual neutralization of used acid before discharge to the sanitary sewer. This application was never acted upon by the state due to the developing PBR. After discussions with the state pertaining to the facility's current operation of 90-day accumulation/ off-site disposal of waste acids, the state suggested that the facility submit a PBR application and treat waste acids on site.

Three Notices of Violation (NOV) under the Permit to Operate #472 were issued to the facility in 1986. The NOVs included violations pertaining to hazardous waste training, storage management (signing and secondary containment) and manifesting. These violations were corrected the same year. No other hazardous waste violations have been issued by VCDEH or DTSC.

5.2.2 Wastewater Discharge

The City of Oxnard, Source Control Program has issued the Oxnard facility Industrial Wastewater Discharge Permit #38C per the Oxnard City Code, Chapter 25. This permit is transferrable provided the new owner submits an updated application, an Industrial User Baseline Monitoring Report, and transfer fee of $1,500. The permit conditions/ provisions require that the facility comply with both local pretreatment standards and federal pretreatment standards (Aluminum Forming Point Source Category, 40 CFR 467 and Non-ferrous Metal Forming Point Source Category, 40 CFR 471). All samples for the self-monitoring reports are collected from the sampling well located east of the tank farm and downstream of the gravity and membrane filtration system.

NOVs have been issued in 1989, 1992, 1993 and 1994. One NOV in 1989 and two in 1993 were issued for late submittal of the self-monitoring report. In December 1992 and July 1994, NOVs were issued for exceedence of the oil/grease standard (100 mg/L). This violation is believed to have occurred due to the use of soaps/detergents. The plant has reviewed its use of soaps/detergents and has discontinued their use. This corrective action appears to have alleviated the problem. In March 1994 the plant received a NOV for failure to quarterly report total toxic organics for December 1993. This violation was closed March 9, 1994, in a letter explaining that no discharge took place in December 1993 making it impossible to test.

5.2.3 Underground Storage Tanks (USTs)

The Oxnard facility previously managed two underground storage containers (USC) as defined by the California Water Resources Control Board. In December 1984 the facility filed two USC registration forms with the Board. One tank was identified as a 550 gallon, single-walled, diesel tank. This tank was constructed of unlined carbon steel and had no cathodic protection. The tank piping was suction only. The second tank was identified as a 1,000 gallon, single-walled concrete vault. No information existed on lining or protection. This second tank held rinse water that might have contained a dye penetrant called Dubl Chek HM406.

Following an application for abandonment in place, the VCDEH granted a permit to abandon the 550 gallon diesel fuel tank in place. The tank was closed by the following method:

> "The tank was pumped empty, rinsed three times with a soapy water solution and vacuumed dry. An inert gas test was performed on the tank at 3-5 psi and found not to be leaking. This was observed by Greg Smith of the Resource Management Agency County of Ventura. All piping was removed from the tank and the tank was pumped full of concrete on March 26, 1986."
> (MHLoe Co., 1986)

On November 30, 1992, the VCDEH issued the facility a letter concurring with EG&G's position that the concrete vault did not store a hazardous material as defined by the Leaking Underground Fuel Tank (LUFT) manual and therefore requires no formal abandonment. The tank was subsequently pumped dry, rinsed, and the fill pipe cement plugged.

5.2.4 Air Emissions

The VCAPCD renewed a Permit to Operate, Number 1203, on October 1, 1993. This permit allows the facility to operate 16 natural gas fired furnaces and one solvent cleaning operation. This permit limits the natural gas consumption for all combustion equipment to 50 MMcf per year.

This permit is fully transferrable as the permit applies to the plant's equipment and its usage. Should the permit not be transferred, a new owner would need to apply for Nitrogen oxide (NO_x) and Reactive Organic Compounds (ROC) emission credits. Generally ROC credits are available from the community bank if plant emissions are less than 5 tons/year. NO_x credits are extremely difficult to acquire. Cost of a permit transfer is $200.00.

A file search and discussions with the permitting section could identify no information pertaining to the two particulate (PM_{10}) abatement systems (the Wheelabrator baghouse and the grinding shop cyclonic particle separator) at the site. The VCAPCD suggested that the facility needs to submit a Letter of Permit Inquiry with an attached process and abatement description.

The Oxnard facility has received one NOV, dated June 7, 1990. This NOV cites the facility for failure to operate its Walker Box Aluminum Forging Furnace (Building #5) within the permitted operating temperature of 1000 °F. This NOV was settled out of court per Rule 29.C. This required that a plan be developed and implemented to prevent firing temperatures from exceeding 1000 °F.

5.2.5 Hazardous Materials

The Oxnard facility has a hazardous materials permit from the City of Oxnard authorizing the storage, use or handling of hazardous materials/waste in accordance with AB 2185-2187; California Health and Safety Code, Chapter 6.95, §25504; and SARA Title III.

The Oxnard facility has filed a revised contingency plan and California Business Plan with the Fire Department, City of Oxnard. Appendix F provides a plant illustration identifying the location of hazardous material storage areas and copies of the hazardous materials chemical descriptions.

5.3 Kingstone Wheel Corp. (Formerly Del Manufacturing)

5.3.1 Solid/Hazardous Waste

Kingstone Wheel Corp. is a hazardous waste generator operating under the 90-day generator accumulation rule. The facility has applied for a Hazardous Waste Producer Permit to Operate. No information exists as to the waste streams presently generated.

The DTSC has no record indicating that the facility presently or under previous ownership had a permitted treatment, storage, and disposal facility (TSDF) on site. Furthermore the site was not permitted under AB 1772 for tiered permitting including PBR, conditional authorization or conditional exemption.

5.3.2 Wastewater Discharge

Kingstone Wheel Corp. has an industrial wastewater discharge permit issued by the City of Oxnard, Source Control Programs. NOVs were issued to the previous owner, Del Manufacturing, for contaminant exceedants.

5.3.3 Underground Storage Tanks (USTs)

The site contains no registered underground containers including tanks, vaults, or sumps.

5.3.4 Air Emissions

The VCAPCD files show that Del Manufacturing operated under two Permits to Operate, Numbers 1120 and 1121. These permits have been withdrawn and the emission inventory banked. The original permits and permitted emission calculation sheets were not available for review.

5.3.5 Hazardous Materials

Kingstone appears to maintain a large liquid chemical and gas tank storage facility based upon its California Business Plan. (Note: Time restraints did not permit the review of this Plan.)

5.4 Deardorff-Jackson, Inc.

5.4.1 Solid/Hazardous Waste

Deardorff-Jackson, Inc. is a hazardous waste generator operating under the 90-day generator accumulation rule. The facility has

applied for and was granted a Hazardous Waste Producer Permit to Operator by the VCDEH. Under this permit, the facility generates, accumulates, and manifests for off-site disposal or recycle various solvents and/or mixed oils. The facility has received numerous NOVs since 1983 for storage, improper manifesting, lack of a contingency plan, and improper disposal to ground of solvent and mixed waste oils. The DTSC has no record indicating that the facility is a TSDF or that the facility is permitted under AB 1772 for tiered permitting including PBR, conditional authorization or conditional exemption.

5.4.2 Wastewater Discharge

Deardorff has an industrial wastewater discharge permit issued by the City of Oxnard, Source Control Programs. No NOVs were identified in Deardorff's wastewater discharge file.

5.4.3 Underground Storage Tanks (USTs)

Deardorff presently operates two underground fuel tanks. The largest tank is registered as a 12,000 gallon premium unleaded motor vehicle fuel tank. The smaller tank is registered as a 6,000 gallon regular unleaded motor vehicle fuel tank. Both tanks are single-walled, unlined, and constructed of carbon steel. Tank piping is suction only. The tanks are monitored continuously by a vadose vapor probe system. No leakage or spills have been recorded.

Additional information in the file indicates that the perched zone lies approximately 7.5 feet below ground surface and has a TDS > 1000 mg/L. The nearest pumping groundwater well is Well IN/22W-3R1 owned by Oxnard Frozen Foods.

5.4.4 Air Emissions

Although the site owns and operates two underground fuel storage tanks and dispensing islands, the VCAPCD has no record of a permit for either the tanks or the Phase I/II vapor control systems.

5.4.5 Hazardous Materials

No information existed in the VCDEH on Deardorff's Hazardous Materials Registration or California Business Plan.

5.5 Boskovich Corp.

No files existed at VCDEH, DTSC, the City of Oxnard or VCAPCD on this property.

5.6 City of Oxnard Vehicle Maintenance Facility

5.6.1 Solid/Hazardous Waste

The City of Oxnard Vehicle Maintenance Facility (VMF) is a hazardous waste generator operating under the 90-day generator accumulation rule. VMF has applied for and was granted a Hazardous Waste Producer Permit to Operate. Under this permit, VMF generates, accumulates, and manifests for off-site disposal or recycle various solvents, paint wastes, and mixed oils. The DTSC has no record indicating that the facility is a TSDF or that the facility is permitted under AB 1772 for tiered permitting PBR, conditional authorization or conditional exemption.

The VCDEH has issued numerous notices of violations since 1990 citing inappropriate or lack of drum labelling, no contingency plan, no hazardous waste training program, no solvent/oil segregation, release of solvents and oils to the ground, and inadequate roofing for the 90-day accumulation area.

5.6.2 Wastewater Discharge

VMF has an industrial wastewater discharge permit issued by the City of Oxnard, Source Control Programs. NOV information could not be ascertained.

5.6.3 Underground Storage Tanks (USTs)

The City of Oxnard VMF operates four underground fuel tanks. These include a 12,000 gallon regular unleaded gasoline tank, a 10,000 gallon regular unleaded gasoline tank, a 5,000 gallon diesel fuel tank, and a 550 gallon waste oil tank. The three fuel tanks are single-walled, unlined, and constructed of carbon steel. Corrosion protection varies from no protection for the 5,000 gallon diesel to fiberglass reinforced plastic lining for the 12,000 gallon gasoline tank and cathodic protection for the 10,000 gallon gasoline tank. All fuel tanks are monitored by a vadose zone probe system. In 1994 the VCDEH issued a warning notice to the city stating that the vadose zone probe system was inadequate as a vapor monitoring system. The warning further stated that the system was designed for direct liquid contact which would dissolve the wire insulation on the detector subsequently activating an audible and visual alarm. The VCDEH requested that the system be replaced or upgraded.

The 550 gallon used oil tank is single-walled, unlined, and constructed of carbon steel. The tank has no corrosion protection and monitoring is by tank inventory.

In 1993 the piping to one of the gasoline tanks failed. The City of Oxnard hired Fugro-McClellen to investigate and remediate the spill. Records indicate that the line was repaired and that contaminated soils (approximately 700 yd^3) are being bioremediated. Groundwater sampling (7 quarters) indicate that total petroleum hydrocarbons (TPH), benzene, ethyl benzene, toluene, xylene (BETX), and total lead are below detectable levels. The consultant has determined that the leak did not impact either the perch zone or the deep water aquifer at 120 feet below ground surface.

5.6.4 Air Emissions

The City of Oxnard VMF has two air emission permits to operate. Permit 5598 authorizes VMF to operate two underground gasoline storage tanks and Phase I/II vapor control systems. Permitted emissions include reactive organic compounds at a rate not to exceed .27 tons/year. Permit 0855 authorizes VMF to operate an automobile refinishing and metal parts cutting facility consisting of a Bleekers Brothers spray booth with low pressure or electrostatic spray guns. Permitted emissions include reactive organic compounds at a rate not to exceed 3.19 tons/year.

5.6.5 Hazardous Materials

No information existed at VCDEH on VMF's hazardous materials registration or California Business Plan. Information gleaned from other agencies indicate that the City stores considerable amounts of paints, solvents, cleaners, fuels, oils and lubricants.

5.7 Gold Coast Steel (formerly J&S Engineering)

Gold Coast Steel has recently (within the last 2 months) purchased the property previously operated by J&S Engineering. Prior to purchase the property was vacant for approximately six months. No records exist on Gold Coast Steel at any of the regulatory agencies interviewed. The following represents information on J&S Engineering.

5.7.1 Solid/Hazardous Waste

Although it appears that J&S Engineering was a generator of solid/hazardous waste, no records exist at the VCDEH or DTSC that would indicate J&S Engineering as either a generator of solid/ hazardous waste or as a TSDF.

5.7.2 Wastewater Discharge

Although it appears that J&S Engineering discharged industrial wastewaters to the City of Oxnard, no records exist indicating submittal of either an industrial user baseline monitoring report or an application for an industrial wastewater discharge permit.

5.7.3 Underground Storage Tanks (USTs)

J&S Engineering operated a 1,000 gallon diesel tank. The tank was manufactured in 1960 by Buehler Tank and Welding and was single-walled, carbon steel constructed. The tank was unlined and had no corrosion protection. In August and September 1987, the tank was excavated and removed from service. The condition of the tank was identified as extremely poor with numerous holes. J&S Engineering contracted Holquin & Associates, a geotechnical consultant, to remediate the fuel spill. Remediation included sampling and analysis of the surrounding soils and shallow groundwater. Approximately 150 yd^3 of contaminated soils ($\approx$38 ppm on a gasoline fingerprint analysis) were excavated and windrowed under the approval of the VCDEH and VCAPCD. Cleanup was to <10 ppm gasoline and <100 ppm diesel per the LUFT manual. Following aeration, the soil was replaced into the hole, clean fill was added to bring the level to grade and the soil compacted to 90% compaction. No groundwater remediation was necessary as sampling identified no detectable concentrations of TPH, BETX and the soluble lead concentration was 5 x < the maximum contaminant level (MCL) for lead.

The VCDEH issued a letter dated July 6, 1989, indicating that all appropriate response actions have been completed and that the spill was considered fully remediated.

5.7.4 Air Emissions

Although J&S Engineering previously owned and operated an underground fuel storage tank and dispensing island, the VCAPCD has no record of a permit for either the tank or the Phase I/II vapor control system.

5.7.5 Hazardous Materials

No information existed at the VCDEH indicating that J&S Engineering had made an application for hazardous materials registration or that a California Business Plan had been developed and submitted per AB2185-87.

6.0 SUMMARY OF FINDINGS

6.1 Geology/Hydrogeology

The Oxnard facility lies over unconsolidated sediments of the Oxnard Plain which consists of sands, silts, and clays. A shallow perched groundwater zone is encountered at a depth of 5 to 10 feet; groundwater flow direction is to the southwest. Water from this shallow zone is not used for any purpose. At a depth of approximately 120 ft., lies a potable aquifer that is separated from the shallow perched zone by clay units.

6.2 Off-Site Influences

Data gathering efforts from regulatory agencies were conducted to obtain information on surrounding properties and to determine potential environmental impacts on the Oxnard facility from off-site sources. This review of regulatory agency records showed that remedial activities in response to leaking USTs were conducted at two adjacent properties. Remediation at the Gold Coast Steel property has been completed, and remediation at the City of Oxnard Maintenance Yard is in progress. Records also indicated that degradation of the shallow groundwater system under these sites did not occur. There were no other documented environmental problems at the surrounding properties.

6.3 On-Site Areas of Concern

"Areas of concern" are locations at the facility that have documented historical contamination, suspected historical contamination, or a potential for contaminant release from historical or current operations. Areas of concern are summarized in Table 6-1

Table 6-1. Oxnard Facility - Areas of Concern

Area of Concern	Location	Potential Contaminants
Allis-Chalmers pit	Beneath Building 6	Metals, unknowns
Trench/sump and oil collection system	Building 6	Metals, hydraulic oil, PCBs
Bioremediation area	East of Building 6	Hydraulic oil, PCBs
PCB soil area	East of Building 6	PCBs
PCE soil gas area	East side of facility	PCE
PCE soil gas area	North side of facility	PCE
Oil collection system	Building 5	Metals, hydraulic oil, PCBs
Tank farm	North of Building 6	Metals, hydraulic oil, PCBs
Abandoned diesel UST	Outside of south side of Building 4	Diesel fuel
PCB soil area	East of the boneyard	PCBs
Boneyard	Northwest corner of the facility	PCBs, metals
Dirt road	West side of facility and east of the boneyard	Misc. oils, PCBs
Former TCA above ground storage tank (AGST)	Southwest corner of Building 3	TCA
Metal cuttings in recycling bins	West side of Building 2	Metals, misc. oils
Used oil filter storage area	West side of Building 2	Metals, misc. oils
Metal slag on ground	West of dock next to Building 2	Metals
Loading dock	Outside of Southwest corner of Building 2	Organics, hydraulic oils, unknowns
Metallurgical laboratory	South portion of Building 2	Metals
Cyclone and baghouse	Buildings 4 and 5	Metals
HVAC duct work	Building 1	Asbestos
Vault area	Building 1	Asbestos

6.3.1 Basis for Areas of Concern

Following is a description of the evidence that was used to select the areas of concern listed in Table 6-1.

- Allis-Chalmers Pit Area

A 1973 aerial photograph (Appendix D) of the site shows a dark ring on the east side of Building 5 in the vicinity where the Allis-Chalmers Pit was located.

In 1982 Buena Engineers drilled three borings related to the foundation work during the construction of Building 6. Trash and debris were noted in the top 5 feet of boring No. 1and are believed to be part of a foundry cast disposal pit used by Allis-Chalmers.

A 1988 interoffice memorandum from the Roy F. Weston Company notes that a former pit/dump area was observed east of Building 5 in the vicinity of the current Building 6. This area was noted to have received sand casts prior to the construction of Building 6.

- Trench/Sump and Oil Collection System in Building 6

Piping, trenches, and a sump comprise a hydraulic oil collection system beneath the floor of Building 6. Fluid is drained toward the sump where it is pumped to the tank farm for treatment. The potential for leakage from the concrete trench, concrete sump, and piping system make this an area of concern.

- Bioremediation Area

A known spill of hydraulic oil (verified by EG&G) was removed, bioremediated, and returned to the spill site. This action was completed in April/May of 1994.

- PCB Soil Detections

In 1988, Rockwell collected soil samples from the boneyard, east of the boneyard, and east of Building 6. Concentrations of PCBs ranged nondetect to 221 ppm in these areas.

- PCE Soil Gas Detections

A 1989 EBASCO, Inc. soil gas survey detected PCE in two areas at the Oxnard facility. One area was near the northern portion of the facility, and the other was near the east boundary of the facility.

- Oil Collection System in Building 5

Building 5 contains a hydraulic oil collection system similar to Building 6. All fluids are drained to the cellar beneath the 3500-ton press, which are then pumped to the tank farm for treatment. Potential for leaks in the concrete cellar and the piping system make this an area of concern.

- Abandoned Diesel UST

Underground storage tanks have a potential for leakage, making this an area of concern.

- Boneyard

PCBs were detected in soil samples from this area, and visible oil-stained soil was noted during the PE site tour.

- Former Dirt Road

The Weston memorandum indicates that the road on the west side of the facility was routinely sprayed with oil to minimize dust and that the road running north of Building 4 had several small areas that appeared to have oil dumped on them.

- Former TCA Storage Tank

The Weston memorandum reports the historic storage of a 110-gallon above-ground tank of TCA and three 55-gallon drums of TCA in Building 3 (verified by EG&G personnel). Because there was no secondary containment for the tank or drums, this is an area of concern.

- Metal Cuttings in Recycling Bins

The Weston memorandum reports that metal cuttings coated with cutting oils from the saw shop were drained and then placed in recycling bins on the dock west of Building 2. The collected oil subsequently leaked through the recycling bin.

- Used Oil Filter Storage Area

Used oil filters are drained of free flowing oil and stored in 55-gallon drums on the west side of Building 2. Because the drums showed signs of deterioration, there is a potential for oil to be released to the environment.

- Metal Slag on Ground

A piece of metal slag on the ground west of the loading dock was noted during the site inspection. There is a potential for other materials to have been deposited here during past operations.

- Loading Dock

This is the loading/unloading area for all materials entering or leaving the facility. There is a potential for historical spills at this location.

- Metallurgical Laboratory

EG&G personnel verified that the metal piping from the sink in the Metallurgical Laboratory was corroded because acids were historically dumped down the sink. During the site inspection, it was noted the lines beneath the sink had been replaced with plastic piping.

- Cyclone and Baghouse

Metal fines are generated in the grinding shop and from the wheelabrators in Buildings 4 and 5. The metal fines from the grinding shop are collected by a cyclone, and fines from the wheelabrator are collected by a baghouse unit. Metal fines were noted between Buildings 4 and 5 during the site inspection.

- ACM

Potential ACM in the HVAC system and in the walls of the vault in Building 1 was noted during the site inspection.

7.0 RECOMMENDATIONS

This Phase I ESA identifies areas of concerns that warrant a Phase II ESA intrusive investigation. A drilling and sampling program designed to investigate the areas of concern is recommended. Analyses of representative soil, groundwater, and suspected ACM samples will be used to determine if environmental problems exist at the Oxnard Facility. The analytical program will focus on contaminants that have been or could potentially be released to the environment from past and current on-site operations. Analyses of soil and groundwater samples should include metals, petroleum hydrocarbons, PCBs, and chlorinated solvents.

The first step in the Phase II Environmental Site Assessment will be the preparation of a Sampling and Analysis Plan. Particulars of the Phase II investigation will be specified in the Sampling and Analysis Plan. This plan will designate sampling locations, rationale, well construction methods, sampling and analytical procedures, and the documentation protocol to be used. The Sampling and Analysis Plan will establish quality assurance requirements to ensure that all samples are representative of their original environment and that methods of collection and analyses result in scientifically valid data of known precision and accuracy.

8.0 REFERENCES

The following summarizes the references used to prepare this Phase I ESA:

1. Koch, D. G. "Preliminary Evaluation Trip Report," July, 1994.

2. Noronha, Cliff. "DOE Oxnard Facility Trip Report," Booz. Allen & Hamilton/Belfort, June 8, 1994.

3. "Final Report, Soil Gas Investigation at the Rockwell Oxnard Facility, Oxnard, California," EBASCO Services Incorporated, Newport, California, September 27, 1989.

4. "Tier Two Emergency and Hazardous Chemical Inventory," U.S. DOE, Oxnard, California, 1989-1994.

5. "Toxic Chemical Release Inventory Forms," U.S. DOE, Oxnard, California, 1987-1993.

Appendix A

Environmental Site Assessment
Preliminary Evaluation
Trip Report

(July 28, 1994)

Oxnard Facility Trip Report

1.0 INTRODUCTION

On June 8, 1994, a site visit was conducted at the EG&G Rocky Flats Oxnard Facility. The primary purpose of the visit was to evaluate the potential presence of contamination on the property from current and/or historical uses, to interview key plant personnel, and to request additional EG&G furnished information.

The site visit consisted of a plant-wide tour, including a photo investigation of the underground trench beneath the forging presses, and an exit meeting. This site visit constituted a preliminary evaluation at a screening level only and should not be construed as a Phase I Environmental Site Assessment satisfying "due diligence" requirements.

The participants at the site visit included representatives from the U.S. Department of Energy, RUST Geotech Inc., the Oxnard facility and Booz•Allen & Hamilton. Individuals, personnel titles, organizations and phone numbers follow:

Holly Dumas	EG&G Environmental Engineer	Oxnard Facility	(805) 486-4881
Rick Dumas	EG&G Support Operations Manager	Oxnard Facility	(805) 486-4881
Carl Jacobson	RUST Program Manager	RUST Geotech Inc.	(303) 248-6568
Donald Koch	RUST Environmental Engineer	RUST Geotech Inc.	(303) 248-6594
Ron Kowalewski	DOE-HQ Project Manager	DOE-HQ (EM-451)	(301) 903-7652
John Lyttle	RUST Program Development Manager	RUST Geotech Inc.	(303) 248-6395
Cliff Noronha	Booz•Allen & Hamilton Consultant	Booz Allen/Belfort	(301) 916-7207
Joe Virgona	DOE-GJPO Project Manager	DOE-GJPO	(303) 248-6006

2.0 OWNERSHIP AND SITE LOCATION

The Oxnard Plant is a metalworking (forging, machining, welding, cutting, grinding, wheelabrating, and painting) facility. The facility is owned by the U.S. Department of Energy (DOE) and is operated by EG&G Rocky Flats.

The Oxnard facility is located at 1235 East Wooley Road, Oxnard, California 93030-7330 (Figure 1). The facility is located in an industrial park and is bordered by industrial maintenance, manufacturing, and agricultural packaging facilities. The city of Oxnard operates a vehicle maintenance garage and trash receptacle storage yard on Pacific Avenue to the East. Deardorf-Jackson and Boskovich are fruit packers located on Mountain View Avenue to the Northwest and Northeast, respectively. Del Manufacturing, a subcontractor to the Department of Defense, is located on the Southwest. A steel fabricator owned by Gold Coast Steel is located on the Northwest. To the South, across Wooley Road, Told Corporation owns property which was previously used as farmland. This property is presently being marketed for commercial development (Figure 2).

The facility, occupying 13.75 acres, is comprised of seven buildings (approximately 86,000 square feet of covered floor space). The seven buildings include:

Building #1	Administrative Offices
Building #2	Machine Shop, Engineering, Quality Control, Metallurgical Laboratory, Production Control Office

Building #3	Saw Shop
Building #4	Grinding Shop
Building #5	Press Shop, Wheelabrator Room, Dye Penetrant Room
Building #6	Forge Shop
Building #7	Tank Farm/Lubrication Stores

Each building is described in Section 3.0, Site Description and Characterization.

3.0 SITE DESCRIPTION AND CHARACTERIZATION

The site description and characterization subsections are organized by building number. In addition to the buildings, the stockyard and boneyard are also described.

3.1 Administration Offices (Building #1)

The Administration Offices house technical and administrative staff, a conference room, Human Resources Services, and reception area. Hazardous substances and wastes are neither stored, manufactured, processed, or otherwise used in the building. The building may contain asbestos containing materials (ACM), including: vinyl asbestos tile/mastic, heating ventilation and air conditioning (HVAC) wrapping, roof tiles, and ACM walls in the plant vault.

3.2 Machine Shop (Building #2)

Building #2 houses shipping and receiving, the production, planning, and control office, the 90-day hazardous waste generator accumulation area, the maintenance office, stock room, electrical maintenance room, lunch area, storage area, QA office, machining floor, metallurgical laboratory, and Engineering/Computer Assisted Drafting. Although not housed in Building #2, the loading dock and fabrication shop are attached to the west side of the building. The building may contain ACM, including: vinyl asbestos tile/mastic, HVAC wrapping, and roof tiles.

The 90-day generator accumulation area is operated in accordance with 40 CFR 262.34. The area is curbed and fenced and stores acids from the Metallurgical Lab, spent synthetic coolants/lubricating oils from the machine shop, and various aerosol paint cans and paint wastes from several plant-wide locations. Waste is shipped off-site to Rollins Environmental, Deer Park, Texas, the Oil Process Co. (OPC), Los Angeles, California, a subsidiary of Rollins Environmental, and Petroleum Recycling Corporation. The staging area for off-site pick-up is the south end of the loading dock. Although no known spills have been recorded, the south loading dock area is suspect and warrants further investigation.

The fabrication shop contains a cold solvent degreasing tank that is owned by the Oxnard facility and was previously managed (drained and refilled periodically) by Safety Kleen of California. The solvent used by Safety Kleen is believed to have been a Stoddard agent. The tank is not in service due to a leak and is scheduled for off-site disposal. The flooring immediately beneath the tank showed no sign of staining; however, the area warrants further investigation. The plant has purchased and is using a parts washer that uses a water-based detergent called Simple Green™.

Used oil filters are drained of free flowing oil and then stored in 55 gallon drums located along the west outside wall of the fabrication shop. These filters are sent to Petroleum Recycling Corporation (PRC), Signal Hill, California, for recycling. Historically, Oxnard has also used a company called Black Gold (owner and location unknown). The area where these drums are stored shows no signs of staining; however, the drums were showing signs of deterioration. This area warrants further investigation.

The Metallurgical Lab uses various acids for destructive testing (acid etching of fabricated metal components). Acids were historically sent to the sink drain, which contained an inline calcium carbonate neutralization system upstream of the sewer outfall. This elementary neutralization process was discontinued due to deterioration of the wastewater transfer lines. Known leaks have been recorded in the area surrounding the deteriorated lines and warrants further investigation.

The machining floor contains various lathes, drill presses, milling, and tooling machines, and an optical fabrication inspection station. Many of these machines use two chemical substances that result in two waste streams. These include Mobil lubricating oil and a synthetic coolant (hexylene glycol). Minor leaks and preventative maintenance on the machining equipment result in spent lubricating oils which are collected and sent to the 90-day generator accumulation area for off-site disposal. Spent synthetic coolant generated when machine coolant becomes biologically contaminated, is drained into an appropriate storage container and sent to the 90-day generator accumulation area for off-site disposal. The machining floor showed no signs of spills or leaks.

3.3 Saw Shop (Building #3)

The saw shop houses various band and utility saws used to saw off the initial billets for forging and machining. Historically, Building #3 housed a 110-gallon capacity tank and three 55-gallon drums of 111-trichloroethane (TCA) for die cleaning. Used or spent TCA was placed into 55-gallon drums, stored in the 90-day generator accumulation area and sent to an off-site recycler. The Weston report states that the tank area had no secondary containment. This report further states that the tank and drums were removed in August 1989. This area was not investigated during the trip, as it was occupied by supplies and equipment. This area is suspect and warrants further investigation.

3.4 Grinding Shop (Building #4)

The grinding shop houses numerous grinding stations with a vacuum collection system. This collection system is fitted with an air abatement particle separator (cyclone). This unit generates a very fine metal dust, which is collected in a drum beneath the cyclone. This metallic dust is a hazardous waste due to the presence of chromium. The dust, following containerization, is stored at the 90-day generator accumulation area and sent to Rollins for off-site solidification/stabilization and land disposal. No signs of spillage (i.e., presence of fines) were noted in the area.

3.5 Press Shop (Building #5)

The press shop houses a 1600-ton mechanical press, a 3500-ton hydraulic press, and three natural gas-fired furnaces. Beneath each press, in a press cellar pit, oils (either leaked Shell Tellus-100 or Tellus-46) and metal fines accumulate. Spent oils from the

1600-ton press and/or spilled oils beneath the unit are vacuum pumped, containerized, and stored in the 90-day generator accumulation area for off-site recycle. Oils in the 3500-ton press are self-filtered. The filters are drained, containerized, and sent to the west wall of the saw shop for off-site recycle with PRC. Oils from the pit beneath the unit are vacuum pumped and sent to the oily wastewater treatment plant located at the tank farm and lube stores (Building #7). Because of the age and condition of the pits, no attempt was made to determine pit integrity. Plant personnel indicate that groundwater intrusion into the pits may have occurred historically during high groundwater periods. These pits and the soil interface beneath warrant further investigation.

Located on the west side of the press shop is the Wheelabrator shop which houses four Wheelabrators. The Wheelabrators are enclosed rotating drums with small metalic balls used to polish metal components. Operationally, these machines create metallic fines that must be captured and properly disposed. The air emission/abatement system consists of three bag house structures and stacks, each servicing two Wheelabrators. The bag house dust (EPA D007) is collected in drum containers and sent to the 90-day generator accumulation area prior to off-site solidification/stabilization by Rollins Environmental. Bags are replaced when breakthrough occurs and are containerized for off-site disposal. No signs of spillage (i.e. presence of fines) were noted in the area.

3.6 Forge Shop (Building #6)

The forge shop houses 6 High Energy Rate Forging (HERF) forging hammers with 40,000 ft. lb. maximum energy, 3 HERF forging hammers with 100,000 ft. lb. maximum energy rating, 4 HERF forging hammers with 225,000 ft. lb. maximum energy rating and 3 HERF forging hammers with 300,000 ft. lb. maximum energy rating. Additionally, 13 natural gas fired furnaces and 5 mechanical trim presses are housed. The cellars of each hammer and press take the form of a large underground concrete collection trench that slopes north. This trench collects leaking oils from the large presses and is also the repository for the quench water from Buildings #5 and #6. At the northern end a sump pump is used to vacuum pump oily water to the oily wastewater treatment system located at the tank farm and building 7.

An investigation of the trench was conducted and photos were taken; however, due to time constraints, neither the integrity nor the construction of the trench could be ascertained. Photos of this trench are included as Appendix A. Similar to the press shop pits, plant personnel indicate that groundwater intrusion into the trench may have occurred historically during high groundwater levels. The trench and the soil interface beneath warrants further investigation.

3.7 Tank Farm and Lubrication Stores

The tank farm is located north of Building 6. The tank farm consists of five tanks including:

<u>Tank A</u>

- Pit effluent tank (oil and water)
- Capacity = 10,000 gallons
- 12" vertical height = 750 gallons

Tank B
- Back-up Pit effluent tank (oil and water)
- Capacity = 1,500 gallons
- 12" vertical height = 150 gallons
- Tank not in service

Tank C
- Dirty oil tank
- Capacity = 2,000 gallons
- 12" vertical height = 200 gallons

Tank D
- Cleaned oil tank
- Capacity = 3,000 gallons
- 12" vertical height = 300 gallons

Tank E
- Steam cleaner water tank (reusable)
- Capacity = 5,000 gallons
- 12" vertical height = 200 gallons

Hydraulic fluids are collected from the press pits in Building #5 and the trench in Building #6 and pumped to the tank farm (Tank A) for initial treatment (gravity separation). A full description of the oily wastewater treatment process will be provided in the Phase I report.

The tank farm is built on a concrete slab surrounded by a 3-foot high concrete berm for secondary containment. Previous consultant reports indicate no tank spills have been recorded or reported. Rainwater collects in the containment; however, its management was not determined during the trip. Historically, the western wall of the containment berm leaked at the wall/slab interface and was replaced and sealed in 1989.

Building #7 contains the oil and wastewater filtration systems. These oil and water treatment systems receive oil from Tank C and water from Tank E respectively through temporary flex hosing (no permanent piping exists between the tank farm and Building #7). Discussions with the operator, Ed Sandoval, indicate that no recorded or reported spills have occurred during hook-up, fluid transfer or detachment of the hosing, nor have any spills or overflow occurred at the treatment facilities located in Building #7.

3.8 Stockyard

The stockyard is located north of the saw shop near the western boundary of the site. The stockyard is an open air, concrete-paved storage facility that is used for the reception and storage of raw metal. No dry or liquid chemicals have been stored in this yard. The yard was not walked down during the site visit.

3.9 Bone Yard

A fenced unpaved bone yard exists in the northwest corner of the plant site. During the site visit, the bone yard contained numerous steel and poly tanks. All tanks were observed to be empty. Additionally, various pieces of scrap metal, old machinery and various assorted debris were being stored. Much of the old machinery was contaminated with oily residue and/or sludge. Several areas of petroleum or discolored soils were observed even though the yard has overgrown with weeds and grass. According to DOE-furnished documentation, the yard historically stored polychlorinated biphenyl containers or articles.

Finally, the asphalt road leading to the bone yard was originally a dirt road that may have been periodically oiled for dust control. This yard and surrounding area warrants further investigation.

4.0 MISCELLANEOUS ITEMS

4.1 Generated Wastes/Management

During the exit interview, plant personnel identified the various waste streams generated at the site and the disposition of each. The following identifies the stream's classifications and their management.

Waste Stream/Classification	Management
• Waste Acids (hydrochloric, nitric, acetic) Waste Acid Liquid, N.O.S., Corrosive Material NA1760 CA Waste #792, EPA Waste #D002	Neutralization. Rollins Environmental
• Spent Coolant Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #132, EPA Waste #D007	Incineration. Rollins Environmental
• Wheelabrator Bag House Dust Grinding shop cyclone fines Hazardous Waste Solid, N.O.S., ORM-E NA9189 CA Waste #172, EPA Waste #D007	Solidification/ stabilization Rollins Environmental
• Oil (used) Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #221	Recycled -Petroleum Recycling Corporation
• Wastewater Evaporative Concentrate Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #223	Incineration. Rollins Environmental
• Press Pit Sludge Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #223, EPA Waste #D007, D008	Incineration Rollins Environmental

• Paint Debris Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #352, EPA Waste #D007, D008	Incineration Rollins Environmental
• Paint Rinsate Hazardous Waste Liquid, N.O.S., ORM-E NA9189 CA Waste #134, EPA Waste #D007, D008	Incineration Rollins Environmental
• Press Pit Oily Water	Oily water treatment system Oxnard Facility
• Used Oil Filters	Recycled -Petroleum Recycling Corporation
• Spray Cans Compressed Gas, N.O.S. Flammable Gas UN1954 CA Waste #331, EPA Waste #D001	Incineration Rollins Environmental
• Scrap Metal	On-site Bin Storage Recycled with - SOS Metals - LA - Oxnard Recycling - Eddie Recycling - Standard Industries (carbon steel)
• Degreasing Solvent Hazardous Waste Liquid, N.O.S., ORM-E NA9189 EPA Waste #D001	Recycled Safety Kleen

4.2 Potentially Contaminated Areas

The following lists potentially contaminated areas requiring further investigation. Delineation of these potential areas resulted from previous investigations or observations made during the on-site visit (June 8, 1994).

- Asbestos inspection including bulk analysis for ACM in all buildings.
- A pit/dump area in the vicinity of Building #6 possibly containing sand casts, slag, oily residue, etc. Tierra Tech (1982) report/Weston memorandum (1988).
- Area(s) surrounding deteriorated piping from the sink drains exiting the metallurgical lab for potential pH/metals contamination.
- Loading dock (south end) for potential of spillage during off-site loading of hazardous waste.

- Flooring in the areas of the solvent degreaser (Building #2 - Fabrication shop) and previous 111 - TCA tank and drum storage (Building #3) for potential solvent/metals contamination.

- Used oil filter drum storage area for potential petroleum contamination.

- Biological remediation area west of Building #6 for solvent, petroleum, PCB, and metals contamination.

- Bone yard\discolored soils area east of the bone yard for solvent, petroleum, PCB and metals contamination. (Site visit and Rockwell 1988/89 soil samples.)

- Collection trench (Building #6) and press cellars (Building #5) containing metal shavings, hydraulic oils and quench waters.

5.0 RECOMMENDATIONS

This preliminary evaluation identifies the need to conduct a full Phase I Environmental Site Assessment (ESA) prior to any intrusive investigations, including analytical testing associated with a Phase II Site Characterization. The primary purpose of the Phase I will evaluate the potential or known presence of contamination on "real property" from current or historical uses within the legally defined property boundary. This phase will also define the level of intrusive investigations that should be performed prior to realty transfer. Previous studies appear fragmented providing insufficient information upon which to base either the quantity or location/depth of soil borings or monitoring wells or the indicator chemical(s) or chemical specific analysis to be considered.

The preparation of a Phase I and Phase II environmental assessments is recommended. The Phase I work would require 160-200 hours and would involve the following:

- Planning and Research
- Site visit including environmental agency visits
- Data evaluation
- Preparation of the ESA Report

The proposed sequence of events for the Phase I environmental assessment includes:

1. Obtain and review DOE-furnished information, including a site map showing legal property boundaries.

2. Conduct regulatory list reviews: local, state, and federal. (See #8)

3. Identify government data sources and make data requests. (See #8)

4. Review historical aerial photographs of the site and site vicinity.

5. Arrange site access and interviews through the plant and perform site and site vicinity visual surveys.

6. Visit local tax assessor's office to obtain a copy of chain-of-title information and the recorded legal site map.

7. Visit local building department to obtain copies of permitted building modifications.

8. Conduct site record reviews at the following offices, as required:

   - U.S. Environmental Protection Agency (EPA) Region IX
   - CAL-EPA, Dept. of Toxic Substances Control (Region IV, Long Beach, CA)
   - State Water Resources Control Board (UST)
   - Regional Water Quality Control Board (Region IV, Los Angeles, CA)
   - Integrated Waste Management Board
   - City of Oxnard (Wastewater Division & Water Management Division)
   - Dept. of Health (Ventura County)

9. Evaluate data

10. Prepare the draft ESA report.

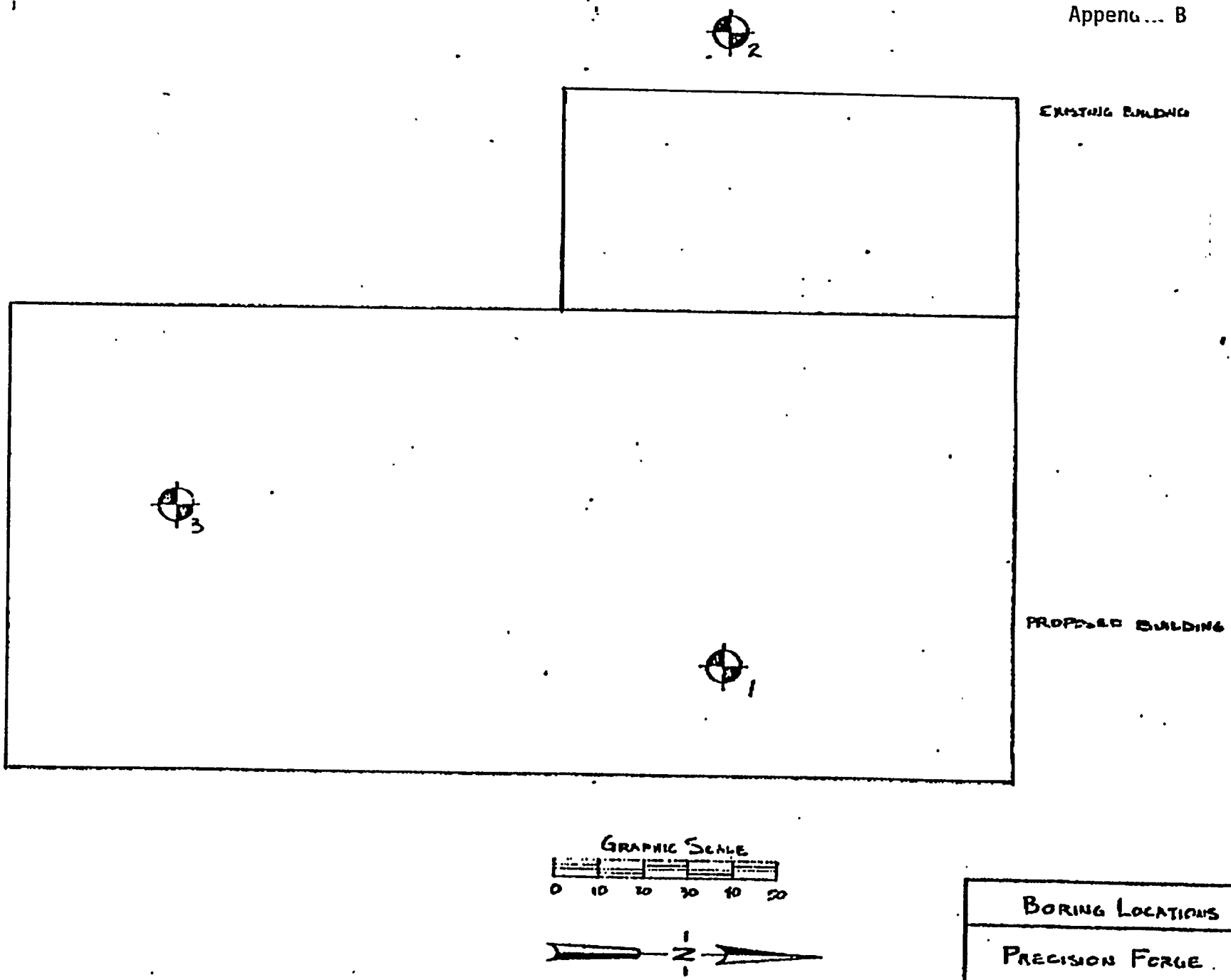
11. Schedule internal report reviews, if desired by the DOE.

12. Submit final report to the DOE.

Appendix B

Construction Boring Logs

(Buena Engineers, Inc. 1982)



BORING LOCATIONS

PRECISION FORGE

BUENA ENGINEERS, INC.

DATE 9-3-82 JOB NO B-12926-11

LOG OF BORING
for
Precision Forge

Job No. 3-12926-V1
Report No.

DATE 8-26-82

BORING NO. 1

LOCATION Per plan

Depth (ft)	Symbol Core	Blows/ft	DESCRIPTION	Unit Dry Wt. (pcf)	Moisture (Percent)	Soil Type	Relative Compaction (Percent)	REMARKS AND ANALYSIS
0								
		36	Light brown slightly clayey silty very fine to medium grained sand 1	111.1	4.0	A1	93	Trash and debris in top 5'
		14	3	93.0	12.0		78	
5		150	5	--	17.1		--	
						A2		Free Water at 8.5'
10		26	Grey medium to coarse grained sand with gravel 10	No Return				
15		38	15	124.3	8.2		100	
			Grey silty very fine to medium grained sand					
20		46	20	118.7	12.6	A3	99	
25		18	Gray very fine grained sandy very clayey silt 25	101.6	26.4	B1	87	
30		26	A3 as above 30	105.1	25.0	A3	88	

Total Depth = 31'

Note: The stratification lines represent the approximate boundary between soil types and the transition may be gradual

LOG OF BORING
for
Precision Forge

JOB NO. B-12926-V1
Report No.

