

**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

McCLELLAN AIR FORCE BASE

PREPARED BY:
Radian Corporation
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Sacramento, California 95827

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OCTOBER 1991

**OPERABLE UNIT B
PRELIMINARY ASSESSMENT
SUMMARY REPORT**

VOLUME II: APPENDIX B (Part 2)

FINAL

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PREPARED FOR:
McCLELLAN AFB / EM
McCLELLAN AFB, CALIFORNIA 95352-5900

Environmental Services Office/Environmental Restoration Division (ESD/ER)
United States Air Force Center For Environmental Cooperation
Brooks Air Force Base, Texas 78235-6101

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INSTALLATION RESTORATION PROGRAM (IRP) (916)362-5332
STAGE 3

OPERABLE UNIT B PRELIMINARY ASSESSMENT
SUMMARY REPORT

VOLUME II: Appendix B (Part 2)

FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991



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Sacramento, California 95827

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United States Air Force Center for Environmental Excellence
Mr. Patrick Haas (Technical Project Manager)
Environmental Services Office/Environmental Restoration Division (AFCEE/ESR)
Brooks Air Force Base, Texas 78235-5501



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS SACRAMENTO AIR LOGISTICS CENTER (AFLC)
MCLELLAN AIR FORCE BASE, CALIFORNIA 95652-5990



TO
OF

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Operable Unit (OU) B Preliminary Assessment Summary Report - Final

TO

See Distribution

1. The referenced document is attached for your record (See Atch 1). Our responses to your comments had been sent to you earlier. This is a secondary document as per Section 7 of the Interagency Agreement (IAG). We are; however, finalizing the report as it is an important document that summarizes all the site data.
2. In addition to your comments on the subject report, we have also incorporated relevant comments on the OU A Preliminary Assessment Summary Report to improve the format of the report and define investigative procedures in more detail. Our responses to your comments are included in the appendixes of relevant site reports.
3. This document has been prepared for the United States Air Force for the purpose of aiding in the implementation of a final remedial action plan. The ongoing nature of the Remedial Investigation/Feasibility Study, also with the evolving knowledge of site conditions and chemical effects on the environmental and health, must be considered when evaluating this document, since subsequent facts may become known which may make this document premature or inaccurate. Acceptance of this document in performance of the contract under which it was prepared does not mean that the United States Air Force or the Department of Defense adopts the conclusions, recommendations, or other views expressed herein which are those of the contractor only and do not necessarily reflect the official positions of either department. The attached Radian document has been reviewed as matter involved in litigation and has been approved for release to the general public.
4. If you have any questions, please contact me at (916) 643-0531.

B. Hoda

BUD HODA
Project Officer

1 Atch
Report

Distribution:
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COMBAT STRENGTH THROUGH LOGISTICS



10395 Old Placerville Road
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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL B-1
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

**Radian Corporation
10395 Old Placerville Road
Sacramento, California 95827**

**USAF CONTRACT NO. F33615-87-D-4023, DELIVERY ORDER NO. 0012
CONTRACTOR CONTRACT NO. 227-005, DELIVERY ORDER NO. 0012**

**United States Air Force Center for Environmental Excellence
Mr. Patrick Haas (Technical Project Manager)
Environmental Services Office/Environmental Restoration Division (AFCEE/ESR)
Brooks Air Force Base, Texas 78235-5501**