DATE 8-26-82

BORING NO. 2

LOCATION Per Plan

Depth (ft)	Symbol Core	Blows/ft	DESCRIPTION	Unit Dry Wt. (pcf)	Moisture (Percent)	Soil Type	Relative Compaction (Percent)	REMARKS AND ANALYSIS
0								
		21	Grey very fine grained sandy very clayey silt 2	100.3	23.6	B1	86	
5		21	Grey medium to coarse grained sand with gravel 5	108.5	7.3	A2	88	Free Water at 7.5'
			Silt (B1) Lens			B1		
10		45	Grey silty very fine to medium sand 10	121.3	10.5	A3	100	
15		38	A2, as above 15	118.4	16.7	A2	96	
20		50	20	119.4	14.8		97	
25								
30		50	B1 as above 25	113.9	24.7	B1	98	
								Total Depth - 35'

Note: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

for
Precision Forge

DATE 8-26-82 BORING NO. 3 LOCATION Per Plan

Depth (ft)	Symbol	Core	Blows/ft	DESCRIPTION	Unit Dry Wt. (pcf)	Moisture (Percent)	Soil Type	Relative Compaction (Percent)	REMARKS AND ANALYSIS
0				Light brown slightly clayey silty very fine to medium grained sand	95.8 (1)	11.1	A1	80	
			14	A3, as below	98.2 (3)	3.7	A3	82	
5			44		110.7 (5)	4.8		90	Free Water at 5'
10			12	Grey medium to coarse grained sand with gravel	96.5 (10)	29.5	A2	78	
15			26		118.6 (15)	12.6		96	
20			30		120.7 (20)	13.9		98	

Total Depth = 21'

A3: Grey silty very fine to medium grained sand

Note: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Appendix C

Summary of Hazardous Waste Streams 1989-1993

HAZARDOUS WASTE TOTALS-POUNDAGE AND PERCENTS

YEAR: 1989

WASTE STREAM	ROUTINE?	CWC	POUNDS	PERCENT	ROUTINE %
1,1,1-Trichloroethane	YES	211	2,270.4	5.74%	8.31%
PCB Contaminated dirt	NO		*8,400.0*	*21.23%*	
PCB Contaminated materials	NO		*1,900.0*	*4.80%*	
		261	10,300.0	26.03%	
Sulfuric Acid	NO	551	150.0	0.38%	
Bunker Oil	YES		*4,578.0*	*11.57%*	*16.76%*
Soluble Oil	YES		*7,940.0*	*20.06%*	*29.07%*
		221	12,518.0	31.63%	45.84%
Isopropyl Alcohol	NO	212	64.0	0.16%	
Deltaglaze (alcohol-base)	NO		*78.0*	*0.20%*	
Pennforge 41	NO		*431.2*	*1.09%*	
Turco Protectoil	NO		*385.0*	*0.97%*	
Pb Free Al Forge Compound	NO		*372.7*	*0.94%*	
		331	1,266.9	3.20%	
Spray cans	YES	343	250.0	0.63%	0.92%
Oil Filters	YES		*1,400.0*	*3.54%*	*5.13%*
Oil Sorbent	YES		*4,680.0*	*11.83%*	*17.14%*
		223	6,080.0	15.36%	22.26%
Metal Dusts	YES	172	4,600.0	11.62%	16.84%
Waterforge 1211	NO	141	484.0	1.22%	
D110 Developer	YES	132	1,531.2	3.87%	5.61%
Paint Wastes	YES	461	60.0	0.15%	0.22%

WASTE TOTALS:	39,574.5	100.00%	
ROUTINE WASTE TOTALS:	27,309.6	69.01%	100.00%

89 HAZARDOUS WASTE IN TONS: 19.787

HAZARDOUS WASTE TOTALS-POUNDAGE AND PERCENTS

YEAR: 1990

WASTE STREAM	ROUTINE?	CWC	POUNDS	PERCENT	ROUTINE %
Waste Oil	**YES**	**221**	**1,950.0**	**10.46%**	**11.06%**
Spray cans	YES	343	76.0	0.41%	0.43%
Miscellaneous off-spec chemicals	NO	331	416.0	2.23%	
Coolant	**YES**		*4,590.0*	*24.62%*	*26.03%*
Neutralized acid solution	**YES**		*1,325.0*	*7.11%*	*7.52%*
		132	**5,915.0**	**31.73%**	**33.55%**
Oil Filters	**YES**		*900.0*	*4.83%*	*5.10%*
Daraclean 283	**YES**		*1,080.0*	*5.79%*	*6.13%*
Oil Sorbent	**YES**		*6,330.0*	*33.96%*	*35.90%*
		223	**8,310.0**	**44.58%**	**47.13%**
Ammonium Hydroxide	NO	123	25.0	0.13%	
Metal Dusts	**YES**	**172**	**1,200.0**	**6.44%**	**6.81%**
Miscellaneous off-spec chemicals	NO	141	120.0	0.64%	
PCB Samples	NO	261	450.0	2.41%	
Paint Wastes	YES	461	180.0	0.97%	1.02%

WASTE TOTALS:	18,642.0	100.00%	
ROUTINE WASTE TOTALS:	17,631.0	94.58%	100.00%

90 HAZARDOUS WASTE IN TONS: 9.321

HAZARDOUS WASTE TOTALS-POUNDAGE AND PERCENTS

YEAR: 1991

WASTE STREAM	ROUTINE?	CWC	POUNDS	PERCENT	ROUTINE %
Waste Oil	**YES**	**221**	**3,147.0**	**13.21%**	**15.28%**
Spray cans	NO	343	76.0	0.32%	
Coolant	**YES**		***3,907.0***	***16.40%***	**18.97%**
Neutralized Acid solution	**YES**		***539.0***	***2.26%***	**2.62%**
		132	**4,446.0**	**18.66%**	**21.59%**
Non-neutralized Acid solution	**YES**	**792**	**460.0**	**1.93%**	**2.23%**
Oil Filters	**YES**		***461.0***	***1.93%***	**2.24%**
Oil Sorbent	**YES**		***943.0***	***3.96%***	**4.58%**
		223	**1,404.0**	**5.89%**	**6.82%**
Metal Dusts	**YES**	**172**	**10,360.0**	**43.48%**	**50.30%**
Paint Debris	NO	461	428.0	1.80%	
Pallet contaminated w/ oil	NO	223	138.0	0.58%	
Pit Sludge/Debris	NO	223	2,516.0	10.56%	
RCF Blanket contaminated w/oil	NO	223	72.0	0.30%	
Solvent	**YES**	**213**	**778.0**	**3.27%**	**3.78%**

WASTE TOTALS:	23,825.0	100.00%	
ROUTINE WASTE TOTALS:	**20,595.0**	**86.44%**	**100.00%**

NOTE: Routine waste information is in bold type.

91 HAZARDOUS WASTE IN TONS: 11.913

HAZARDOUS WASTE TOTALS-POUNDAGE AND PERCENTS

YEAR: 1992

WASTE STREAM	ROUTINE?	CWC	POUNDS	%	ROUTINE %
Waste Oil	**YES**	**221**	**350.0**	**3.47%**	**3.95%**
Coolant	**YES**	**132**	**1,001.0**	**9.93%**	**11.30%**
Acid solution	**YES**	**792**	**548.0**	**5.43%**	**6.18%**
Oil Sorbent	**YES**	**223**	**655.0**	**6.50%**	**7.39%**
Wastewater evap. effluent	**YES**	**223**	**1,465.0**	**14.53%**	**16.53%**
Discontinued die lubricant	NO	223	653.0	6.48%	
Oily Waste	NO	223	544.0	5.39%	
TOTAL FOR ALL CWC 223 WASTES			*3,317.0*	*32.89%*	
Metal Dusts	**YES**	**172**	**3,975.0**	**39.42%**	**44.85%**
Solvent	**YES**	**213**	**868.0**	**8.61%**	**9.79%**
Spray Paint Cans	NO		25.0	0.25%	
WASTE TOTALS:			10,084.0	100.00%	
ROUTINE WASTE TOTALS:			**8,862.0**	**87.88%**	**100.00%**

NOTE: Routine waste information is in bold type.

92 HAZARDOUS WASTE IN TONS: 5.042

HAZARDOUS WASTE TOTALS-POUNDAGE AND PERCENTS

YEAR: 1993

WASTE STREAM	ROUTINE?	CWC	POUNDS	%	ROUTINE %
Waste Oil	**YES**	**221**	**1,890.0**	**18.84%**	**23.81%**
Coolant	NO	132	454.0	4.53%	
Acid Solution	**YES**	**792**	**756.0**	**7.54%**	**9.52%**
Wastewater Evap. Effluent	**YES**	**223**	**1,811.0**	**18.06%**	**22.81%**
Oil Sorbent	NO	223	973.0	9.70%	
Pit Sludge	NO	223	170.0	1.69%	
SP400 (oily waste-outdated chem)	NO	223	375.0	3.74%	
TOTAL FOR ALL CWC 223 WASTES				*33.19%*	
Metal Dusts	**YES**	**172**	**2,442.0**	**24.35%**	**30.76%**
Solvent	**YES**	**213**	**1,039.0**	**10.36%**	**13.09%**
Paint Debris	NO		70.0	0.70%	
Spray Paint Cans	NO		50.0	0.50%	

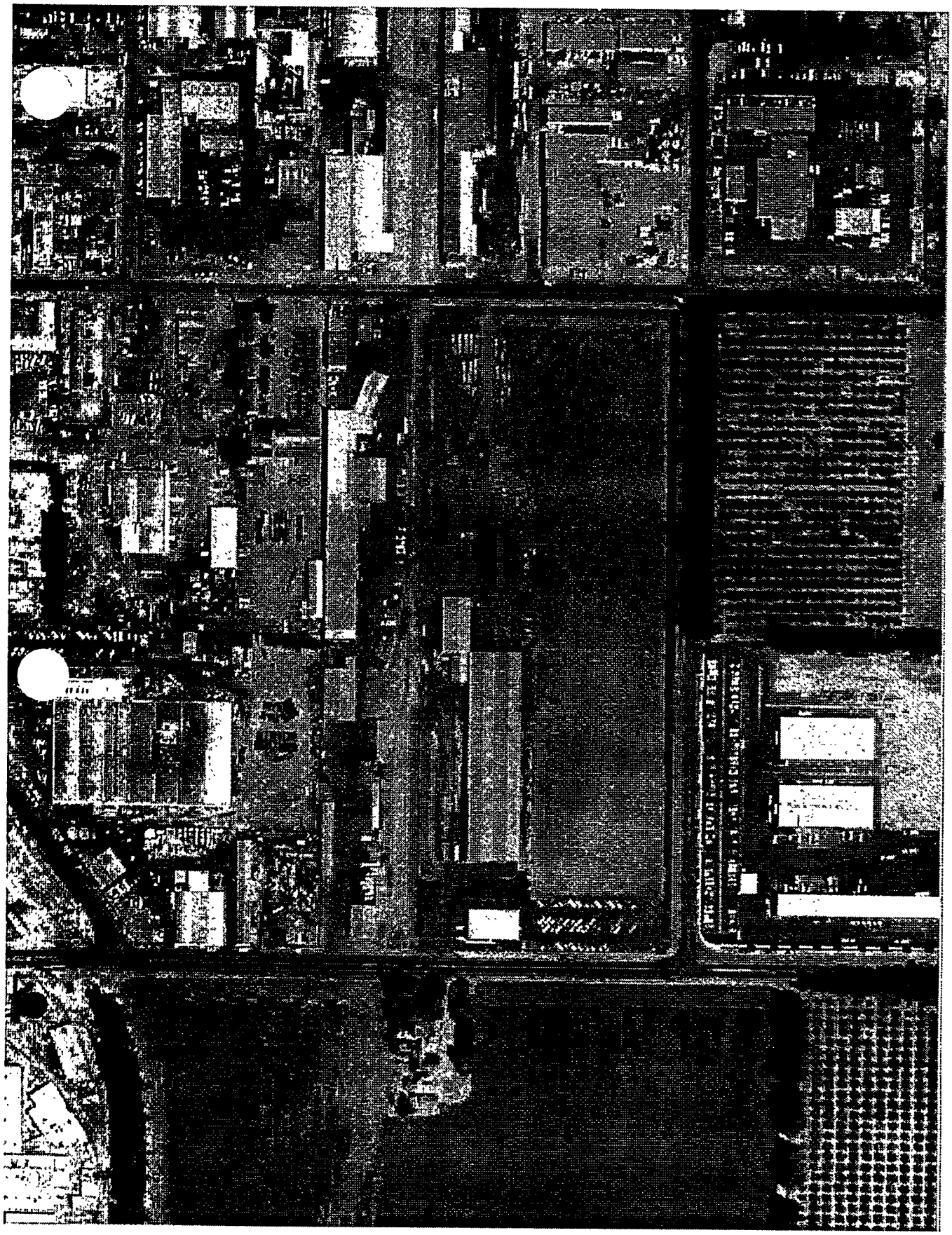
WASTE TOTALS:	10,030.0	100.00%	
ROUTINE WASTE TOTALS:	**7,938.0**	**79.14%**	**100.00%**

NOTE: Routine waste information is in bold type.

93 HAZARDOUS WASTE IN TONS: 5.015

Appendix D

Photo Documentation



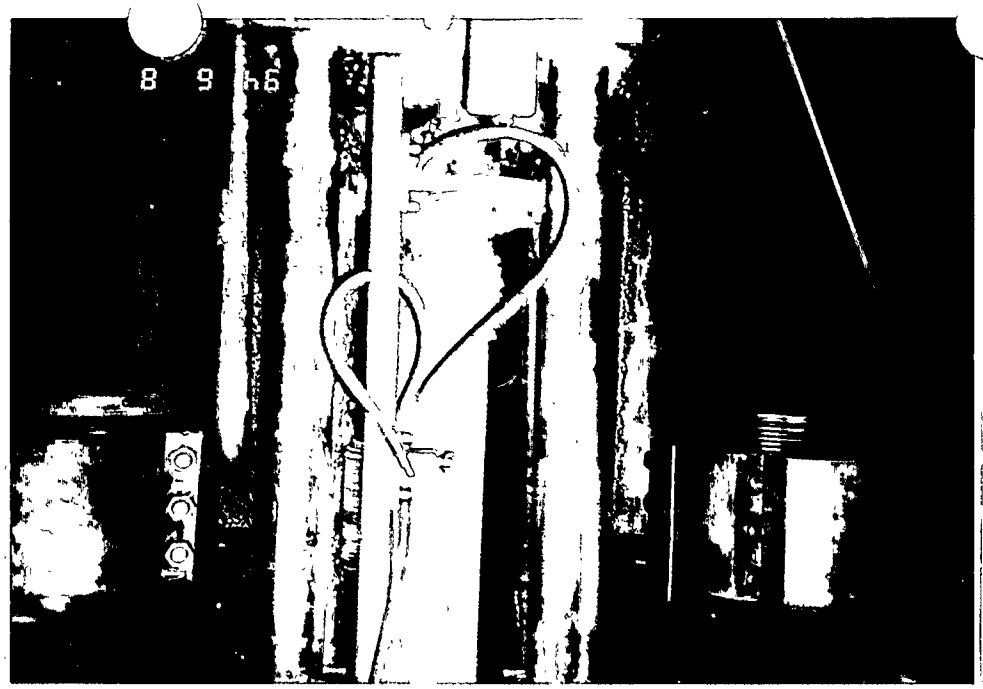
Oxnard Facility - 1973

Building #5
3500 ton Press Pit
&
Pump Suction Line

Building #5
3500 ton Press Pit
Side Wall Showing
Metal Hydraulic Oil Sludge

Building #6
Forging Hammer Trench
Hydraulic Hosing
&
Hammer Dampeners

Building #6
Forging Hammer Trench
View Looking North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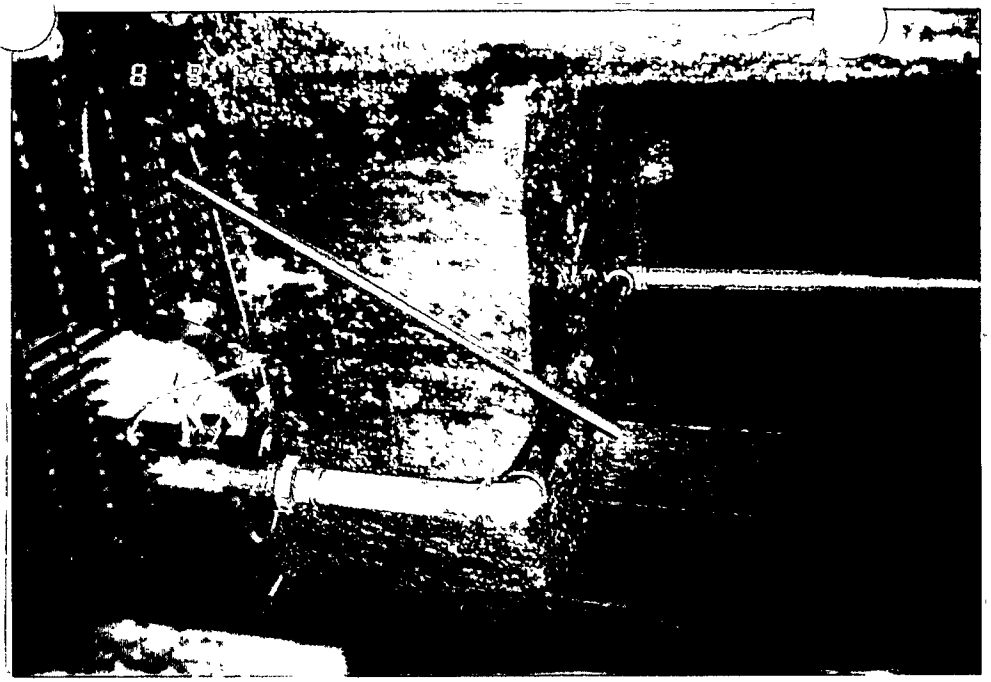
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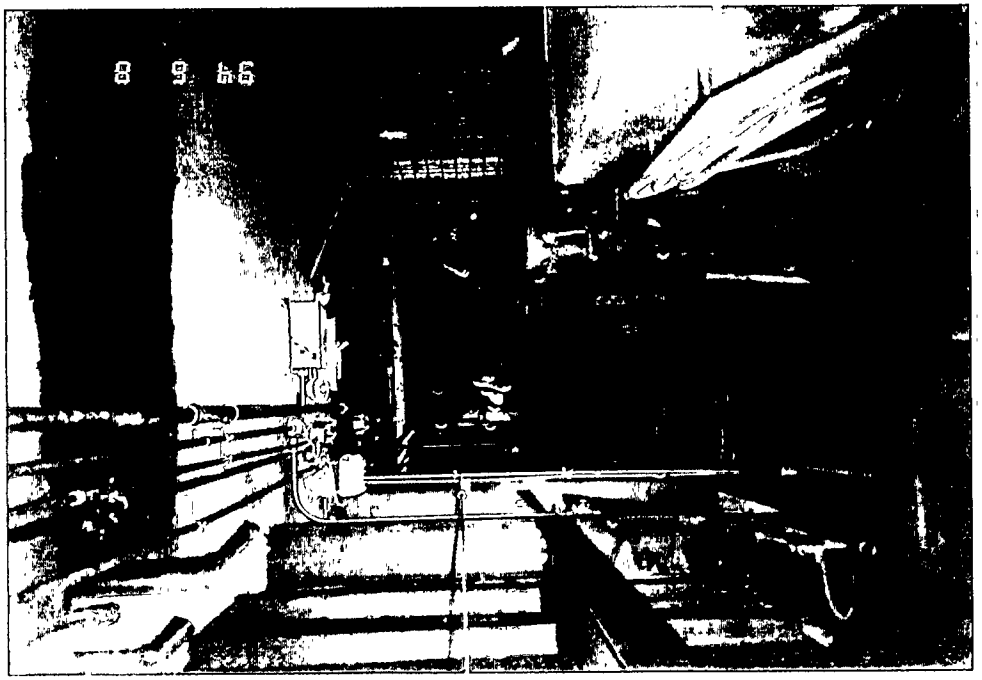
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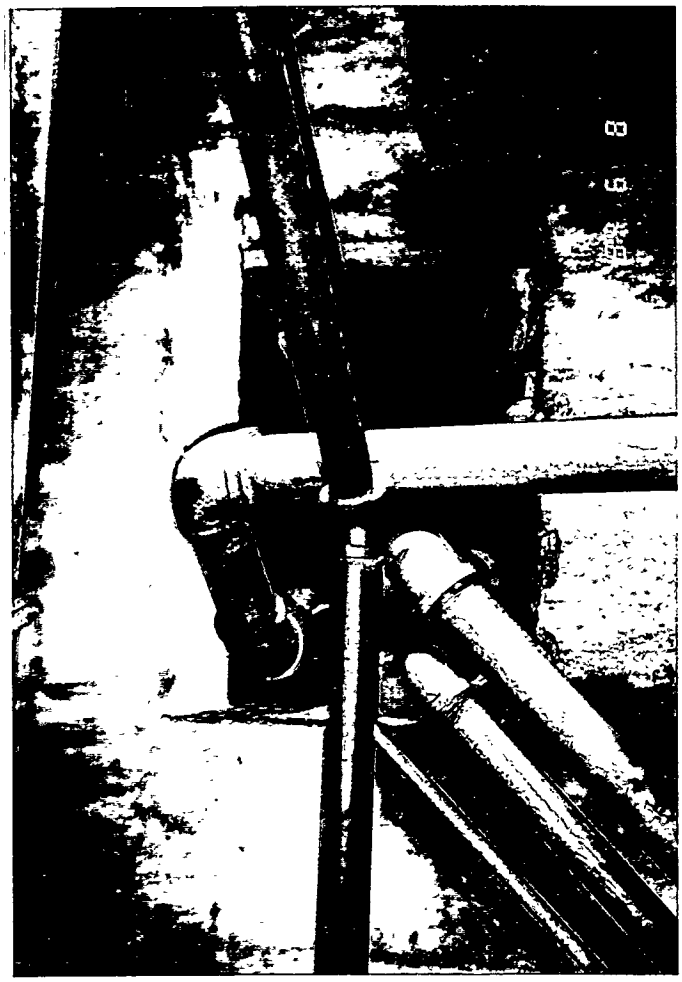
Building #6
Forging Hammer Trench
Forging Hammer Pedestal

Building #6
Forging Hammer Trench
Suction Piping to
Oil/Water Tank Farm

Building #6
Forging Hammer Trench
Oily Water Beneath
Trench Grating

Building #6
Forging Hammer Trench
View Looking North

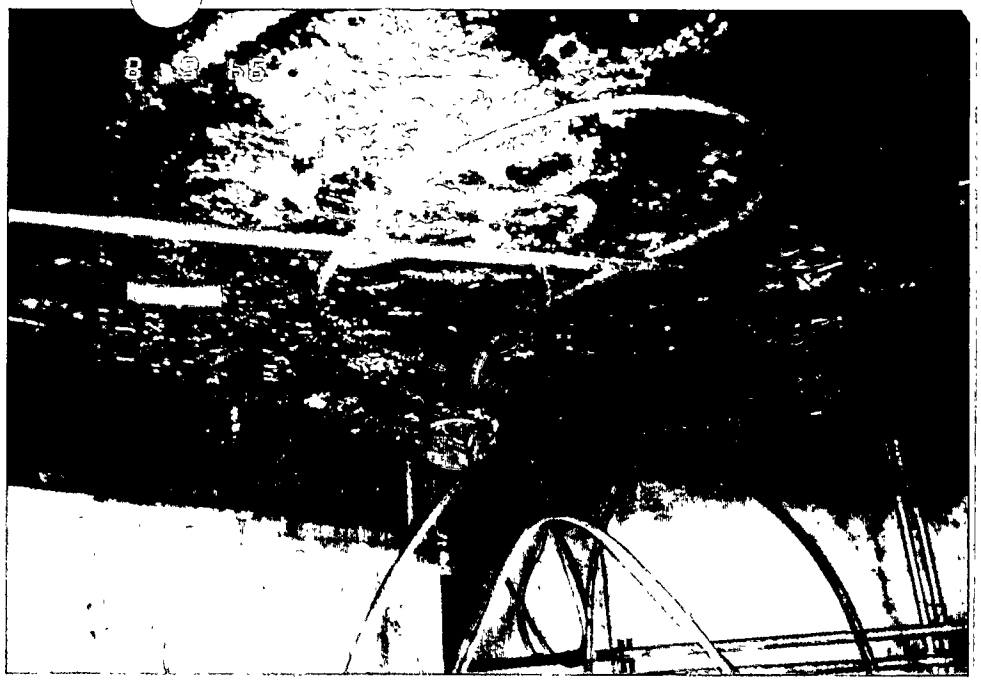


Building #6
Forging Hammer Trench
Metallic Oily Water Sludge
Beneath Grating

Building #6
Forging Hammer Trench
Hammer Dampeners
Sludge Residue
Hydraulic Hosing

Building #6
Forging Hammer Trench
Oily Metal Shavings

Building #6
Forging Hammer Trench
Pipe/Conduit Chase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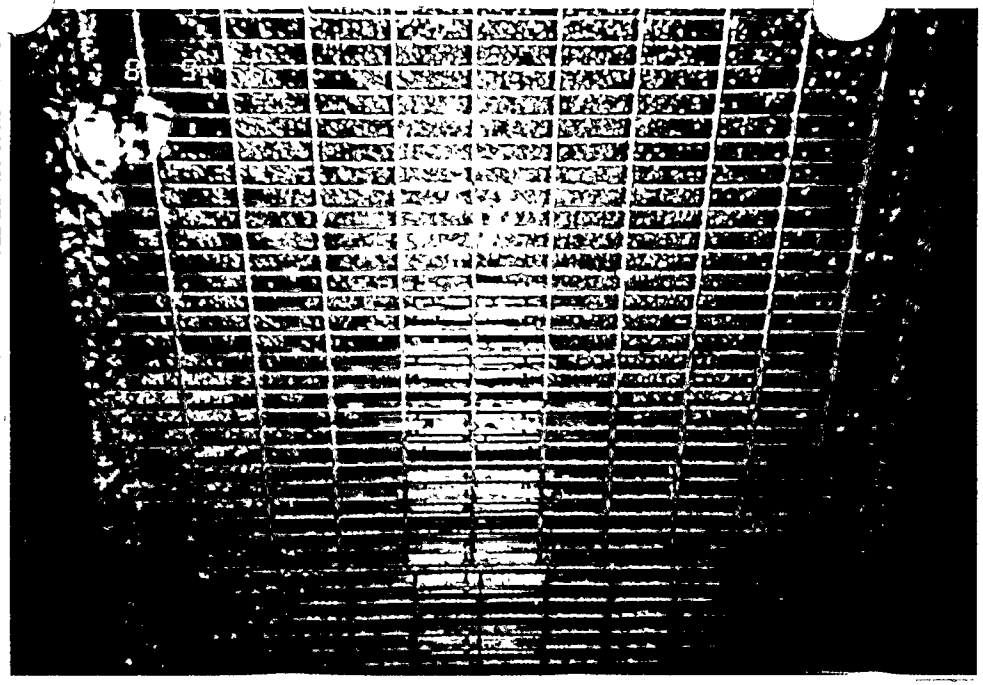

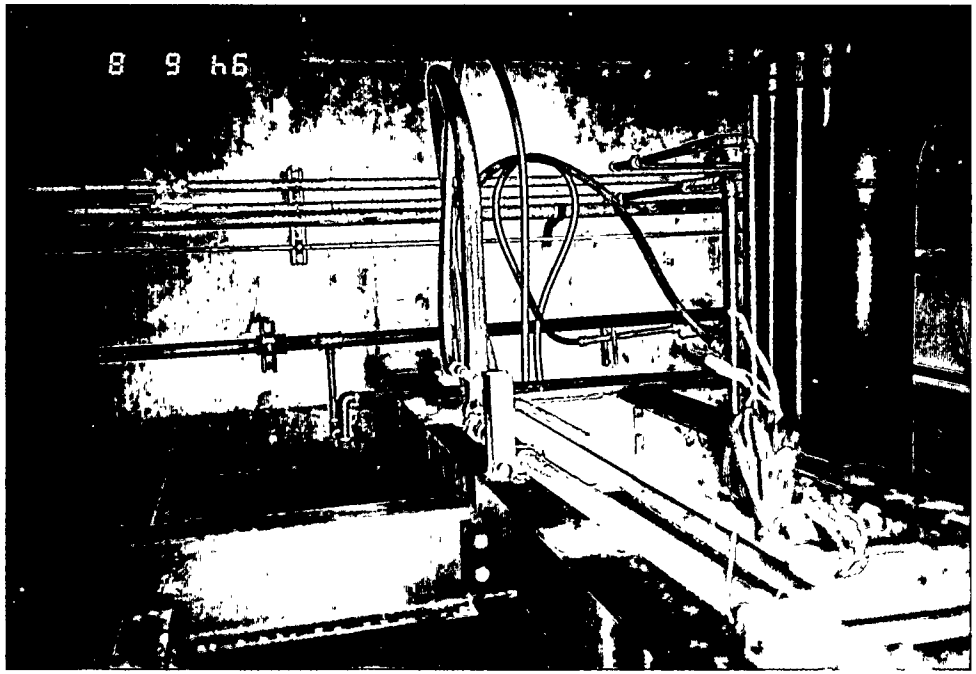
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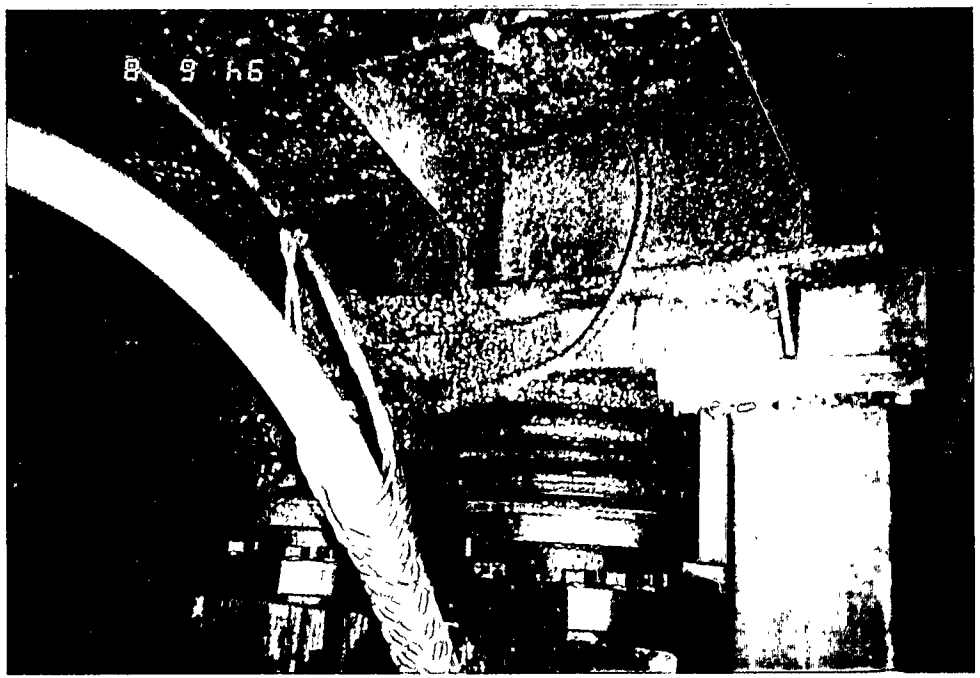
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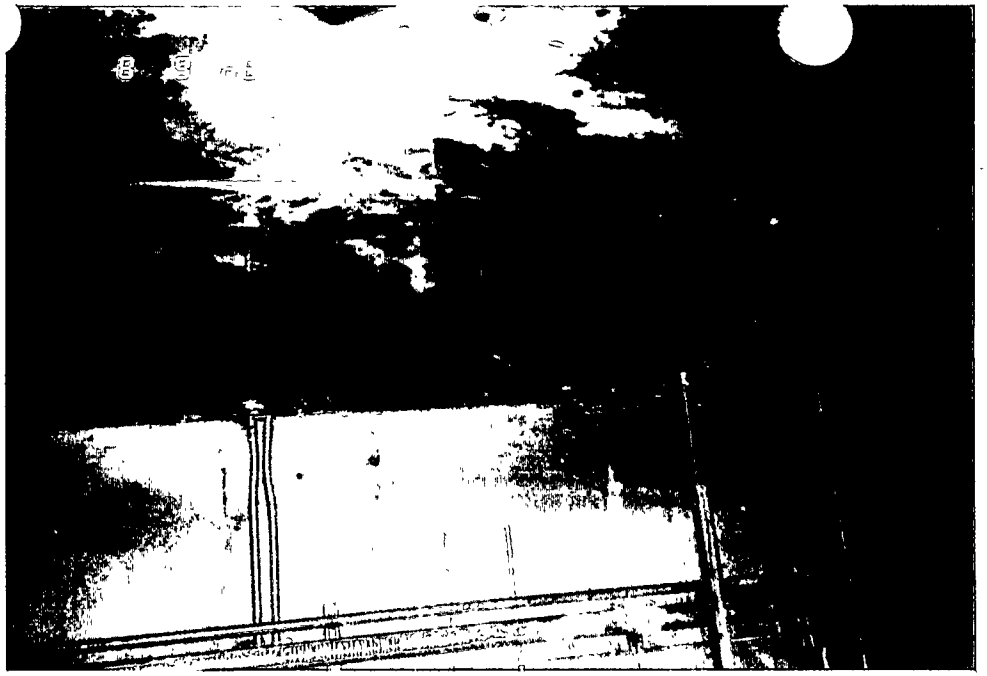
Building #6
Forging Hammer Trench
Hammer Pedestal Bench
Oily Sheen

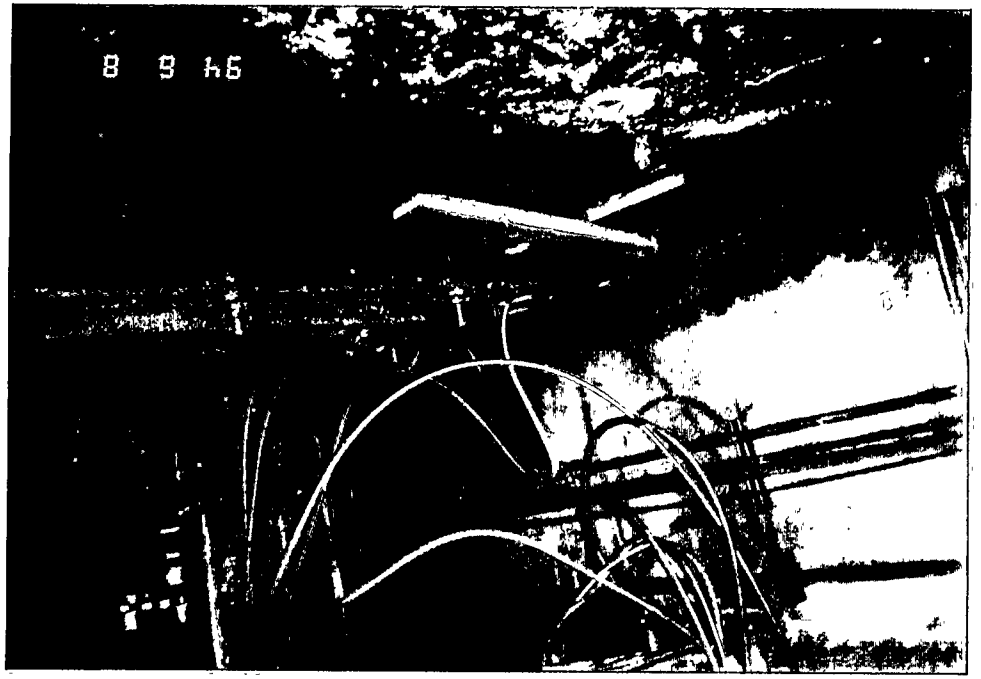
Building #6
Forging Hammer Trench
Hammer Pedestal Base

Building #6
Forging Hammer Trench
South Stairwell Entrance
Fire Extinguisher
Forced Air Ventilation Tube

Building #6
Forging Hammer Trench
Oily Metal Shavings

8 9 46

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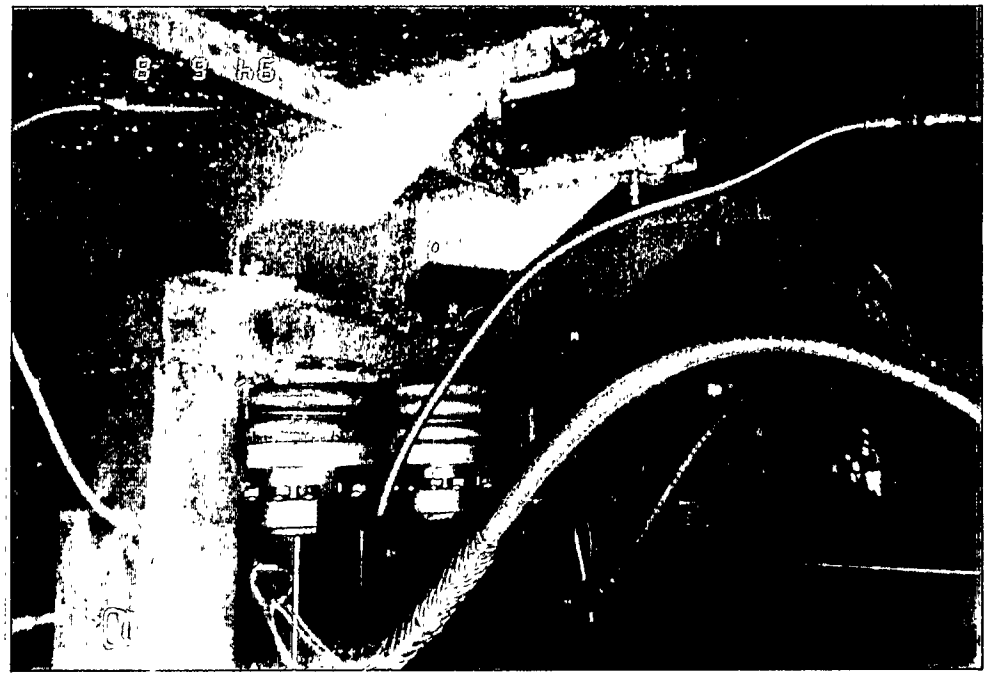
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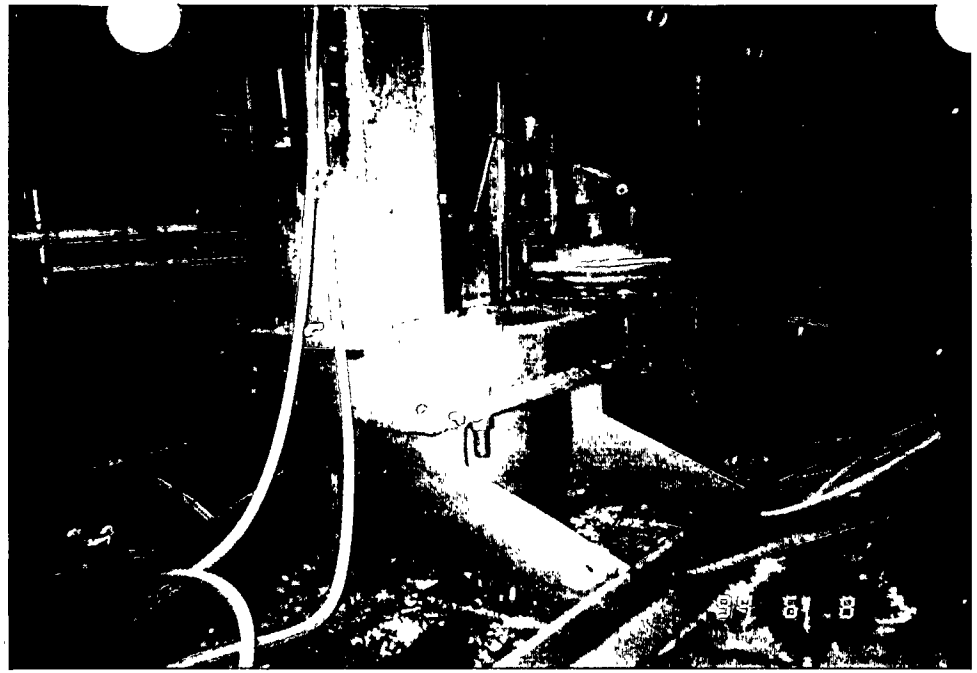
Building #7
Lubrication Stores
Oil/Water Filtration

Boneyard
Used Equipment Storage

Building #6
Forging Hammer Trench
Forging Hammer Pedestal

Building #6
Hydraulic Pump



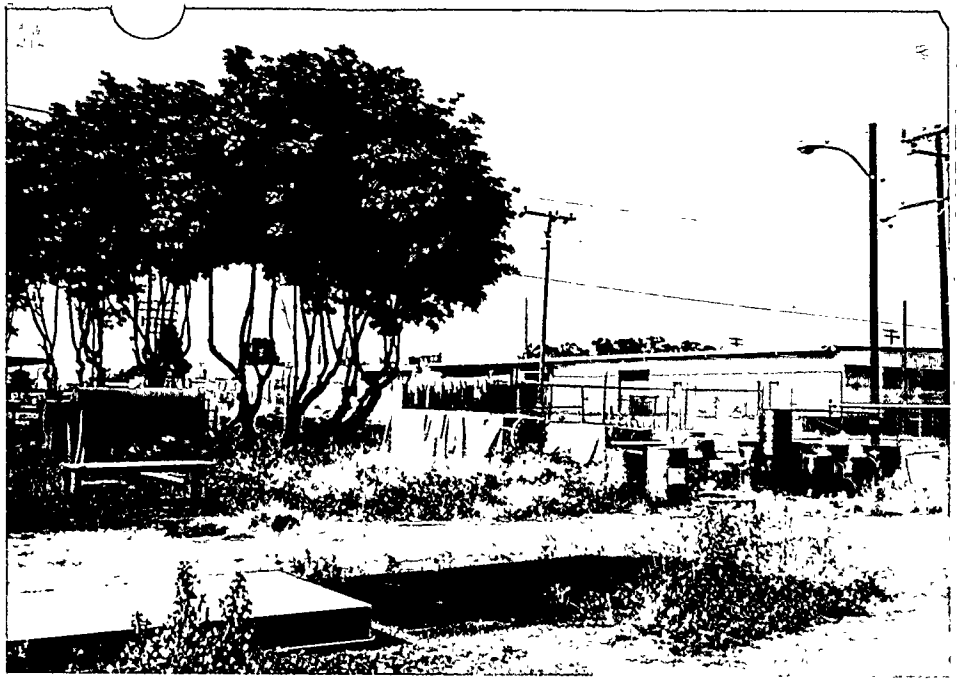
1 TON CAP

EG&G Oxnard Rocky Flats
Facility
Administration Building

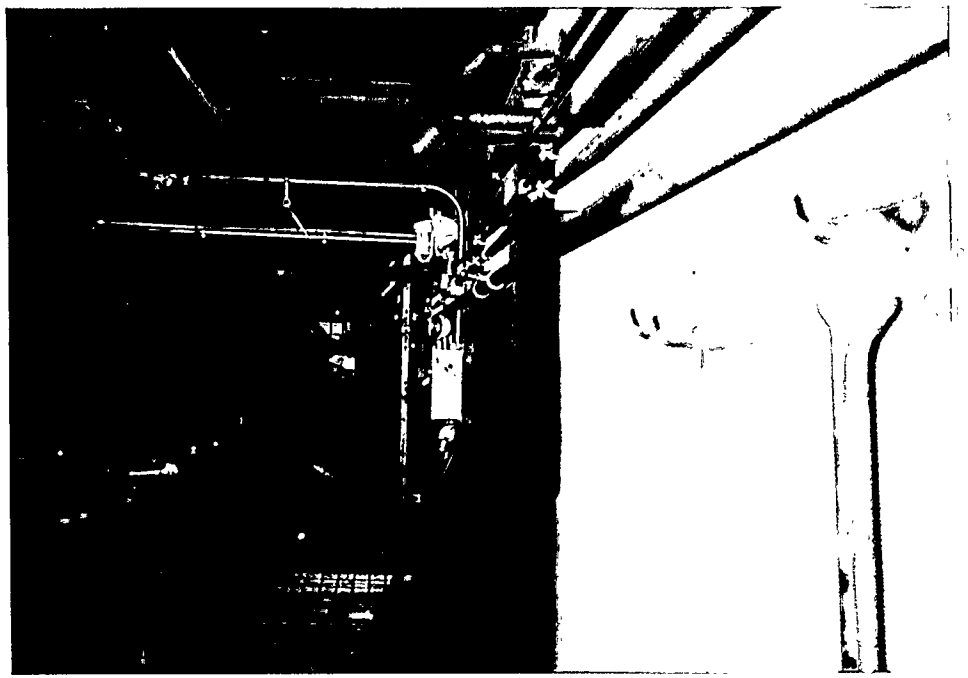
BLANK

Boneyard
Drum Storage Area

Building #6
Forging Hammer Trench
View Looking North



OXNARD FACILITY

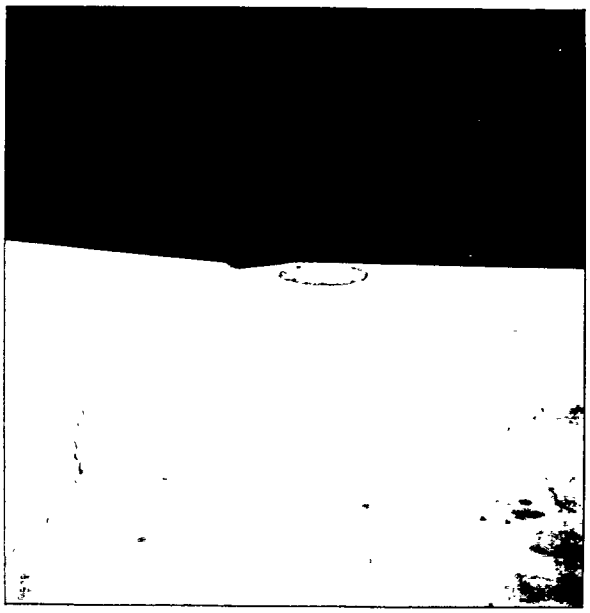


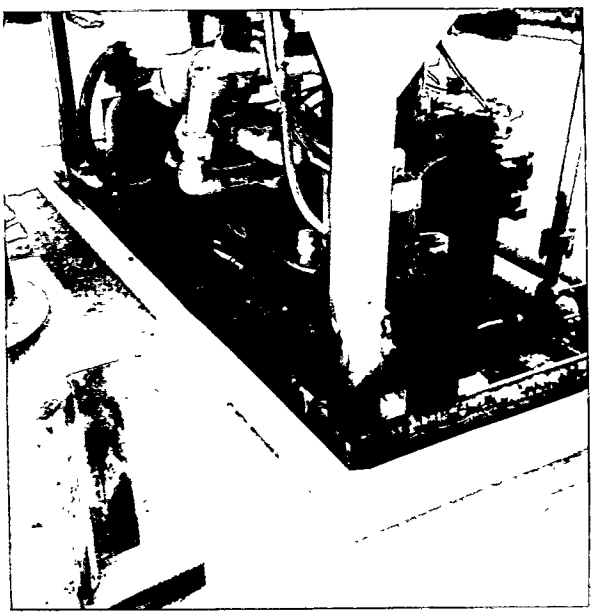
Boneyard
Equipment Storage

Boneyard
Tank/Container Storage

Underground Storage Tank
Zyglo Dye Penetrant

Boneyard
Equipment Storage
Oily Residue in Secondary
Containment Tray



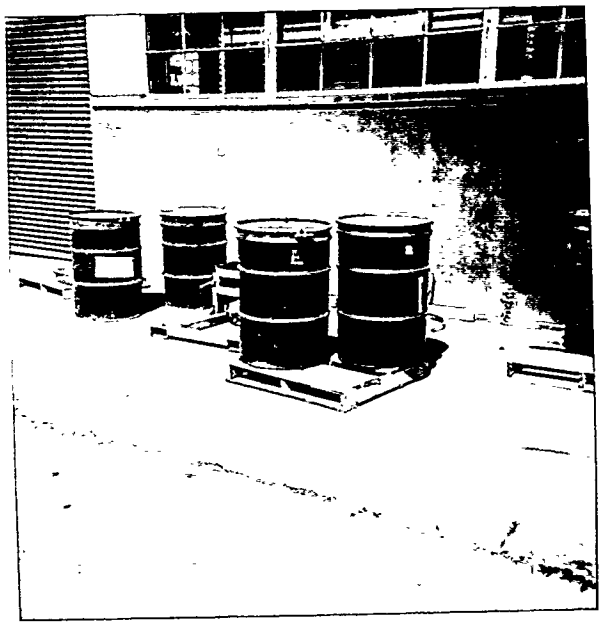


Building #6
Forging Hammer Trench
Vacuum Suction Line to O/W
Tank from North Trench Sump

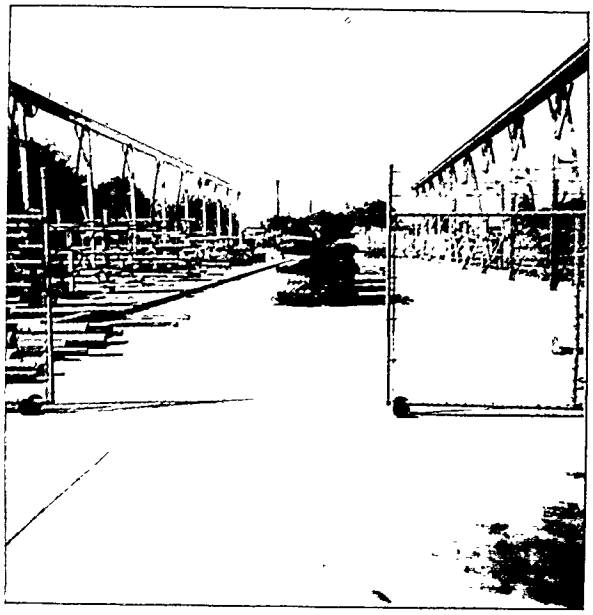
Building #2
West wall - Fabrication Bldg.
Used Oil Filter Storage

Stockyard
View Looking North

Stockyard
View Looking South



Bldg #6 Connection Trench 2/3
Between East Trench and
West (Main) Collection Trench.