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1.0 INTRODUCTION

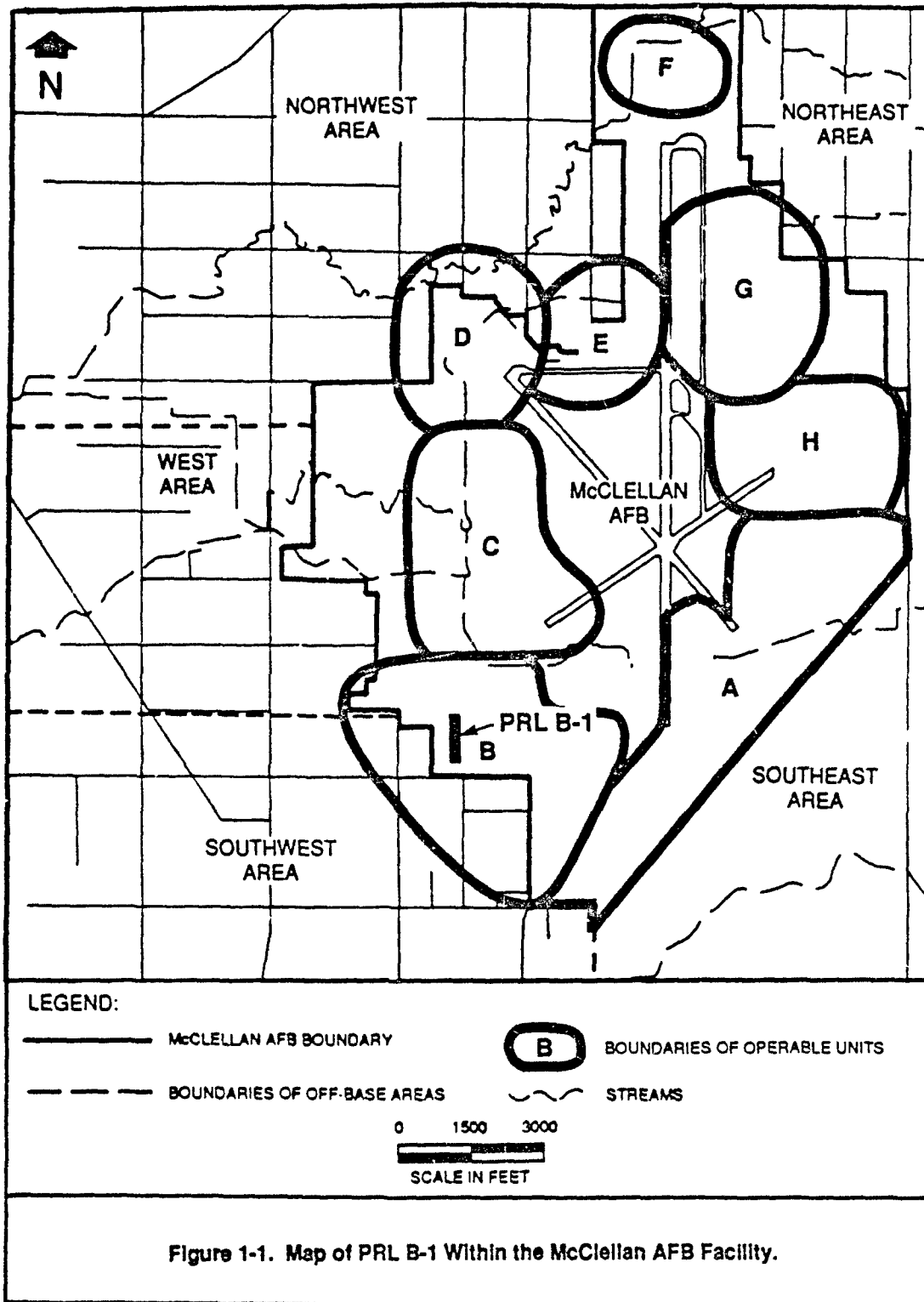
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) B-1 at McClellan Air Force Base (AFB), California. The location of PRL B-1 is shown on Figure 1-1. Potential Release Location B-1 was reportedly the location of a burial pit. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping and;
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

Potential Release Location (PRL) B-1 was identified by McLaren Environmental Engineering during of their 1986 investigation of McClellan Air Force Base (AFB) (McLaren, 1986, p.51). Apparently, McLaren's rationale for including PRL B-1 as a potential release location was based entirely on evidence from 1956 aerial photographs. McLaren reported that 1956 photographs show evidence of a burial pit east of Building 700 in the area now designated PRL B-1.

2.2 Personnel Interviews

Personnel interviews regarding waste disposal at PRL B-1 were not conducted because McClellan AFB personnel who may be able to provide pertinent site-specific information could not be located.

2.3 Location Visit

Radian personnel visited PRL B-1 on 7 March 1989 to document current features and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features, activities, and evidence of contamination. Table 2-1 lists the photographs that were reviewed for this Preliminary Assessment. Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment; however, no information was found for PRL B-1 in any of the files.

**TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL B-1**

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 70'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1956	McClellan AFB, History Office	Oblique
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.



3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) B-1 (Figure 3-1) is situated in the southern part of McClellan Air Force Base (AFB), in Operable Unit (OU) B. Site 31, PRL 29, and PRL P-2 are in the vicinity of PRL B-1 and will be assessed in separate Preliminary Assessments or Technical Memorandums. Building 724 is located on the northern section of PRL B-1. A location map showing PRL B-1 and the surrounding area is presented in Figure 3-2.

The following subsections discuss site delineation, historical and current activities, reported releases, and remedial actions at PRL B-1.

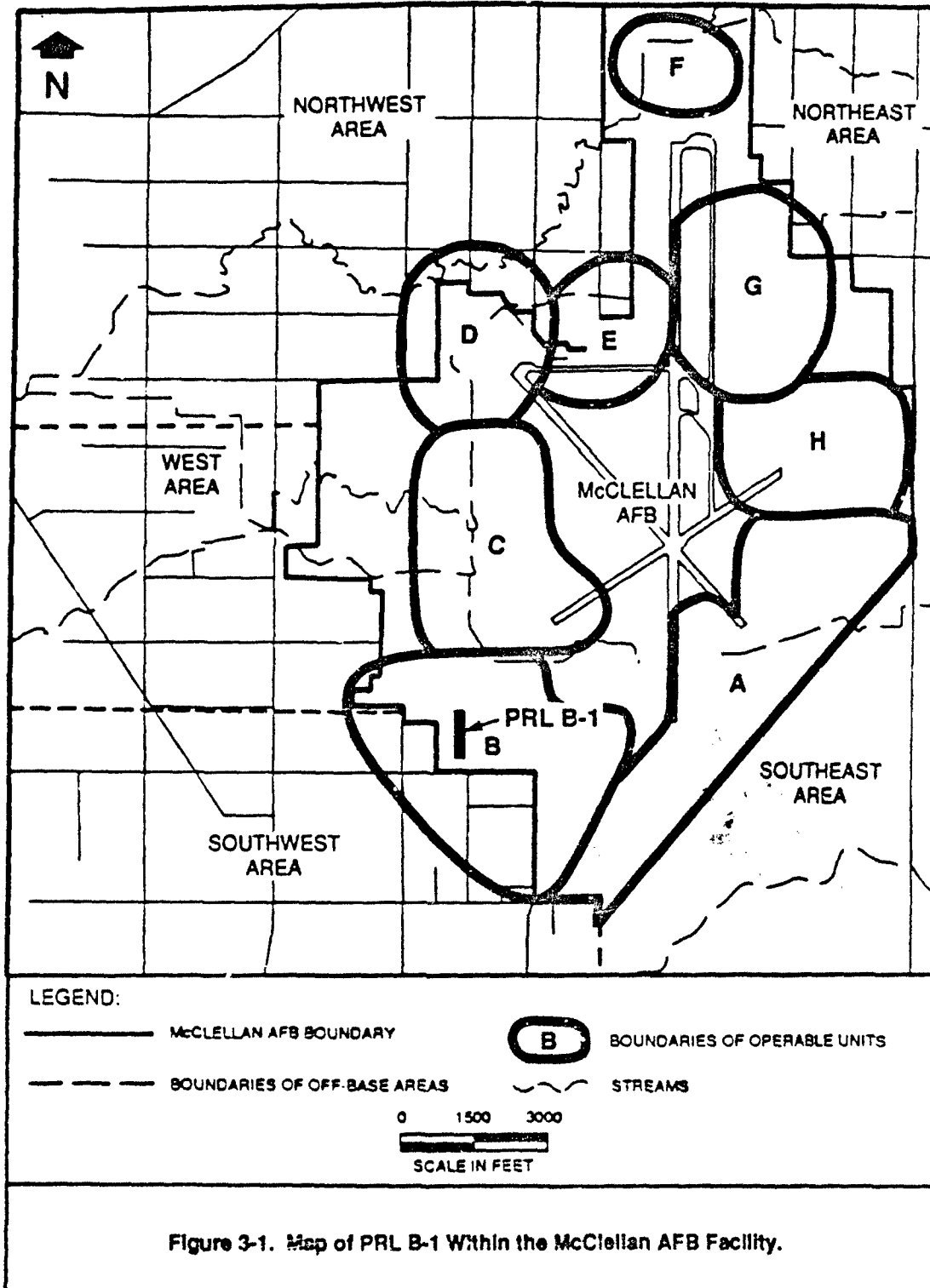
3.1 Location Delineation

The area now designated PRL B-1 was first identified in 1986 by McLaren Environmental Engineering (McLaren, 1986, p.51). McLaren identified PRL B-1 from 1956 aerial photographs as a "possible burial pit east of Building 700 associated with runway activity" (McLaren, 1986, p.51). For documentation of the identification, McLaren referenced "Photo C-3 MAFB Master Plan, Book 3, September 7, 1956" (McLaren, 1986, p.51). The boundaries of PRL B-1 (as determined by McLaren) are rectangular, approximately 770 feet long by 140 feet wide.

3.2 Historical Activities

Aerial photographs are the only source of historical information available for PRL B-1. Five aerial photographs dated "September 7, 1956" were found in Section C-3 of McClellan AFB's 1956 Master Plan. These photographs match McLaren's reference to the photographs used to identify PRL B-1, "Photo C-3 MAFB Master Plan, Book 3, September 7, 1956" (McLaren, 1986, p. 51). However, based on Radian's review, the 1956 aerial photographs do not provide any evidence that burial pits existed at PRL B-1. The 1956 photographs show the area in the vicinity of PRL B-1 to be flat undeveloped grassland. Therefore, it is unclear why McLaren reported that evidence of a burial pit is visible in these photographs.

Furthermore, it is unclear why McLaren's description of PRL B-1 associated the possible burial pit with runway activity. The nearest runway is located more than 2000 feet northeast of PRL B-1. No evidence is available to support any association between PRL B-1 and the runways at McClellan AFB.