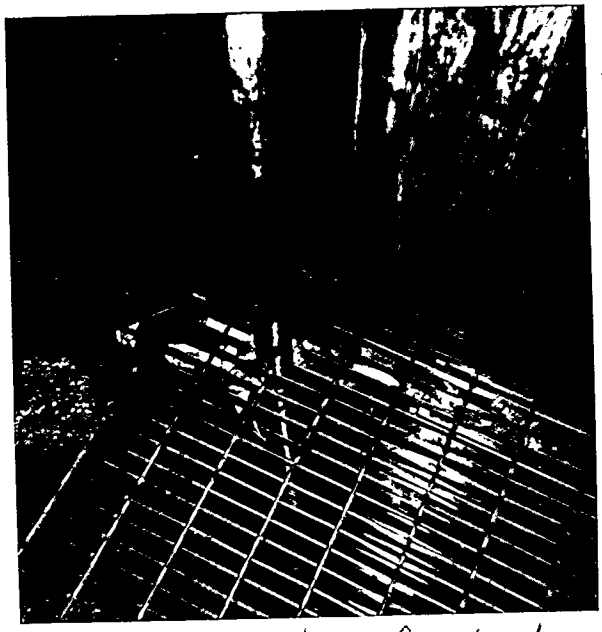
Building #6
Forging Hammer Trench
Vacuum Suction Line to O/W
Tank from North Trench
Sump

Building #6
Forging Hammer Trench
Connection Trench Between
East and West (main)
Collection Trench

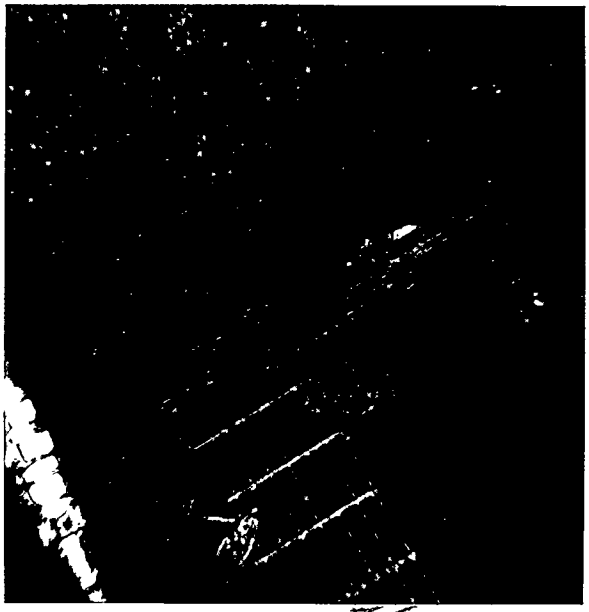
Building #6
Forging Hammer Trench
Connection Trench Between
East and West (main)
Collection Trench

Building #5
3500 Ton Press Pit
Vacuum Suction Line to O/W Tank

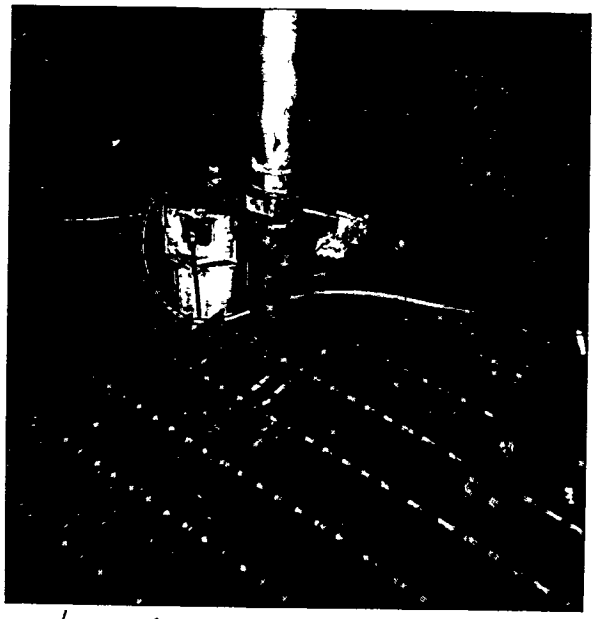
HARD Piping - VACUUM SUCTION TO O/W TANK FR. N. SUMP IN Bldg 6 WEST COLLECTION TRENCH



Bldg #6 HARD Piping - VACUUM SUCTION TO O/W TANK FM N. SUMP IN Bldg #6 Pump SUCTION LOC



Bldg #6 CONNECTION TRENCH 1/3 BETWEEN EAST TRENCH AND WEST (MAIN) COLLECTION TRENCH



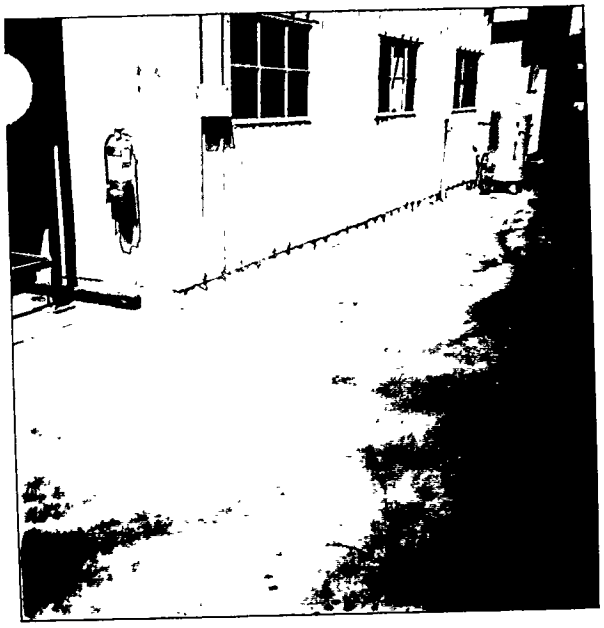
HARD Piping - VACUUM SUCTION TO O/W TANK FM. 3500 TON PRESS CELLAR.

Underground Storage Tank
Diesel Tank

BLANK

BLANK

BLANK



Appendix E

Design As-Built Drawings
Buildings 5 & 6

GENERAL NOTES

A. GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.

2. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL ENGAGE PROPERLY QUALIFIED PERSONS TO DETERMINE FIELD LAY-OUT OF BUILDING ELEMENTS. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.

3. DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON DRAWINGS.

4. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.

5. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE 1979 EDITION OF THE UNIFORM BUILDING CODE.

6. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:

   SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, EXCEPT AS NOTED.

   SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR NONBEARING PARTITIONS.

   SIZE AND LOCATION OF ALL CONCRETE CURBS, FLOOR DRAINS, CHAMFERS, GROOVES, INSERTS, AND FOOTINGS REQUIRED FOR STAIR FRAMING.

   STAIR FRAMING AND DETAILS EXCEPT AS SHOWN.

   FLOOR FINISHES.

7. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE FOLLOWING ITEMS WHERE NOT SHOWN ON STRUCTURAL DRAWINGS:

   PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC., EXCEPT AS SHOWN OR NOTED.

   ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS.

   CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES.

   SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES, AND ANCHOR BOLTS FOR MOTOR MOUNTS.

8. SEE PASCOE BUILDING SYSTEMS DRAWINGS FOR METAL BUILDING REQUIREMENTS. CONTRACTOR SHALL VERIFY LOCATION OF ANCHOR BOLTS AND OTHER METAL BUILDING CONNECTIONS AT THE FOUNDATION PRIOR TO CONSTRUCTION AND NOTIFY STRUCTURAL ENGINEER OF ANY DISCREPANCIES OR INCONSISTANCIES.

9. CONTRACTOR SHALL NOTIFY STRUCTURAL ENGINEER 24 HOURS BEFORE PLACING CONCRETE.

10. OPENINGS, CHASES, TRENCHES, ETC., SHALL NOT BE PLACED IN DECKS, BEAMS, JOISTS, COLUMNS, WALLS, ETC., UNLESS SPECIFICALLY DETAILED OR NOTED ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER WHEN DRAWINGS BY OTHERS SHOW SUCH OPENINGS, CHASES, ETC.

11. A.S.T.M. SPECIFICATIONS NOTED WITHIN THE GENERAL NOTES SHALL BE OF THE LATEST REV ' IC'.

12. HEAVY EQUIPMENT LOADS SHALL BE SPREAD OUT IF TEMPORARILY PLACED ON SLABS.

13. DO NOT INSTALL MACHINERY UNTIL SUPPORTING CONCRETE HAS ACHIEVED DESIGN STRENGTH.

B. FOUNDATION

1. FOUNDATION DESIGN IS BASED ON A SOIL ENGINEERING REPORT PREPARED BY BUENA ENGINEERS, REPORT NO. B-12978-VI, DATED SEPTEMBER 1987.

2. SOIL BEARING DESIGN VALUES ARE 1800 PSF FOR CONTINUOUS FOOTINGS AND 2800 PSF FOR ISOLATED FOOTINGS AT THE 18" DEPTH.

3. SOIL EXPANSION INDEX IS 0-20.

4. CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM EITHER SURFACE WATER, GROUND WATER OR SEEPAGE.

5. THE CONTRACTOR SHALL PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING AND SHORING REQUIRED TO SAFELY RETAIN THE EARTH BANKS.

6. EXCAVATIONS FOR FOOTINGS AND CAISSONS SHALL BE APPROVED BY THE FOUNDATION ENGINEER PRIOR TO PLACING THE CONCRETE AND REINFORCING. CONTRACTOR SHALL NOTIFY THE FOUNDATION ENGINEER WHEN INSPECTION OF EXCAVATION IS READY. THE FOUNDATION ENGINEER SHALL SUBMIT LETTER OF COMPLIANCE TO THE STRUCTURAL ENGINEER.

7. ALL EXCAVATIONS SHALL BE PROPERLY BACKFILLED. DO NOT PLACE BACKFILL BEHIND RETAINING WALLS BEFORE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH. CONTRACTOR SHALL BRACE OR PROTECT RETAINING WALLS BELOW GRADE FROM LATERAL LOADS UNTIL ATTACHING FLOORS ARE COMPLETELY IN PLACE AND HAVE ATTAINED FULL DESIGN STRENGTH. CONTRACTOR SHALL PROVIDE FOR DESIGN AND INSTALLATION OF SUCH BRACING. SEE DRAWINGS FOR LOCATIONS OF TEMPORARY SHORING.

8. FOOTINGS SHALL BE PLACED ACCORDING TO DEPTHS SHOWN ON DRAWINGS. SHOULD SOIL ENCOUNTERED AT THESE DEPTHS NOT BE APPROVED BY FOUNDATION ENGINEER, FOOTING ELEVATIONS WILL BE ALTERED AS APPROVED BY THE STRUCTURAL ENGINEER.

9. FOOTING, RETAINING WALL, AND UTILITY TRENCH BACKFILLS WITHIN BUILDING AREA SHALL BE MECHANICALLY COMPACTED IN LAYERS, TO THE APPROVAL OF THE FOUNDATION ENGINEER. FLOODING WILL NOT BE PERMITTED.

10. THE CONTRACTOR SHALL SUBMIT FINAL COMPACTION REPORTS FOR ALL ENGINEERED FILLS TO THE STRUCTURAL ENGINEER FOR REVIEW.

C. CONCRETE

1. ALL WORK SHALL CONFORM TO THE AMERICAN CO
RECOMMENDATIONS FOUND WITHIN ACI-318 (LAT

2. ALL CONCRETE SHALL OBTAIN THE FOLLOWING M
AT 28 DAYS:

   PRECAST CONCRETE.....
   SPREAD FOOTINGS.....
   PAT PADS AND WALLS.....
   TRENCH PADS AND WALLS.....
   MECHANICAL CHASES.....
   ALL OTHER CONCRETE.....

3. PORTLAND CEMENT SHALL CONFORM TO A.S.T.M
TYPE II.

4. AGGREGATE FOR HARDROCK CONCRETE SHALL CO
THE MAXIMUM AGGREGATE SIZE SHALL BE ONE
WALLS AND SECTIONS NOT MORE THAN FIVE IN
THICKNESS.

5. MAXIMUM CONCRETE SLUMP SHALL BE FOUR INC

6. DRYPACK, UNDER BASEPLATES AND WHERE OTHE
STRUCTURAL DRAWINGS, SHALL BE A NON-SHRI
OR EQUAL.

7. MINIMUM CONCRETE COVERAGE OVER REINFORCE
NOTED OTHERWISE, SHALL BE AS FOLLOWS:

   CONCRETE POURED DIRECTLY AGAIN
   ALL OTHER LOCATIONS.....

8. PROJECTING CORNERS OF BEAMS, WALLS, COLU
BE FORMED WITH A 3/4" CHAMFER, UNLESS N
ARCHITECTURAL DRAWINGS.

9. ALL CONCRETE SHALL BE THOROUGHLY AND PR
USING APPROVED MECHANICAL COMPACTORS.

10. CORING OF CONCRETE IS NOT PERMITTED EXC
NOTIFY THE STRUCTURAL ENGINEER IN ADVAN
NOT SHOWN ON THE STRUCTURAL DRAWINGS.

11. CURING COMPOUNDS USED ON CONCRETE THAT
RESILIENT TILE FINISH SHALL BE APPROVED
PRIOR TO USE.

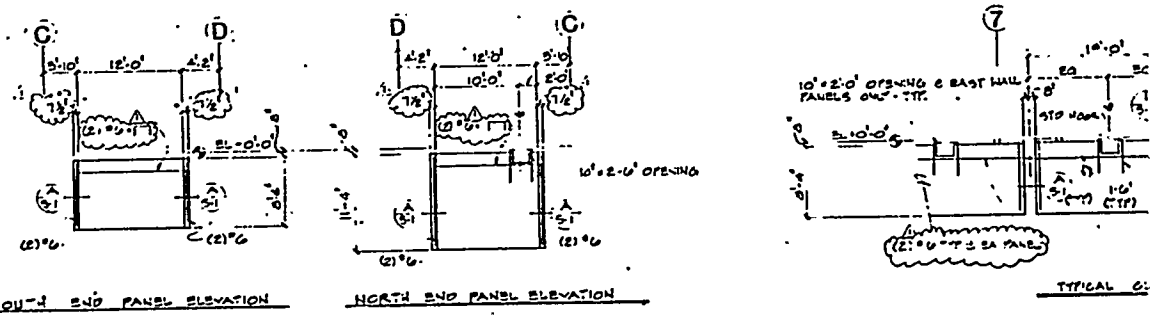
12. APPLY BURKE PRODUCT NON-METALLIC FLOOR
ON ALL SLABS ON GRADE PER MANUFACTURER'

13. CONCRETE SHALL BE PLACED CONTINUOUSLY
AT EACH CAISSON.

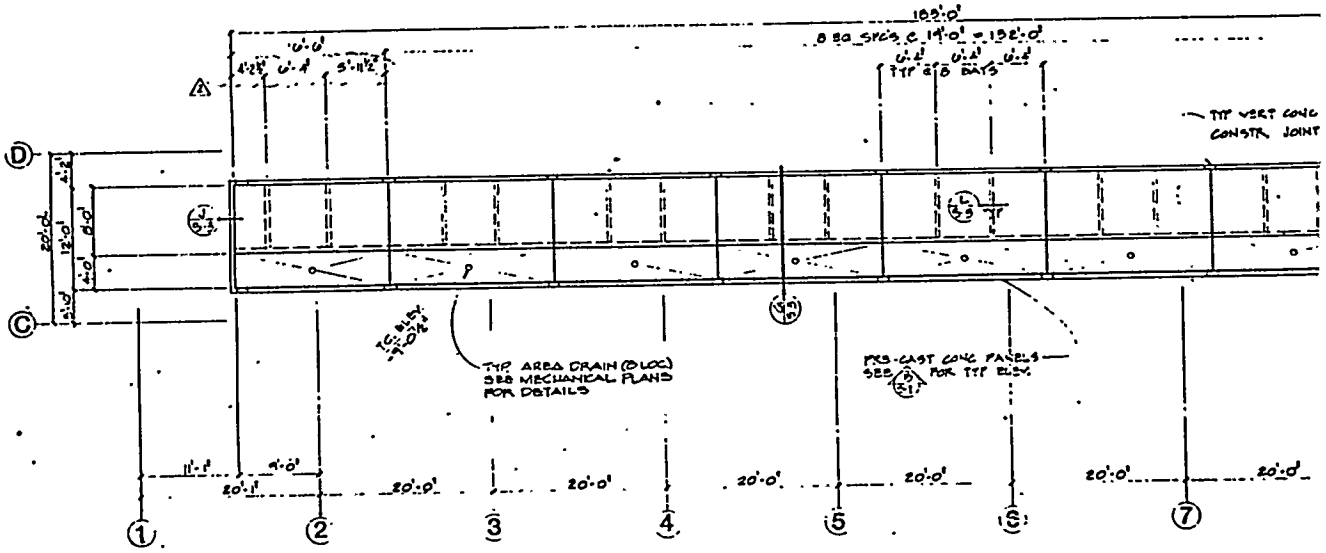
14. SEE INSPECTIONS.

D. REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE PLACED
THE "BUILDING CODE REQUIREMENTS FOR RE
(ACI 318 LATEST), AND THE "MANUAL OF S
REINFORCED CONCRETE CONSTRUCTION" (LA
C.R.S.I. AND THE W.C.R.S.I.



TYPICAL PRE-CAST CONC. PANEL ELEVATIONS - CULVERT



CULVERT FOUNDATION PLAN

INSTITUTE'S
DITION).

STRENGTHS

....3000 PSI
....3000 PSI
....3000 PSI
....3000 PSI
....3000 PSI
....3000 PSI

D, TYPE I OR

TO ASTM C-33.
(1") FOR SLABS
(3") IN

").

SHOWN ON THE
OUT, "BURKE"

UNLESS

RTH...3"
.....3/4"

ETC., SHALL
THERWISE ON

COMPACTED

NOTED.
CONDITIONS

RECEIVE A
ARCHITECT

NER OR EQUAL
TRUCTIONS.

T INTERRUPTION

FORMANCE WITH
ED CONCRETE"
D PRACTICE FOR
DITION) BY THE

2. REINFORCING BARS SHALL CONFORM TO ASTM A-615. MINIMUM REINFORCING YIELD STRENGTHS SHALL BE AS FOLLOWS:

#3 #4 & #5 BARS.....60 GRADE
#6 AND GREATER.....60 GRADE

3. WELDING OF REINFORCEMENT SHALL BE WITH LOW HYDROGEN ELECTRODES IN CONFORMANCE WITH "RECOMMENDED PRACTICES FOR WELDING REINFORCING STEEL, ETC.", AMERICAN WELDING SOCIETY, AWS-D12.1 (LATEST EDITION). NO FIELD WELDING OF REINFORCEMENT SHALL BE PERMITTED.

4. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.

5. SPLICE REINFORCEMENT AS SHOWN ON THE DRAWINGS, UNLESS NOTED AS CONTINUOUS. LAP ALL CONTINUOUS REINFORCEMENT A MINIMUM OF 32 BAR DIAMETERS.

6. ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION IS MADE.

7. SUBMIT REINFORCING MILL REPORTS FOR EACH LOT OF REINFORCEMENT TO THE STRUCTURAL ENGINEER FOR REVIEW.

8. SUBMIT REINFORCEMENT PLACEMENT PLANS TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL.

9. SEE INSPECTIONS.

E. STRUCTURAL AND MISCELLANEOUS STEEL (FOUNDATION)

1. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS (LATEST EDITION).

2. ALL STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO ASTM A-36, WITH A MINIMUM YIELD STRESS OF 36 KSI, UNLESS OTHERWISE NOTED.

3. ALL BOLTS SHALL CONFORM TO ASTM A-307 GRADE A, UNLESS NOTED OTHERWISE.

4. ALL WELDING SHALL BE PERFORMED WITH E70XX ELECTRODES CONFORMING TO AWS D1.1 (LATEST EDITION).

5. THE STEEL FABRICATORS SHALL SUBMIT SHOP DRAWINGS FOR THE REVIEW AND APPROVAL OF THE STRUCTURAL ENGINEER.

6. ALL STRUCTURAL STEEL SURFACES SHALL BE LEFT UNPAINTED, UNLESS NOTED OTHERWISE.

7. SEE INSPECTIONS.

F. WATERPROOFING MEMBRANE

1. ALL BELOW-GRADE WATERPROOFING SHALL BE THE PRODUCT OF ONE MANUFACTURER AND REPRESENT A SYSTEM OF PRODUCTS APPROPRIATE TO THE USE AND CRITERIA.

2. DESIGN IS BASED ON VAPORSEAL 240, A PRODUCT OF THE NOBLE COMPANY AND REPRESENTED BY MARON & ASSOCIATES, TARZANA, CALIFORNIA. ALTERNATE MANUFACTURER'S PRODUCTS OF EQUAL QUALITY AND PERFORMANCE WILL BE CONSIDERED FOR APPROVAL BY THE STRUCTURAL ENGINEER.

3. WATER TEST: AT TIME RECOMMENDED BY THE MANUFACTURER, PROVIDE WATER TEST OF TRENCH AND PIT WATERPROOFING: TEST PER APPROVED MANUFACTURER'S METHODS.

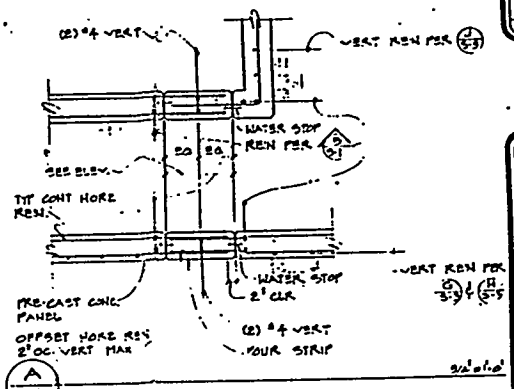
G. WATERSTOPS

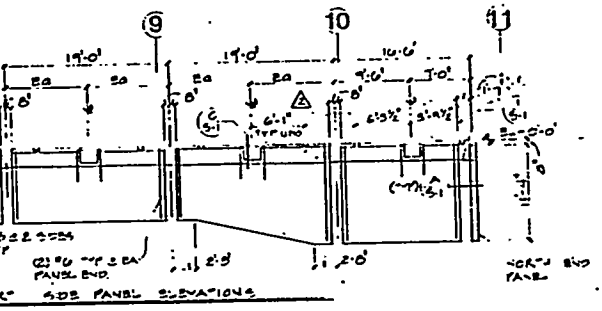
1. WATERSTOPS SHALL BE BURKE PRODUCT PVC WATERSTOP R38-9 WITH PREFABRICATED INTERSECTIONS OR EQUAL.

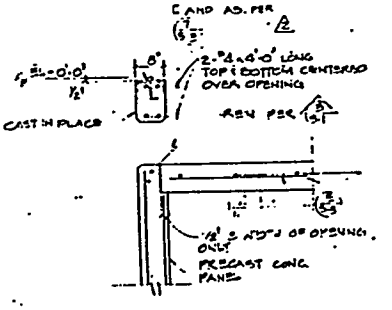
H. INSPECTIONS

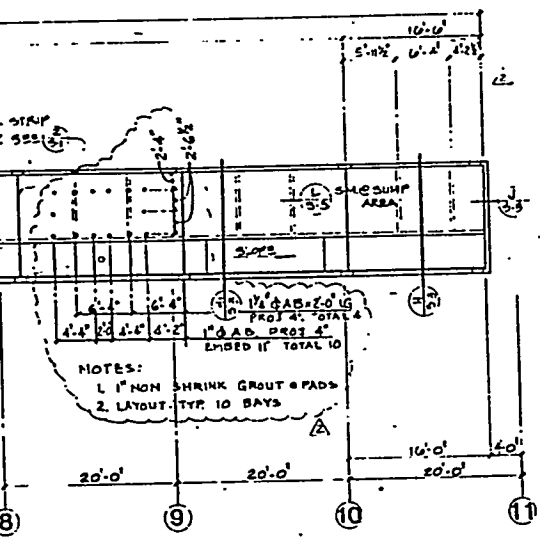
1. ALL SPECIAL INSPECTIONS SHALL BE MADE BY AN INSPECTOR APPROVED BY THE STRUCTURAL ENGINEER FOR THE FOLLOWING TYPES OF WORK:
   A. ALL CONCRETE WORK WITH STRENGTH GREATER THAN 2000 PSI.
   B. ALL FIELD WELDING.

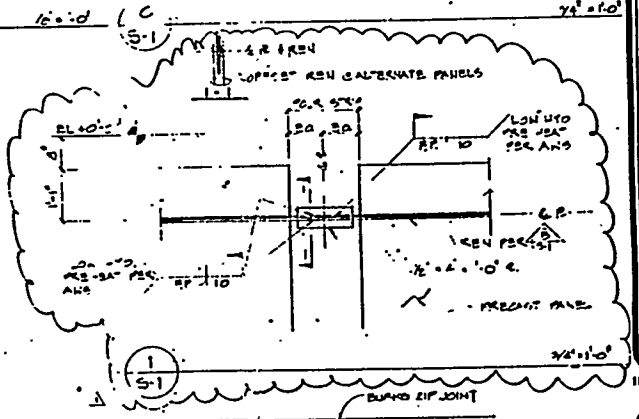
2. A WRITTEN REPORT SHALL BE SUBMITTED FOR THE ITEMS A & B ABOVE TO THE STRUCTURAL ENGINEER.

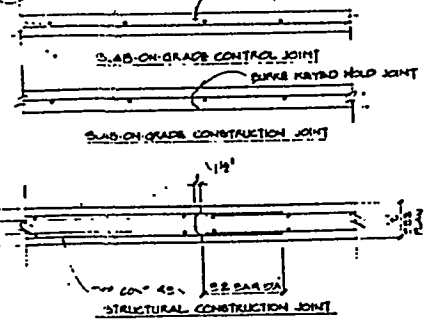












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HOWARD F. STUP & ASSOCIATES
Consulting Structural Engineers
CAMARILLO, CALIFORNIA
Howard Stup
11-11-82

2	CHANGE ORDER #2	07-83
1	CHANGE ORDER #1	01-83
△	description	date

REVISIONS

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DATE ISSUED
10/25/82

S.U.P. #989

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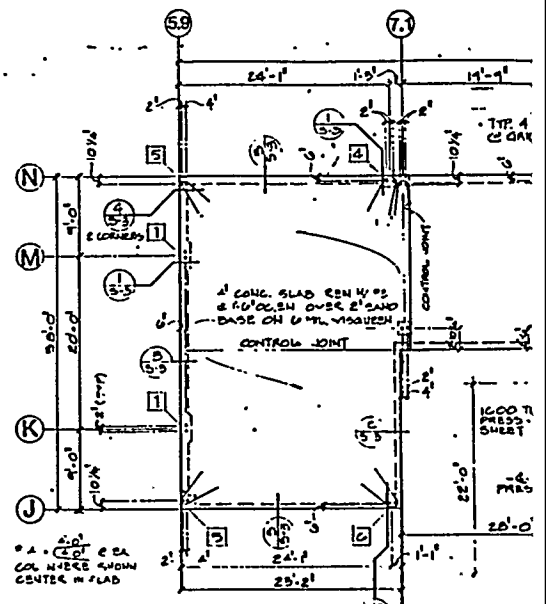
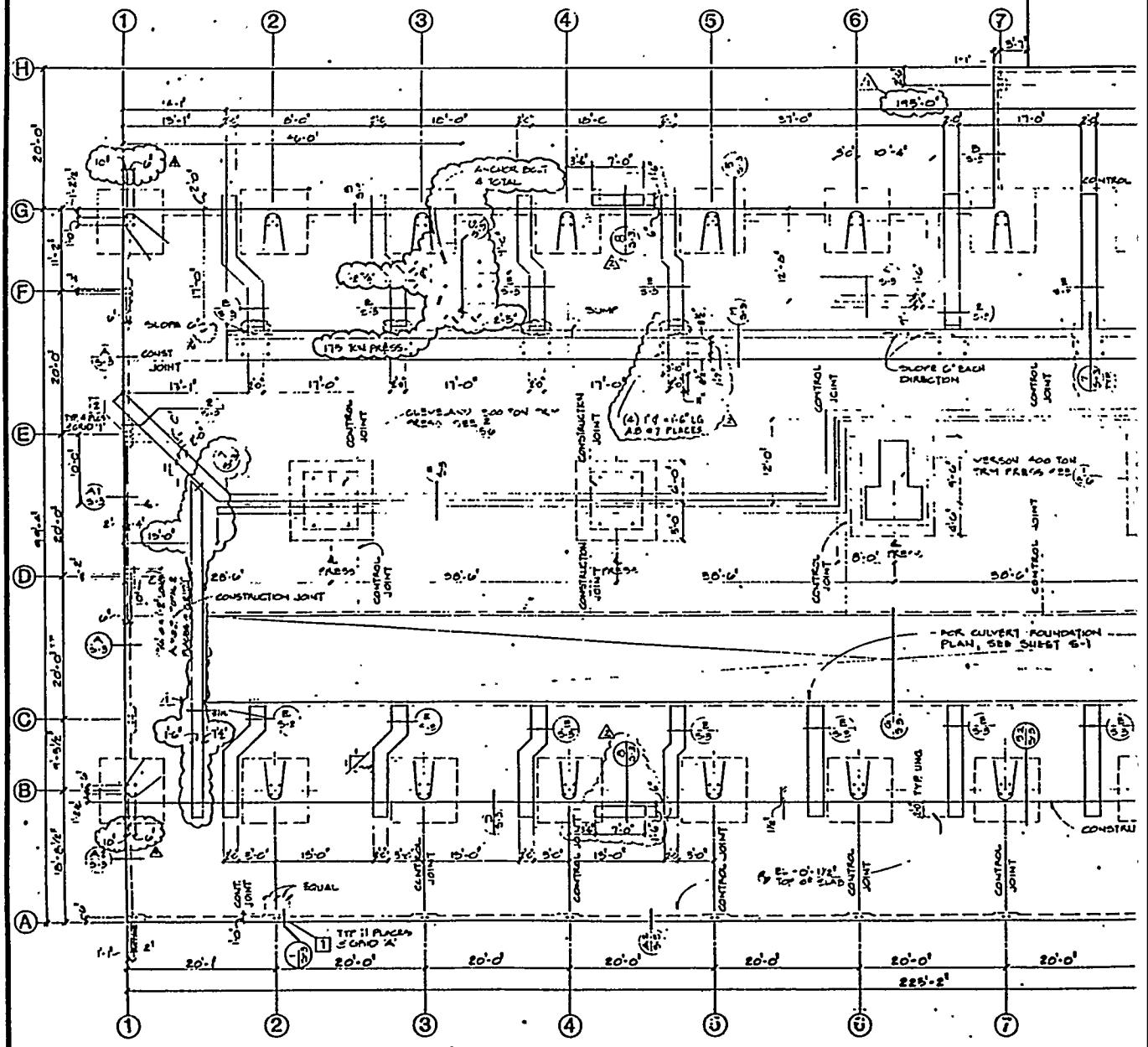
PROJECT
PRECISION FORGE COMPANY
PLANT RELOCATION
1235 E. WOOLEY RD.
OXNARD, CA.

SHEET TITLE
GENERAL NOTES, CULVERT FOUN. PLAN, PANEL ELEV.,

PROJECT NO. 8210130
DATE
SHEET NO. S-1
OF

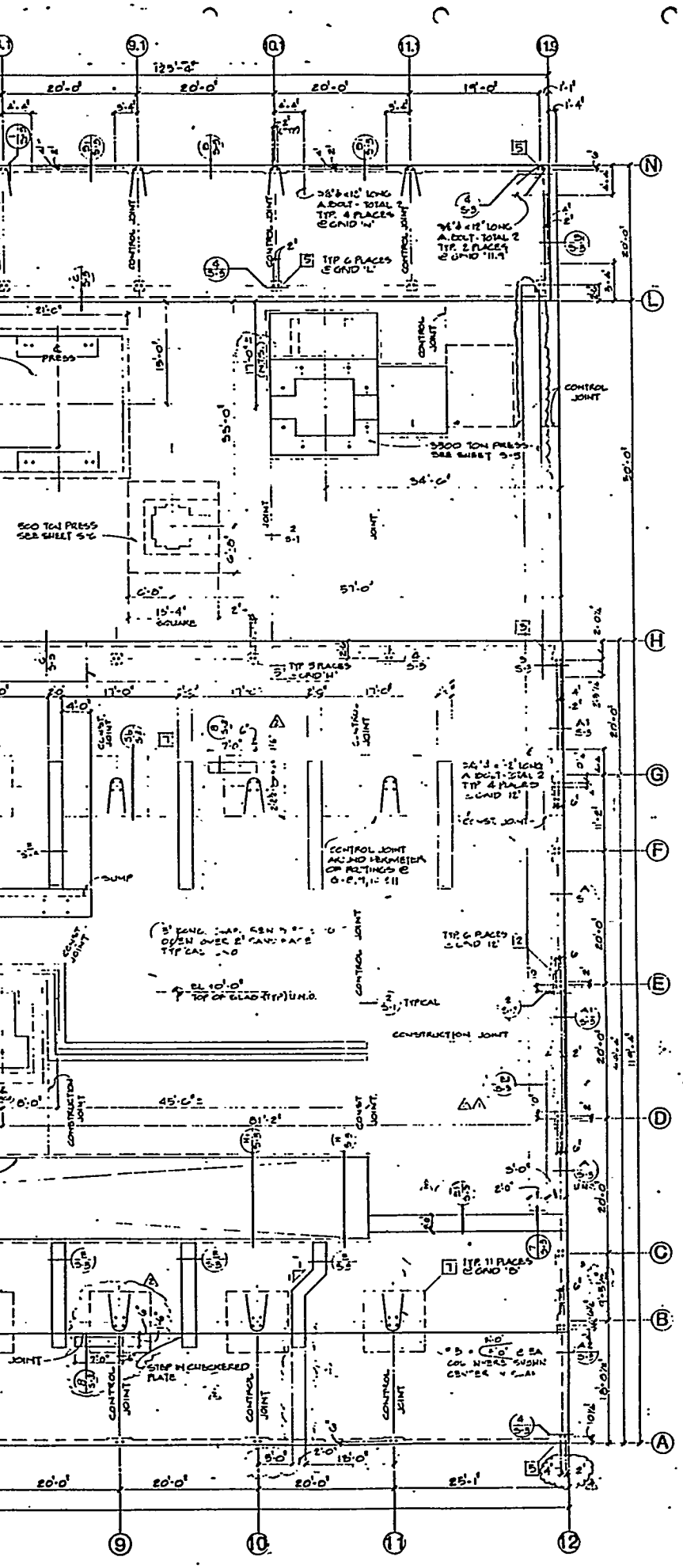
NO.	FOOTING SIZE LENGTH	WIDTH	THICKNESS	REINFORCING	COMMENTS
1	2'-6"	1'-0"	1'-3"	SEE 1/S-3	
2	2'-6"	1'-3"	1'-3"	SEE 2/S-3	
3	2'-6"	1'-0"	1'-3"	SEE 3/S-3	
4	4'-0"	1'-3"	1'-3"	SEE 2/S-3	AD PLACE. VARIES
5	1'-6"	1'-6"	1'-6"	SEE 4/S-3	
6	1'-9"	1'-9"	1'-6"	SEE 4/S-3	
7	9'-0"	9'-0"	1'-4"	11-#6 EA. WAY	





FOUNDATION PLAN

1/8" = 1'-0"



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Michael A. Curry A.I.A.
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Job captain: JOHN A MULLER

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HOWARD F. STUP & ASSOCIATES
Consulting Structural Engineers
CAMARILLO, CALIFORNIA
Howard Stup

	description	date
4	CHANGE ORDER No. 4	8-27-82
3	CHANGE ORDER NO. 3	[illegible]
2	CHANGE ORDER NO 2	[illegible]
1	CHANGE ORDER NO. 1.	10-8-82
0	description	date

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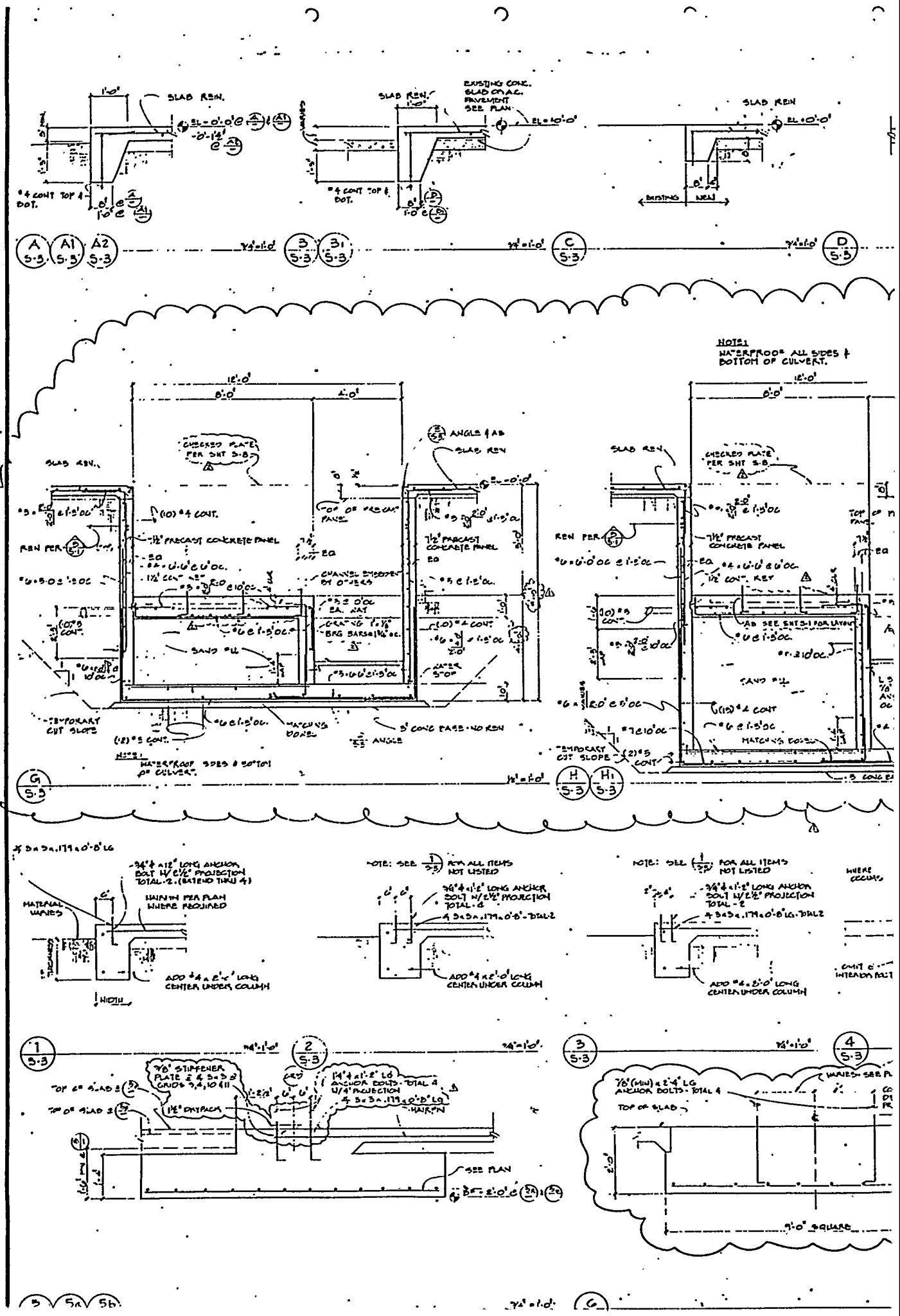
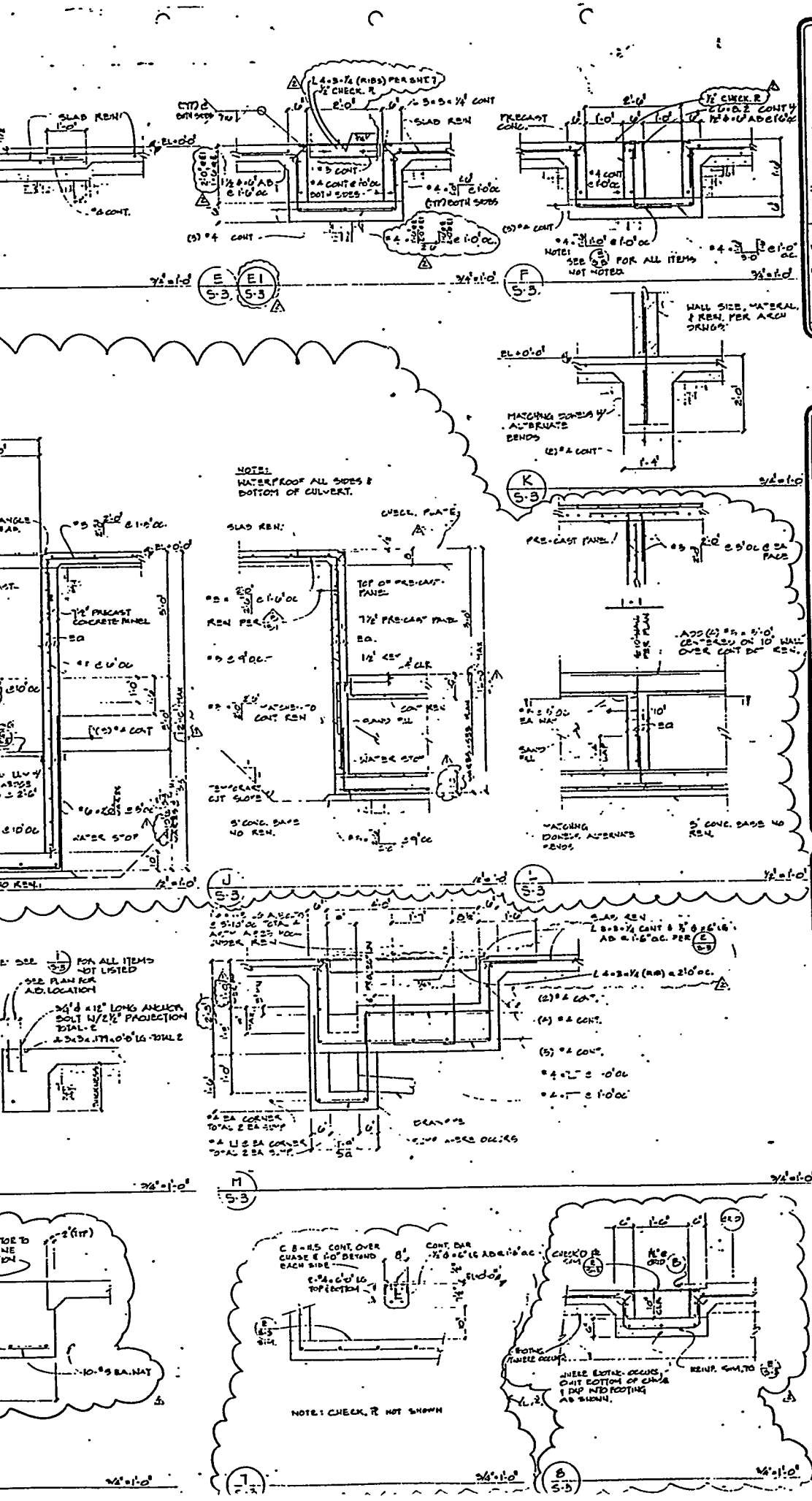
SHEET TITLE
FOUNDATION PLAN

PROJECT NO. 8210130
DATE
SHEET NO. S-2
OF


SLAB REIN.
EXISTING CONC. SLAB OR A.C. PAVEMENT SEE PLAN
#4 CONT TOP & BOT.
EXISTING NEW
NOTE: WATERPROOF ALL SIDES & BOTTOM OF CULVERT.
CHECKED PLATE PER SHT S-8
ANGLE & AB
7½" PRECAST CONCRETE PANEL
CHANNEL EMBEDDED BY OTHERS
SAND FILL
WATER STOP
TEMPORARY CUT SLOPE
MATCHING DOWEL
3" CONC BASE - NO REIN
NOTE: WATERPROOF SIDES & BOTTOM OF CULVERT.
MATERIAL VARIES
HAIRPIN PER PLAN WHERE REQUIRED
ADD #4 x 2'-0" LONG CENTER UNDER COLUMN
NOTE: SEE FOR ALL ITEMS NOT LISTED
3/4" x 1'-2" LONG ANCHOR BOLT W/ 2½" PROJECTION TOTAL - 4
3/4" x 1'-2" LONG ANCHOR BOLT W/ 2½" PROJECTION TOTAL - 2
3/8" STIFFENER PLATE
1½" DRYPACK
HAIRPIN
SEE PLAN
7/8" (MIN) x 2'-4" LG ANCHOR BOLTS - TOTAL 4
TOP OF SLAB
9'-0" SQUARE



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HOWARD F. STUP & ASSOCIATES
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CAMARILLO, CALIFORNIA

	description	date
2	CHANGE ORDER #2	02/83
1	CHANGE ORDER #1	04/82
0	REVISIONS	

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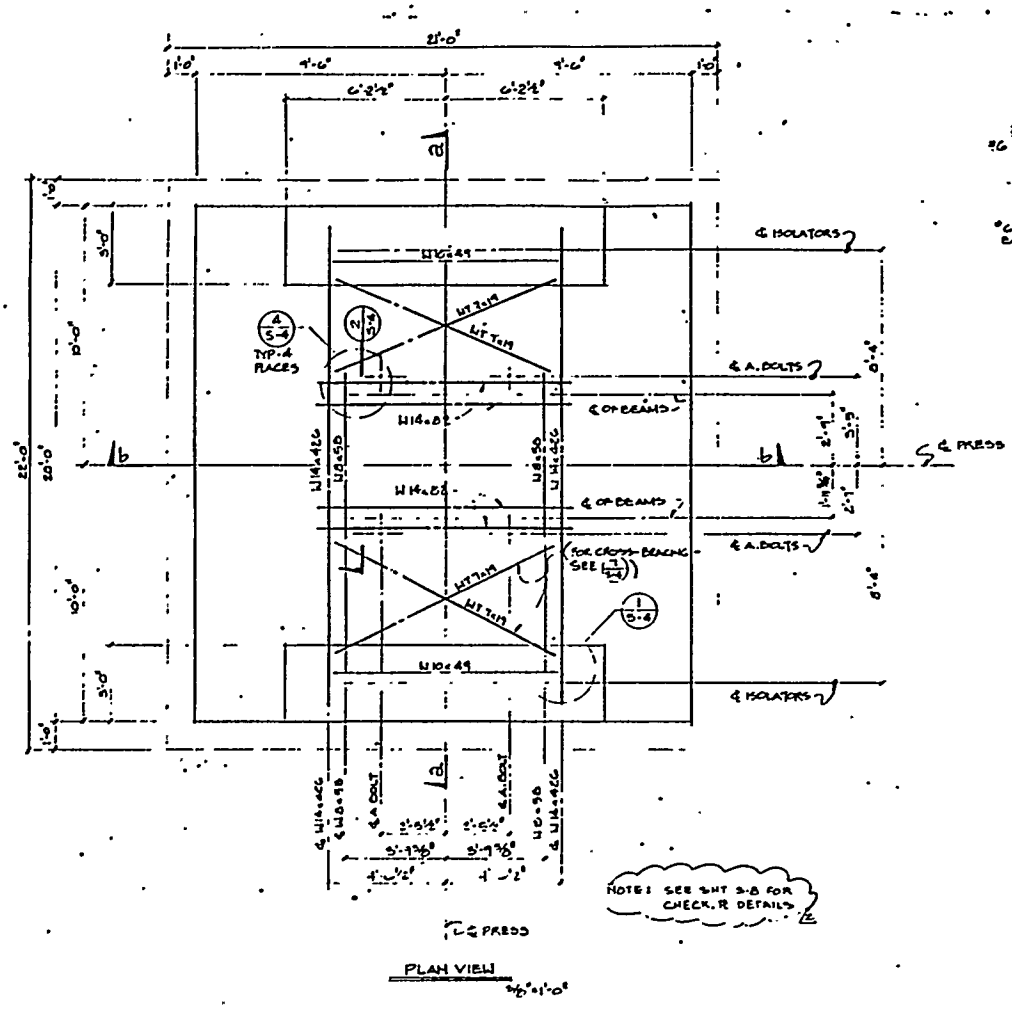
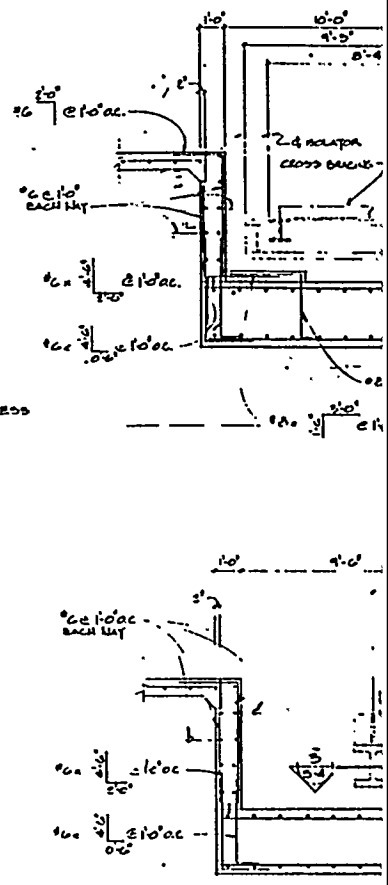
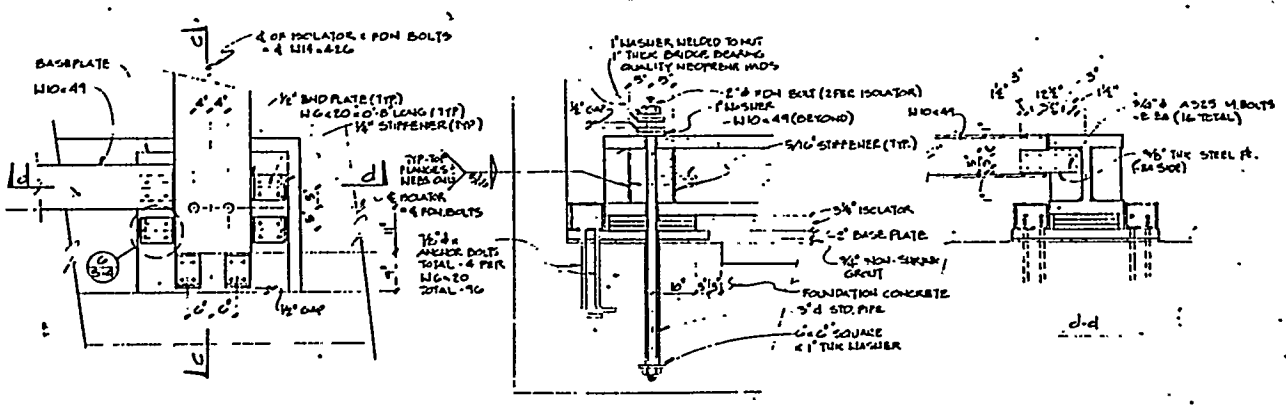
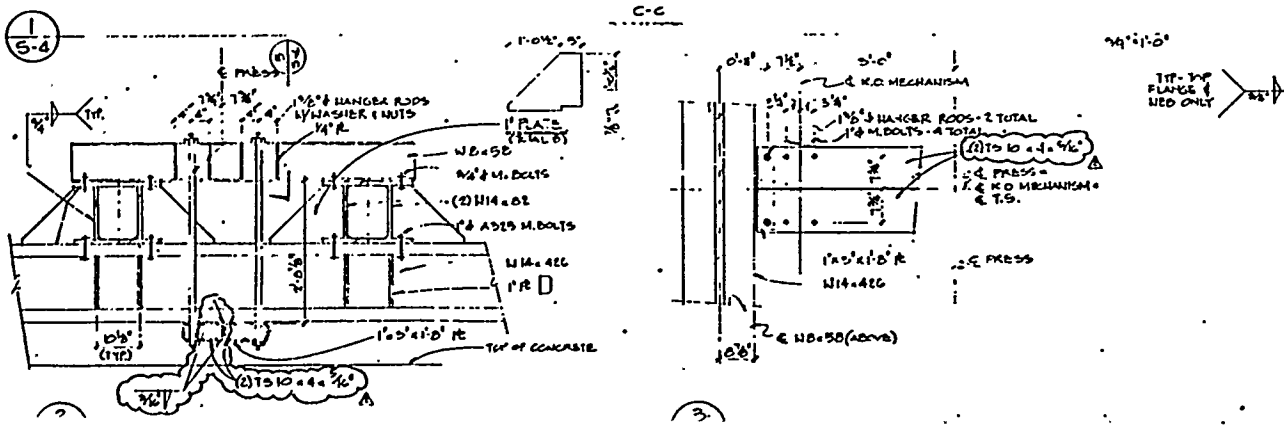
SHEET TITLE
FOUNDATION SECTIONS & DETAILS

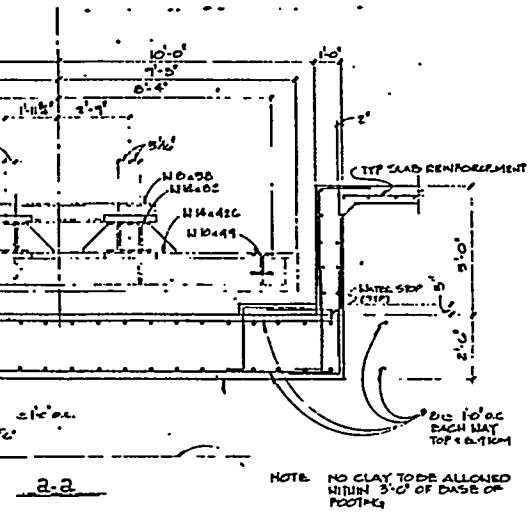
PROJECT NO.	SHEET NO.
8210130	S-3
DATE	OF


PLAN VIEW
℄ ISOLATORS
℄ A. BOLTS
℄ OF BEAMS
℄ PRESS
W10×49
W14×82
W14×426
W8×58
W7×19
TYP. 4 PLACES
(FOR CROSS-BRACING SEE 7/S-4)
NOTE: SEE SHT S-8 FOR CHECK. R DETAILS.


℄ ISOLATOR
CROSS BRACING
℄ 1'-0" ON EACH WAY
℄ 1'-0" ON EACH WAY


BASEPLATE
W10×49
℄ OF ISOLATOR & FDN BOLTS
℄ W14×426
½" END PLATE (TYP)
W6×20×0'-8" LONG (TYP)
¼" STIFFENER (TYP)
TYP. TOP FLANGES NEED ONLY
℄ ISOLATOR
℄ FDN. BOLTS
7½"ϕ ANCHOR BOLTS TOTAL - 4 PER W6×20 TOTAL - 96
1" WASHER WELDED TO NUT
1" THICK BRIDGE BEARING QUALITY NEOPRENE PAD'S
℄ FDN BOLT (2 PER ISOLATOR)
1" WASHER - W10×49 (BEYOND)
5/16" STIFFENER (TYP.)
5/8" ISOLATOR
2" BASE PLATE
½" NON-SHRINK GROUT
FOUNDATION CONCRETE
3"ϕ STD. PIPE
6"×6" SQUARE × 1" THK WASHER
C-C
W10×49
¾"ϕ A325 M. BOLTS - 8 EA (16 TOTAL)
⅝" THK STEEL PL. (EA SIDE)
d-d


1/5-4
℄ PRESS
1½"ϕ HANGER RODS W/WASHER & NUTS
¼" R
1" PLATE (2 REQ'D)
W8×58
¾"ϕ M. BOLTS
(2) W14×82
1"ϕ A325 M. BOLTS
W14×426
1" R
1'-0"×1'-0" PL
TOP OF CONCRETE
(2) TS 10×4×5/16"
℄ K.O. MECHANISM
1½"ϕ HANGER RODS - 2 TOTAL
1"ϕ M. BOLTS - 4 TOTAL
℄ PRESS = ℄ K.O. MECHANISM = ℄ T.S.
1"×5"×1'-0" PL
℄ W8×58 (ABOVE)
TYP. TOP FLANGE NEED ONLY
1" PLATE



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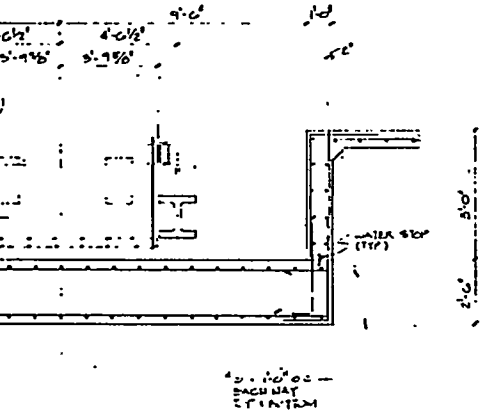

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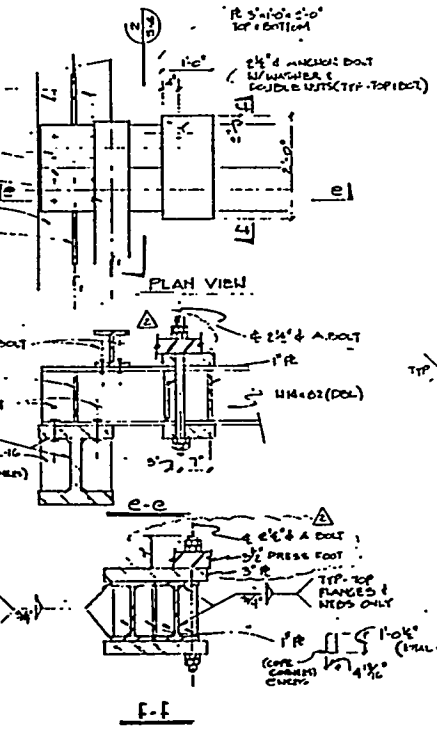
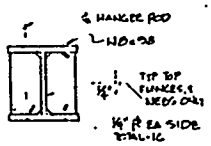
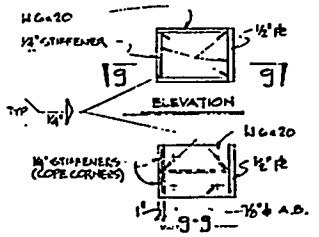
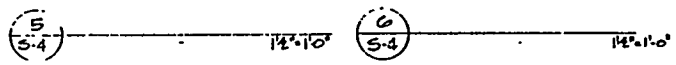
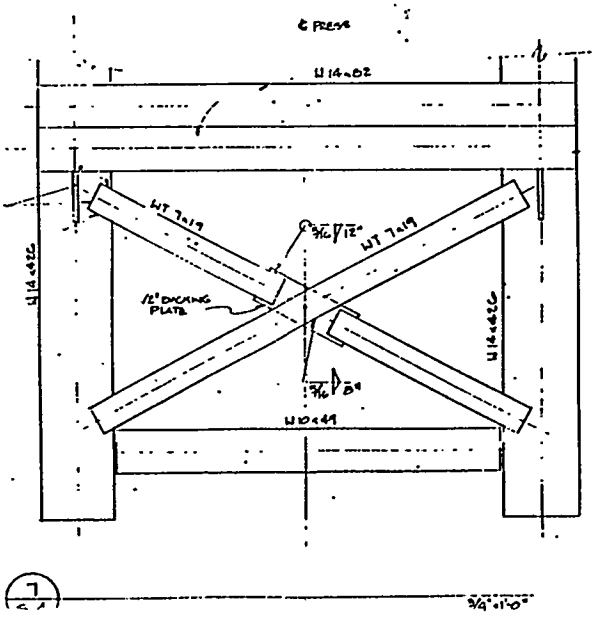


E-E









7

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SPECIAL NOTES

A. EXCAVATION AND BACKFILL:

1. PROVIDE SHEET-PILING OR OTHER SHORING SYSTEM TO RETAIN THE SIDES OF THE EXCAVATION. SYSTEM SHALL BE DESIGNED FOR EXCAVATING TO 10 FEET DEEP.
2. THE SYSTEM PROVIDED MUST BE ADEQUATE TO PREVENT MOVEMENT OF THE EXISTING COLUMN FOOTINGS AND WALL BEST OF THE PROPOSED EXCAVATION.
3. LOWER THE UNDERGROUND TO A MINIMUM DEPTH OF 12 FEET BELOW THE EXISTING FLOOR SLAB.
4. EXCAVATE TO A MINIMUM DEPTH OF 7'-6" BELOW THE EXISTING SURFACE.
5. PROBE 3 FEET BELOW THE BOTTOM OF THE EXCAVATION TO DETERMINE THE PRESENCE OF A SILT LENS (SEE TEST BORING #2 OF BURAL ENGINEERING'S SOILS REPORT). IF SILT LENS PRESENT, CONTINUE EXCAVATION TO BELOW SILT LENS, DOWN TO UNDERLYING SAND LAYER THEN BACKFILL WITH GRANULAR MATERIAL (GRAVEL RUN GRAVEL) TO A DEPTH OF 7'-6" BELOW THE EXISTING SLAB. BACKFILL SHALL BE PROPERLY PLACED AND COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY ASTM TEST PROCEDURE D1557 MODIFIED TO THREE LAYERS.

B. CONCRETE:

1. DESIGN, DETAILING, FABRICATION AND CONSTRUCTION SHALL BE PER ACI-318.
2. CONCRETE SHALL ATTAIN AN ULTIMATE COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
3. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.

C. STRUCTURAL STEEL:

1. STRUCTURAL STEEL SHALL BE A36 NORMALIZED STEEL.
2. SUBMERGED ARC WELDING WITH FTX-EXXX FLUX-ELECTRODE COMBINATION (ANS A5.17) IS RECOMMENDED.
3. DO NOT PROVIDE TRANSVERSE WELDS ON TENSION FLANGES.
4. STIFFENERS SHALL BE MILLED AND FITTED TO BEAR ON THE TENSION FLANGES.
5. CUT EDGES OF PLATES AND WELDS SHALL NOT EXCEED A.R.S.I. SURFACE ROUGHNESS VALUE OF 125 MICRO-INCHES.
6. TEN PERCENT(10%) OF WELDS SHALL BE ULTRASONICALLY TESTED BY A QUALIFIED TESTING LABORATORY PER AWS D1.1. IF DEFECTIVE, ALL WELDS SHALL BE TESTED AND CORRECTED FOR COMPLIANCE WITH D1.1. TEST REPORTS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER.
7. ALL WELDS SHALL BE VISUALLY INSPECTED BY A SPECIAL INSPECTOR.
8. SHOP DRAWINGS SHALL BE SUBMITTED TO STRUCTURAL ENGINEER PRIOR TO FABRICATION.

D. ISOLATORS:

1. ISOLATORS SHALL BE MANUFACTURED BY INTERACTIVE TECHNOLOGY CORPORATION, LONG BEACH, NEW YORK. ISOLATORS SHALL BE COMPOSED OF NEOPRENE BRIDGE BEARING PADS AND STEEL SPACER PLATES.

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Howard F. Stup
S2:1084 11-11-82

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3	CHANGE ORDER #1	11-8-82
2	(NEW REVISION)	date

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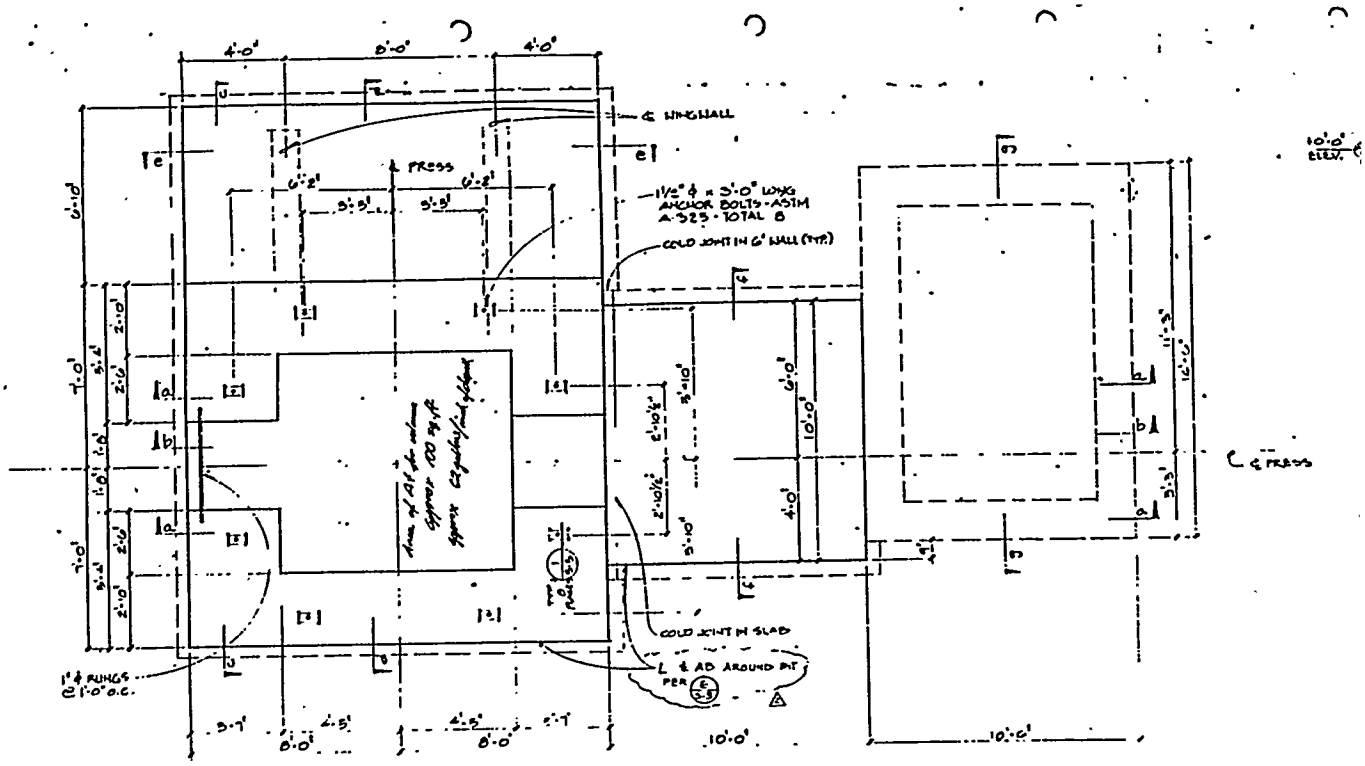
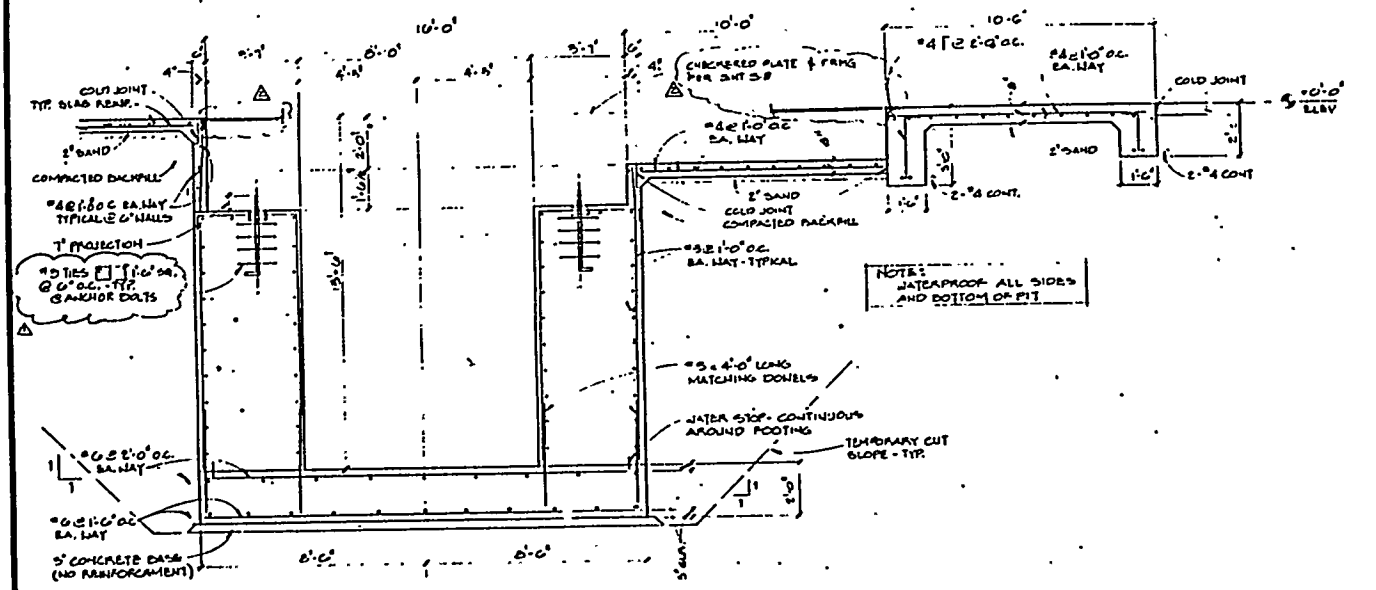


ERIE 3500 TON PRESS PLAN VIEW 3/8"=1'-0"



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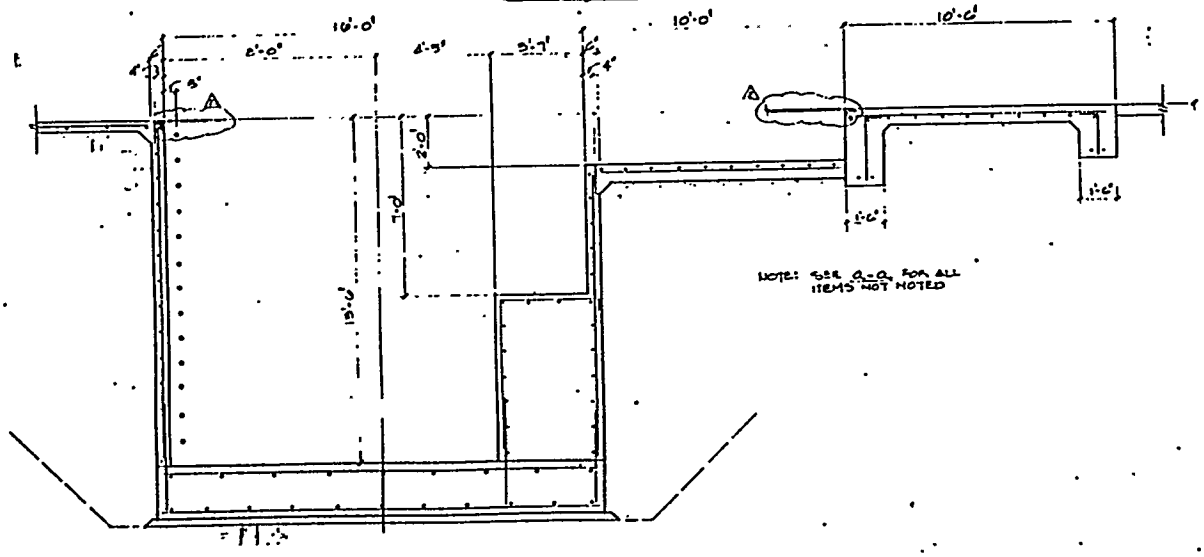

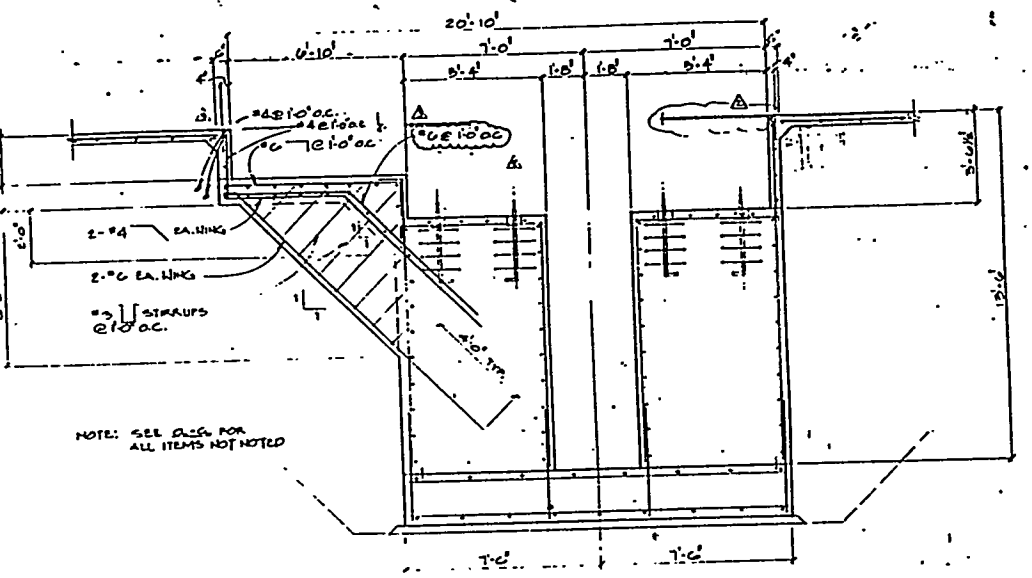

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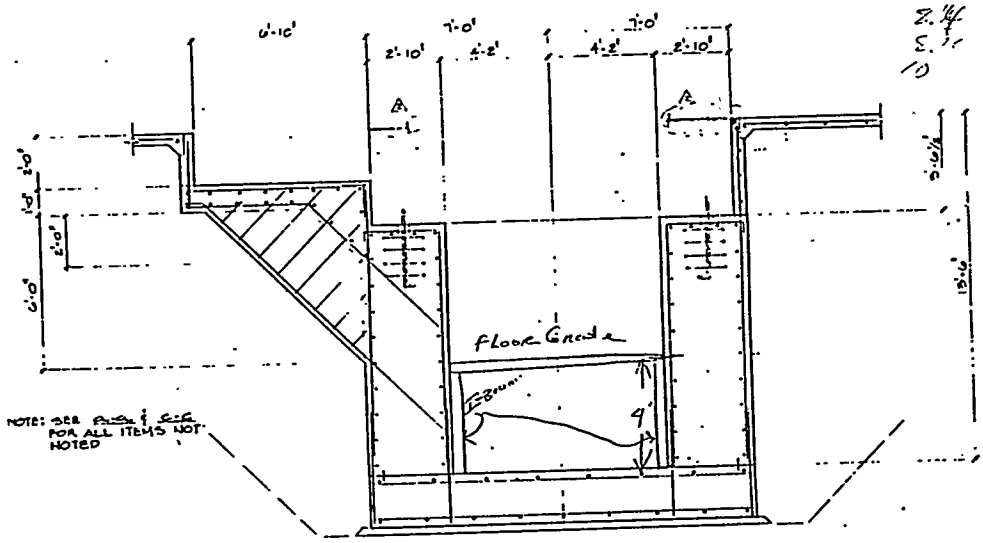

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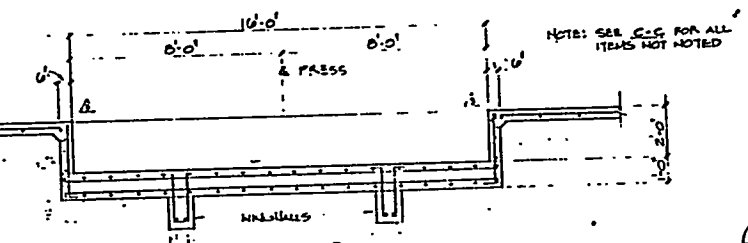

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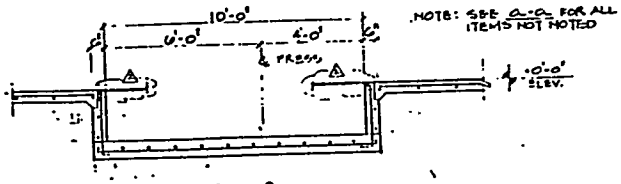

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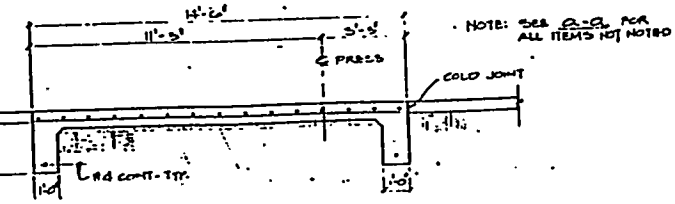

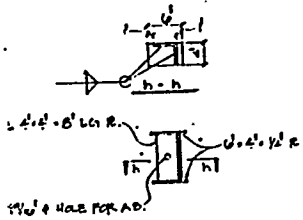

1
S-5

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Consulting Structural Engineers
CAMARILLO, CALIFORNIA
Howard F. Stup
SE 1884
11-11-82

	description	date
3	CHANGE ORDER NO. 3	4-11-83
2	CHANGE ORDER NO 2	10-4-82
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8210130	S-5
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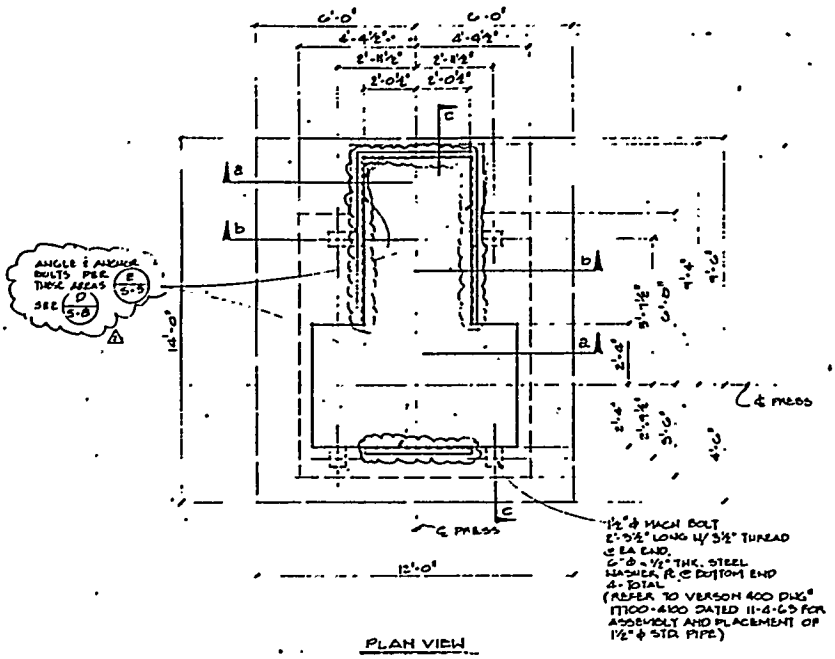
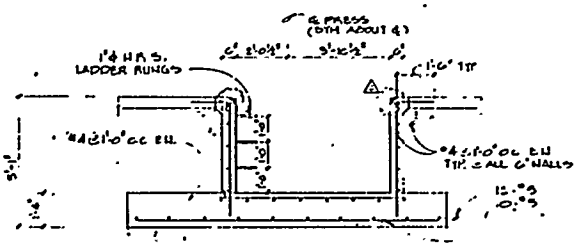


PLAN VIEW



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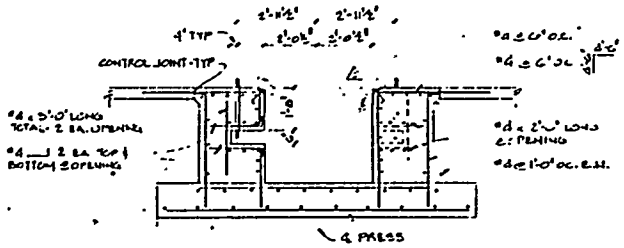

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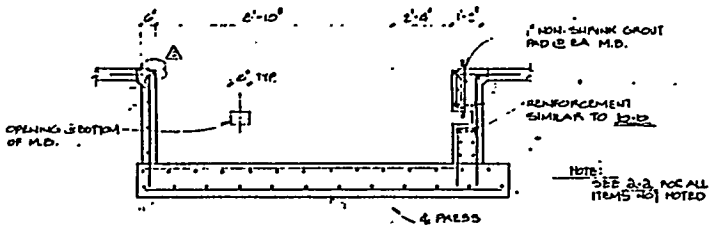
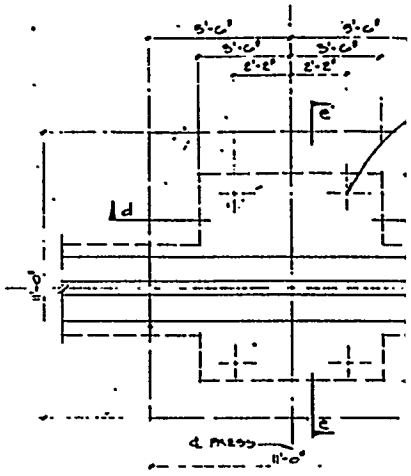


c-c

1/5-6 VERSON 400 TON PRESS 3/8" = 1'-0"



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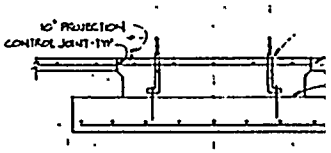

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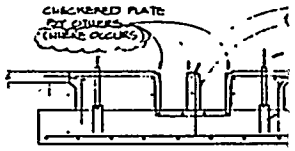
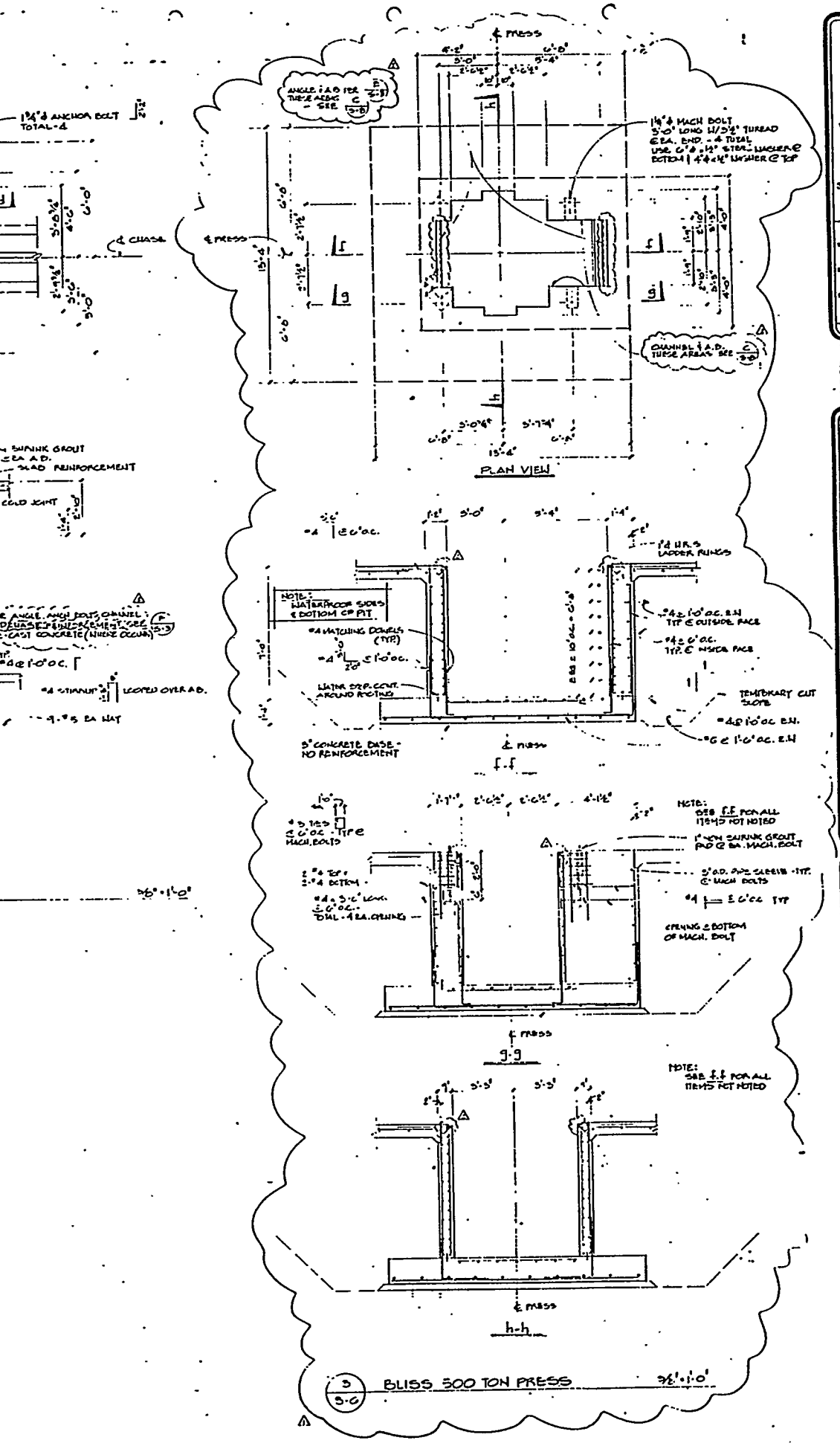


e-e

2/5-6 CLEVELAND 300 TON PRE



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CAMARILLO, CALIFORNIA

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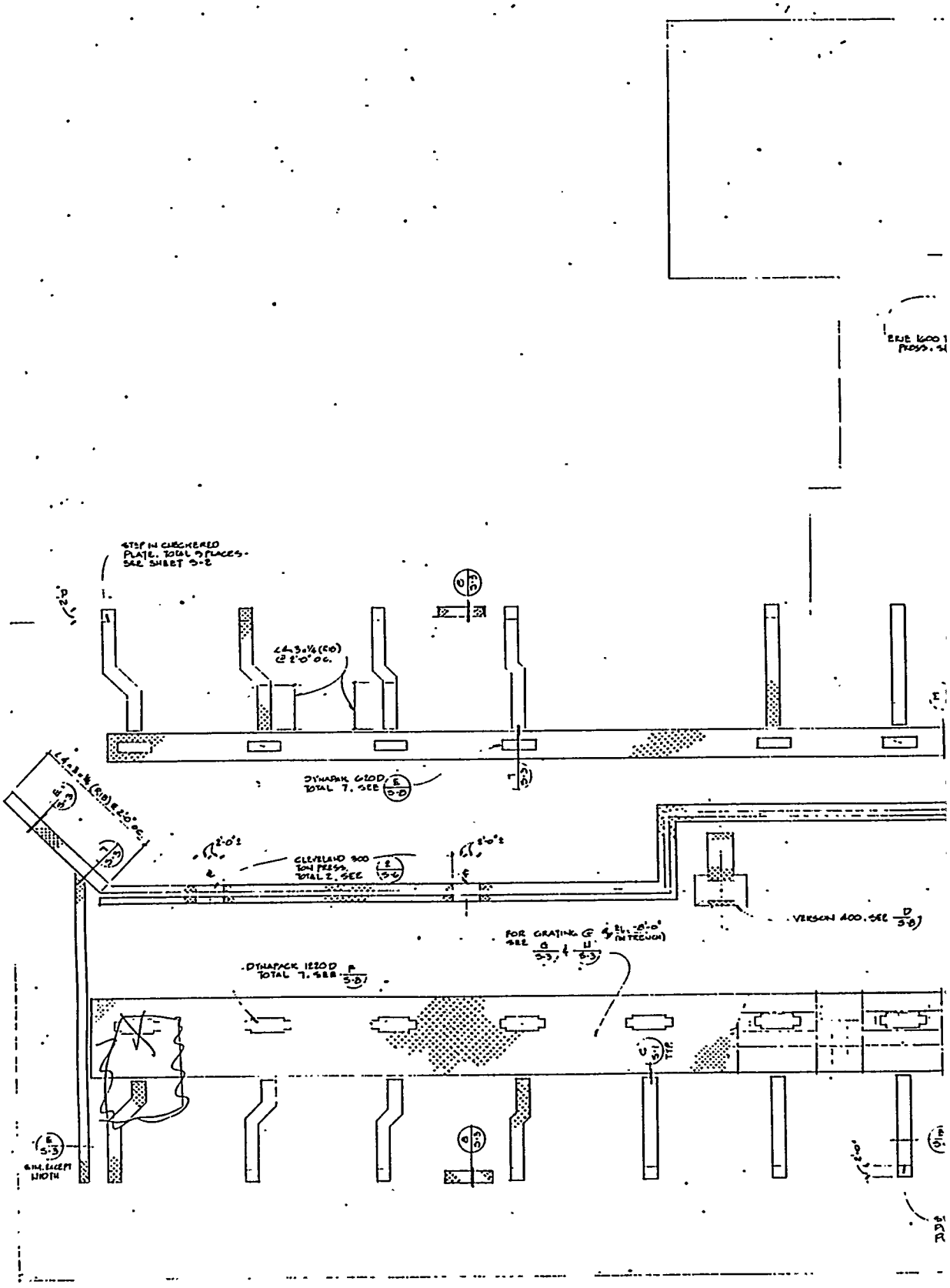
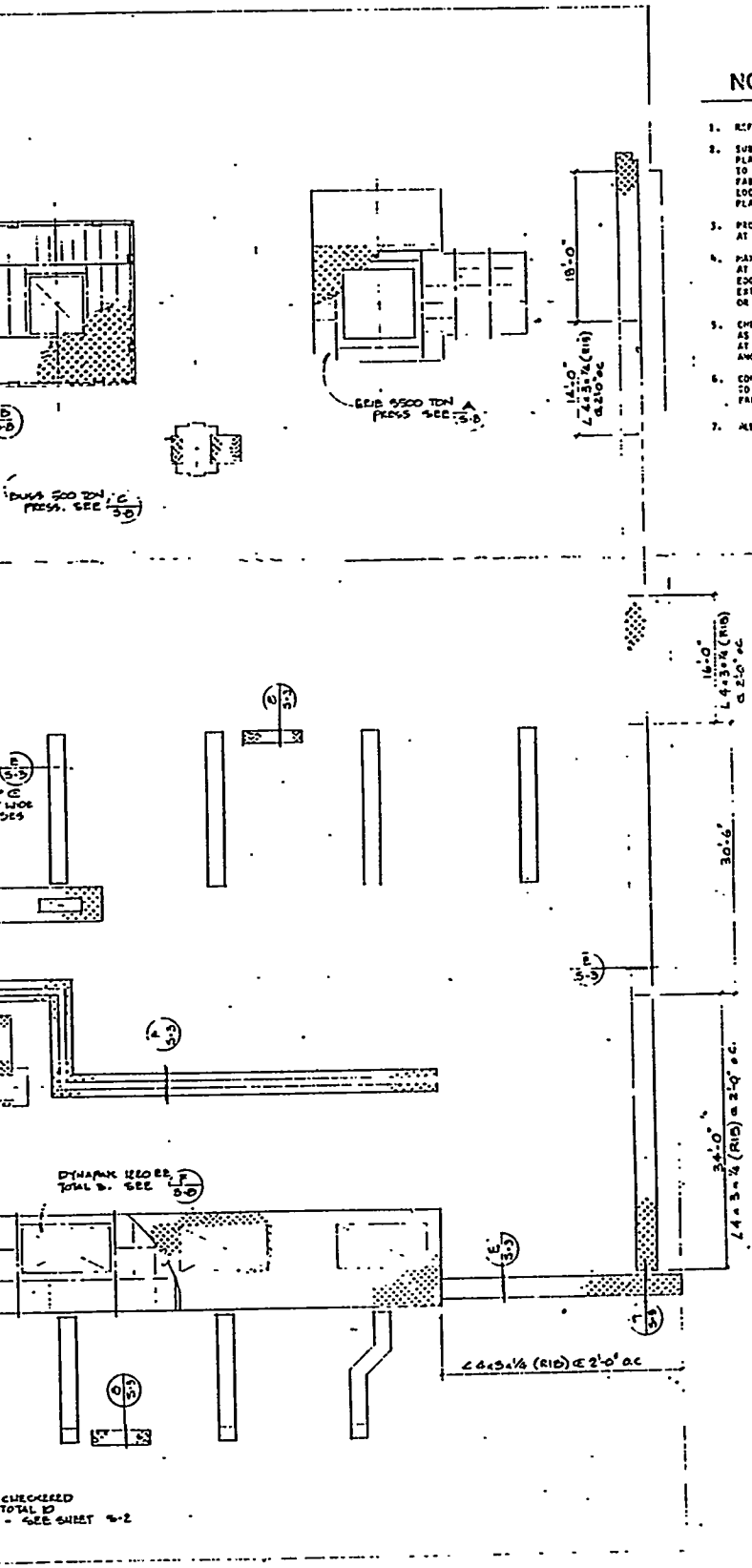
SHEET TITLE
VERSON 400 TON
CLEVELAND 800 TON
BLISS 500 TON

PROJECT NO. 8210130
DATE
SHEET NO. S-6
OF


STEP IN CHECKERED PLATE. TOTAL 5 PLACES. SEE SHEET S-2
DYNAPAK 620D TOTAL 7. SEE
CLEVELAND 300 TON PRESS. TOTAL 2. SEE
VERSON 400. SEE
FOR GRATING @ SEE
DYNAPACK 1220D TOTAL 7. SEE
SIM. EXCEPT WIDTH



NOTES

1. REFER TO SHEET S-1 GENERAL NOTES.
2. SUBMIT SHOP DRAWINGS OF CHECKERED PLATE AND CHECKERED PLATE FRAMING TO STRUCTURAL ENGINEER PRIOR TO FABRICATION. DRAWINGS SHALL INCLUDE LOCATION OF ALL PLATE JOINTS AND PLATE BOLTS.
3. PROVIDE 1/2" DIAMETER FLATHEAD BOLTS AT 2'-0" O.C. AT ALL PLATE JOINTS.
4. MAXIMUM GAP BETWEEN CHECKERED PLATE AT JOINTS SHALL BE 1/2" AND AT ALL OTHER EDGES SHALL BE 1/4". ANGLE (RIBS) SHALL EXTEND TO WITHIN 1" OF FACE OF CONCRETE OR STEEL BEAM.
5. CHECKERED PLATE JOINTS SHALL BE SEPARATED AS FAR AS POSSIBLE AND BE LOCATED ONLY AT W-BEAMS AND AT ANGLE (RIBS) WHERE ANGLES ARE PLACED 3"± ON EACH SIDE.
6. CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
7. ALL CHECKERED PLATE SHALL BE 1/2" THICK STEEL.