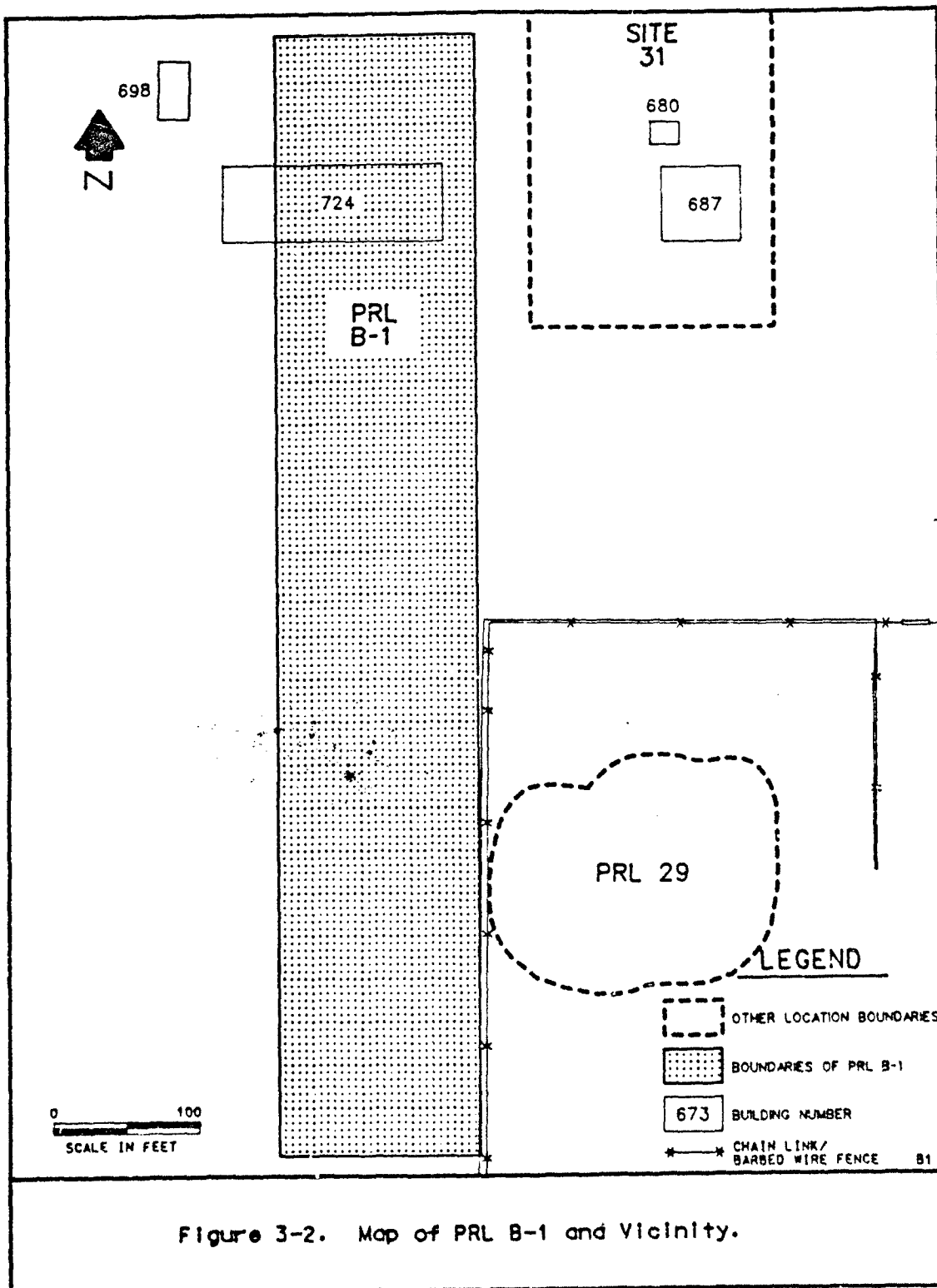


Figure 3-2. Map of PRL B-1 and Vicinity.

All of the available photographs taken prior to 1971 show PRL B-1 as undeveloped grassland. The 1971 aerial photograph shows the northern half of PRL B-1 paved and used for storage. Subsequent photographs indicate that between 1972 and 1974 some type of surface cover was constructed on the southern half of PRL B-1 and that Building 724 was constructed on the northern half of PRL B-1. Photographs taken during 1974 to 1988 show all of PRL B-1 being used for storage.

3.3 Current Activities

Most of the surface area at PRL B-1 is being used for storage by the Defense Reutilization and Marketing Office (DRMO). The soil in the southernmost portion of PRL B-1 is covered by smooth steel planking, where miscellaneous household or office equipment (e.g., refrigerators, tables, and chairs) are stored. The soil in the center of PRL B-1 is covered by pierced steel planking, where scrap metal is stored. The soil in the northernmost portion of PRL B-1, near Building 724, is covered by asphalt; scrap metal is also stored here. Building 724 is used by DRMO to remove parts containing precious metals from dismantled surplus equipment (Hart, personal communication, 1989).

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL B-1.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL B-1.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) B-1.

4.1 Potential Contaminants of Concern

No evidence of a previous burial pit at PRL B-1 has been found; therefore, no potential contaminants of concern have been identified.

4.2 Immediate Hazards

This section describes any potential hazards, including the potential for fire and explosion, and the possible hazards to worker health and safety, that require immediate action due to contaminants present at PRL B-1. The potential for fire and explosion is unknown because the soil gas and emissions from the location have not been characterized. However, none of the available information suggests there are any immediate hazards at UPRL B-1.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. In the northernmost and southernmost portions of the site, the ground surface is covered by asphalt pavement and smooth steel planking, respectively, which would prevent contact with any contaminated soil. However, in the central portion of the site, pierced steel planking covers the ground surface which has minimal potential for contact with surface soils. Surface soil samples have not been collected from PRL B-1.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL B-1 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the percolation rate of the soil, and contaminant characteristics.