W. JOHN KULWIEC
A.I.A. & ASSOC.
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330 NORTH WOOD ROAD, SUITE D
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job captain: JOHN A MULLER

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HOWARD F. STUP & ASSOCIATES
Consulting Structural Engineers
CAMARILLO, CALIFORNIA
Howard F. Stup
S.E. 1884 8-11-82

2	CHANGE ORDER #2	10.29.82
1	description	date

REVISIONS

PRINTED
FEB 01 1983
W.J.K. A.I.A.

DATE ISSUED
10/25/82

S.U.P. #989

IF THIS SHEET IS NOT 30" X 42" IT IS A REDUCED PRINT.

PROJECT
PRECISION FORGE COMPANY
PLANT RELOCATION
1235 E. WOOLEY RD.
OXNARD, CA.

SHEET TITLE
CHECKERED PLATE LAYOUT

PROJECT NO.	SHEET NO.
8210130	S-7
DATE	OF

Appendix F

Hazardous Materials Map
&
Hazardous Materials Chemical Descriptions

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : OXYGEN CAS # : 7782-44-7
Chemical Name : LIQUID OXYGEN UN/NA # : 1072/1073

Solid [ ] Liquid [X] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [X]

Maximum Daily Amount 13,500 # Days on Site : 365
Average Daily Amount 9,000 Largest Container on-sit (Amount): 4,500

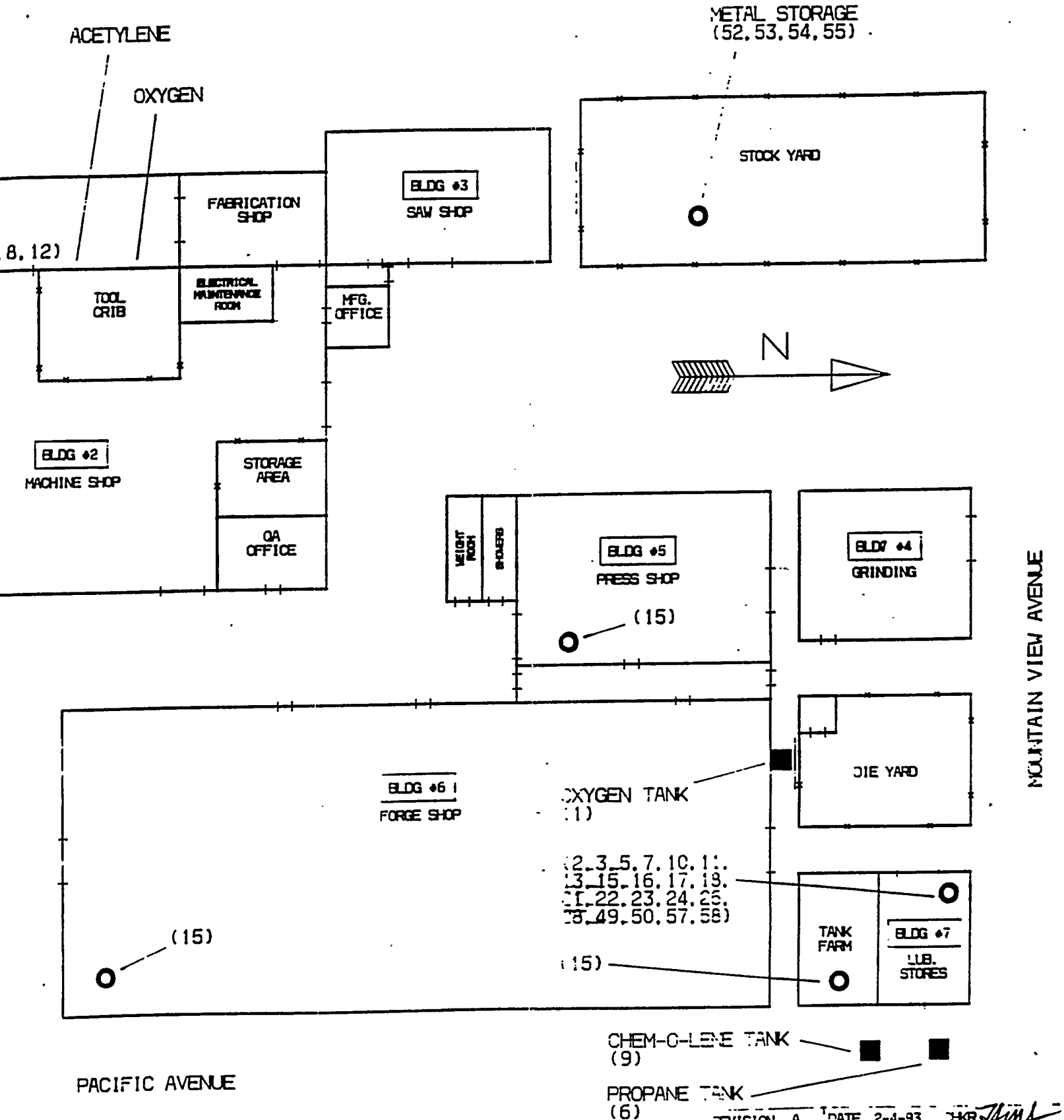
STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
8	L	2	4	WEST SIDE OF BLDG. 2 BY FAB SHOP

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : OXYGEN
CAS # : 7782-44-7 % WT : 100
2. Name :
CAS # : % WT :
3. Name :
CAS # : % WT :

Certification :
DATE : 11/18/93
NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

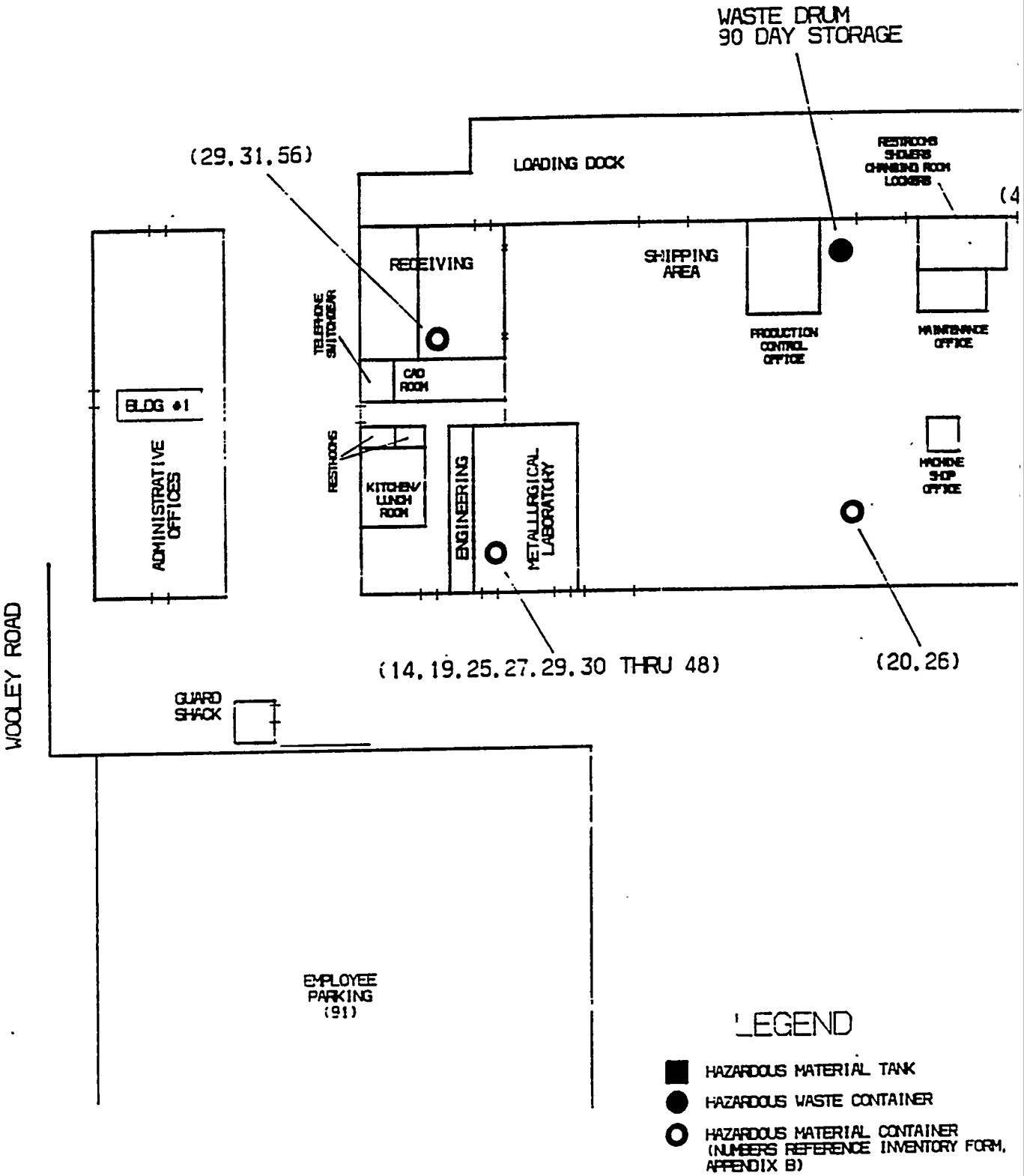


REVISION A DATE 2-4-93 CHKR

SIZE TITLE

B HAZARDOUS MATERIALS MAP

CATIA/AIX VERSION 3 REL.1.0 PTF 3 SCALE N/A


WASTE DRUM
90 DAY STORAGE
(29, 31, 56)
LOADING DOCK
RESTROOMS
SHOWERS
CHANGING ROOM
LOCKERS
(4
RECEIVING
SHIPPING
AREA
TELEPHONE
SWITCHGEAR
CAD
ROOM
PRODUCTION
CONTROL
OFFICE
MAINTENANCE
OFFICE
BLDG #1
ADMINISTRATIVE
OFFICES
RESTROOMS
KITCHEN/
LUNCH
ROOM
ENGINEERING
METALLURGICAL
LABORATORY
MACHINE
SHOP
OFFICE
WOOLEY ROAD
(14, 19, 25, 27, 29, 30 THRU 48)
(20, 26)
GUARD
SHACK
EMPLOYEE
PARKING
(91)
LEGEND
HAZARDOUS MATERIAL TANK
HAZARDOUS WASTE CONTAINER
HAZARDOUS MATERIAL CONTAINER
(NUMBERS REFERENCE INVENTORY FORM,
APPENDIX B)

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : MOBIL DIESEL FUEL CAS # : 68334-30-5

Chemical Name : PETROLEUM DISTILLATE UN/NA # : 1268

Solid [ ] Liquid [X] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 30 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : PETROLEUM DISTILLATE
   CAS # : 8030-30-6 % WT : 100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : SHELL TELLUS T OIL 100 CAS # : _____

Chemical Name : PETROLEUM HYDROCARBONS UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 440 # Days on Site : 365

Average Daily Amount 385 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : SOLVENT REFINED HYDROTREATED HEAVY PARAFFINIC DISTILLATE
   CAS # : 64742-54-7 % WT : 80-85
2. Name : SOLVENT REFINED HYDROTREATED RESIDUAL OIL
   CAS # : 64742-57-0 % WT : 10-15
3. Name : ADDITIVE PACKAGE
   CAS # : _____ % WT : <5

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : CARBON DIOXIDE, SOLID CAS # : 124-38-9

Chemical Name : SAME UN/NA # : 1845

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [X]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [X]

Maximum Daily Amount 280 # Days on Site : 365

Average Daily Amount 280 Largest Container on-sit (Amount): 280

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
8	L	2	4	WEST SIDE OF BLDG. 2
				NEAR FAB SHOP

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : CARBON DIOXIDE
   CAS # : 124-38-9 % WT : 100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : MOBIL DTE OIL HEAVY CAS # : _____

Chemical Name : REFINED MINERAL OIL UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 40 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : REFINED MINERAL OILS
   CAS # : SEQ-73-1 % WT : >95
2. Name : ADDITIVES/OTHERS
   CAS # : _____ % WT : <5
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : PROPANE CAS # : 74-98-6
Chemical Name : PROPANE UN/NA # : 1075

Solid [ ] Liquid [X] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [X]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 1,125 # Days on Site : 365
Average Daily Amount 800 Largest Container on-sit (Amount): 1,125

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
3	A	2	4	BEHIND BUILDING 3

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : PROPANE
CAS # : 74-98-6 % WT : 100
2. Name :
CAS # : % WT :
3. Name :
CAS # : % WT :

Certification :
DATE : 11/18/93
NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : SHELL OMALA OIL 220 CAS # : _____

Chemical Name : PETROLEUM HYDROCARBONS UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 40 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : SOLVENT REFINED HYDROTREATED HEAVY PARAFFINIC DISTILLATE
   CAS # : 64742-54-7 % WT : 34-40
2. Name : SOLVENT REFINED HYDROTREATED RESIDUAL OIL
   CAS # : 64742-57-0 % WT : 57-63
3. Name : MINOR ADDITIVES
   CAS # : _____ % WT : <3

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : ARGON CAS # : 7440-37-1
Chemical Name : LIQUID ARGON UN/NA # : UN 1006

Solid [ ] Liquid [X] Gas [ ] Pure [X] Mixture [ ] Waste [ ]
If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [X]

Maximum Daily Amount 336 # Days on Site : 365
Average Daily Amount 336 Largest Container on-sit (Amount): 336

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
8	L	2	4	WEST SIDE OF BLDG. 2 BY FAB SHOP

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : ARGON
CAS # : 7440-37-1 % WT : 100
2. Name : _____
CAS # : _____ % WT : _____
3. Name : _____
CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : CHEM-O-LENE PLUS FUEL GAS CAS # : 74-98-6

Chemical Name : PROPANE MIXTURE UN/NA # : 1954

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL

Fire [X] Reactive [ ]

Sudden Pressure Releas [X]

HEALTH

Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE

Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 1,300 # Days on Site : 365

Average Daily Amount 1,150 Largest Container on-sit (Amount): 1,300

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
2	A	2	4	East side of building 7
				Behind drum storage bldg.

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : PROPANE
   CAS # : 74-98-6 % WT : _____
2. Name : ETHANE
   CAS # : 74-84-0 % WT : _____
3. Name : PROPYLENE
   CAS # : 115-07-1 % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : MOBIL DTE OIL LIGHT CAS # : _____

Chemical Name : REFINED MINERAL OILS UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 30 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : REFINED MINERAL OILS
   CAS # : SEQ-73-1 % WT : >95
2. Name : ADDITIVES/OTHERS
   CAS # : _____ % WT : <5
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : CUTZOL EDM 30 CAS # : 8030-30-6

Chemical Name : MACHINE SHOP FLUID UN/NA # : 1268

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL

Fire [X] Reactive [ ]

Sudden Pressure Releas [ ]

HEALTH

Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE

Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 30 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE :

List the three most Hazardous Components (by weight)

1 . Name : PETROLEUM SOLVENT

CAS # : 64742-47-8 % WT : 30-60

2 . Name :

CAS # : % WT :

3 . Name :

CAS # : % WT :

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : NITROGEN CAS # : 7727-37-9
Chemical Name : NITROGEN UN/NA # : 1977

Solid [ ] Liquid [X] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [X]

Maximum Daily Amount 304 # Days on Site : 365
Average Daily Amount 304 Largest Container on-sit (Amount): 304

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
8	L	2	4	WEST SIDE OF BLDG. 2 BY FAB SHOP

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : NITROGEN
CAS # : 7727-37-9 % WT : 100
2. Name :
CAS # : % WT :
3. Name :
CAS # : % WT :

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : LUBRIZOL 5178 CAS # : _____

Chemical Name : Antiwear Hydraulic Oil Additive UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 50 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
7	E	1	4	DRUM STORAGE AREA, BLDG. 7

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : Zinc Dithiophosphate
   CAS # : 19210-05-1 % WT : 30-60
2. Name : Butylated Phenol
   CAS # : _____ % WT : 10-30
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : AMMONIUM HYDROXIDE CAS # : 1336-21-6

Chemical Name : Ammonium Hydroxide UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 500 # Days on Site : 365

Average Daily Amount 500 Largest Container on-sit (Amount): 500

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	Metlab-across from fumehood
				upper cabinet

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : Ammonium hydroxide
   CAS # : 1336-21-6 % WT : 20-30
2. Name : Water
   CAS # : _____ % WT : 70-80
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : SHELL TELLUS T OIL 46 CAS # : _____

Chemical Name : PETROLEUM HYDROCARBON UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 10,000 # Days on Site : 365

Average Daily Amount 8,000 Largest Container on-sit (Amount): 10,000

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
7	A	1	4	TANK FARM BETWEEN BLDG. 6 & 7

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : SOLVENT REFINED HYDROTREATED HEAVY PARAFFINIC DISTILLATE
   CAS # : 64742-54-7 % WT : >95
2. Name : ADDITIVE PACKAGE
   CAS # : _____ % WT : <5
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : SHELL TURBO T OIL 68 CAS # : _____

Chemical Name : PETROLEUM HYDROCARBONS UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 30 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : SOLVENT REFINED HYDROTREATED HEAVY PARAFFINIC DISTILLATE
   CAS # : 64742-54-7 % WT : 99
2. Name : MINOR ADDITIVES
   CAS # : _____ % WT : <1
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : BIOBAN TS CAS # : _____

Chemical Name : Substituted Amine UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ]

If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 50 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	Drum storage area, bldg. 7

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : 4-(2-Nitrobutyl) Morpholine
   CAS # : 2224-44-4 % WT : 31
2. Name : 4,4'-(2-Ethyl-2Nitrotrimethylene) Dimorpholine
   CAS # : 1854-23-5 % WT : 9
3. Name : Tripropylene Glycol Methyl Ether
   CAS # : 20324-33-8 % WT : 55

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : AMMONIUM FLUORIDE CAS # : 12125-01-8

Chemical Name : Neutral Ammonium Fluoride UN/NA # : UN 2505

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 500 grams # Days on Site : 365

Average Daily Amount 500 Largest Container on-sit (Amount): 500

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	Metlab-under fumehood, Rt. cabinet

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : Ammonium fluoride
   CAS # : 12125-01-8 % WT : 90-100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : UNOCAL WAY OIL HD 68 CAS # : _____

Chemical Name : PETROLEUM HYDROCARBONS UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 110 # Days on Site : 365

Average Daily Amount 90 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : INDUSTRIAL OILS
   CAS # : _____ % WT : 100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : MOBIL DTE 24 CAS # : _____
Chemical Name : REFINED MINERAL OILS UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 110 # Days on Site : 365
Average Daily Amount 85 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : REFINED MINERAL OILS
   CAS # : SEQ-73-1 % WT : >95
2. Name : ADDITIVES/OTHERS
   CAS # : _____ % WT : <5
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

2

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : SHELL AUTOMATIC TRANSMISSION FLUID DEXRON II CAS # : _____

Chemical Name : PETROLEUM HYDROCARBON UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 40 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : SOLVENT REFINED HYDROTREATED HEAVY PARAFFINIC DISTILLATE
   CAS # : 64742-54-7 % WT : 35-65
2. Name : SOLVENT REFINED HYDROTREATED MIDDLE DISTILLATE
   CAS # : 64742-46-7 % WT : 0-36
3. Name : SEVERELY HYDROTREATED LIGHT NAPHTHENIC DISTILLATE
   CAS # : 64742-53-6 % WT : 0-36

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

2

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : MOBIL DELVAC 1230 CAS # : _____
Chemical Name : REFINED MINERAL OILS UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365
Average Daily Amount 30 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BUILDING

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : HEAVY PARAFFINIC DISTILLATES, RESIDUAL OILS, LUBE OILS
   CAS # : 64742-54-7 % WT : >90
2. Name : POLYOLEFIN AMIDE ALKENEAMINE
   CAS # : 86-903 % WT : <3
3. Name : HOMOPOLYMER BUTENE
   CAS # : 9003-29-6 % WT : <2

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

2

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : HYDROGEN PEROXIDE 35% CAS # : 7722-84-1

Chemical Name : Hydrogen Peroxide UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL

Fire [X] Reactive [ ]

Sudden Pressure Releas [ ]

HEALTH

Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE

Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 1 # Days on Site : 365

Average Daily Amount 1 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	Metlab-under fume hood
				left cabinet

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : Hydrogen Peroxide
   CAS # : 7722-84-1 % WT : 35
2. Name : Water
   CAS # : _____ % WT : 65
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

2

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : DARACOOL 706LF CAS # : _____

Chemical Name : WATER BASED SYNTHETIC METALWORKING FLUID UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 165 # Days on Site : 365

Average Daily Amount 110 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
7	E	1	4	DRUM STORAGE BUILDING

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : HEXYLENE GLYCOL
   CAS # : 107-41-5 % WT : <5
2. Name : Water
   CAS # : _____ % WT : >95
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : ACETIC ACID, GLACIAL CAS # : 64-19-7
Chemical Name : SAME UN/NA # : UN 2789

Solid [ ] Liquid [X] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [X] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 5 liters # Days on Site : 365
Average Daily Amount 5 Largest Container on-sit (Amount): 2

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	Metlab-under fume hood
				left cabinet

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : ACETIC ACID, GLACIAL
CAS # : 64-19-7 % WT : 90-100
2. Name : _____
CAS # : _____ % WT : _____
3. Name : _____
CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : SHELL OMALA OIL 680 CAS # : _____

Chemical Name : PETROLEUM HYDROCARBONS UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 110 # Days on Site : 365

Average Daily Amount 80 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE BLDG.

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : SOLVENT DEWAXED RESIDUAL OIL
   CAS # : 64742-62-7 % WT : 17-47
2. Name : SOLVENT REFINED HYDROTREATED RESIDUAL OIL
   CAS # : 64742-57-0 % WT : 50-80
3. Name : MINOR ADDITIVES
   CAS # : _____ % WT : <3

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : ACETONE CAS # : 67-64-1
Chemical Name : SAME UN/NA # : UN 1090

Solid [ ] Liquid [X] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 8 liters # Days on Site : 365
Average Daily Amount 8 Largest Container on-sit (Amount): 2

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	STORED IN FLAMMABLE CABINET OUTSIDE
				OF SHIPPING/RECEIVING OFFICE

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : ACETONE
CAS # : 67-64-1 % WT : 90-100
2. Name : _____
CAS # : _____ % WT : _____
3. Name : _____
CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93
TITLE : ENVIRONMENTAL ENGINEER

2

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : AMMONIUM CHLORIDE CAS # : 12125-02-9
Chemical Name : SAME UN/NA # : NA 9085

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 10 Kg # Days on Site : 365
Average Daily Amount 7
Largest Container on-sit (Amount): 500 g.

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : AMMONIUM CHLORIDE
CAS # : 12125-02-9 % WT : 99-100
2. Name :
CAS # : % WT :
3. Name :
CAS # : % WT :

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93
TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : METHYL ALCOHOL CAS # : 67-56-1
Chemical Name : METHANOL UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [X] Mixture [ ] Waste [ ]
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)
If waste is checked, Annual Amount Generated : 0

WASTE CLASSIFICATION :

Toxic [X] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Liters

Maximum Daily Amount 3 # Days on Site : 365
Average Daily Amount 2 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	STORED IN FLAMMABLE CABINET OUTSIDE
				OF SHIPPING/RECEIVING AREA

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : METHANOL
CAS # : 67-56-1 % WT : 100
2. Name : _____
CAS # : _____ % WT : _____
3. Name : _____
CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93
NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : OXALIC ACID, CRYSTALS CAS # : 6153-56-6
Chemical Name : ETHANEDIOIC ACID, CRYSTALS UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 1 # Days on Site : 365
Average Daily Amount 0.5 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : OXALIC ACID
CAS # : 6153-56-6 % WT : 100
2. Name : _____
CAS # : _____ % WT : _____
3. Name : _____
CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93
NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : HYDROCHLORIC ACID CAS # : 7647-01-1

Chemical Name : Hydrochloric acid UN/NA # : UN 1789

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [X]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 10 liters # Days on Site : 365

Average Daily Amount 5 Largest Container on-sit (Amount): 2

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : HYDROCHLORIC ACID
   CAS # : 7647-01-0 % WT : 33-40
2. Name : water
   CAS # : 7732-18-5 % WT : 60-67
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : HYDROFLUORIC ACID CAS # : 7664-39-3

Chemical Name : Hydrofluoric acid UN/NA # : UN 1790

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [X]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 500 ml # Days on Site : 365

Average Daily Amount 500 Largest Container on-sit (Amount): 500

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : HYDROFLUORIC ACID
   CAS # : 7664-39-3 % WT : 45-55
2. Name : water
   CAS # : 7732-18-5 % WT : 45-55
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : MIRACLE FORGE 7600 CAS # : _____

Chemical Name : Non-Graphite Water Based Lubricant UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 45 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
7	E	1	4	DRUM STORAGE AREA

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : _____
CAS # : _____ % WT : _____

2. Name : _____
CAS # : _____ % WT : _____

3. Name : _____
CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : AMMONIUM BIFLUORIDE CAS # : 1341-49-7

Chemical Name : Ammonium bifluoride UN/NA # : UN 1727

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [X]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 2,000 grams # Days on Site : 365

Average Daily Amount 1,500 Largest Container on-sit (Amount): 500

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : AMMONIUM BIFLUORIDE
   CAS # : 1341-49-7 % WT : 90-100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : NITRIC ACID CAS # : 7697-37-2
Chemical Name : SAME UN/NA # : UN 2031

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ]
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)
If waste is checked, Annual Amount Generated : 0

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [X] Reactive [X] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [X] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 10 liters
Average Daily Amount 5
Days on Site : 365
Largest Container on-sit (Amount): 2

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : NITRIC ACID
CAS # : 7697-37-2 % WT : 65-71
2. Name : water
CAS # : 6632-18-5 % WT : 29-35
3. Name : _____
CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93
TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : POTASSIUM HYDROXIDE CAS # : 1310-58-3

Chemical Name : SAME UN/NA # : UN 1813

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 2 # Days on Site : 0

Average Daily Amount 1 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	UPPER METLAB CABINET ADJACENT TO
				FUME HOOD

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : POTASSIUM HYDROXIDE
   CAS # : 1310-58-3 % WT : 85-100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : POTASSIUM FERRICYANIDE CAS # : 13746-66-2
Chemical Name : SAME UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 1 # Days on Site : 365
Average Daily Amount 0.8 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	STORED IN UPPER METLAB CABINET
				ADJACENT TO FUME HOOD

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : POTASSIUM FERRICYANIDE
CAS # : 13746-66-2 % WT : 100
2. Name : _____
CAS # : _____ % WT : _____
3. Name : _____
CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : SODIUM HYDROXIDE CAS # : 1310-73-2

Chemical Name : Sodium Hydroxide UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Kg

Maximum Daily Amount 5 # Days on Site : 365

Average Daily Amount 5 Largest Container on-sit (Amount): 2

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	Metlab-across from fume hood
				upper cabinet

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : Sodium Hydroxide
   CAS # : 1310-73-2 % WT : 100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : ACETYLENE CAS # : 74-86-2
Chemical Name : Acetylene UN/NA # : UN 1001

Solid [ ] Liquid [ ] Gas [X] Pure [X] Mixture [ ] Waste [ ]
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)
If waste is checked, Annual Amount Generated : 0

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [X]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [X]

Maximum Daily Amount 300 # Days on Site : 365
Average Daily Amount 300 Largest Container on-sit (Amount): 300

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
8	L	2	4	Stored outside of Maintenance
				Fabrication Shop, West wall of
				Bldg. 2

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : Acetylene
CAS # : 74-86-2 % WT : 100
2. Name : _____
CAS # : _____ % WT : _____
3. Name : _____
CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : SODIUM THIOSULFATE CAS # : 7772-98-7

Chemical Name : Sodium Thiosulfate, solutions UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

liters

Maximum Daily Amount 1 # Days on Site : 365

Average Daily Amount 1 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	Metlab-across from fume hood
				upper cabinet

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : Sodium thiosulfate
   CAS # : 7772-98-7 % WT : 2-3
2. Name : Sodium carbonate, anhydrous
   CAS # : 497-19-8 % WT : <.1
3. Name : water
   CAS # : 7732-18-5 % WT : 97-98

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : AMMONIUM SULFATE CAS # : 7783-20-2
Chemical Name : Ammonium sulfate UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 1 # Days on Site : 365
Average Daily Amount 1 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : AMMONIUM SULFATE
   CAS # : 7783-20-2 % WT : 100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : AMMONIUM PERSULFATE CAS # : 7727-54-0
Chemical Name : SAME UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [X] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 2 # Days on Site : 365
Average Daily Amount 1 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : AMMONIUM PERSULFATE
   CAS # : 7727-54-0 % WT : 100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

4.

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : CUPRIC SULFATE CAS # : 7758-99-8
Chemical Name : SAME UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 1 # Days on Site : 365
Average Daily Amount 0 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	STOREDIN METLAB CABINET UNDER SINK

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : CUPRIC SULFATE
CAS # : 7758-99-8 % WT : 100
2. Name : _____
CAS # : _____ % WT : _____
3. Name : _____
CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93
NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

4

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : ETHYL ALCOHOL CAS # : 64-17-5
Chemical Name : ETHANOL UN/NA # : UN 1170

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ] liters

Maximum Daily Amount 10 # Days on Site : 365
Average Daily Amount 8 Largest Container on-sit (Amount): 2

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	STORED IN FLAMMABLE CABINET OUTSIDE
				OF SHIPPING/RECEIVING OFFICE

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : ETHANOL
   CAS # : 64-17-5 % WT : 90-100
2. Name : ISOPROPYL ALCOHOL
   CAS # : 67-63-0 % WT : >1
3. Name : METHYL ALCOHOL
   CAS # : 67-56-1 % WT : >1

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : CUPRIC CHLORIDE, DIHYDRATE CAS # : 13933-17-0
Chemical Name : SAME UN/NA # : UN 2811

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 19 # Days on Site : 365
Average Daily Amount 7 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	N	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : CUPRIC CHLORIDE
   CAS # : 13933-17-0 % WT : 90-100
2. Name : _____
   CAS # : _____ % WT : _____
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

4

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : LACTIC ACID CAS # : 50-21-5

Chemical Name : 2-HYDROXYPROPANOIC ACID UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 500 ml # Days on Site : 365

Average Daily Amount 500 Largest Container on-sit (Amount): 500

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : LACTIC ACID
   CAS # : 50-21-5 % WT : 80-90
2. Name : water
   CAS # : 7732-18-5 % WT : 10-20
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

4

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : HYDROGEN PEROXIDE 3% CAS # : 7722-84-1

Chemical Name : SAME UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 500 ml # Days on Site : 365

Average Daily Amount 500 Largest Container on-sit (Amount): 500

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	STORED IN METLAB CABINET UNDER SINK

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : HYDROGEN PEROXIDE
   CAS # : 7722-84-1 % WT : 3
2. Name : Water
   CAS # : _____ % WT : 97
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

4

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : DARACLEAN 283 CAS # : _____

Chemical Name : AQUEOUS ALKALINE CLEANER UN/NA # : UN 1824

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [X] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 110 # Days on Site : 365

Average Daily Amount 70 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	DRUM STORAGE AREA

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : SODIUM HYDROXIDE
   CAS # : 1310-73-2 % WT : <2
2. Name : Water
   CAS # : _____ % WT : >98
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

4

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : ISOGUARD CAS # : _____

Chemical Name : Cooling Water Treatment Compound UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365

Average Daily Amount 50 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	E	1	4	DRUM STORAGE AREA, BLDG. 7

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : Sodium Nitrate
   CAS # : 7632-00-0 % WT : <15
2. Name : Potassium Hydroxide
   CAS # : 1310-58-3 % WT : <2
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : STAINLESS STEEL CAS # : _____
Chemical Name : same UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [ ] Mixture [X] Waste [ ]
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)
If waste is checked, Annual Amount Generated : 0

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 500,000 # Days on Site : 365
Average Daily Amount 450,000 Largest Container on-sit (Amount): 0

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
3	R	1	4	STORED IN STEEL YARD BEHIND BLDG. 3
				EXPOSURE INFO IS BASED ON FINELY
				DIVIDED PARTICLES, DUST, FUMES

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : CHROMIUM
   CAS # : 7440-47-3 % WT : 10-27
2. Name : NICKEL
   CAS # : 7440-02-0 % WT : 0-22
3. Name : IRON
   CAS # : 7439-89-6 % WT : 39-81

Certification :

DATE : 11/18/93
NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : COPPER CAS # : 7440-50-8
Chemical Name : SAME UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 480 # Days on Site : 365
Average Daily Amount 480 Largest Container on-sit (Amount): 0

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
3	R	1	4	STORED IN STEEL YARD BEHIND BLDG. 3
				EXPOSURE INFORMATION IS BASED ON
				DUST OR FUME EXPOSURE

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : COPPER
   CAS # : 7440-50-8 % WT : >99
2. Name : LEAD (LEADTEX COATING)
   CAS # : 7439-92-1 % WT : .05
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : ALUMINUM CAS # : 7429-90-5
Chemical Name : Aluminum Alloys UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [X] Corrosive [ ] Reactive [X] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [X] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 2,300 # Days on Site : 365
Average Daily Amount 2,300 Largest Container on-sit (Amount): 0

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
3	R	1	4	STORED IN STEEL YARD BEHIND BLDG. 3
				HAZARD DESIGNATIONS ARE FOR CHIPS
				OR FINELY DIVIDED POWDERS.

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : ALUMINUM
CAS # : 7429-90-5 % WT : 90-99
2. Name : LEAD
CAS # : 7439-92-1 % WT : <.7
3. Name : COPPER
CAS # : 7440-50-8 % WT : <10

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : CARBON & ALLOY STEELS CAS # : _____
Chemical Name : steel UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 110,000 # Days on Site : 365
Average Daily Amount 106,000 Largest Container on-sit (Amount): 0

STORAGE CODES & LOCATIONS :

(use codes provided)

Location #	C	P	T	Location Descriptio
3	R	1	4	STORED IN STEEL YARD BEHIND BLDG. 3
				HAZARD DATA BASED ON EXPOSURE TO
				FINELY DIVIDED DUST, FUME.

MIXTURE :

List the three most Hazardous Components (by weight)

1. Name : IRON
   CAS # : 7439-89-6 % WT : 86-99
2. Name : CHROMIUM
   CAS # : 7440-47-3 % WT : <.4
3. Name : LEAD
   CAS # : 7439-92-1 % WT : <.1

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : TITANIUM CAS # : 13463-64-7
Chemical Name : Titanium Alloy UN/NA # : _____

Solid [X] Liquid [ ] Gas [ ] Pure [X] Mixture [ ] Waste [ ]
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)
If waste is checked, Annual Amount Generated : 0

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [ ] Lbs. [X] Cu. Ft. [ ]

Maximum Daily Amount 40,000 # Days on Site : 365
Average Daily Amount 36,000 Largest Container on-sit (Amount): 0

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
3	R	1	4	STORED IN STEEL YARD BEHIND BLDG. 3
				HAZARD DESIGNATIONS ARE FOR FINELY
				DIVIDED CHIPS RESULTING FROM
				GRINDING, CUTTING OR POLISHING
				WHILE WET.

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : TITANIUM
CAS # : 13463-67-7 % WT : 99
2. Name : _____
CAS # : _____ % WT : _____
3. Name : _____
CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : DENATURED ALCOHOL CAS # : 64-17-5
Chemical Name : Ethyl alcohol, anhydrous, denatured UN/NA # : _____

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [ ] Ignitable [X] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [X] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [X] Delayed Health (Chronic) [X]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 1 # Days on Site : 365
Average Daily Amount 1 Largest Container on-sit (Amount): 1

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
2	M	1	4	Flammable cabinet outside of
				Shipping/Receiving office

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : methanol
   CAS # : 67-56-1 % WT : 5
2. Name : methyl isobutyl ketone
   CAS # : 108-10-1 % WT : 1
3. Name : ethanol
   CAS # : 64-17-5 % WT : 92

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : Mobil DTE 25 CAS # : _____
Chemical Name : Refined mineral oils UN/NA # : UN 1270

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0
Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 55 # Days on Site : 365
Average Daily Amount 40 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	Drum storage building

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : Refined mineral oil
   CAS # : _____ % WT : >95
2. Name : Additive package
   CAS # : _____ % WT : <5
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ DATE : 11/18/93 TITLE : ENVIRONMENTAL ENGINEER

FOR ADMINSTRATIVE AGENCY USE :
DATE RECEIVED : _____
FACILITY ID # : _____

INVENTORY FORM

CHEMICAL DESCRIPTION

Common Name : Mobil Vactra #2 CAS # : _____

Chemical Name : Refined mineral oil UN/NA # : UN 1270

Solid [ ] Liquid [X] Gas [ ] Pure [ ] Mixture [X] Waste [ ] If waste is checked, Annual Amount Generated : 0

Trade Secret [ ] Radioactive [ ] (If radiocative : 0 Curries)

WASTE CLASSIFICATION :

Toxic [X] Ignitable [ ] Corrosive [ ] Reactive [ ] Extremely Hazardous [ ]

PHYSICAL AND HEALTH HAZARD CATEGORIES :

PHYSICAL: Fire [ ] Reactive [ ] Sudden Pressure Releas [ ]

HEALTH: Immediate Health (Acute) [ ] Delayed Health (Chronic) [ ]

AMOUNT & TIME AT FACILITY :

UNITS OF MEASURE: Gals. [X] Lbs. [ ] Cu. Ft. [ ]

Maximum Daily Amount 90 # Days on Site : 365

Average Daily Amount 60 Largest Container on-sit (Amount): 55

STORAGE CODES & LOCATIONS : (use codes provided)

Location #	C	P	T	Location Descriptio
7	D	1	4	Drum storage building

MIXTURE : List the three most Hazardous Components (by weight)

1. Name : Refined mineral oil
   CAS # : _____ % WT : >95
2. Name : Additive package
   CAS # : _____ % WT : <5
3. Name : _____
   CAS # : _____ % WT : _____

Certification :

DATE : 11/18/93

NAME : HOLLY M. SINCLAIR SIGNATURE : _____ TITLE : ENVIRONMENTAL ENGINEER

Appendix B

Phase II Environmental Site Assessment Report for the Kaiser-Hill Company LLC Oxnard Facility Oxnard, California

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DOE\ID\12584-226
GJPO-OXN-01

Phase II Environmental Site Assessment Report for the Kaiser-Hill Company LLC Oxnard Facility, Oxnard, California

July 1995

U.S. Department of Energy
Grand Junction Projects Office

Approved for public release; distribution is unlimited.

Work Performed Under DOE Contract No. DE-AC04-94AL96907 for the U.S. Department of Energy

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Phase II Environmental Site Assessment Report for the Kaiser-Hill Company LLC Oxnard Facility, Oxnard, California

July 1995

Work Performed Under Contract No. DE-AC04-94AL96907

Prepared for
U.S. Department of Energy
Albuquerque Operations Office
Grand Junction Projects Office
P.O. Box 2567
Grand Junction, CO 81502-2567

Prepared by
Rust Geotech
Grand Junction, Colorado

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1.0 Introduction

The Kaiser-Hill Company LLC Oxnard Facility (Oxnard facility) is a nonferrous metalworking facility occupying 13.75 acres at 1235 East Wooley Road, Oxnard, California (Figure 1). Owned by the U.S. Department of Energy (DOE) and operated by Kaiser-Hill Company LLC, the facility is located in an industrial park within the incorporated city limits of Oxnard and within Ventura County. Seven buildings enclose approximately 86,000 square feet of covered floor space (Figure 2). Bordering the facility are industrial maintenance, manufacturing, and agricultural packaging facilities.

Until Allis-Chalmers (a farm implement manufacturing company) purchased the property in 1949, the site was farmland. Allis-Chalmers built a plant consisting of six buildings and engaged in the activities of founding (foundry casting), forging, machining, welding, cutting, sanding, grinding, painting, and coating. In 1981, DOE helped Precision Forge (a private company that catered to DOE metalworking requirements) move from Santa Monica, California, to the Oxnard facility. By June 1982, Precision Forge completed the transfer to the Oxnard facility. In 1984, DOE acquired Precision Forge, and operated the facility through Rockwell International until 1989 when EG&G took over operations. Kaiser-Hill Company has operated the facility since the second quarter of 1995. Historically, metalworking at the Oxnard facility involved stainless steel, titanium, aluminum, and copper alloys. Presently, all metal working is with stainless steel, tantalum, molybdenum, and tungsten.

Site investigations conducted by Rust Geotech, the prime contractor for the DOE at the Grand Junction Projects Office (GJPO), started in June 1994 with an Environmental Site Assessment (ESA) Preliminary Evaluation site tour. Results of the Preliminary Evaluation indicated the need for a Phase I and Phase II ESA. A nonintrusive site inspection and data gathering effort in August 1994 resulted in a Phase I ESA report entitled *Phase I Environmental Site Assessment for the EG&G Rocky Flats Oxnard Facility* (Phase I ESA) (DOE 1994a). Conclusions and recommendations described in the Phase I ESA report formed the basis for the Phase II intrusive ESA investigation, which was conducted in January and February 1995 and is the focus of this report.

The primary purpose of the Phase II ESA was to investigate areas of the facility considered to be potentially contaminated with regulated substances. These areas required a "due diligence" investigation as described in *Site Auditing: Environmental Assessment of Property* (Marburg Associates and Parkin 1991) so that contaminated media, if present, could be identified and accounted for before real estate transfer. Specific objectives of the investigation were:

- To assess the location and type of asbestos and asbestos-containing material (ACM) at the facility.