The amount of infiltration at PRL B-1 is primarily related to surface characteristics of the area and permeability of the soil. A portion of the ground surface at PRL B-1 is covered with pavement, which significantly reduces the potential for water to infiltrate surface soils; however, where steel planking covers the ground surface, the potential for infiltration of surface water exists.

The percolation rate of contaminants depends on soil permeability, structure, stratification, and characteristics of the contaminants. Although permeability data on the soil at PRL B-1 are not available, basewide boring information shows that soils range from clay loams to sandy loams and that any relatively impermeable layers are not continuous or effective barriers to percolation. Therefore, the percolation rate for this location is probably low to moderate.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The ground surface at PRL B-1 is relatively flat with a very slight slope toward the west. Because the ground surface in this area is unpaved, surface water would most likely infiltrate into soils. During severe storm events, surface water may flow to a small drainage ditch located approximately 150 to 200 feet west of PRL B-1 which eventually leads to Magpie Creek. The same contaminant characteristics affecting migration to groundwater also affect migration of dissolved contaminants to surface water. In areas of the location where pavement is present, the potential for any contaminants that may be present in the soil to migrate to surface water is very low; however, where steel planking covers the ground surface, migration to surface water is possible.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. Volatile contaminants that may be present

in soils at PRL B-1 have not been analyzed in soils and soil gases; therefore, the potential for migration to air cannot be determined.

5.0 CONCLUSIONS AND RECOMMENDATIONS

McLaren Environmental Engineering, Inc., (McLaren) identified the area of Potential Release Location (PRL) B-1 as a possible burial pit east of Building 700 from viewing 1956 aerial photographs. None of the aerial photographs reviewed for this Preliminary Assessment, including the 1956 photographs McLaren referenced, show any evidence of burial pits in the vicinity of PRL B-1. Therefore, Radian recommends that PRL B-1 as such be removed from the list of Potential Release Locations.

6.0

REFERENCES

Hart, S., personal communication, 1989. Personal communication with Stella Hart, Chief of Property Disposal, Defense Reutilization and Marketing Office (DRMO), McClellan Air Force Base (AFB), 3 April 1989.

McLaren Environmental Engineering, Inc., 1986. "Technical Memorandum for the Shallow Investigation Program in Areas A, B, C, and Other Sites, Part IV - Technical Memorandum, Other Area Sites." Prepared for the Department of the Air Force, Sacramento Air Logistics Center, McClellan AFB.



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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL B-9
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

**Radian Corporation
10395 Old Placerville Road
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1.0 INTRODUCTION

This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) B-9 at McClellan Air Force Base (AFB), California. The unconfirmed location of PRL B-9 is shown in Figure 1-1. Potential Release Location B-9 was reportedly the location of a burial pit. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

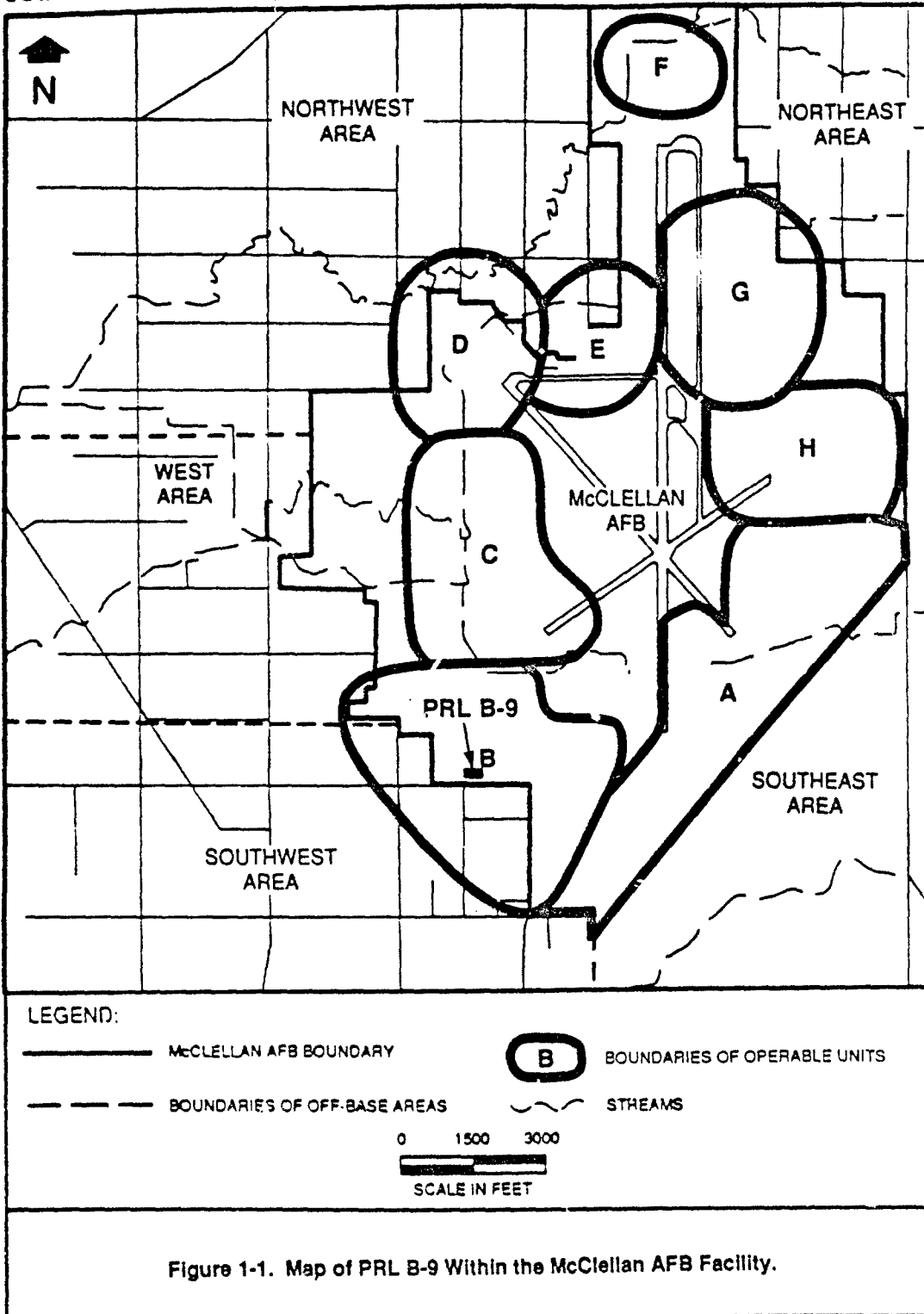
The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.