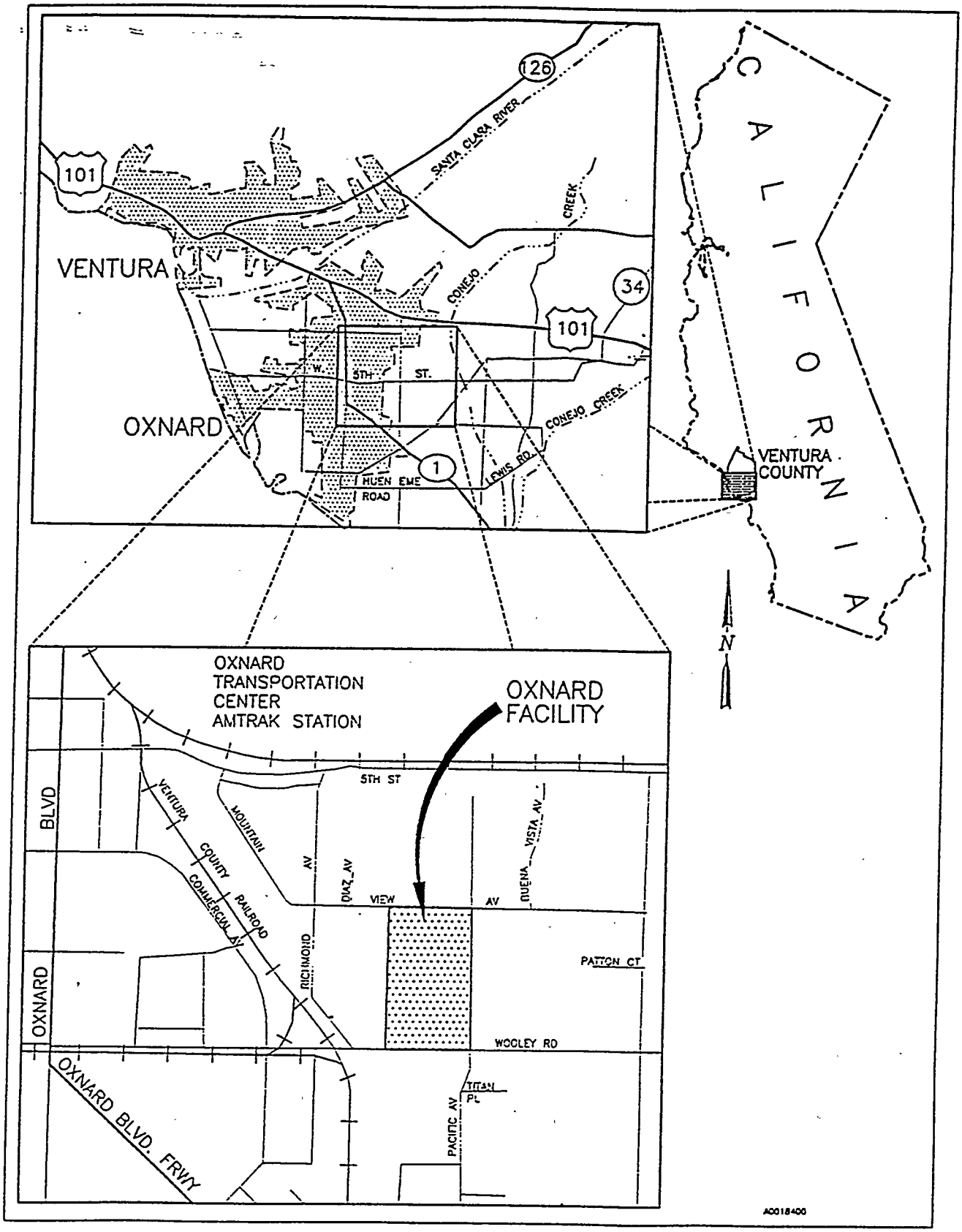


Figure 1. Location of the Oxnard Facility in Oxnard, California

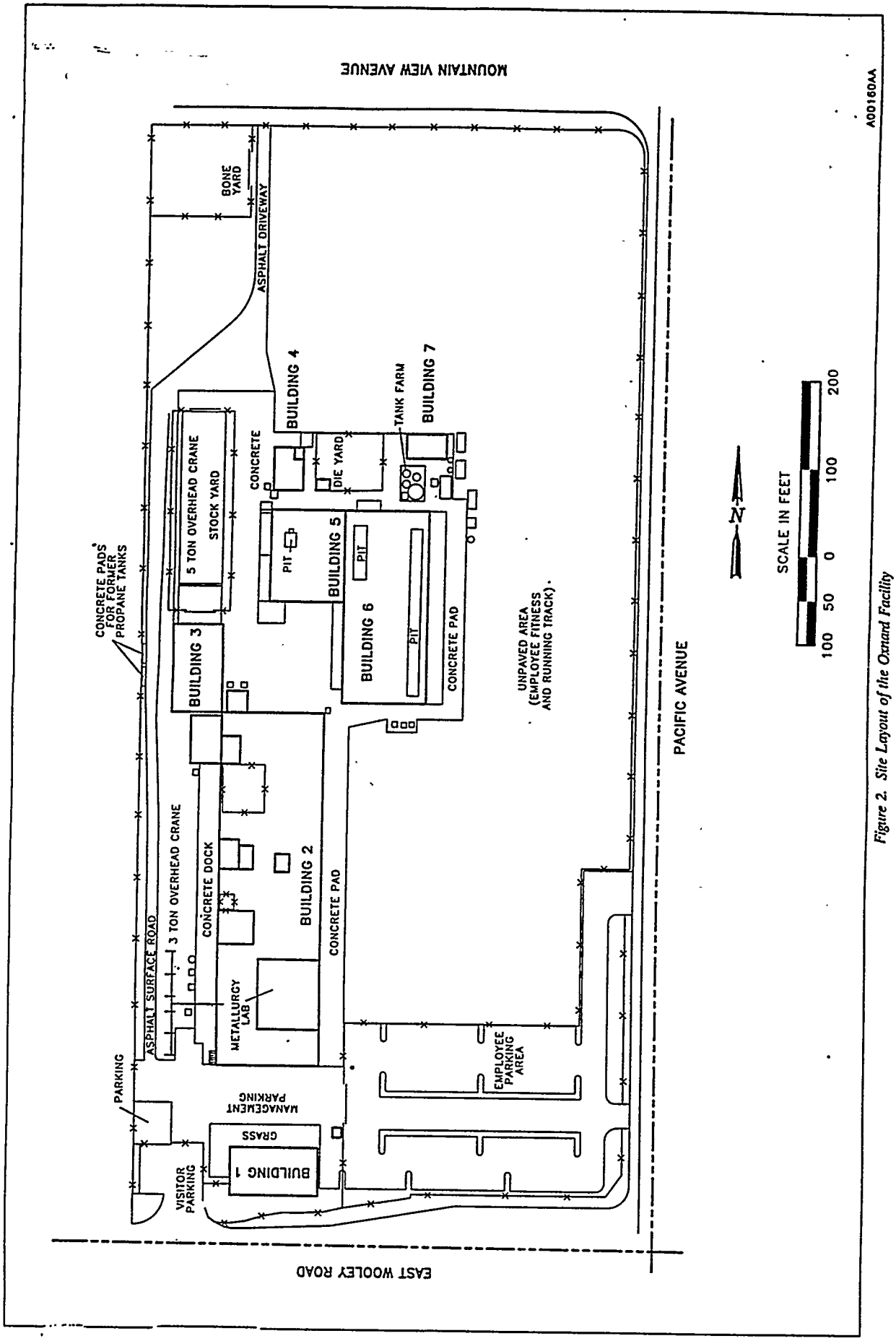


Figure 2. Site Layout of the Oxnard Facility

- To assess if groundwater quality at the facility has been affected by on-site and off-site activities.

- To assess if soils at the Oxnard facility have been affected by on-site activities.

- To assess if radiological contamination has occurred in areas where finished products have been returned from contaminated sites.

- To assess the composition of process oil and sludges formed in various collection systems so that waste disposal options and costs associated with facility decommissioning can be identified.

This report is divided into six sections. Section 1.0 describes the types of work performed at the Oxnard facility and the objectives of this Phase II ESA; Section 2.0 provides the regulatory framework used to make decisions from the collected data; Section 3.0 presents the results of the intrusive field investigation and discusses the results in the context of the regulatory framework; Section 4.0 discusses risk assessment; Section 5.0 provides recommendations for addressing health and environmental issues before real estate transfer; and Section 6.0 is a list of references used in this document.

2.0 Regulatory Framework

The National Environmental Policy Act (NEPA) (DOE 1994b) requires consideration be given to environmental factors in the Federal decision-making process. A NEPA checklist was prepared for Phase II ESA activities, which were determined by the DOE Albuquerque Operations Office to be categorically excluded from the requirement to prepare NEPA documentation in the form of either an environmental assessment or an environmental impact statement.

Laboratory analytical work was performed by Truesdail Laboratories, Inc., in Tustin, California. This laboratory is certified by the California Environmental Laboratory Accreditation Program in the methods used to analyze samples collected during the Phase II ESA.

2.1 Asbestos

The Toxic Substances Control Act, 40 CFR 763 [U.S. Environmental Protection Agency (EPA) 1994a], establishes requirements concerning the inspection, control, storage, and disposal of asbestos and ACM. The State of California regulates asbestos worker certification, safety, registration, and asbestos emissions through: Title 8, CAL/OSHA, Section 341.15, "Certification of Asbestos Consultants and Site Surveillance Technicians" (Bureau of National Affairs [BNA] 1995a); Title 8, CAL/OSHA, Section 1529, "Asbestos" (BNA 1995b); Title 8, CAL/OSHA, Section 341.6, "Registration Requirements" (BNA 1995c); and Ventura County Air Pollution Control District Rule 62.7, "Asbestos Renovation and Demolition" (BNA 1995d). Asbestos inspection activities were conducted in compliance with these regulations.

2.2 Groundwater

Title 22, California Code of Regulations, Division 4.5, Chapter 15, Section 66265.97 (Barclays Law Publishers 1990a), provides guidance for groundwater quality monitoring. Groundwater analytical data were evaluated statistically according to the procedures detailed in this regulation to determine if water quality has been degraded by on-site activities. Title 22 of the California Code of Regulations, Division 4, Chapter 15, Article 4, Section 64431 (Barclays Law Publishers 1990b), provides standards that were used to evaluate groundwater quality.

Groundwater analytical data also were compared to standards set forth in Title 22, California Code of Regulations, Division 4.5, Chapter 11, Article 3, Section 66261.24 (Barclays Law Publishers 1990c), to determine if the groundwater containerized during monitoring well development and purging is considered hazardous waste.

2.3 Soil

Analytical data from composite soil samples also were compared to standards set forth in Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 (Barclays Law Publishers 1990c), to determine if borehole cuttings containerized during drilling operations are considered hazardous waste.

An assessment of risk to human health that is due to exposure to contaminated soils was conducted according to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) risk assessment process detailed in *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (EPA 1989).

2.4 Sludge/Oil

Sludge/oil analytical data also were compared to standards set forth in Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 (Barclays Law Publishers 1990c), to determine if sludge and oil are considered hazardous waste. An assessment of risk to human health that is due to exposure to sludges and oil was conducted according to the CERCLA risk assessment process detailed in *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (EPA 1989).

3.0 Field Investigation Results

3.1 Asbestos

A preliminary inspection for friable and nonfriable ACM was performed at the Oxnard facility from February 6 through 9, 1995, to determine the presence of ACM. Suspect ACM was sampled for bulk analysis in accordance with the *Work Plan/Sampling and Analysis Plan for the Phase II ESA of the EG&G Rocky Flats Oxnard Facility, Oxnard, California* (Work Plan/SAP) (DOE 1994c) and the regulations listed in Section 2.1 of this report.

3.1.1 Terminology

Asbestos is the asbestiform variety of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite, actinolite, or tremolite. ACM includes both friable and nonfriable material that contains more than 1-percent asbestos as determined by the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy (PLM)(EPA 1994a).

A friable ACM can be crumbled, pulverized, or reduced to a powder by hand pressure when dry. A nonfriable ACM cannot be crumbled, pulverized, or reduced to a powder by hand pressure in its dry state. Nonfriable ACM is further described as either Category I or Category II. Category I includes asbestos-containing packings, gaskets, resilient floor covering (floor tile, including asphalt and vinyl floor tile and sheet vinyl floor covering), and asphalt roofing products that are not in poor condition and that contain more than 1-percent asbestos. Category I nonfriable ACM is exempted from the majority of the Air Pollution Control District rules as long as the material is removed, loaded, and transported in a manner that prevents the release of fibers and prevents the material from becoming friable. Category II material includes all nonfriable ACM not considered to be Category I.

Asbestos remediation (also known as abatement) includes the removal of ACM, abatement of asbestos-contaminated facility components, or facility renovation. Facility renovation means altering, removing, or stripping one or more facility components and includes retrofitting for fire protection and installing or removing heating, ventilating, and air conditioning (HVAC) systems. Wrecking or removing load-supporting structures is excluded.

Any waste generated by removal of ACM associated with demolition or renovation activities is considered asbestos-containing waste material.

3.1.2 Summary of Inspection Activities

Prior to the inspection of the Oxnard facility, a walk-through was conducted with Oxnard staff and management, and floor plans of the buildings to be included in the survey were examined. A sampling plan for each building was then developed. Surface materials, thermal system insulation (TSI), and miscellaneous materials on the exterior and interior of each building were inspected for the presence of suspect asbestos. The location and description of suspect materials assumed to be ACM were recorded, and the suspect materials were grouped into homogeneous sampling areas.

The Work Plan/SAP specifies criteria for determining the number of samples to be taken per homogeneous sampling area and the general locations necessary to obtain a representative sample. It was not within the scope of this inspection to determine the physical condition or potential for disturbance of ACMs or to conduct a hazard assessment.

The Work Plan/SAP also called for a diagram showing the areas to be sampled for friable and nonfriable ACM. Before sampling, a field inspection log was prepared specifying the project name, site name, location (building number), date and time, matrix sampled, inspection and sampler's name, container type, and number of samples collected. Inspection and sampling activities were recorded daily in the field inspection log.

ACM sampling was initiated by spreading a plastic drop cloth at the marked sampling location, labeling a plastic bag with appropriate information (i.e., identification number, sample name, date and time), and recording the sample information in the field inspection log. The sample location was moistened with amended water solution, and the sample was extracted with a clean knife, linoleum cutter, cork borer, or other appropriate tool. Once removed, the sample was placed into the bag and the bag was sealed; the extraction tools were cleaned, and the hole was filled (or cut) with caulk, tar, spackling or duct tape, as appropriate. Tools were decontaminated after each sample was collected. Decontamination material and personal protective equipment were bagged and stored as ACM at the end of the day.

3.1.3 Results

Laboratory analysis determined that ACM was present on the Oxnard facility. The Asbestos Summary Sheet (Appendix A) itemizes analytical results for each sample by homogeneous material, functional space, and asbestos content. Bulk asbestos sampling locations are shown in Figures A-1 to A-8 in Appendix A. The following subsections provide details of materials that contain asbestos. If results indicated the absence of ACM, the material and sampling location are not addressed.

3.1.3.1 Surfacing Materials

The only functional space with surface ACM is the Accounting Offices in Building 1. The homogeneous ACM is a sprayed-on, textured coating containing 1- to 3-percent chrysotile and 97- to 99-percent minerals, including mica and calcium carbonate. The coating is in excellent condition and is not in a friable or deteriorating state. This coating is on approximately 500 square feet of wall surface.

3.1.3.2 Thermal System Insulation

Six TSI areas exist at the Oxnard facility, specifically in Buildings 1, 2, and 6. This insulation is associated with either the HVAC system, located in Building 1, or the air exchangers associated with specific applications at the facility. TSI in Building 1 on the HVAC system piping immediately above the furnace is the only TSI that contains asbestos. This 2-foot-long piping sleeve is a grey, fibrous solid composed of calcium carbonate and silica, and it contains 24- to 28-percent chrysotile and 4- to 6-percent crocidolite asbestos fibers. It is in excellent condition and is not in a friable or deteriorating state.

3.1.3.3 Miscellaneous Materials

Miscellaneous materials sampled for asbestos at the Oxnard facility varied from floor and ceiling tiles to equipment insulation and tank gaskets.

Two functional spaces, the vault and lobby in Building 1, have 9-inch-square ACM vinyl floor tiles. The vault tile is a black, fibrous tile with 50- to 60-percent binder, 40- to 50-percent mineral, and 3- to 5-percent chrysotile asbestos fiber. The lobby tile is a tan, fibrous tile with 50- to 60-percent binder, 40- to 50-percent mineral, and 1- to 2-percent chrysotile asbestos fiber. The combined area of vinyl asbestos tile is approximately 700 square feet.

Storage cabinets in the metallurgical laboratory contain an interior front door fireproof sheathing—a grey, fibrous solid of 70- to 80-percent calcium carbonate and silica and 20- to 30-percent chrysotile asbestos fiber. Given the number of storage cabinets, the estimated area of sheathing is 500 square feet. Two miscellaneous laboratory materials not sampled were the analytical work benches and oven gloves, which are assumed to be ACM throughout the facility.

Several fibrous gaskets were sampled for asbestos. Two sets of gaskets containing asbestos were identified: the emersion heater gaskets in the lubrication stores building and the Lindberg furnace front door gasket in Building 6. The emersion heater gaskets are small, fibrous gaskets containing 30- to 40-percent binder and 60- to 70-percent chrysotile asbestos fiber. The furnace gasket is a small, green, tubular fibrous gasket containing 5- to 10-percent binder and 90- to 95-percent chrysotile asbestos fiber.

Window caulk in Building 6 is a calcium carbonate solid with 1- to 3-percent chrysotile asbestos fiber content. Although Building 2 window caulk was not identified as ACM, it is suspected to contain asbestos because Building 2 is 10 to 20 years older than Building 6; future bulk analysis of the Building 2 window caulk may be required.

On the basis of age, all electrical wiring insulation is assumed to be ACM. The brakes on the Cleveland presses also are assumed to be ACM on the basis of discussions with Oxnard facility staff.

3.2 Groundwater

3.2.1 Hydrogeology

3.2.1.1 Lithology

Lithologic information was obtained by drilling 16 boreholes (Figure 3) at the Oxnard facility during January and February 1995. Split-barrel samples collected from each borehole were used to describe and to document the lithologic sequence. Descriptions of the lithology were prepared for seven soil borings to a depth of 4.5 to 8 feet and for nine monitoring wells to a depth of 12 feet. Although monitoring wells were drilled to a depth of 18 feet, flowing sands encountered at approximately 12 feet prevented split-barrel sample collection below that point. In general, the shallow lithology beneath the Oxnard facility consists of 2 feet of dark brown, silty-sand topsoil with organic fragments overlying yellowish-brown, medium to coarse-grained, unconsolidated sands intermixed with pebbles and cobbles. Appendix B contains lithologic logs of the boreholes.

3.2.1.2 Groundwater Flow

Water-level elevations were measured in each of the monitoring wells in February 1995 after well development. These water levels were used to prepare the groundwater-elevation contour map in Figure 4. On the basis of this constructed map, groundwater flow in the shallow system is to the southwest, and the lateral hydraulic gradient is 0.002.

Slug testing data from the nine monitoring wells were analyzed by the method of Bouwer and Rice (1976) and Bouwer (1989). The range of hydraulic conductivities for the tests was 17 to 74 feet per day (ft/d); the arithmetic average was 38 ft/d, and the geometric mean was 33 ft/d. An average linear velocity of the shallow groundwater system was calculated as 0.22 ft/d by using an estimated effective porosity of 30 percent and the geometric mean of the hydraulic conductivities.

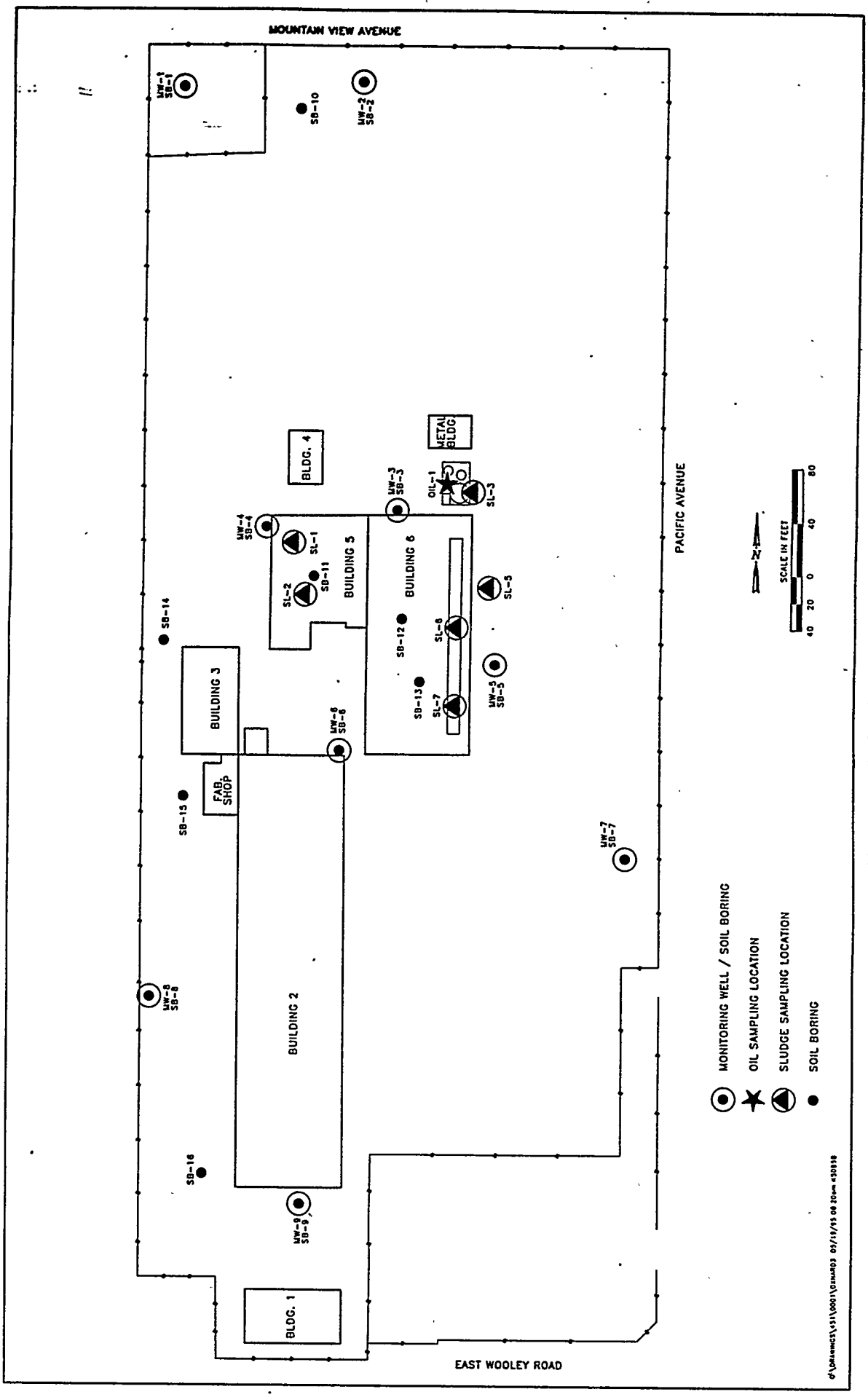


Figure 3. Sampling Locations at the Oxnard Facility

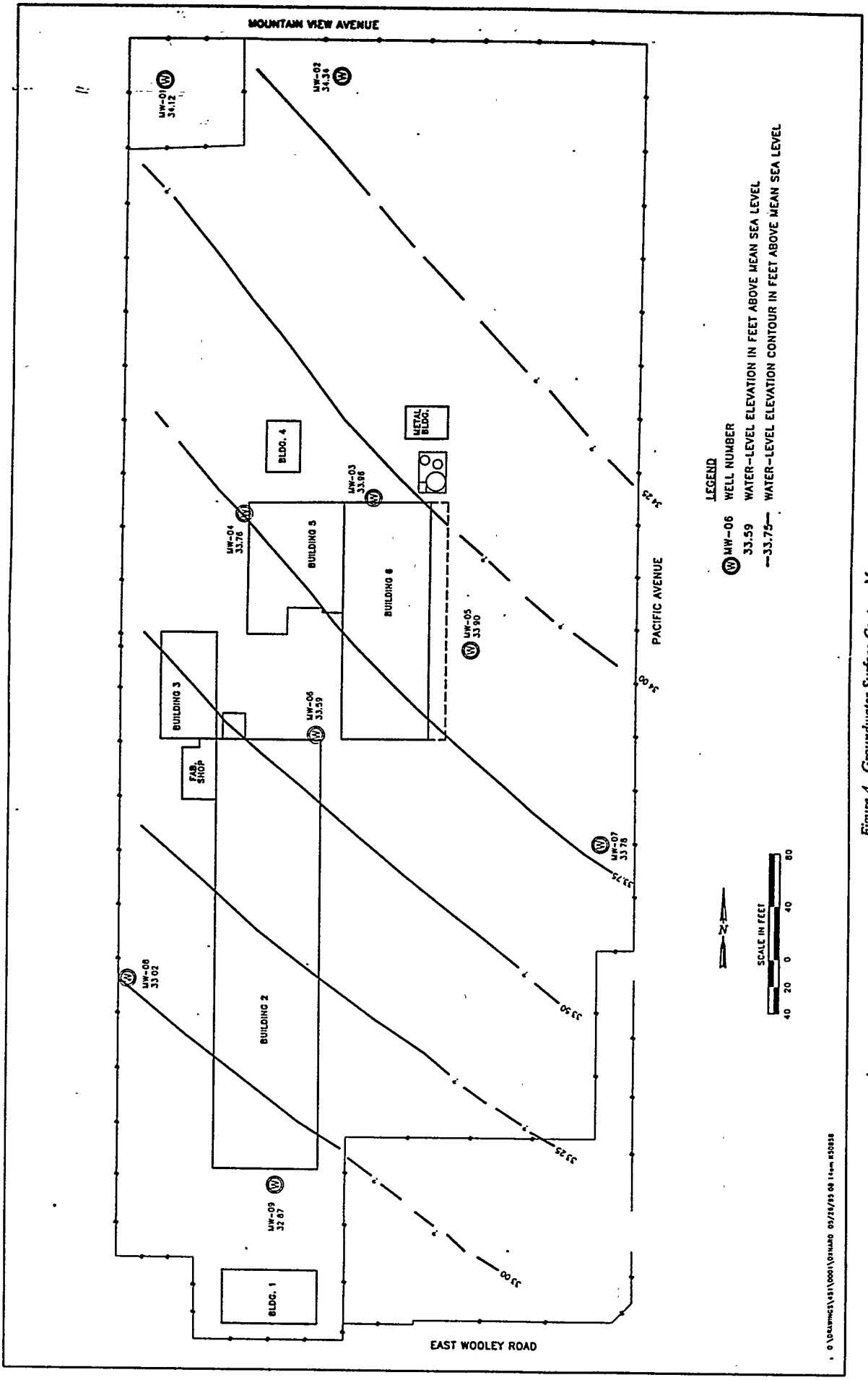


Figure 4. Groundwater Surface Contour Map

3.2.2 Groundwater Quality

The groundwater monitoring network was designed to investigate "areas of concern" identified in the Phase I ESA. Areas of concern are locations at the facility that have documented historical contamination, suspected historical contamination, or a potential for contaminant release from historical or current operations. Areas of concern are listed in Table 1 and are shown in Figure 5. The primary concerns for on-site groundwater impacts are leaking petroleum products from underground trenches, cellars, and tanks, and unknown contaminants from a historical trash pit under Building 6. Off-site sources possibly affecting groundwater are leaking petroleum or solvent tanks upgradient of the Oxnard facility.

Water quality samples were collected from nine monitoring wells (Figure 3) in February 1995. Groundwater samples were collected for inorganic analyses with a submersible pump or peristaltic pump; groundwater samples were collected for organic analyses with a submersible pump or a Teflon bailer. Sampling procedures are described in the Work Plan/SAP. Groundwater samples were analyzed for metals (Target Compound List [TCL] metals and molybdenum), TCL polychlorinated biphenyls (PCBs), TCL volatile organic compounds, and total petroleum hydrocarbons (TPH). A detailed analyte list is displayed in Appendix C. Analytical results of samples collected from groundwater monitoring wells are listed in Table D-1 in Appendix D.

Analytical results for groundwater samples demonstrate that organic compounds are not affecting the water quality of the shallow aquifer beneath the Oxnard facility. Concentrations of PCBs and TPH were below detection levels in all groundwater samples. With the exception of two organic compounds detected in a sample from MW-2, concentrations of volatile organic compounds also were below detection levels. Because groundwater downgradient of areas of concern did not have detectable concentrations of organic compounds, concerns involving on-site sources (such as leaking trenches, sumps, cellars, tanks, historical pits, and above ground storage spills of organics) have been alleviated.

Monitoring wells MW-2 and MW-7 were located in areas upgradient of the facility to investigate historical soil-gas detections of perchloroethylene (also referred to as tetrachloroethene) and to determine the effects of off-site activities. Perchloroethylene was below the detection level in all groundwater samples. Off-site activities apparently are not affecting the groundwater quality at the Oxnard facility. TPH in samples from the upgradient wells was below the detection level, which alleviates concern about leaking fuel tanks upgradient of the facility. Volatile organic compounds were not detected in the sample from MW-7, and only two volatile organic compounds were detected in the sample from MW-2; concentrations of 1,1,1-trichloroethane and 1,1-dichloroethane were detected at 14.5 μg/L and 4.77 μg/L, respectively. Although State of California drinking water standards (Barclays Law Publishers 1990b) are not applicable to the shallow groundwater beneath the Oxnard facility (shallow groundwater

Table 1. Oxnard Facility Areas of Concern

Area of Concern	Location	Potential Contaminants
1. Allis-Chalmers pit	Beneath Building 6	Metals, unknowns
2. Trench/sump and oil collection system	Building 6	Metals, hydraulic oil, PCBs
3. Bioremediation area	East of Building 6	Hydraulic oil, PCBs
4. PCB soil area	East of Building 6	PCBs
5. Perchloroethylene (PCE) soil-gas area	East side of facility	PCE
6. PCE soil-gas area	North side of facility	PCE
7. Oil collection system	Building 5	Metals, hydraulic oil, PCBs
8. Tank farm	North of Building 6	Metals, hydraulic oil, PCBs
9. Abandoned diesel UST	Outside of south side of Building 4	Diesel fuel
10. PCB soil area	East of the boneyard	PCBs
11. Boneyard	Northwest corner of the facility	PCBs, metals
12. Asphalt road	West side of facility and east of the boneyard	Miscellaneous oils, PCBs
13. Former trichloroethane aboveground storage tank	Southwest corner of Building 3	TCA
14. Metal cuttings in recycling bins	West side of Building 2	Metals, miscellaneous oils
15. Used oil-filter storage area	West side of Building 2	Metals, miscellaneous oils
16. Metal slag on ground	West of dock next to Building 2	Metals
17. Loading dock	Outside of southwest corner of Building 2	Organics, hydraulic oils, unknowns
18. Metallurgy laboratory	South portion of Building 2	Metals
19. Cyclone and baghouse	Buildings 4 and 5	Metals
20. Duct work	Building 1	Asbestos
21. Vault area	Building 1	Asbestos

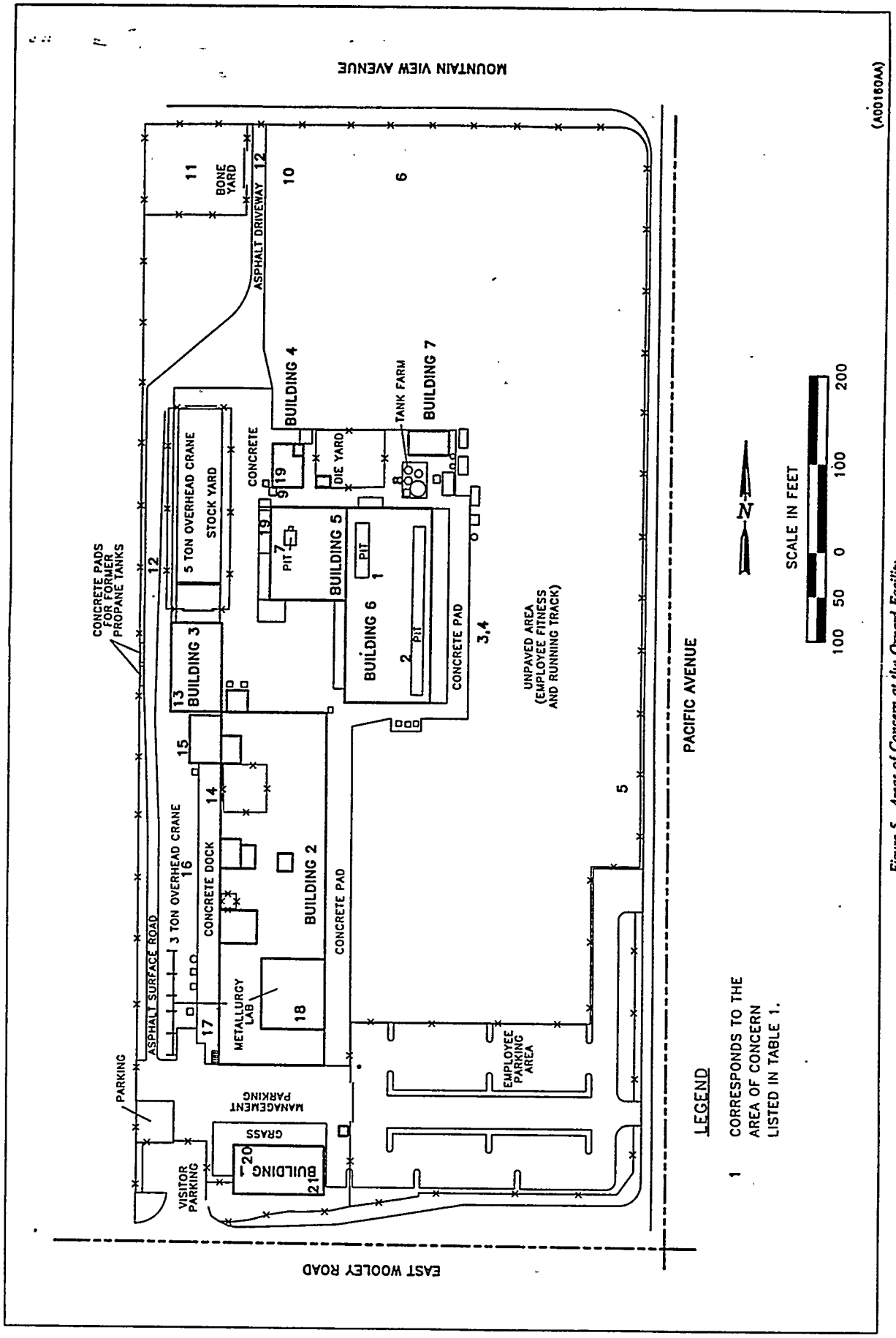


Figure 5. Areas of Concern at the Oxnard Facility

is not used for drinking), they provide a basis for evaluating water quality. The concentrations of the two volatile organic compounds detected are below State drinking water standards and, therefore, do not have a significant effect on water quality.

Analyses of groundwater samples for metals also indicate minimal effect to the shallow aquifer. Silver, arsenic, beryllium, cadmium, cobalt, chromium, copper, mercury, nickel, antimony, selenium, thallium, and vanadium occur in concentrations near or below detection limits and are not considered contaminants in the groundwater. Metals detected in the groundwater (aluminum, lead, iron, zinc) were evaluated statistically using methods described in Section 66265.97 of Title 22 of the California Code of Regulations (Barclays Law Publishers 1990a) to determine if metal concentrations in areas of concern were statistically higher than background metal concentrations. Monitoring wells MW-2 and MW-7 were used as background wells for this analysis. Concentrations of aluminum (MW-1 and MW-6), iron (MW-1 and MW-6), lead (MW-9), and zinc (MW-4 and MW-6) were statistically higher than background concentrations; maximum concentrations of these metals were 2.69 milligrams per liter (mg/L) of aluminum in MW-1, 4.54 mg/L of iron in MW-1, 0.082 mg/L of lead in MW-9, and 0.06 mg/L of zinc in MW-6.

The California primary drinking water standards for aluminum (1 mg/L) was exceeded in samples from MW-1 (2.69 mg/L) and MW-6 (1.87 mg/L), and the standard for lead (0.05 mg/L) was exceeded in a sample from MW-9 (0.082 mg/L). Samples from all wells (except MW-7) in the monitoring network exceeded the California secondary drinking water standard for iron (0.3 mg/L).

Metal concentrations that are statistically higher than background and above drinking water standards may be elevated because of on-site activities; however, a number of sources of variability (i.e., seasonal variation of groundwater quality and variability of the sampling and analytical process) must be taken into account before these elevated metal concentrations in the groundwater can be definitively attributed to on-site activities. An evaluation of groundwater quality and potential groundwater degradation based on comparison to drinking water standards is a conservative approach. In actuality, the risk to human health from groundwater consumption is insignificant because of an incomplete pathway (see Section 4.0, Risk Assessment).

3.3 Soil

Soil samples were collected from 16 boreholes in areas of concern at the Oxnard facility (Figure 3). Soil samples were analyzed for metals, TCL PCBs, TCL volatile organic compounds, and TPH. A detailed analyte list is in Appendix C. Two discrete depth-interval soil samples were collected from each borehole to determine the existence of contamination in soils, and composite soil samples were collected to determine waste disposal options for the borehole cuttings.

Soil samples were collected with a split-barrel sampler from approximately 0- to 2- and 4- to 6-foot depths. The Work Plan/SAP required additional soil sample collection in intervals where stained soil was present or elevated organic vapor readings were detected; however, these phenomena did not occur in any soil samples collected at the Oxnard facility. Split-barrel samplers were equipped with stainless steel sleeves so that volatile organic samples could be collected with minimal loss of the volatile compounds. The bottom stainless steel sleeve (0.5 foot) in the split-barrel sampler was capped immediately after sampling and prepared for submittal to the laboratory for TCL volatile organic compound analysis. The remaining soil in the split-barrel sampler was removed from the stainless steel sleeves, lithologically described, mixed, and then placed in the samples bottles. Soil sampling procedures are detailed in the Work Plan/SAP.

In general, organic compounds were below detection limits or were detected in low concentrations. Organic analytes below detection included TPH and most of the volatile organic compounds. Volatile organic compounds that were detected included acetone, 2-butanone, toluene, and 1,1,1-trichloroethane. Of the 34 samples analyzed, acetone was detected in 15 samples in concentrations ranging from 16.1 to 845 μg/kg; 2-butanone was detected in 15 samples in concentrations ranging from 16.1 to 299 μg/kg; and toluene was detected in 19 samples in concentrations ranging from 2.33 to 19.2 μg/kg. These compounds are common laboratory contaminants and were found in many of the associated laboratory method blanks. 1,1,1-trichloroethane was detected in 9 samples in concentrations ranging from 2.20 μg/kg to 6.36 μg/kg.

PCBs were detected in samples from locations SB-1 (boneyard) and SB-10 (east of the boneyard): aroclor 1254 was detected in a sample from location SB-1 at a concentration of 540 μg/kg, and aroclor 1248 was detected in samples from location SB-10 in concentrations ranging from 60 to 3,900 μg/kg. This data confirms historical investigation results, which indicated the presence of PCBs in these areas. All other soil samples had PCB concentrations below detection limits.

Concentrations of silver, beryllium, and thallium were below detection limits at all soil sampling locations; all other metal analytes were above detection limits in one or more samples. Metal concentrations detected in soil samples were evaluated statistically using methods described in Section 66265.97 of Title 22 of the California Code of Regulations (Barclays Law Publishers 1990a) to determine if metal concentrations in areas of concern were statistically higher than background metal concentrations. Soil borings SB-2 and SB-7 were used as background locations for this analysis. Two locations, SB-14 and SB-15, had metal concentrations that were statistically higher than background; concentrations of antimony, arsenic, chromium, cobalt, copper, iron, lead, manganese, mercury, and nickel were higher than background in one or both of these soil borings. With the exception of mercury, which was elevated in the 4- to 6-foot depth interval, elevated metal concentrations in these two soil borings were found in the 0- to 2-foot depth interval. These locations appear to have been affected by on-site activities. Other locations with elevated metal concentrations relative to background included SB-10 (cadmium), SB-3 and SB-13 (lead), SB-11 (lead and zinc), and SB-12 (copper, lead, and

zinc). All other metal concentrations were not statistically higher than background. Analytical results are in Table D-2, Appendix D.

A risk assessment was conducted to determine if heavy metal, PCB, and volatile organic compound concentrations in exposed soil areas (not under concrete or asphalt) pose a risk to human health. There were no carcinogens in exposed soils that were considered chemicals of potential concern (COPC) when compared to background concentrations; therefore, risk was not calculated. A hazard quotient for exposure to noncarcinogens in exposed soils was calculated at 8.4×10^{-4}. Risks from noncarcinogens are considered acceptable if the hazard quotient is less than 1. Risk assessment rationale and calculations are detailed in Section 4.0.

3.4 Radiological Survey

The shipping/receiving area in Building 2 was surveyed with a beta-gamma detection instrument to determine if it was radiologically contaminated from products returned from radiologically contaminated sites. The results of the radiological survey demonstrated that the shipping/receiving area is not radiologically contaminated; all direct survey and smear survey readings were at background levels. Results of the survey are in Appendix E.

3.5 Waste Disposal

3.5.1 Sludge/Oil

Sludge accumulates at the Oxnard facility as a result of gravity drainage of oils and metal fines from the process equipment. Sludge samples were collected from six locations: the trench beneath the forging hammers in Building 6, the cellars beneath the 1,600-ton and 3,500-ton presses in Building 5, the steam cleaning trench east of the tank farm, and the compressor collection trench east of Building 6 (Figure 3). The sewer clarifier/grease trap was not sampled because it did not contain sludge, and the sump at the north end of the collection trench in Building 6 was not sampled because of safety concerns. One oil sample was collected from the tap on the dirty oil tank located in the tank farm (Figure 3). Collection and analysis of sludge and oil samples were conducted to determine options for disposing these wastes should the facility be decommissioned.

Grab samples of sludge were collected using a stainless steel scoop and by following procedures in the Work Plan/SAP. Sludge samples were analyzed for metals and TCL PCBs. The oil sample was analyzed for metals, TCL PCBs, total organic halides, and ignitability. A detailed analyte list is in Appendix C..

Chromium present at the Oxnard facility is believed to be in the form of chromium metal or trivalent chromium compounds. This assumption is based on process

knowledge; hexavalent chromium compounds are not presently used at the Oxnard facility, and research of historical records does not indicate use of these compounds. Because hexavalent chromium compounds are not used at the facility, the occurrence of hexavalent chromium is unlikely—chromium metal or trivalent chromium is not oxidized to hexavalent chromium under normal environmental conditions. Therefore, the hazardous waste determination of sludge due to chromium contamination was based on the chromium/trivalent chromium threshold limit value.

Results of sludge and oil sample analysis were compared to threshold limit concentrations listed in Title 22 of the California Code of Regulations (Barclays Law Publishers 1990c) to determine if the oil and sludges are considered hazardous waste. For a waste to be classified as nonhazardous in the State of California, total concentrations must be below the total threshold limit concentration, and soluble concentrations must be below the soluble threshold limit concentration. Total concentrations first were determined for all samples. If analyte concentrations were greater than or "near" the analyte's total threshold limit concentration, the EPA toxicity characteristic leaching procedure (TCLP) and/or the California waste extraction test (WET) procedure were performed to determine soluble concentrations. All sludge and oil analyte concentrations were below their respective total threshold limit concentration. However, sludge and oil samples contained total concentrations of selected metals high enough to require TCLP and/or WET extraction tests.

All TCLP metal concentrations were below their respective soluble threshold limit concentration; however, metal concentrations in samples from three sludge locations exceeded the WET soluble threshold limit concentrations. These excessive concentrations occurred in samples from locations SL-2 (chromium and nickel), SL-5 (lead and zinc), and SL-6 (lead). Therefore, sludge from these locations would be considered hazardous if it were removed from the process. Analytical results of sludge and oil samples collected at the Oxnard facility are in Tables D-3 and D-4 in Appendix D.

The risk (probability of developing cancer) to human health from exposure to carcinogens in the sludge and oil was calculated at 2.7×10^{-6}, and the hazard quotient for exposure to noncarcinogens in the sludge/oil was calculated at 8.9×10^{-4}. Under CERCLA, risks from carcinogens greater than 1×10^{-4} generally require action to reduce the risks; risks less than 1×10^{-6} usually result in no action. When risks are between 1×10^{-6} and 1×10^{-4}, actions are taken on a site-specific basis according to direction from EPA. The calculated risk from carcinogens falls within the range of potential action. However, the risk ranges presented above are for risks to the public, and this risk assessment evaluated risk to the site worker (which was a conservative approach); therefore, the risk due to exposure to carcinogens in the sludge is considered insignificant. Risks from noncarcinogens are considered acceptable if the hazard quotient is less than 1. The calculated hazard quotient of 8.9×10^{-4} is well below 1. Risk assessment assumptions and calculations are detailed in Section 4.0.

3.5.2 Borehole Cuttings

Borehole cuttings generated during drilling operations were containerized and labeled so that proper disposal could be conducted after analytical results were reviewed. Composite soil samples were collected from each borehole and analyzed for metals, fluoride salts, and TCL volatile organic compounds to determine if the borehole cuttings were hazardous waste.

Analytical results from the composite soil samples were compared to threshold limit concentrations listed in Title 22 of the California Code of Regulations (Barclays Law Publishers 1990c) to determine if the drummed borehole cuttings are hazardous waste. All analyte concentrations were below the respective total threshold limit concentrations; however, two samples had total metal concentrations high enough to require TCLP and/or WET extraction tests. The composite soil sample from SB-13 was analyzed for lead following the TCLP extraction procedure and was analyzed for lead and chromium following the WET extraction procedure. Lead also was analyzed in the composite soil sample from SB-12 following the WET extraction procedure. All TCLP and WET analyte concentrations were below the respective threshold limit concentrations. Therefore, the borehole cuttings, with the exception of those from SB-1 and SB-10, are not hazardous waste. Because PCBs were detected in samples from SB-1 and SB-10, the borehole cuttings from these locations may have to be disposed of at a TSCA-approved facility pending negotiations with California EPA. Analytical results of the composite soil samples are in Tables D-3 and D-5 of Appendix D.

3.5.3 Development/Purge Water

Groundwater produced during monitoring well development and groundwater sampling was containerized and labeled so that proper disposal could be conducted after analytical results were reviewed. Groundwater samples were analyzed for metals, TCL PCBs, TCL volatile organic compounds, and TPH to determine if the containerized groundwater was considered hazardous waste.

Analytical results from the groundwater samples were compared to threshold limit concentrations listed in Title 22 of the California Code of Regulations (Barclays Law Publishers 1990c) to determine if the containerized groundwater is considered hazardous waste. All groundwater analyte concentrations were below the respective threshold limit concentrations and, therefore, the containerized groundwater is not hazardous waste. Analytical results of groundwater samples are in Appendix D.

3.5.4 Personal Protective Equipment (PPE)

PPE, which was worn during each sampling activity, was containerized and labeled so proper disposal could be conducted after analytical results were reviewed. Analytical results for sludge, oil, soil, groundwater, and asbestos were reviewed to determine if any of these media, and the PPE used to sample them, were hazardous waste.