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Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.



2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

Potential Release Location (PRL) B-9 was identified by McLaren Environmental Engineering during the course of their 1986 investigation of McClellan Air Force Base (AFB) (McLaren, 1986, p. 51). McLaren reported that 1956 photographs showed evidence of a burial pit east of Building 700 in the area now designated PRL B-9. No other rationale was documented for including PRL B-9 as a Potential Release Location.

2.2 Personnel Interviews

Personnel interviews regarding waste disposal at PRL B-9 could not be conducted by Radian because McClellan AFB personnel who may be able to provide pertinent site-specific information could not be identified.

2.3 Location Visit

Radian personnel visited PRL B-9 on 7 March 1989 to document current features and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features, activities, and evidence of contamination. Table 2-1 lists the photographs that were reviewed for this Preliminary Assessment. Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment; however, no information was available for PRL B-9 in any of the files.



**TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL B-9**

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) B-9, shown in Figure 3-1, is situated in Operable Unit (OU) B of McClellan Air Force Base (AFB). Potential Release Location (PRL) 29, PRL P-2, and Site 31 are located in the vicinity of PRL B-9 and will be assessed in separate Preliminary Assessments or Technical Memorandums. A location map showing PRL B-9 and the surrounding area is presented in Figure 3-2.

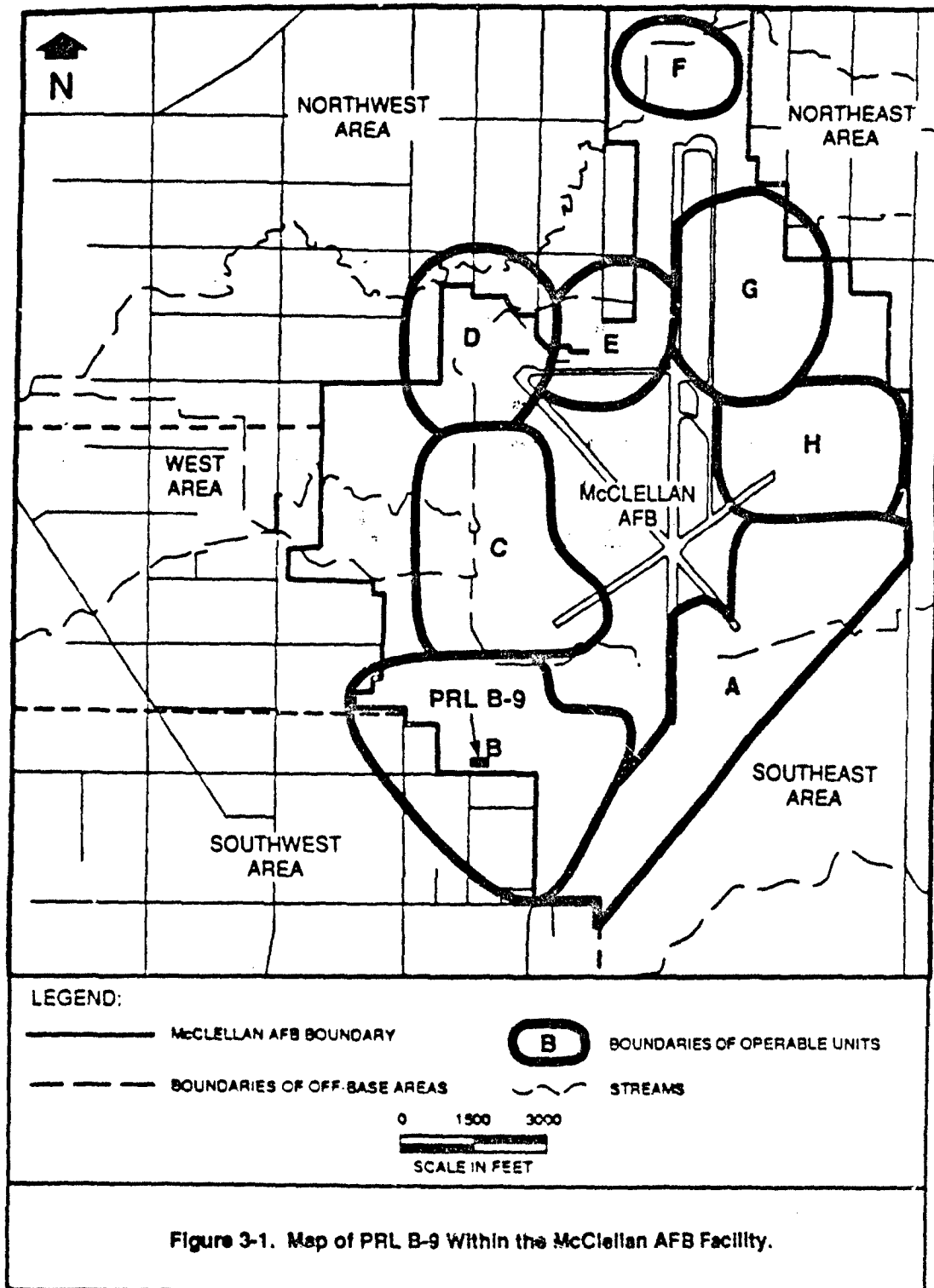
The following subsections discuss site delineation, historical and current activities, reported releases, and remedial actions at PRL B-9.

3.1 Location Delineation

The area now designated PRL B-9 was first identified in 1986 by McLaren Environmental Engineering (McLaren, 1986, p. 51). McLaren identified PRL B-9 from aerial photographs taken in 1956 as a "possible burial pit east of Building 700" (McLaren, 1986, p. 51). For documentation of the identification, McLaren referenced "Photo C-3 MAFB Master Plan, Book 3, September 7, 1956" (McLaren, 1986, p. 51). The boundaries of PRL B-9 (as determined by McLaren) are rectangular, approximately 420 feet long by 120 feet wide. McLaren's boundaries for PRL B-9 were used for the preparation of this Preliminary Assessment.

3.2 Historical Activities

Aerial photographs are the only source of historical information available for PRL B-9. Five aerial photographs dated "September 7, 1956" were found in Section C-3 of McClellan AFB's 1956 Master Plan. These photographs match McLaren's reference to the photographs used to identify PRL B-9, "Photo C-3 MAFB Master Plan, Book 3, September 7, 1956" (McLaren, 1986, p. 51). However, based on Radian's review, the 1956 aerial photographs do not provide any evidence that burial pits existed at PRL B-9. The 1956 photographs show the area in the vicinity of PRL B-9 to be flat, undeveloped grassland. Therefore, it is unclear why McLaren reported that possible evidence of a burial pit is visible in these photographs. All of the available photographs (see Table 2-1) show PRL B-9 as undeveloped grassland.



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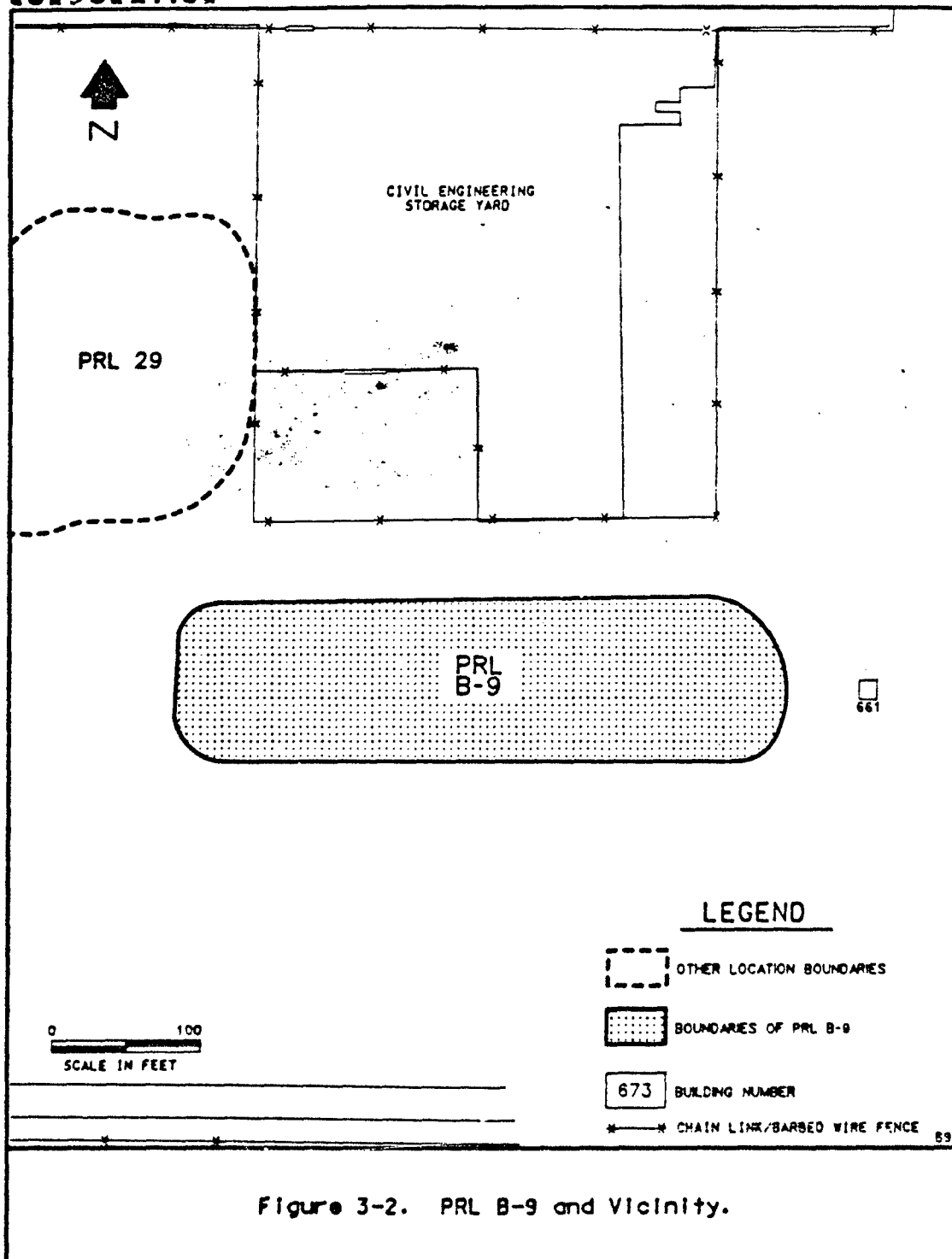