Because groundwater is not considered hazardous waste, the PPE used during groundwater sampling is not considered hazardous. PPE used during the sampling of soil borings SB-1 and SB-10 (PCB detections) may have to be disposed of at a TSCA-approved facility pending negotiations with California EPA. Because sludge from locations SL-2, SL-5, and SL-6 was determined to be hazardous, the associated PPE also should be handled and disposed as hazardous waste. PPE was not worn at locations SL-5 because the sample was taken remotely. Because asbestos was detected, PPE worn during the asbestos sampling effort should be treated and disposed of as ACM.

3.6 Quality Assurance

Quality assurance measures implemented during the Phase II ESA activities included following procedures established in the Work Plan/SAP, collecting and analyzing field quality control (QC) samples, and analyzing laboratory QC samples. Field QC samples included five trip blanks, four equipment blanks, and five duplicates. Analytical results of field QC samples are in Table D-6 of Appendix D. Laboratory QC consisted of analyzing method blanks, duplicates, blank spikes, blank spike duplicates, matrix spikes, matrix spike duplicates, and laboratory control samples. Volatile organic compounds were detected in many of the method blanks, which indicated laboratory process contamination.

Data quality determinations for the first round of PCB analysis of soil, sludge, and oil samples could not be made because quality indicators did not meet laboratory performance criteria due to matrix interferences. Although PCBs were not detected in any of these samples, a potential for false negatives existed. The laboratory followed the analytical methods detailed in *Test Methods for the Evaluation of Solid Waste* SW-846 (EPA 1986), which were specified in the Work Plan/SAP. However, SW-846 guidance only suggests methods to clean up samples that have matrix interferences, and no attempt by the laboratory to remedy the matrix interferences was made; therefore, PCB samples from soil, sludge, and oil were reanalyzed in accordance with a detailed set of technical specifications.

All holding times specified in the Work Plan/SAP were met with the exception of the reanalysis of PCBs in soil, sludge, and oil; however, because the samples were stored in the laboratory refrigerator, reanalysis of the samples was acceptable to California EPA despite the expired holding time.

Laboratory analytical data was reviewed, and precision, accuracy, and completeness of the data were calculated for each medium. A general discussion of precision, accuracy, and completeness and a summary of results follows.

3.6.1 Precision

Precision is the agreement between the numerical values of two or more measurements that have been made in an identical manner without any knowledge of the true value. It is determined through the analysis of laboratory and field duplicate samples. Because field duplicate analyses measure both field and laboratory precision, results of the analyses may contain more variability than laboratory duplicate analyses, which measure only laboratory performance.

Precision is expressed as relative percent difference (RPD) according to the following formula:

$$RPD = \frac{\textit{absolute value of (original sample result - duplicate sample result)}}{\textit{(original sample result + duplicate sample result)/2}} \times 100\%$$

Field duplicate precision ranged from 0 to 152 percent, and laboratory duplicate precision ranged from 5 to 42 percent. Field and laboratory duplicate RPDs are listed in Appendix F.

3.6.2 Accuracy

Accuracy is the closeness of a measurement to the true value. For soil and water samples, it is usually expressed in percent recovery, which is determined through analyses of reference standards and matrix spike samples. The objective of these analyses is to meet the percent recovery defined by the individual analytical methods.

For soil, groundwater, and sludge samples, accuracy is expressed in terms of percent recovery (%R) during matrix spike sample analysis and RPD of laboratory control samples:

$$\%R = \frac{\textit{(concentration of spiked sample - concentration of unspiked sample)}}{\textit{known concentration of spiked compound}} \times 100\%$$

Accuracy for matrix spike recoveries on inorganic samples ranged from 75 to 120 percent. For TPH analyses, matrix spike recoveries ranged from 102 to 110 percent, and blank spikes ranged from 65 to 108 percent. Blank spikes are not an adequate measure of overall accuracy because they do not account for sample matrix interferences. Matrix spikes were not performed on volatile organic compounds; only blank spike analysis was conducted. Blank spike recoveries for volatile organic compounds ranged from 88 to 122 percent. All these recoveries are within the laboratory acceptance criteria. Matrix spike results for the reanalysis of PCBs were not available for review before this report was published. Laboratory control samples also were analyzed for inorganic constituents; recoveries for these analyses ranged from 89 to 110 percent, which is within the laboratory acceptance criteria.

3.6.3 Completeness

The completeness of data collected during this investigation was determined by comparing the number of valid measurements actually obtained to the number of planned measurements and is expressed by the following equation.

$$\%C = \frac{\textit{number of valid measurements}}{\textit{total number of planned measurements}} x\ 100\%$$

The completeness calculation did not include asbestos investigation results because the number of planned asbestos samples was unknown. The calculated completeness for the project was 97 percent.

4.0 Risk Assessment

This risk assessment was structured around the CERCLA risk assessment process (EPA 1989), but was simplified considerably over the traditional CERCLA risk assessment. The major differences were a less rigorous data evaluation, a superficial examination of exposure pathways, and the use of only one source for the Toxicity assessment (EPA 1993). The purpose of this risk assessment is to provide a general overview of the potential risks to human health at the Oxnard facility.

4.1 Preliminary Conceptual Site Model

Figure 6 presents the conceptual site model for the Oxnard facility. An industrial scenario is assumed for both the current and future. Because the land adjacent to the facility is currently industrial, there is no indication that a residential scenario would apply at this site in the foreseeable future. Major sources at the facility include maintenance/construction disposal, industrial operations, and storage spills. Potentially contaminated media include groundwater, air, and soil/sludges. The site is supplied with drinking water from the city of Oxnard; therefore, exposure from groundwater is not considered a complete pathway. Inhalation of and dermal contact with contaminated soils/sludges are potentially complete pathways, although exposures resulting from these pathways will likely be insignificant compared to exposures from ingestion.

Chromium present at the Oxnard facility is believed to be in the form of chromium metal or trivalent chromium. This assumption is based on process knowledge; hexavalent chromium compounds are not presently used at the Oxnard facility, and historical records do not indicate use of these compounds. The occurrence of hexavalent chromium is unlikely because chromium metal or trivalent chromium is not oxidized to hexavalent chromium under normal environmental conditions.

4.2 Data Evaluation

The analytical data collected during the Phase II ESA are presented in Appendix D. Because exposure to groundwater is not considered likely, groundwater data were not used in the risk assessment. No air contaminant concentration data were available, but no violations of State Air quality standards have occurred at the facility. The risks of inhaling contaminated air are expected to be insignificant compared to those of ingesting contaminated soil.

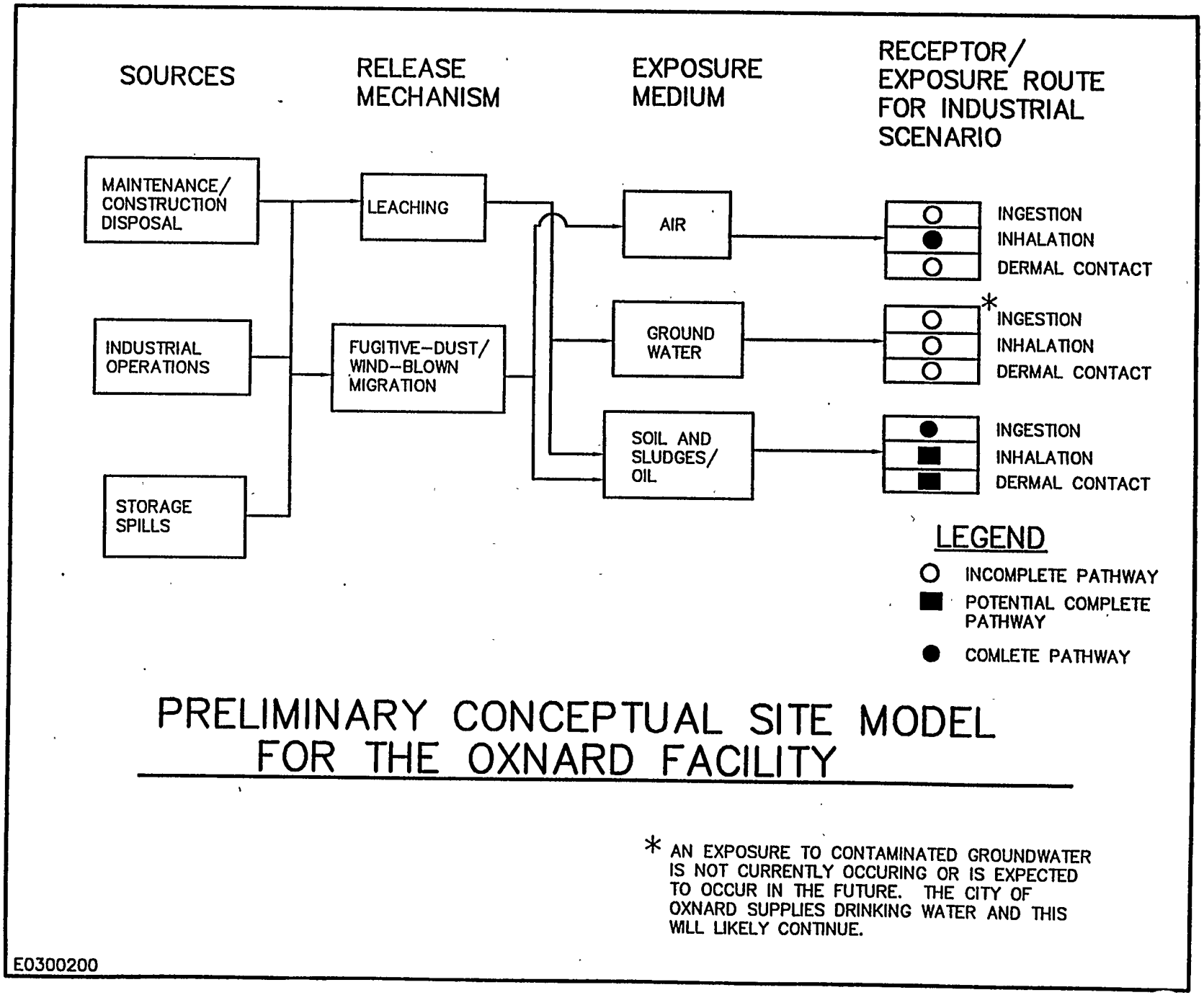


Figure 6. Risk Assessment Pre ary Conceptual Site Model

Data from the locations listed in Table 2 were used in the risk assessment.

Table 2. Risk Assessment Sampling Locations

Sample Locations	Comments
SB-1, SB-5, SB-8, SB-9, and SB-10	Areas where exposure to potentially contaminated soil is likely. All other potentially contaminated soil areas are covered by concrete or asphalt, which eliminates the potential for exposure.
SB-2 and SB-7	Background locations.
Oil-1 and SL-1, SL-2, SL-3, SL-5, SL-6, and SL-7	Data from all of these sample locations were used because maintenance and cleaning personnel exposure could occur at all these points.

Data from areas of concern were compared to background data as presented in Table 3. When a chemical concentration in a background area was equal to or greater than 90 percent of the concentration of that chemical in the area of concern, that chemical was eliminated as a chemical of potential concern (COPC) in accordance with EPA risk assessment guidance for CERCLA sites.

Table 3. Data Summary for Risk Assessment

Element	Soil (mg/kg)[a]	Sludge/Oil (mg/kg)[b]	Background (mg/kg)	COPC[d] Soil/Sludge Oil
Ag	0.40	0.41	0.40	NO
As	3.34	2.58	4.61	NO
Ba	104.92	37.96	93.20	YES/NO
Be	0.40	0.41	0.40	NO
Cd	0.58	12.29	0.40	YES
Co	5.47	39.99	6.22	NO/YES
Cr	19.36	187.07	21.45	NO/YES
Cu	13.30	745.26	11.25	YES
F	4.86	-	2.50	YES/NO
Hg	0.034	0.031	0.016	YES
Mo	0.52	46.06	0.40	YES
Ni	17.02	459.84	16.05	NO/YES
Pb	14.45	171.36	12.65	YES
Sb	0.40	1.54	0.40	NO/YES
Se	0.17	0.05	0.22	NO
Tl	0.40	0.41	0.40	NO
V	31.80	24.41	41.85	NO
Zn	66.06	1283.14	51.60	YES
1,1,1, Trichloroethane	0.003	-	0.002	YES/NO
Acetone	0.178	-	0.008	YES/NO
Toluene	0.003	-	0.002	YES/NO
2-Butanone	0.066	-	0.008	YES/NO
PCBs	0.906	0.03	0.03	YES/NO

[a]These concentrations were calculated by averaging data from sampling locations SB-1, SB-5, SB-8, SB-9, and SB-10. When information on the depth of the sample was given, only data from the 0-2 foot depth was used. Exposures are not likely to occur from soils greater than 2 feet in depth.

[b]These concentrations were calculated by averaging data from sampling locations Oil-1, SL-1, SL-2, SL-3, SL-5, SL-6, and SL-7.

[c]According to U. S. EPA Guidance, compounds not detected are assumed to be one-half of the detection limit.

[d]Based on comparison to background.

4.3 Exposure Assessment

An industrial scenario is the only likely exposure scenario at the facility. Residential use of the facility is not considered likely because of the industrial use of the immediate area. The two possible industrial scenarios are shown in Table 4.

Table 4. Risk Assessment Scenarios

Scenario	Exposure Medium	Comments
Exposure to five potentially contaminated soil areas	soil	This assumes regular exposure to these areas over the entire work year.
Exposure to sludges/oils through maintenance and cleaning activities.	sludges/oil	This assumes exposure will occur infrequently: one week for maintenance and one week for cleaning.

These scenarios do not include exposure to air or groundwater. Air is not included because data are not available. However, exposures are expected to be limited because no State air violations have been recorded. No contact with groundwater is expected because water is supplied by the City. The only viable exposure route is considered to be ingestion of contaminated soils or sludges/oil. Limited exposure may occur from inhalation or dermal contact with these contaminated media, but this is expected to be insignificant compared to exposure from ingestion.

Exposure to the COPCs was estimated through use of the following equation (from "Risk Assessment Guidance for Superfund")(EPA 1989).

$$Intake(mg/kg-day) = \frac{CSxIRxCFxFIxEFxED}{BWxAT}$$

Where:

CS = Chemical Concentration in Soil (mg/kg)
IR = Ingestion Rate (mg soil/day)
CF = Conversion Factor (10^{-6} kg/mg)
FI = Fraction Ingested from Contaminated Source (unitless)
EF = Exposure Frequency (days/years)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (period over which exposure is averaged -- days)

Exposure factors used are presented in Table 5.

Table 5. Exposure Factors

Exposure Parameter	Exposure Factor soil sludge/oil		Source	Comment
Ingestion Rate	50 mg/day	50mg/day	USEPA 1991	Interim default for adult ingestion of soil and dust in the typical work place.
Fraction Ingested	1	1		Assumes worst case.
Exposure Frequency	250 days	10 days		Soil: Assumes 5 days/week 50 weeks per yr. Sludges/Oil: Assumes one week for cleaning, one week for maintenance. A total of two weeks per year.
Exposure Duration	25 yrs.	25 yrs.	USEPA 1991	This is the 95 percentile for a worker to stay at the same location, according to the Bureau of Labor statistics.
Body Weight	70 kg	70 kg	USEPA 1989	Standard Values
Averaging Time	70 yrs. for carcinogens 25 yrs. for noncarcinogens		USEPA 1989	Standard Values

Sources: US EPA 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors." OSWER Directive 9285.6-03. US EPA 1989. Risk Assessment Guidance for Superfund, EPA/540/1-89/002 (EPA 1991).

4.4 Toxicity Assessment

This section presents information on toxicity of the chemicals of potential concern. Table 6 presents carcinogenicity status, slope factor, and reference dose for each contaminant of potential concern.

Table 6. Toxicity Assessment Summary

COPC	Effect[a]	Slope Factor $(mg/kg\text{-}day)^{-1}$	RFD (mg/kg/day)
Ba	N	--	7×10^{-2}
Cd		--	--
Co		--	--
Cr[b]	N	4.1×10^{1}	2×10^{-2}
Cu	N	--	NA
F	N	--	4×10^{-1}
Hg	N	--	3×10^{-4}
Mo	N	--	5×10^{-3}
Ni	C/N	8.4×10^{-1}	2×10^{-2}
Pb	C/N	NA	NA
Sb	N	--	4×10^{-4}
Zn	N	--	NA
1,1,1 Trichloroethane	N	--	NA
Acetone	N	--	1.0×10^{0}
Toluene	N	--	2.0×10^{0}
2-Butanone		--	NA
PCBs	C	7.7	NA

[a]C = Carcinogen.
N = Noncarcinogen.

[b]Assume chromium and chromium III compounds.

NA = Not Available.

Source: Health Effects Assessment Summary Tables. EPA 540-R-93-058.

Toxicity profiles for the chemicals of potential concern are as follows:

- Barium primarily is toxic to the skin, eye, heart, and lung.

- Cadmium is a metal with a level of toxicity similar to that of lead. It is present in most foods and tissues. The element and its compounds are toxic through inhalation, ingestion, and subcutaneous application. Organs most sensitive to cadmium are the kidney and lung.

- Exposure to cobalt can lead to decreased pulmonary function and skin disorders.

- Chromium exists in several valence states, but only trivalent and hexavalent chromium are of biological importance. Trivalent chromium is an essential nutrient. Hexavalent chromium is a human carcinogen through inhalation.

- Copper is an essential trace metal. At high intakes, it is toxic to the brain, liver, and kidneys.

- Fluoride is added to many public water supplies. In high doses, it can cause respiratory, skin, eye, and gastrointestinal irritation. Fluoride is not a carcinogen.

- Mercury primarily is toxic to the skin, respiratory tract, central nervous system, and kidney.

- Molybdenum is an essential trace metal. At high doses, it is toxic to the blood, liver, and eye.

- Nickel and some of its compounds are carcinogenic to humans, a finding based on epidemiological evidence for nickel refinery workers suffering from lung and nose cancer.

- The toxic effects of lead are widespread, and are found in the central nervous system, the peripheral nervous system, the kidneys, and the blood.

- Antimony is similar in toxicity to arsenic. It can damage the reproductive system, skin, heart, lungs, and gastro-intestinal tract.

- Zinc is an essential trace metal in the human diet. Zinc is not an inherently toxic element; however, some of its compounds are toxic and cause dermatitis and intestinal disorders.

- At high levels of exposure, trichloroethane is moderately toxic and depresses the central nervous system.

- Systemic toxicity in the form of central nervous system depression can occur after ingestion, inhalation, or dermal absorption of acetone.

- At high levels of exposure, toluene is a narcotic and affects the central nervous system, leading to fatigue, weakness, and confusion. In low, chronic exposures, toluene can cause damage to the liver and kidneys.

- Inhalation of 2-butanone can lead to central nervous system depression, narcosis, and cardiorespiratory system failure.

- PCBs are moderately toxic by ingestion and/or skin contact and cause liver and experimental reproductive effects.

In most pathways to human receptors, agents occur in mixtures. When there is a mixture of toxic agents, there exists a potential for interactions among the agents' effects. This potential depends on the components of the mixture, on the carriers along the environmental pathway from source to receptor, and on the way the contaminant enters the body. For carcinogens that lead to the same endpoint (e.g., cancer of the same organ) there is a considerable potential for synergistic or antagonistic interaction. It has been shown, however, that for carcinogens having low cancer probabilities, the interaction generally is antagonistic, which leads to a lower probability of cancer.

4.5 Risk Characterization

Risks were estimated as follows:

Carcinogens: ***Risk = CDI x SF***

where: Risk = a unitless probability (e.g., 2×10^{-5}) of an individual developing cancer;

CDI = Chronic daily intake averaged over 70 years (mg/kg-day); and

SF = slope factor, expressed in $(mg/kg\text{-}day)^{-1}$

Noncarcinogens: ***Noncancer Hazard Quotient = E/RfD***

where: E = exposure level (or intake)

RfD = reference dose; and

E and RfD are expressed in the same units and represent the same exposure period (i.e., chronic, subchronic, or shorter-term).

Risk characterization results are presented in Table 7.

Table 7. Risk Characterization Results

COPC	Soil Scenario		Sludges/Oil	
	Carcinogens	Noncarcinogens	Carcinogens	Noncarcinogens
Ba		7.33×10^{-4}		Not a COPC
Cd	(No EPA slope factor [SF] or reference dose [RFD] available.)			
Co	(No EPA slope factor [SF] or reference dose [RFD] available.)			
Cr				1.83×10^{-4}
Cu	(No EPA slope factor [SF] or reference dose [RFD] available.)			
F		5.9×10^{-6}	Not measured	
Hg		5.5×10^{-5}		2.0×10^{-6}
Mo		5.1×10^{-5}		1.8×10^{-4}
Ni	Not a COPC		2.7×10^{-6}	4.5×10^{-4}
Pb	(No EPA slope factor [SF] or reference dose [RFD] available.)			
Sb	Not a COPC			7.5×10^{-5}
Zn	(No EPA slope factor [SF] or reference dose [RFD] available.)			
1,1,1 Trichloroethane	(No EPA slope factor [SF] or reference dose [RFD] available.)			
Acetone		8.7×10^{-8}	Not measured	
Toluene		7.3×10^{-10}	Not measured	
2-Butanone	(No EPA slope factor [SF] or reference dose [RFD] available.)			
PCBs	5.8×10^{-8}			
TOTAL		8.4×10^{-4}	2.7×10^{-6}	8.9×10^{-4}

Under CERCLA, risks from carcinogens greater than 1×10^{-4} generally require action to reduce the risks; risks less than 1×10^{-6} usually result in no action. When risks are between 1×10^{-6} and 1×10^{-4} actions are taken on a site-specific basis in accordance with direction from EPA. For noncarcinogens, the individual risks (called Hazard Quotients) are summed to become a Hazard Index (HI). Generally, when the HI is less than one, adverse noncarcinogenic effects during a lifetime are not considered to be excessive, within an adequate margin of safety. (For more information on acceptable risk ranges under CERCLA, see "National Oil and Hazardous Substances Pollution Contingency," 40 CFR Part 300, March 8, 1990).

Risk ranges given are for risks to the public. A CERCLA baseline risk assessment does not include an evaluation of risks to workers because CERCLA focuses on inactive sites. Risks to the general public are expected to be negligible. Therefore, the CERCLA risk interpretation given above provides a worst-case interpretation of the results for this facility.

The risk from carcinogens (2.7×10^{-6}) is in the 1×10^{-6} to 1×10^{-4} range but is close to the lower value of the range and is based on a worst-case assumption of risk to site workers. The risk from noncarcinogens is well below the hazard index threshold of 1.

5.0 Recommendations

All friable asbestos gaskets including the emersion heater and Lindberg furnace gasket should be removed and disposed of in accordance with the Ventura County Air Pollution Control District Rule 62.7, Sections D.2.a, D.3, G, and J. Notification and containment area requirements are not applicable because the total surface area of ACM is less than 100 square feet.

Abatement of the floor tiles (Building 1, Lobby and Vault), window caulk (Building 6), textured wall coating (Building 1, Accounting Offices), laboratory benches and cabinet sheathing, and HVAC sleeve is not necessary because these materials are in excellent condition and are not in a friable state.

In general, ACM floor tiles and mastic are classified as Category I Non-Friable ACM, and the laboratory benches, cabinet sheathing, window caulk, and HVAC sleeve are classified as Category II Non-Friable ACM. As such, these materials are exempt from Rule 62.7 as long as removal procedures prevent the ACM from becoming friable during renovation. The following language is specific to Category I and Category II Non-Friable ACM:

> Use removal, loading, and transportation techniques designed to prevent the release of fibers and to prevent nonfriable ACM from becoming friable. Do not use techniques involving sanding, grinding, chipping, drilling, sawing, abrading, dropping, throwing, sliding, or any other technique that may allow the release of fibers or render the material friable. Keep all areas of ACM that are disturbed during cutting or disjoining operations adequately wet. Cover or contain the material so that no ACM is lost during transportation to an appropriate disposal site.

An asbestos management plan for asbestos that will remain in place will need to be prepared because the facility qualifies as a public building in the State of California. If and when renovation or demolition of buildings or building components is planned, a full asbestos inspection of those areas will be required prior to renovation or demolition. The asbestos inspection will allow the asbestos content of materials, such as the electrical wiring insulation, brakes of the Cleveland presses, and window caulk in Building 2, to be determined.

Significant contamination of the shallow groundwater system beneath the Oxnard facility has not occurred. The absence or low concentrations of organic compounds and most metals in groundwater samples indicates minimal degradation of the shallow aquifer, and groundwater remediation is not warranted. Monitoring wells should be properly abandoned as specified in the well permit issued by the City of Oxnard, which requires wells to be abandoned after the completion of the monitoring program.

Soils at the Oxnard facility show elevated concentrations of heavy metals and PCBs. Heavy metal concentration in several soil boring samples were statistically higher than those in background samples; however, the risk from exposure to soils in these ares is low, and corrective action is not warranted. PCBs were detected in samples from two soil borings. Negotiations with California EPA should be conducted to determine PCB action levels at the Oxnard facility. Once action levels are established, two courses of action are possible: (1) no action (if PCB concentrations are below established action limits and no further characterization is required); or (2) further characterization of PCBs and appropriate corrective action.

Radiological contamination at the Oxnard facility was not found; no action is required.

Containerized groundwater is not hazardous and can be handled and discarded as wastewater in accordance with local regulations. Sludges in the trench beneath Building 6, the cellar beneath the 1,600-ton press in Building 5, and the collection trench east of Building 6 should be treated as hazardous waste if they are removed for disposal. All containerized soils, with the exception of borehole cuttings from SB-1 and SB-10, are not hazardous and can be returned to the soils on the facility. Borehole cuttings from SB-1 and SB-10 should not be disposed of until negotiations with California EPA concerning PCBs are completed. PPE used to collect asbestos samples should be disposed of in accordance with the Ventura County Air Pollution Control District Rule 62.7.

6.0 References

Barclays Law Publishers, 1990a. Title 22, California Code of Regulations, Division 4.5, Chapter 15, § 66265.97 "General Water Quality Monitoring and System Requirements," South San Francisco, CA.

_____, 1990b. Title 22, California Code of Regulations, Division 4, Chapter 15, Article 4, § 64431 "Maximum Contaminant Levels - Inorganic Chemicals," South San Francisco, CA.

_____, 1990c. Title 22, California Code of Regulations, Division 4, Chapter 11, Article 3, § 66261.24 "Characteristic of Toxicity," South San Francisco, CA.

Bouwer, H., and R. C. Rice, 1976. "A slug test for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells," *Water Resources Research*, v. 12, pp. 423-428.

Bouwer, H., 1989. "The Bouwer and Rice Slug Test - An Update," *Ground Water*, v 27, pp. 304-309.

Bureau of National Affairs, 1995a. Title 8, California Code of Regulations, Chapter 3.2, California Occupational Safety and Health Regulations (CAL/OSHA) Subchapter 2, Article 2.6, § 341.15 *Certification of Asbestos Consultants and Site Surveillance Technicians*, Washington, DC.

_____, 1995b. Title 8, California Code of Regulations, Chapter 3.2, California Occupational Safety and Health Regulations (CAL/OSHA), Construction Safety Orders, Article 4, § 1529 *Asbestos*, Washington, DC.

_____, 1995c. Title 8, California Code of Regulations, Chapter 3.2, California Occupational Safety and Health Regulations (CAL/OSHA), Subchapter 2, Article 2.5, § 341.6 *Registration Requirements*, Washington, DC.

_____, 1995d. Ventura County Air Pollution Control District Rule 62.7, *Asbestos Renovation and Demolition*, Washington, DC.

Marburg Associates and William P. Parkin, 1991. *Site Auditing: Environmental Assessment of Property*, Specialty Technical Publishers, Inc., Vancouver, British Columbia, Canada.

U.S. Department of Energy, 1994a. *Phase I Environmental Site Assessment for the EG&G Rocky Flats Oxnard Facility*, Grand Junction Projects Office, Grand Junction, CO

U.S. Department of Energy, 1994b. 10 CFR 1021.301, "National Environmental Policy Act Implementation Procedures, Subpart C - Implementing Procedures," *U.S. Code of Federal Regulations*, January 1, 1994.

_____, 1994c. *Work Plan/Sampling and Analysis Plan for the Phase II ESA of the EG&G Rocky Flats Oxnard Facility, Oxnard, California*, Grand Junction Projects Office, Grand Junction, CO.

U.S. Environmental Protection Agency, 1989. *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A)*, EPA/540/1-89/002, Washington, DC.

_____, 1991. *Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors", Interim Final*," OSWER Directive 9285.6-03, Washington DC.

_____, 1993. *Health Effects Assessment Summary Tables*, EPA 540-R-93-058, March 1993, Washington, DC.

_____, 1994a. 40 CFR Part 763, "Subchapter R—The Toxic Substances Control Act, Asbestos", *U.S. Code of Federal Regulations*, July 1, 1994.

_____, 1994b. 40 CFR Part 300, "National Oil and Hazardous Substances Pollution Contingency", *U.S. Code of Federal Regulations*, July 1, 1994.

Ventura County Air Pollution Control District, 1992. Rule 62.7, "Asbestos Renovation and Demolition," Ventura, CA.

Appendix A
Asbestos Investigation

Asbestos Summary Sheet

Sample Numbers	Ticket Book Number	Sample Date	Building and Room	Homogeneous Material Description	Material Type	Quantity Lin/Sq. Ft.	Asbestos Fiber Type	Asbestos Content %
ACM 1-1-1[a]	NBE 374	2/8/95	Building 1 Hallway	12 X 12 Large Hole Ceiling Tiles	M[b]	± 500 ft.²	NA[c]	ND[d]
ACM 1-1-2								
ACM 1-1-3								
ACM 1-2-1	NBE 375	2/8/95	Building 1 Lobby and Office	12 X 12 Small Hole Ceiling Tiles	M	± 400 ft.²	NA	ND
ACM 1-2-2								
ACM 1-2-3								
ACM 1-3-1	NBE 326	2/8/95	Building 1 Accounting Offices	Sprayed on Wall Texture	S[e]	± 1000 ft.²	NA	ND
ACM 1-3-2								
ACM 1-3-3								
ACM 1-4-1	NBE 327	2/8/95	Building 1 Accounting Offices	Sprayed on Wall Texture	S	± 500 ft.²	Chrysotile	1-3
ACM 1-4-2								
ACM 1-4-3								
ACM 1-5-1	NBE 330	2/8/95	Building 1 Vault	Plaster Walls	S	± 1000 ft.²	NA	ND
ACM 1-5-2								
ACM 1-5-3								
ACM 1-6-1	NBE 330	2/8/95	Building 1 Vault	9 X 9 Black Floor Tiles	M	± 300 ft.²	Chrysotile	3-5
ACM 1-6-2								
ACM 1-6-3								

[a]Sample designation is as follows: ACM 1-1-1=Asbestos containing material from Building 1, homogeneous material 1, and one sample taken, respectively.
[b]Miscellaneous.
[c]Not applicable.
[d]Not detected.
[e]Surface.

Asbestos Summary Sheet (continued)

Sample Numbers	Ticket Book Number	Sample Date	Building and Room	Homogeneous Material Description	Material Type	Quantity Lin/Sq. Ft.	Asbestos Fiber Type	Asbestos Content %
ACM 1-7-1[a]	NBE 331	2/8/95	Building 1 Lobby	9 X 9 White Floor Tiles	M[b]	± 400 ft.²	Chrysotile	1-2
ACM 1-7-2								
ACM 1-7-3								
ACM 1-8-1	NBE 329	2/8/95	Building 1 Roof	Composite Roof Materials w/ Tar Underlay	M	± 5000 ft.²	NA[c]	ND[d]
ACM 1-8-2								
ACM 1-8-3								
ACM 1-9-1	NBE 332	2/8/95	Building 1 HVAC	HVAC System Pink Fibrous Insulation	TSI[e]	± 100 lin ft.	NA	ND
ACM 1-10-1	NBE 333	2/8/95	Building 1 HVAC	HVAC Interior Duct Work Wipe Sample	TSI	NA	NA	ND
ACM 1-11-1	NBE 334	2/8/95	Building 1 HVAC	HVAC System Brown Fibrous Insulation	TSI	± 100 lin ft.	NA	ND
ACM 1-11-2								
ACM 1-11-3								
ACM 1-12-1	NBE 335	2/8/95	Building 1 HVAC	HVAC System Joint Insulation	TSI	± 2 lin ft.	Chrysotile Crocidolite	24-28 4-6

[a]Sample designation is as follows: ACM 1-1-1=Asbestos containing material from Building 1, homogeneous material 1, and one sample taken, respectively.
[b]Miscellaneous.
[c]Not applicable.
[d]Not detected.
[e]Thermal system insulation.

Asbestos Summ ieet (continued)

Sample Numbers	Ticket Book Number	Sample Date	Building and Room	Homogeneous Material Description	Material Type	Quantity Lin/Sq. Ft.	Asbestos Fiber Type	Asbestos Content %
ACM 2-1-1[a]	NBE 364	2/8/95	Building 2 Fabrication Shop (outside)	Air Exchanger Insulation Wrap	TSI[b]	< 4 lin. ft.	NA[c]	ND[d]
ACM 2-2-1 ACM 2-2-2 ACM 2-2-3	NBE 365	2/7/95	Building 2 Engineering Office Conference Room	Plaster Wallboard. All wallboard in building 2 was the same construction.	S[e]	± 1000 ft.²	NA	ND
ACM 2-3-1 ACM 2-3-2 ACM 2-3-3	NBE 366	2/7/95	Building 2 Engineering Office Conference Room	24 X 48 Ceiling Tiles	M[f]	± 1000 ft.²	NA	ND
ACM 2-4-1	NBE 367	2/7/95	Building 2 Manufacturing Office	9 X 9 Gray-brown Floor Tiles w/ Black Mastic	M	± 100 ft.²	NA	ND
ACM 2-5-1 ACM 2-5-2 ACM 2-5-3	NBE 368	2/7/95	Building 2 Maintenance Office	9 X 9 Light-brown Floor Tiles w/ Black Mastic	M	± 600 ft.²	NA	ND

[a]Sample designation is as follows: ACM 1-1-1=Asbestos containing material from Building 1, homogeneous material 1, and one sample taken, respectively.
[b]Thermal system insulation.
[c]Not applicable.
[d]Not detected.
[e]Surface.
[f]Miscellaneous.

Asbestos Summary Sheet (continued)

Sample Numbers	Ticket Book Number	Sample Date	Building and Room	Homogeneous Material Description	Material Type	Quantity Lin/Sq. Ft.	Asbestos Fiber Type	Asbestos Content %
ACM 2-6-1[a]	NBE 369	2/7/95	Building 2 Maintenance Office	24 X 48 Ceiling Tiles	M[b]	± 600 ft.^{2}	NA[c]	ND[d]
ACM 2-6-2								
ACM 2-6-3								
ACM 2-7-1	NBE 370	2/8/95	Building 2 Metallurgical Lab	Laboratory Cabinet Interior Fireproof Sheathing	M	± 500 ft.^{2}	Chrysotile	20-30
ACM 2-8-1	NBE 371	2/8/95	Building 2 Metallurgical Lab	Tan Furnace Brick	M	± 4 ft.^{2}	NA	ND
ACM 2-9-1	NBE 372	2/8/95	Building 2 Shop Area	Window Caulk Calcium Carbonate	M	± 500 ft.^{2}	NA	ND
ACM 2-10-1	NBE 373	2/8/95	Building 2 Shop Area	Drill Press Deflector Guard	M	± 3 ft.^{2}	NA	ND
ACM 4-1-1	NBE 351	2/6/95	Building 4 Roof	Asphalt Rolled Roofing Material	M	± 1000 ft.^{2}	NA	ND
ACM 4-1-2								
ACM 4-1-3								

[a]Sample designation is as follows: ACM 1-1-1=Asbestos containing material from Building 1, homogeneous material 1, and one sample taken, respectively.
[b]Miscellaneous.
[c]Not applicable.
[d]Not detected.

Asbestos Summ[illegible]heet (continued)

Sample Numbers	Ticket Book Number	Sample Date	Building and Room	Homogeneous Material Description	Material Type	Quantity Lin/Sq. Ft.	Asbestos Fiber Type	Asbestos Content %
ACM 5-1-1[a]	NBE 357	2/7/95	DP/DG Room Equipment Insulation	Yellow Fibrous Glass	M[b]	±200 ft.²	NA[c]	ND[d]
ACM 5-2-1	NBE 358	2/7/95	Used Block Storage Area	Brown Silica Brick (furnace)	M	± 300 ft.²	NA	ND
ACM 5-3-1 ACM 5-3-2 ACM 5-3-3	NBE 359	2/7/95	Used Block Storage Area	Tan Silica Brick and Mortar (furnace)	M	± 2000 ft.²	NA	ND
ACM 6-1-1	NBE 360	2/7/95	Building 6 Window Caulking	Window Caulk Calcium Carbonate	M	± 500 ft.²	Chrysotile	1-3
ACM 6-2-1	NBE 361	2/7/95	Lindberg Furnace Front Door Gasket	Grey Fibrous Gasket	M	< 5 lin. ft.	Chrysotile	90-95
ACM 6-3-1	NBE 363	2/7/95	Lindberg Furnace Brick	Brown and Tan Silica Brick (furnace)	M	< 20 ft.²	NA	ND

[a]Sample designation is as follows: ACM 1-1-1=Asbestos containing material from Building 1, homogeneous material 1, and one sample taken, respectively.
[b]Miscellaneous.
[c]Not applicable.
[d]Not detected.

Asbestos Summary Sheet (continued)

Sample Numbers	Ticket Book Number	Sample Date	Building and Room	Homogeneous Material Description	Material Type	Quantity Lin/Sq. Ft.	Asbestos Fiber Type	Asbestos Content %
ACM 6-4-1[a]	NBE 362	2/7/95	West Outside Wall at Air Exchanger or Air Conditioner	Brown Cellulose TSI Fibrous Material	TSI[b]	< 4 lin. ft.	NA[c]	ND[d]
ACM 7-1-1	NBE 354	2/7/95	Valve Tubing Batch Water Tanks	Black and Red Fibrous Tubing	M[e]	< 3 lin. ft.	NA	ND
ACM 7-3-1	NBE 352	2/7/95	Tank Eyeglass Tubing	Clear Tubing w/ Fiber Reinforcement	M	± 14 lin. ft.	NA	ND
ACM 7-4-1	NBE 355	2/7/95	Felt Gasket Base of Emerson Heater (in storage) Building 7	Gray Fibrous Gasket	M	< 4 ft.^{2}	Chrysotile	60-70
ACM 7-5-1	NBE 356	2/7/95	Tank Farm Pit Effluent Tank Manhole Gasket	Red and White Cellulose Gasket	M	< 25 ft.^{2}	NA	ND

[a]Sample designation is as follows: ACM 1-1-1=Asbestos containing material from Building 1; homogeneous material 1, and one sample taken, respectively.
[b]Thermal system insulation.
[c]Not applicable.
[d]Not detected.
[e]Miscellaneous.

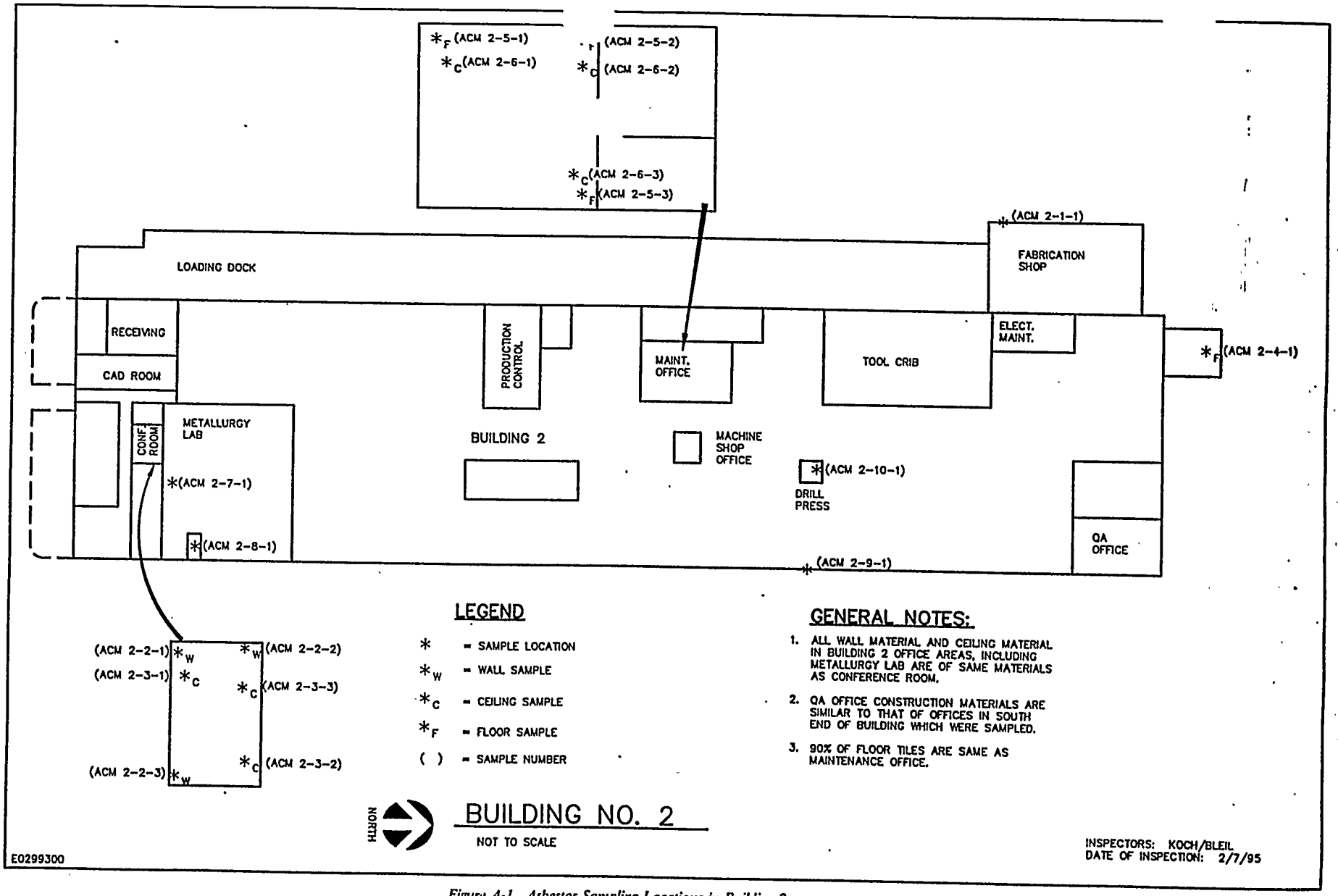
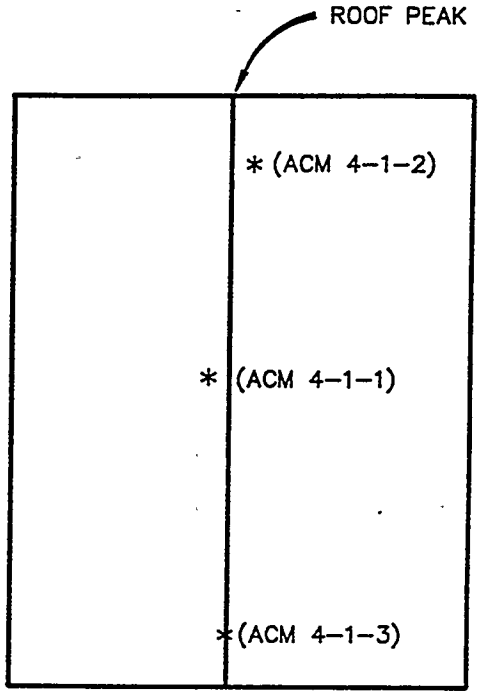


Figure A-1. Asbestos Sampling Locations in Building 2



LEGEND

* = SAMPLE LOCATION
( ) = SAMPLE NUMBER

NOTES: ASPHALT ROLLED ROOFING MATERIAL

NORTH

BUILDING NO. 4

NOT TO SCALE

INSPECTORS: KOCH/BLEIL
DATE OF INSPECTION: 2/6/95

E0299400

Figure A-2. Asbestos Sampling Locations in Building 4

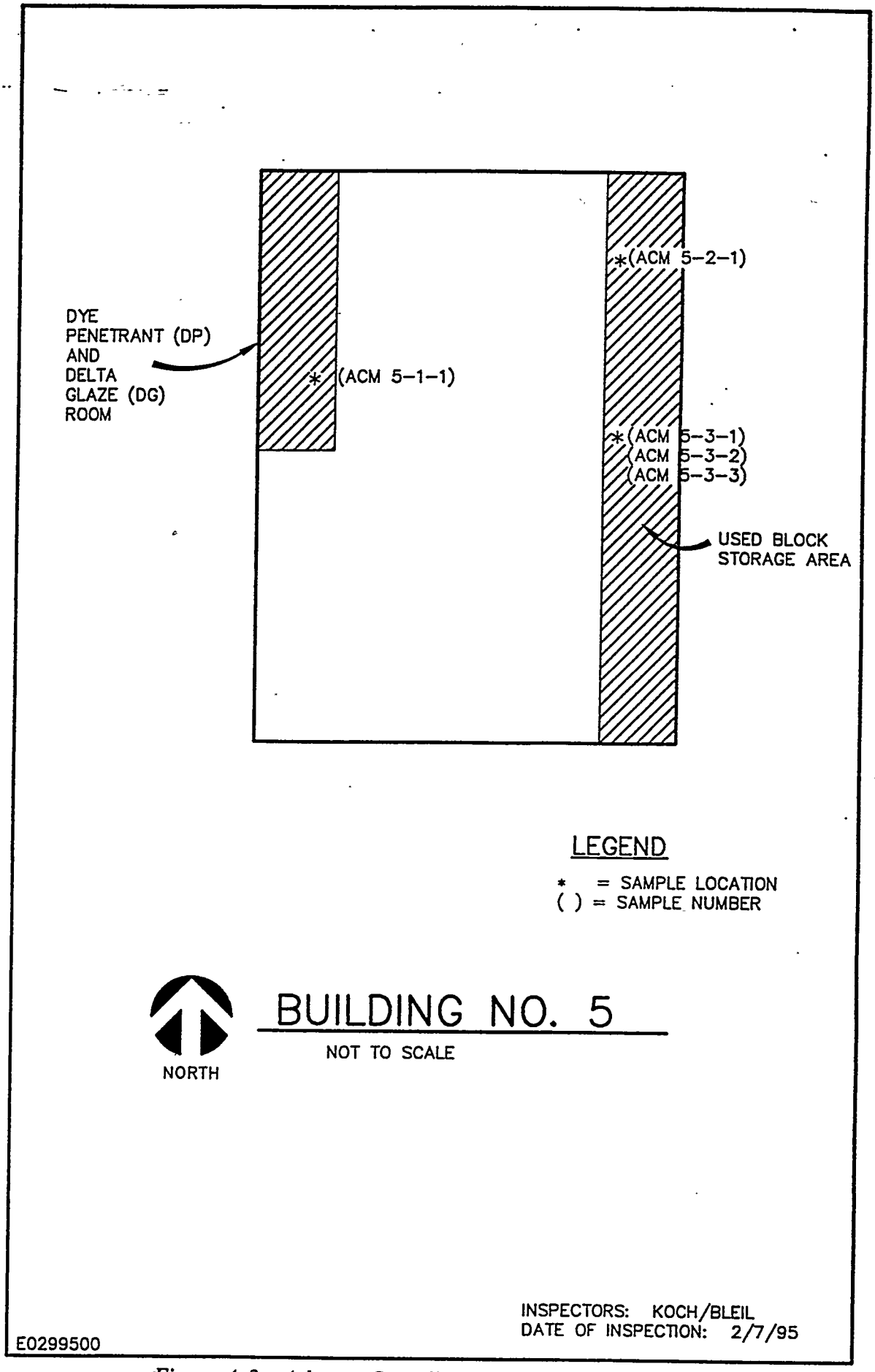


Figure A-3. Asbestos Sampling Locations in Building 5

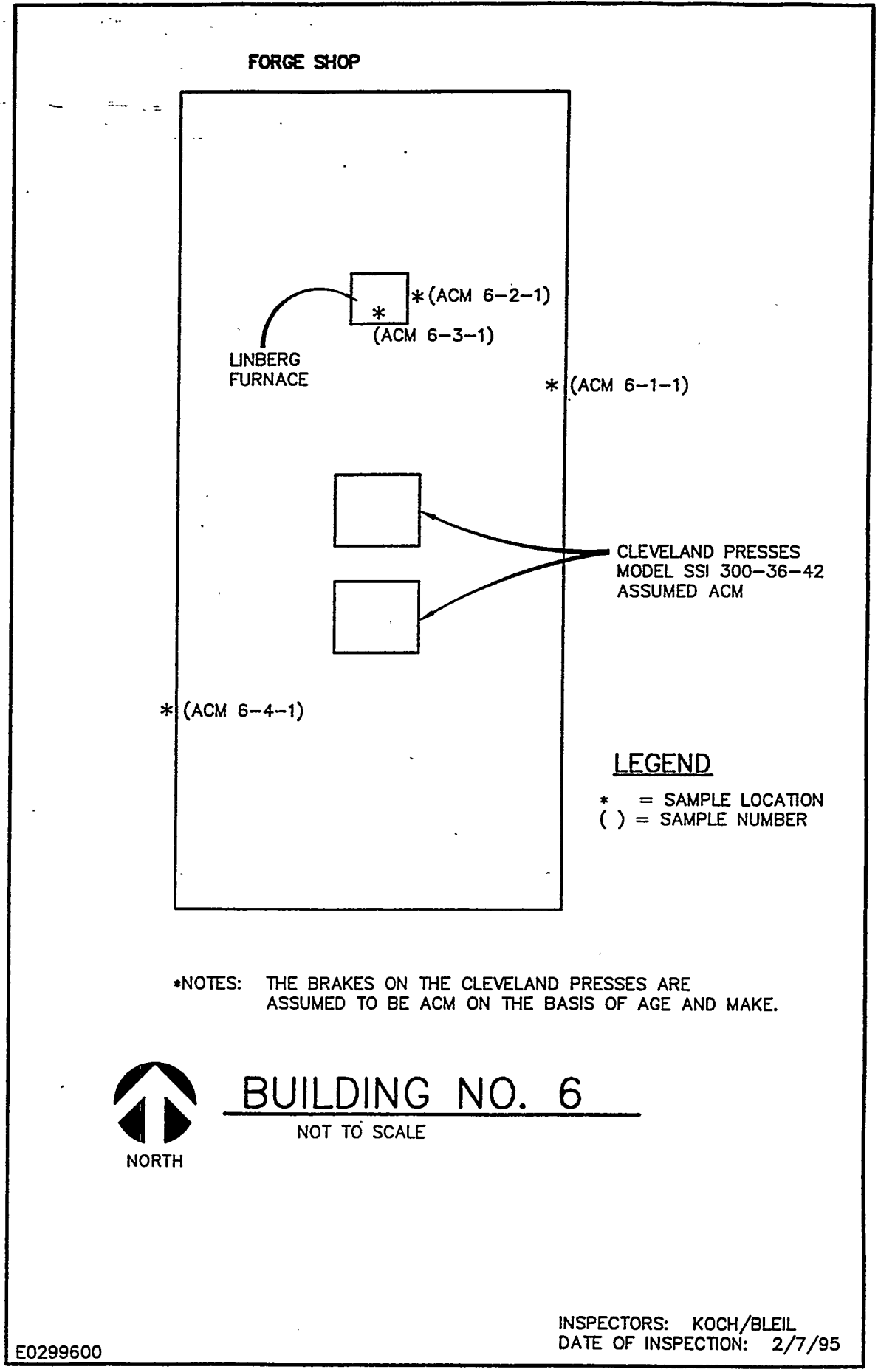
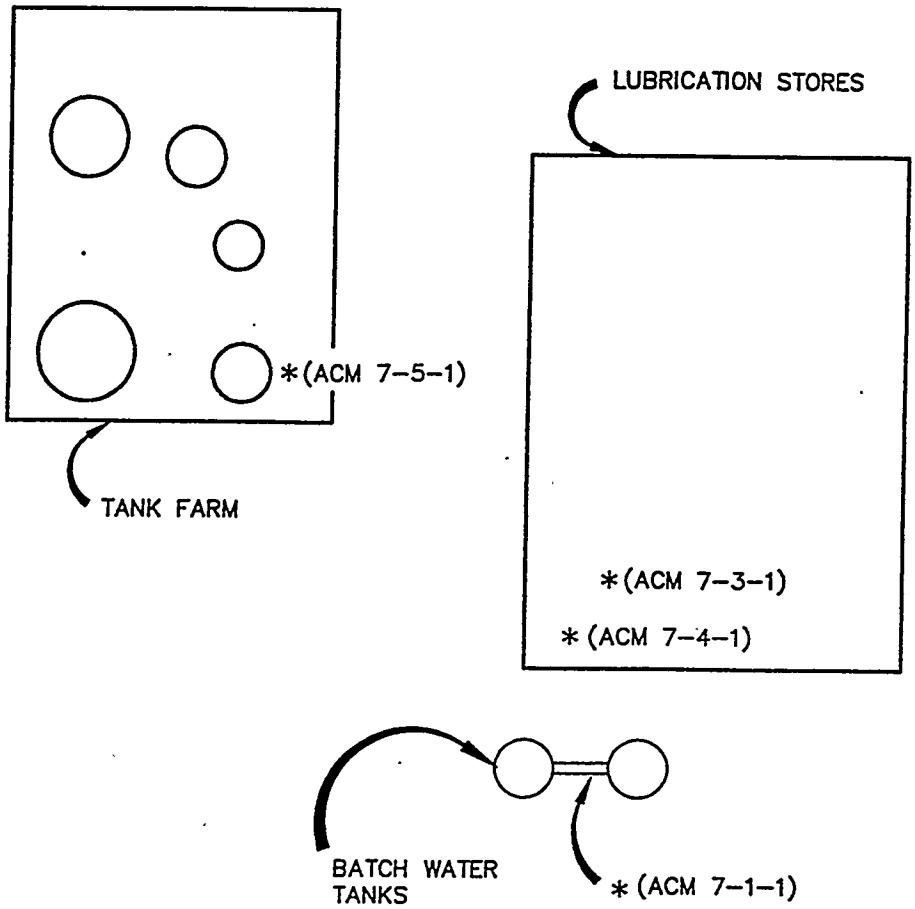


Figure A-4. Asbestos Sampling Locations in Building 6



LEGEND

* = SAMPLE LOCATION
( ) = SAMPLE NUMBER

NOTE: SAMPLE LOCATION 7-2-1 WAS IDENTIFIED AS TENTATIVELY BEING ACM DURING THE INITIAL WALKTHROUGH. SAMPLE ACM 7-2-1 WAS NOT TAKEN, IT WAS DETERMINED THAT THE FIRE CABINET DOOR WAS HOLLOW.

BUILDING NO. 7 & TANK FARM

NOT TO SCALE

NORTH

INSPECTORS: KOCH/BLEIL
DATE OF INSPECTION: 2/7/95

E0299700

Figure A-5. Asbestos Sampling Locations in Building 7 and Tank Farm

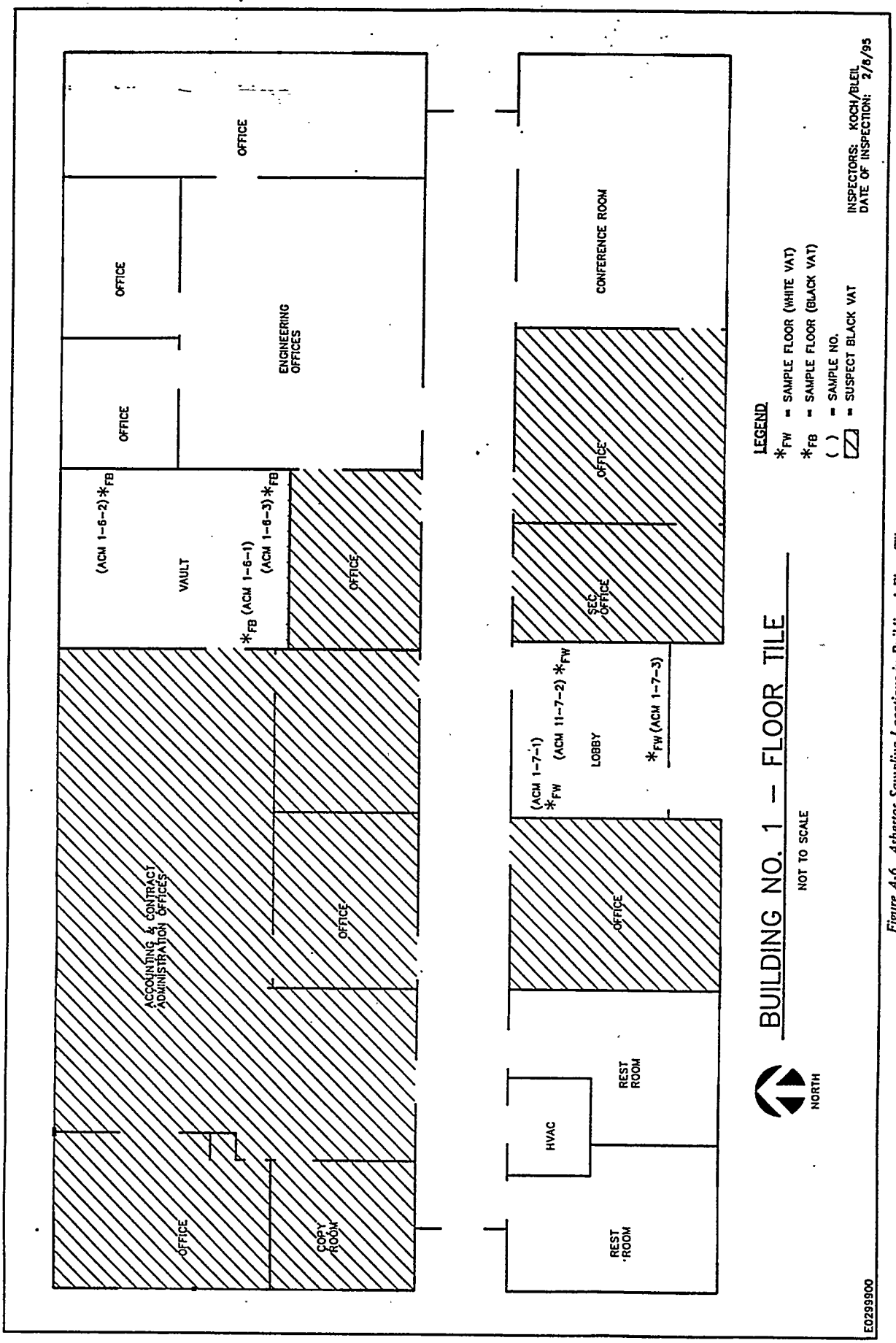


Figure A-6. Asbestos Sampling Locations in Building 1 Floor Tile

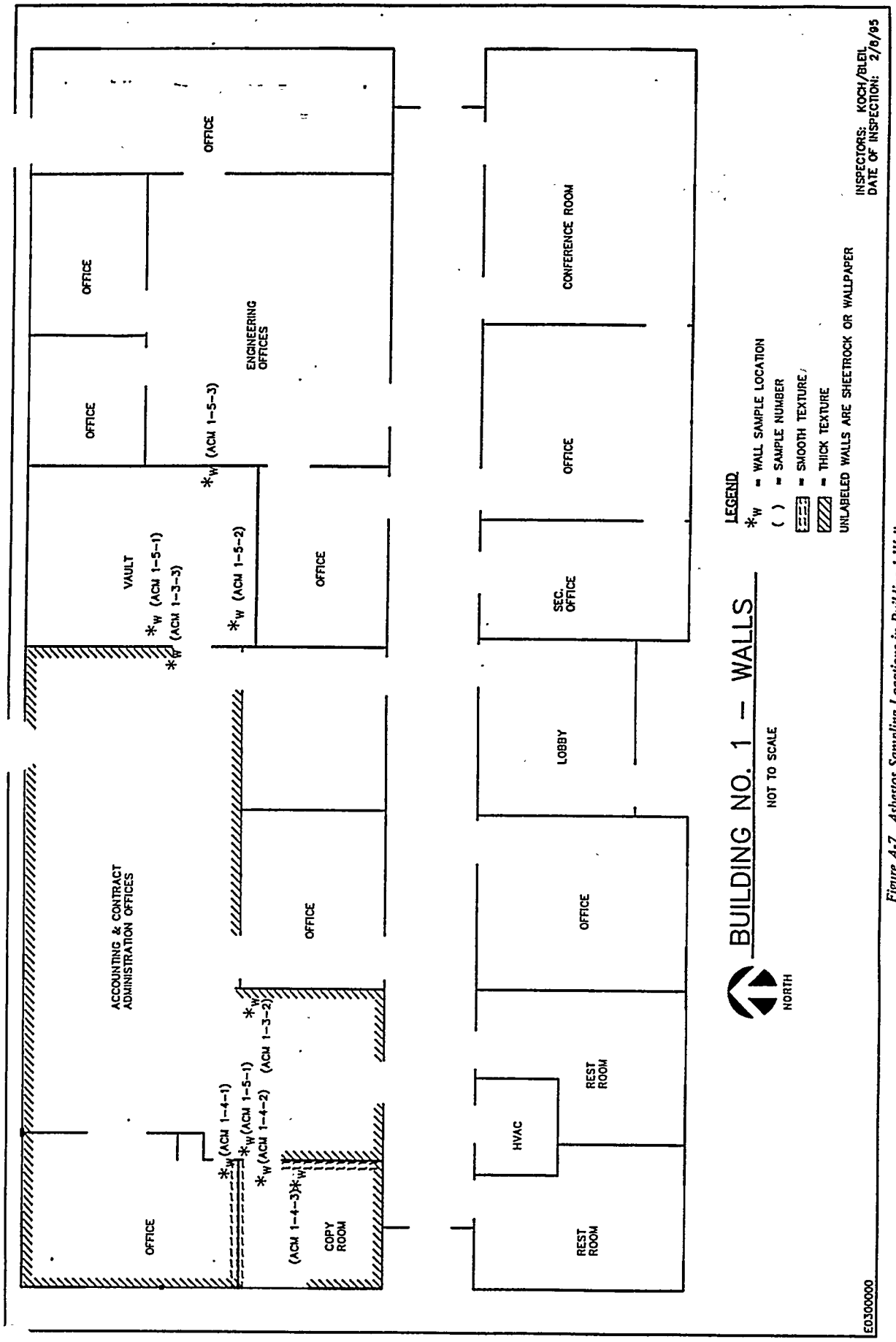


Figure A-7. Asbestos Sampling Locations in Building 1 Walls

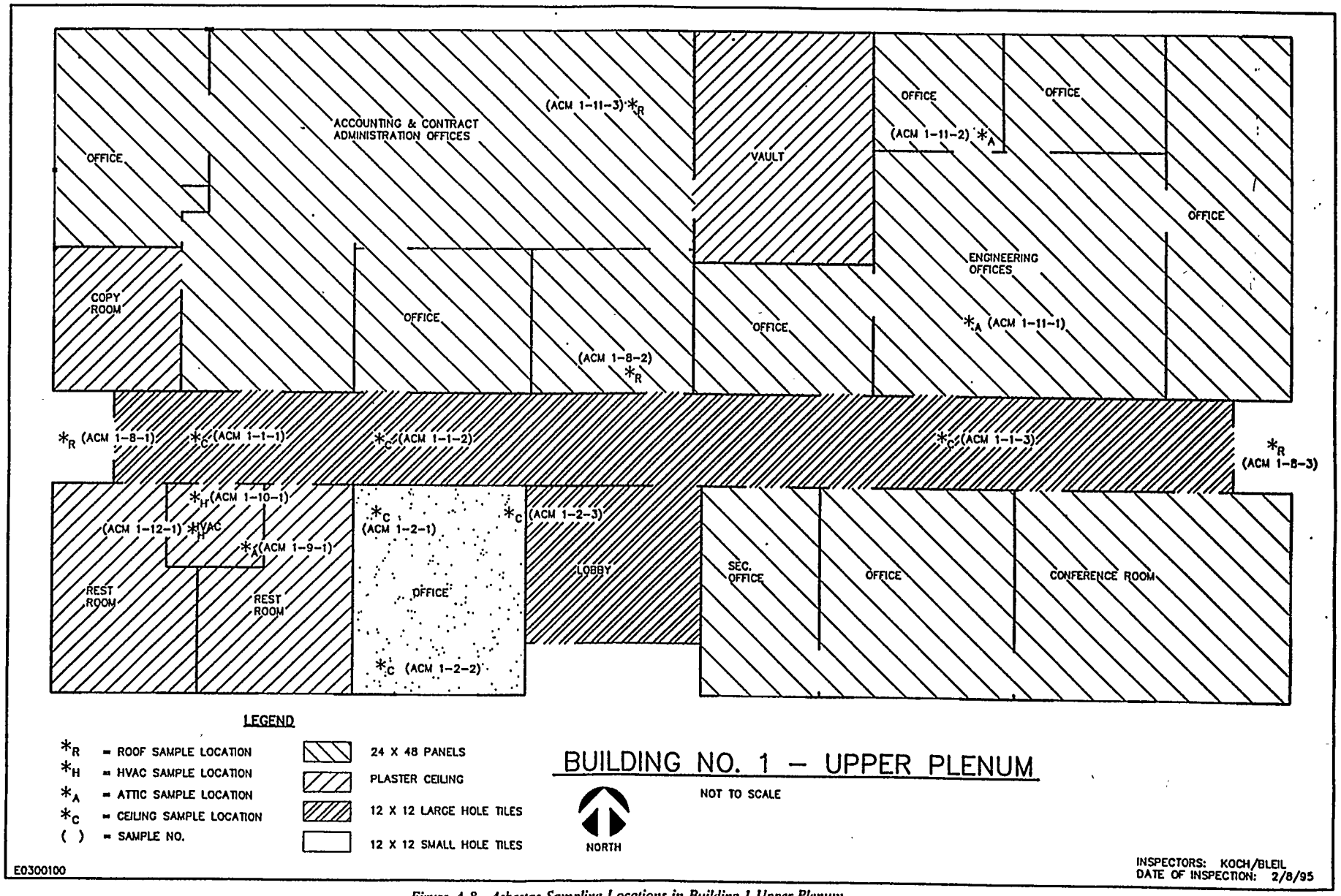


Figure A-8. Asbestos Sampling Locations in Building 1 Upper Plenum

Appendix B
Borehole Lithologic Logs

P.O. Box 14000
Grand Junction, Colorado 81502

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SITE CHARACTERIZATION

Facility: OXNARD DOE FACILITY Site: OXNARD, CA Project: ~~OXNARD~~ SP 2/4/95

Boring/Well No: MW-01 Location (ft.) N: E:

Ground Elev. (ft. AMSL): Auger/Bit Size (in.): 8 1/4 Hole Depth (ft): 18

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)	
Blank Casing:	2" PVC	2"	+2 TO 8 (BGL)	No. of Completions: 1
Screen:	CONT. WRAP	2"	8 TO 18	Stick-Up Ht. (ft.): 2
Sump/End Cap:	PVC	2" 225	TO	Slot Size: .010
Sand Pack:	LONESTAR	#2 ~~375~~ lbs	~~6~~ 5 TO 18	
Sealant:	BENTONITE PELLETS	" #16 50 lbs / 1/4" 50 lbs	5 TO 6	
Grout:	CEMENT		0 TO 2	

Location Sketch:

Locking Cover Installed: Y / N Padlock No:

Drilling Method: AUGER Sampling Method: SPLIT SPOON

Date Drilled: Jan 31, 95 Date Developed: Fluid Level/Date: /

Samplers: PRICE Remarks:

DEPTH[a] (ft)	BLOWS/ 6"	HNU/ SIP ppm	SAMPLE NO./ INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	2,6,7	0				TOPSOIL, DARK ~~yellowish~~ brown (10 YR 3/3) not firm, some gravel
2	2,3,4,4	0				ML, yellowish brown (10 YR 5/3), firm, fair amount of fine sand.
4	2,3,3,4	0				
6	2,2,3,4	0				SP ~~SW~~ SP, yellowish brown (10 YR 5/4), very wet, fine to medium grained.
8	5,6,17,20	0				SP ~~SP~~ SW, yellowish brown (10 YR, 5/4), very wet, med. to coarse sand, a few pebbles to 1".
10	2,11,14	0				SAME, more pebbles
12						
14						(Driller reports more cobbles @ 15' and a clay silt layer @ 16, maybe .5' thick.) (END SAMPLING @ 12' Because of RUNNING SAND.)
16						
18						T.D. = 18'

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: Gary L. Thompson 2-4-95

P.O. Box 14000
Grand Junction, Colorado 81502

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Facility: OXNARD - DOE FACILITY Site: OXNARD CA Project: SITE CHARACTERIZATION

Boring/Well No: MW-02 Location (ft.) N: _____ E: _____

Ground Elev. (ft. AMSL): _____ Auger/Bit Size (in.): 8 1/4 Hole Depth (ft): 18

No. of Completions: 1

	TYPE	DIA. (in. I.D.) Vol. (cf. gal)	INTERVAL (ft.)
Blank Casing:	2" PVC		+2 TO 8
Screen:	Cont. Wrap PVC	2"	8 TO 18
Sump/End Cap:	PVC	2"	TO
Sand Pack:	LONESTAR #2	175 lbs	6 TO 18
Sealant:	LONESTAR #1 / BENTONITE PELLETS	50 lbs / 50 lbs	5 TO 6
Grout:	CEMENT		2 TO 5 / 0 TO 2

Stick-Up Ht. (ft.): 2

Slot Size: .010"

Location Sketch:

Locking Cover Installed: (Y) / N Padlock No: _____

Drilling Method: AUGER Sampling Method: SPLIT SPOON

Date Drilled: Jan 31, 95 Date Developed: _____ Fluid Level/Date: /

Samplers: PRICE Remarks: _____

DEPTH[a] (ft)	BLOWS/ 6"	HNU SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	2,3,4,7	0				ML, Topsoil Dark yellowish brown, loose to slightly firm.
2	3,3,3,2	0				SP, Slightly moist sand, light yellowish brown (6/4 2.5Y)
4	2,2,3,5	0				ML, Silty clay, a few sand stringers, lt. yellowish brown (2.5Y 6/4)
6	3,4,6,7	0				~~SWR~~ SP, Saturated, some Fe staining, light yellowish brown (10 YR 6/4), fine grained.
8	8,12,15,18	0				Same, more med. grained, saturated
10	8,12,21,14	0				~~SPR~~ SW, Coarse sand, saturated, light yell. brn. (10YR 6/4).
12						(END SPLIT SPOON SAMPLING @ 12'; Flowing SANDS. LITH. seems the same to total Depth.)
14						
16						
18						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: [signature] 2-4-95

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Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR.

Boring/Well No: ~~SB-03~~ JP MW-03 Location (ft.) N: _____ E: _____

Ground Elev. (ft. AMSL): _____ Auger/Bit Size (in.): 8 1/4 Hole Depth (ft): 18 (BGL)

No. of Completions: 1

	TYPE	DIA. (in. I.D.) Vol. (cf. gal)	INTERVAL (ft.)
Blank Casing:	PVC	2"	~~4~~ .25 TO 8
Screen:	CONT. WRAP PVC	2"	8 TO 18
Sump/End Cap:	PVC	2"	TO
Sand Pack:	LONESTAR #2	200 lbs	7 TO 18
	~~LONESTAR 1C~~	~~50 lbs~~	6 TO 7
Sealant:	BENTONITE PELLETS	50 lbs	3 TO 6
Grout:	CEMENT		0 TO 3

Stick-Up Ht. (ft.): ~~2~~ -.25'

Slot Size: .010

Location Sketch:

Locking Cover Installed: Y / N Padlock No: _____

Drilling Method: Auger Sampling Method: SPLIT SPOON

Date Drilled: 2/1/95 Date Developed: _____ Fluid Level/Date: /

Samplers: PRICE Remarks: _____

DEPTH[a] (ft)	BLOWS/ 6"	HNU SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	4,10,19,19	0				6" CONCRETE SURFACE
2	2,4,4,5	0				Silty Clay, dark brown (10YR 3/3), moist, very firm, some sand, probably fill.
4	2,11,5,17	0				SC, brown (10YR 5/3), mod. firm, moist, looks native.
6	7,11,11,9	0				SWP, brown (10YR 5/3), slightly moist, few cobbles.
8	3,10,18,21	0				Same, more cobbles, saturated at about 6½'.
10	3,5,14,17	0				Same, cobbles to 2".
12						Same.
14						(Flowing sand problem, last sample at 10-12'.)
16						(Driller reports similar material to T.D.)
18						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: [signature] 2-4-95

P.O. Box 14000
Grand Junction, Colorado 81502

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SITE CHAR.

Facility: OXNARD Site: OXNARD DOE FACILITY Project: OXNARD

Boring/Well No: MW-04 Location (ft.) N: _____ E: _____ SP 2/4/95

Ground Elev. (ft. AMSL): _____ Auger/Bit Size (in.): 8 1/4 Hole Depth (ft): 18

No. of Completions: 1

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)
Blank Casing:	PVC	2"	.25 TO 8
Screen:	Continuous Wrap PVC	2"	8 TO 18
Sump/End Cap:	PVC	2"	TO
Sand Pack:	Lonestar #2	200 lbs	7 TO 18
	Lonestar 1C	~~50 lbs~~	6 TO 7
Sealant:	Bentonite Pellets	75 lbs	3 TO 6
Grout:	Cement		0 TO 3

Stick-Up Ht. (ft.): -.2

Slot Size: .010"

Location Sketch:

Locking Cover Installed: Y / N Padlock No: _____

Drilling Method: Auger Sampling Method: SPLIT SPOON

Date Drilled: 2/2/95 Date Developed: _____ Fluid Level/Date: _____ / _____

Samplers: PRICE Remarks: _____

DEPTH[a] (ft)	BLOWS/ 6"	HNU, SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION.
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	3,4,5,7	5				6" of Concrete; ~~SC, very dark gray (10YR 3/1)~~ Sand & gravel fill.
		5				SC, very dark gray (10YR 3/1), firm, damp.
2	2,3,3,3	0				SC, brown (10YR 5/3), moist.
4	2,3,4,8	0				~~SC~~ SP, yellowish brown (10YR 5/4), slightly moist, med. grained.
6	11,17,17,15	0				SP, yellowish brown (10YR 5/4), slightly moist, w/ few pebbles to 1".
8	8,12,19,30	0				Same, fewer pebbles, SATURATED.
10	11,14,17,23	0				Same
12	9,14,17,23	0				Same (Stop split spoon sampling, flowing sand trouble.)
14						(Driller reports similar material to T.D.)
16						
18						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: Gary L. Dorges 2-4-95

P.O. Box 14000
Grand Junction, Colorado 81502

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Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR.

Boring/Well No: MW-05 Location (ft.) N: _____ E: _____

Ground Elev. (ft. AMSL): _____ Auger/Bit Size (in.): 8 1/4 Hole Depth (ft): 18

No. of Completions: 1

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)
Blank Casing:	PVC	2"	+2 TO 8
Screen:	CONT. WRAP PVC	2"	8 TO 18
Sump/End Cap:	PVC	2"	TO
Sand Pack:	LONESTAR #2	200 lbs	6 TO 18
	~~LONESTAR 1C~~	~~50 lbs~~	~~5 TO 6~~
Sealant:	BENTONITE PELLETS	50 lbs	2 TO 5
Grout:	CEMENT		0 TO 2

Stick-Up Ht. (ft.): 2

Slot Size: .010

Location Sketch:

Locking Cover Installed: Y / N Padlock No: _____

Drilling Method: AUGER Sampling Method: SPLIT SPOON

Date Drilled: 2/1/95 Date Developed: _____ Fluid Level/Date: _____ / _____

Samplers: PRICE Remarks: _____

DEPTH[a] (ft)	BLOWS/ 6"	HNU SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	4,4,5,6	0				TOPSOIL, dark yellowish brown (10 YR 3/4), moist,
2	2,2,6,4	0				SM, yellowish brown (10YR 5/4), moist (grading into SP)
4	6,8,13,14	0				~~SP~~ SW, yellowish brown (10YR 5/4), moist, few pebbles.
6	6,8,19,13	0				SAME, more pebbles; saturated at about 6 1/2'
8	10,12,13,17	0				SAME, a little silt @ 9 1/2'.
10	7,12,5,21	0				Same, grading almost into a GW.
12						(Stop split spoon at 12', same flowing sand problem.)
14						(Driller reports similar material to T.D.)
16						
18						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: Gail Thompson 2-1-95

P.O. Box 14000
Grand Junction, Colorado 81502

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Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR

Boring/Well No: MW-06 Location (ft.) N: _____ E: _____

Ground Elev. (ft. AMSL): _____ Auger/Bit Size (in.): 8 1/4" Hole Depth (ft): 18' (BGL)

No. of Completions: _____

Stick-Up Ht. (ft.): -..

Slot Size: .010"

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)
Blank Casing:	2" PVC	2"	.25' TO 8
Screen:	CONT. WRAP PVC	2"	8 TO 18
Sump/End Cap:	PVC	2"	TO
Sand Pack:	LONESTAR #2 ~~LONESTAR 1C~~	225 lbs ~~50 lbs~~	7 TO 18 ~~6 TO 7~~
Sealant:	BENTONITE PELLETS	50 lbs	3 TO 6
Grout:	CEMENT		0 TO 3

Location Sketch:

Locking Cover Installed: Y / N Padlock No: _____

Drilling Method: AUGER Sampling Method: SPLIT SPOON

Date Drilled: 2/2/95 Date Developed: _____ Fluid Level/Date: _____ / _____

Samplers: PRICE Remarks: _____

DEPTH[a] (ft)	BLOWS/ 6"	HNU, SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	0,0,8,2	0				CONCRETE
						SM, dark yellowish brown (10 YR 4/4), moist.
2	0,0,22	0				SC, brown (10 YR 5/3), moist, not very firm.
4	3,7,4, 18	0				~~SM, brown (10 YR 5/3), moist.~~
						SW, brown (10 YR 5/3), moist, pebbles to 1".
6	7,10,14, 18	0				Same, saturated at 7'.
8	9,15,18, 26	0				Same, more pebbles.
10	3,7,14, 18	0				Same.
12						(Stop split sampling at 12; flowing sand trouble.)
14						(Driller reports similar material on down to total depth.)
16						
18						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: [signature] 2-4-95

P.O. Box 14000
Grand Junction, Colorado 81502

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Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR.

Boring/Well No: MW-07 Location (ft.) N: _____ E: _____

Ground Elev. (ft. AMSL): _____ Auger/Bit Size (in.): 8 1/4" Hole Depth (ft): 18'

No. of Completions: 1

	TYPE	DIA. (in. I.D.) Vol. (cf. gal)	INTERVAL (ft.)
Blank Casing:	PVC	2"	+2 TO 8 (BGL)
Screen:	CONT. WRAP PVC	2"	8 TO 18
Sump/End Cap:	PVC	2"	TO
Sand Pack:	LONESTAR #2	200 lbs	6 TO 18
	LONESTAR 1C	50 lbs	5 6
Sealant:	Bentonite Pellets 1/4"	50 lbs	2 TO 5
Grout:	CEMENT		0 TO 2

Stick-Up Ht. (ft.): 2'

Slot Size: .010"

Location Sketch:

Locking Cover Installed: Y / N Padlock No: _____

Drilling Method: AUGER Sampling Method: SPLIT SPOON

Date Drilled: 2/1/95 Date Developed: _____ Fluid Level/Date: _____ / _____

Samplers: PRICE Remarks: _____

DEPTH[a] (ft)	BLOWS/6"	HNU, SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	0,2,2,1	0				TOPSOIL, Dark Yellowish brown (10 YR 3/4), moist, not firm, numerous organic frags.
2	2,2,3,4	0				SM, dark yellowish brown (10 YR 4/4), moist, some roots, not firm.
4	2,4,10,17	0				~~SW~~ SP, brown (10 YR 4/3), moist, ~~some roots~~, ~~not firm~~, a few cobbles.
6	9,14,17,30	0				SAME, more cobbles to 1½", wet at 7'.
8	4,11,19,21	0				SAME
10	10,12,12,15	0				same, fewer cobbles.
12						(END split spoon sampling @ 12; flowing sand trouble. will plug bit @ 12' and drill to 18'.)
14						
16						(Driller reports similar material to T.D.)
18						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: Gary L Thompson 2-4-95

P.O. Box 14000
Grand Junction, Colorado 81502

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Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR.

Boring/Well No: MW-08 Location (ft.) N: ____ E: ____

Ground Elev. (ft. AMSL): ____ Auger/Bit Size (in.): 8 1/4" Hole Depth (ft): 18 (BGL)

No. of Completions: ____

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)	
Blank Casing:	PVC	2"	+2 TO 8	Stick-Up Ht. (ft.): 2
Screen:	CONT. WRAP PVC	2"	8 TO 18	Slot Size: .010"
Sump/End Cap:	PVC	2"	TO	
Sand Pack:	LONESTAR #2 ~~LONESTAR 10~~	225 lbs 50 lbs	6 TO 18 5 TO 6	
Sealant:	Bentonite Pellets	75 lbs	2 TO 5	
Grout:	CEMENT		0 TO 2	

Location Sketch:

Locking Cover Installed: Y / N Padlock No: ____

Drilling Method: AUGER Sampling Method: SPLIT SPOON

Date Drilled: 2/2/95 Date Developed: ____ Fluid Level/Date: ____ / ____

Samplers: PRICE Remarks: ____

DEPTH[a] (ft)	BLOWS/ 6"	HNU, SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	1,2,2,2	0				SM, (Topsoil) dark yellowish brown (10YR 3/4), damp.
2	1,2,2,2	0				Same, less organics - more fine sand.
4	3,7,14,15	0				SP, yellowish brown (10YR 5/4); damp, med grained.
6	5,5,7,10	0				SW, yellowish brown (10YR 5/4), damp. SP, yellowish brown (10YR 5/4), saturated at 7'.
8	7,11,22,24	0				SW, yellowish brown (10YR 5/4), pebbles to 1½".
10	3,7,10,14	0				Same, more pebbles.
12						(Stop split spoon sampling at 12', flowing sand problem).
14						(Driller reports similar material to T.D.)
16						
18						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: Gary Thompson 2-4-95

P.O. Box 14600
Grand Junction, Colorado 81502

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Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR

Boring/Well No: MW-09 Location (ft.) N: _____ E: _____

Ground Elev. (ft. AMSL): _____ Auger/Bit Size (in.): 8 1/4 Hole Depth (ft): 18

	TYPE	DIA. (in. I.D.) Vol. (cf. gal)	INTERVAL (ft.)
Blank Casing:	PVC	2"	.25 TO 8
Screen:	Cont. Wrap PVC	2"	9 TO 18
Sump/End Cap:	PVC	2"	TO
Sand Pack:	Lonestar #2 / ~~Lonestar 1C~~	250 lbs / 50 lbs	7 TO 18 / 6 TO 7
Sealant:	Bentonite Pellets	75 lbs	3 TO 6
Grout:	Cement	150 lbs (dry)	0 TO 3

No. of Completions: 1

Stick-Up Ht. (ft.): ~~2~~ -.25' JP 2/3/95

Slot Size: .010

Location Sketch:

Locking Cover Installed: Y / N Padlock No: _____

Drilling Method: AUGER Sampling Method: SPLIT SPOON

Date Drilled: 2/3/95 Date Developed: ~~N/A~~ 2/4/95 JP Fluid Level/Date: ~~N/A~~ / JP 2/4/95

Samplers: PRICE Remarks: _____

DEPTH[a] (ft)	BLOWS/ 6"	HNU SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	2,3,5,4	0				Topsoil, dark brown (10YR 3/3),
2	0,1,2,3	0				SM, dark yellowish brown (10YR 4/4), moist, fine to med. grain sand.
4	5,7,11,13	0				SP, dark yellowish brown (10YR 4/4), moist, med. grained sand.
6	5,6,9,10	0				Same, fewer fines. Same, saturated at ~~2~~ 6 1/2' JP 2/3/95
8	2,3,5,7	0				
10	5,11,12,8	0				Same, a few SW stringers w/pebbles.
12	2,2,2,4	0				
14	1,9,15,17	0				SW, dark grayish brown (10YR 4/2), a few pebbles w/ associated clay clasts.
16		0				
18						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: [signature] 2-4-95

P.O. Box 14000
Grand Junction, Colorado 81502

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Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR

Boring/Well No: SB-10 Location (ft.) N: ____ E: ____

Ground Elev. (ft. AMSL): ____ Auger/Bit Size (in.): ____ Hole Depth (ft): 6'

No. of Completions: N

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)
Blank Casing:	N/A		TO
Screen:	N/A		TO
Sump/End Cap:	N/A		TO
Sand Pack:	NAT. DIRT		0 TO 6"
Sealant:	BENTONITE PELLETS	100 lbs	6" TO 6'
Grout:	N/A		TO

Stick-Up Ht. (ft.): N/A

Slot Size: N/A

Location Sketch:

Locking Cover Installed: Y / N Padlock No: ____

Drilling Method: Auger Sampling Method: SPLIT SPOON

Date Drilled: 2/4/95 Date Developed: N/A Fluid Level/Date: N/A /

Samplers: PRICE Remarks: ____

DEPTH[a] (ft)	BLOWS/ 6"	HNU, SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	1,2,5,7	0				TOPSOIL, very dark brown (10YR 2/2), moist, lots of organic debris.
2	1,2,1,2	0				ML, dark yellowish brown (10YR 4/4), moist, not firm.
4	0,2,4,5	0				
6						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: [signature] 2-4-95

P.O. Box 14000
Grand Junction, Colorado 81502

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Facility: Oxnard Site: Oxnard DOE Facility Project: Site Char

Boring/Well No: SB-11 (No Well) Location (ft.) N: ____ E: ____

Ground Elev. (ft. AMSL): ____ Auger/Bit Size (in.): ~~8 1/4~~ 3" 2/3/95 Hole Depth (ft): 6'

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)
Blank Casing:	N/A		TO
Screen:	N/A		TO
Sump/End Cap:	N/A		TO
Sand Pack:	Lonestar #2	40 lbs	6" TO 1
Sealant:	Bentonite Pellets	50 lbs	1 TO 6
Grout:	Concrete	100 lbs (dry)	0 TO 6"

No. of Completions: N/A

Stick-Up Ht. (ft.): N/A

Slot Size: N/A

Location Sketch:

Locking Cover Installed: Y / N Padlock No: ____

Drilling Method: Hand Auger Sampling Method: 3" Auger (Hand) 1" Drive Tube

Date Drilled: 2/3/95 Date Developed: N/A Fluid Level/Date: N/A /

Samplers: Price Remarks: ____

DEPTH[a] (ft)	BLOWS/ 6"	HNU SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0		0				CONCRETE SURFACE 6"
						SM, dark yellowish brown (10 YR 3/4) moist.
2		0				ML, dark yellowish brown (10 YR 4/4), moist, fairly plastic, mod. amount of silt.
4		0				
						SM, yellowish brown (10 YR 5/4), moist, mod. grain
6						SP, yellowish brown (10 YR 5/4), moist, few pebbles to 1/2".

[a] All Depths From Ground Surface.

COMPLETED BY: Jeff Price VERIFIED BY: [signature] 2-5-95

P.O. Box 14000
Grand Junction, Colorado 81502

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Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR.

Boring/Well No: SB-12 (No Well) Location (ft.) N: E:

Ground Elev. (ft. AMSL): Auger/Bit Size (in.): 8 1/4 Hole Depth (ft): 8'

No. of Completions: N'

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)
Blank Casing:	N/A		TO
Screen:	N/A		TO
Sump/End Cap:	N/A		TO
Sand Pack:	N/A		TO
Sealant:	BENTONITE PELLETS	150 lbs	1 TO 8
Grout:			TO

Stick-Up Ht. (ft.): N/A

Slot Size: N/A

Location Sketch:

Locking Cover Installed: Y / N Padlock No: N/A

Drilling Method: 2/4/95 Sampling Method: SPLIT SPOON

Date Drilled: AUGER Date Developed: N/A Fluid Level/Date: N/A /

Samplers: PRICE Remarks: WILL NOT CONCRETE SURFACE UNTIL OXNARD PERSONNEL DEFINE MINE STATUS OF SEIGERED CONDUIT; CONDUIT at 6" (BGL).

DEPTH[a] (ft)	BLOWS/ 6"	HNU SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	4,16,32, 33	0	X			CONCRETE SURFACE.
2	8,9,13	0	X			SM, very dark brown (10YR4/6), slightly damp, gravel, (fill material
						ML, yellowish brown (10YR5/4), moist, fairly st. looks native.
4	9,11,23, 29	0	X			SM, dark yellowish brown (10YR4/4), moist
6	7,9,12, 23	0	X			SW, dark brown (10YR4/3), moist, moderate amount of pebbles; SATURATED AT 7½".
8						

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: Gary L. Dragun 2-4-95

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Grand Junction, Colorado 81502

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Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR

Boring/Well No: SB-13 Location (ft.) N: E:

Ground Elev. (ft. AMSL): Auger/Bit Size (in.): 8 1/4" Hole Depth (ft): 4 1/2'

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)
Blank Casing:	N/A		TO
Screen:	N/A		TO
Sump/End Cap:	N/A		TO
Sand Pack:	LONESTAR #2	25 lbs.	.5 TO 1
Sealant:	BENTONITE PELLETS	50 lbs	1 TO 4 1/2
Grout:	CEMENT	100 lbs	0 TO X.5'

JP 2/4/95

No. of Completions: N/A

Stick-Up Ht. (ft.): N/A

Slot Size: N/A

Location Sketch:

Locking Cover Installed: Y / N Padlock No:

Drilling Method: AUGER Sampling Method: SPLIT SPOON

Date Drilled: 2/4/95 Date Developed: N/A Fluid Level/Date: N/A /

Samplers: PRICE Remarks: N/A

DEPTH[a] (ft)	BLOWS/ 6"	HNU, SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0						CONCRETE SURFACE 6"
	6,11,22, 13	24				SM, dark brown (10YR 3/3), damp, some gravel & sand (FILL MATERIAL)
2	6,2,2	2				SAME
4						
6						(TAKE ANALYTICAL SAMPLE from 2 1/2 - 4') #255
8			THIS SAMPLE NOT TAKEN			
						WE HAVE AUGER REFUSAL @ 4 1/2 (BGL), DRILLER THINKS IT'S A PIPE.

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: Gayl. Thompson 2-4-95

Chem-Nuclear Geotech, Inc.
P.O. Box 14000
Grand Junction, Colorado 81502

Borehole Summary
Page 1 of 1

Facility: OXNARD Site: OXNARD DOE FACILITY Project: SITE CHAR

Boring/Well No: SB-14 (NO WELL) Location (ft.) N: _____ E: 2/4/95 JP

Ground Elev. (ft. AMSL): _____ Auger/Bit Size (in.): 9 1/4 Hole Depth (ft): 4' 6'

	TYPE	DIA. (in. I.D.) Vol. (cf, gal)	INTERVAL (ft.)
Blank Casing:	N/A		TO
Screen:	N/A		TO
Sump/End Cap:	N/A		TO
Sand Pack:	LONESTAR #2 SILICA SAND	50 lbs	6" TO 5'
Sealant:	BENTONITE PELLETS	50 lbs	5' TO 6'
Grout:	CONCRETE	100 lbs (dry)	2 TO 5'
			0 TO 6"

No. of Completions: N/A

Stick-Up Ht. (ft.): N/A

Slot Size: N/A

Location Sketch:

Locking Cover Installed: Y / N Padlock No: N/A

Drilling Method: AUGER Sampling Method: SPLIT SPOON

Date Drilled: 2/3/95 Date Developed: N/A Fluid Level/Date: N/A /

Samplers: PRICE Remarks:

DEPTH[a] (ft)	BLOWS/ 6"	HNU SIP ppm	SAMPLE NO.: INTERVAL	WELL CONSTRUCTION	GRAPHIC LOG	DESCRIPTION
						REQUIRED INFORMATION: Typical name; Munsell color; percentage sand and gravel; sorting (poor to well); grain angularity; induration or plasticity; moisture content (moist to saturated).
0	6,7,88	1				ASPHALT ROAD BASE (1st Split Spoon = 1'-3')
						MORE FILL, sandy silt, gravel.
2	1,2	1				SM, yellowish brown (10YR 5/4), moist, maybe fill.
						SM[JP 2/9/95], yellowish brown (10YR 5/4), fairly m native material.
4	7,8,13 19	0				SP, yellowish brown (10YR 5/4), med. grain, damp
6						SW, brown (10YR 5/3), damp, some pebbles to 2".

[a] All Depths From Ground Surface.

COMPLETED BY: JEFF PRICE VERIFIED BY: [signature]