Figure 3-2. PRL B-9 and Vicinity.

3.3 Current Activities

The area within the boundaries of PRL B-9 is relatively flat, undeveloped land. The surface is covered by natural vegetation. There is no visible evidence of contamination.

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL B-9.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL B-9.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) B-9.

4.1 Potential Contaminants of Concern

Radian has found no evidence to support that a burial pit was ever located in the area identified as PRL B-9. Therefore, no contaminants are believed to be present in the soils at PRL B-9 as a result of the reported burial pit.

4.2 Immediate Hazards

This section describes any potential hazards, including the potential for fire and explosion and the possible hazards to worker health and safety, that require immediate action due to contaminants present at PRL B-9. Based on available information, Radian believes that no immediate hazards exist due to the reported burial pit at PRL B-9.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL B-9 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. No evidence has been found that supports there was a burial pit at PRL B-9, and no contamination has been identified; however, it is possible to discuss general considerations of contaminant migration at this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the surface water infiltration rate, the percolation rate, and the contaminant characteristics.

The potential infiltration rate for soil is primarily related to the surface characteristics of the area and the permeability of the soil. The surface of UPRL B-9 is

exposed soil with vegetation. Therefore, the potential for infiltration of surface water exists.

The percolation rate of contaminants dissolved in infiltrating water depends on the soil permeability, structure, and stratification. Although permeability data on the soil at PRL B-9 are not available, basewide boring information shows that soils from clay loams to sandy loams and that any relatively impermeable layers are not continuous or effective barriers to percolation. Therefore, the percolation rate is believed to be low to moderate.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The topography at PRL B-9 is relatively flat, unpaved grassland. Because the surface at PRL B-9 is unpaved, any contaminated soil particles which may be present could be carried via runoff to surface water during severe storms. For this reason, the potential for migration to surface water at the location is possible.

4.3.3 Potential for Migration to Air

Both location surface characteristics and contaminant characteristics influence the potential for migration to air. No contaminants have been identified in the soils at PRL B-9; therefore, the potential for migration to air cannot be determined.

5.0**CONCLUSIONS AND RECOMMENDATIONS**

McLaren identified the area designated as Potential Release Location (PRL) B-9 as a possible burial pit east of Building 700 from viewing 1956 aerial photographs. None of the aerial photographs reviewed for this Preliminary Assessment, including the 1956 photographs McLaren referenced, show any evidence of burial pits in the vicinity of PRL B-9. Therefore, Radian recommends that PRL B-9 be removed from the list of Potential Release Locations. Although PRL B-9 is being recommended for no further action, samples may be taken within its boundaries to define the extent of contamination of adjacent sites (PRL 29) that have been recommended for further investigation.

6.0

REFERENCES

McLaren Environmental Engineering, Inc., 1986. "Technical Memorandum for the Shallow Investigation Program in Areas A, B, C, and Other Sites, Part IV - Technical Memorandum, Other Area Sites." Prepared for the Department of the Air Force, Sacramento Air Logistics Center, McClellan AFB, California.

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INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3

PRELIMINARY ASSESSMENT FOR PRL L-5
FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991

PREPARED BY:

Radian Corporation
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1.0 INTRODUCTION

This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) L-5 at McClellan Air Force Base (AFB), California. The location of PRL L-5 within the McClellan AFB facility is shown in Figure 1-1. Potential Release Location L-5 is a section of the Industrial Wastewater Line within Operable Unit B of the base. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.

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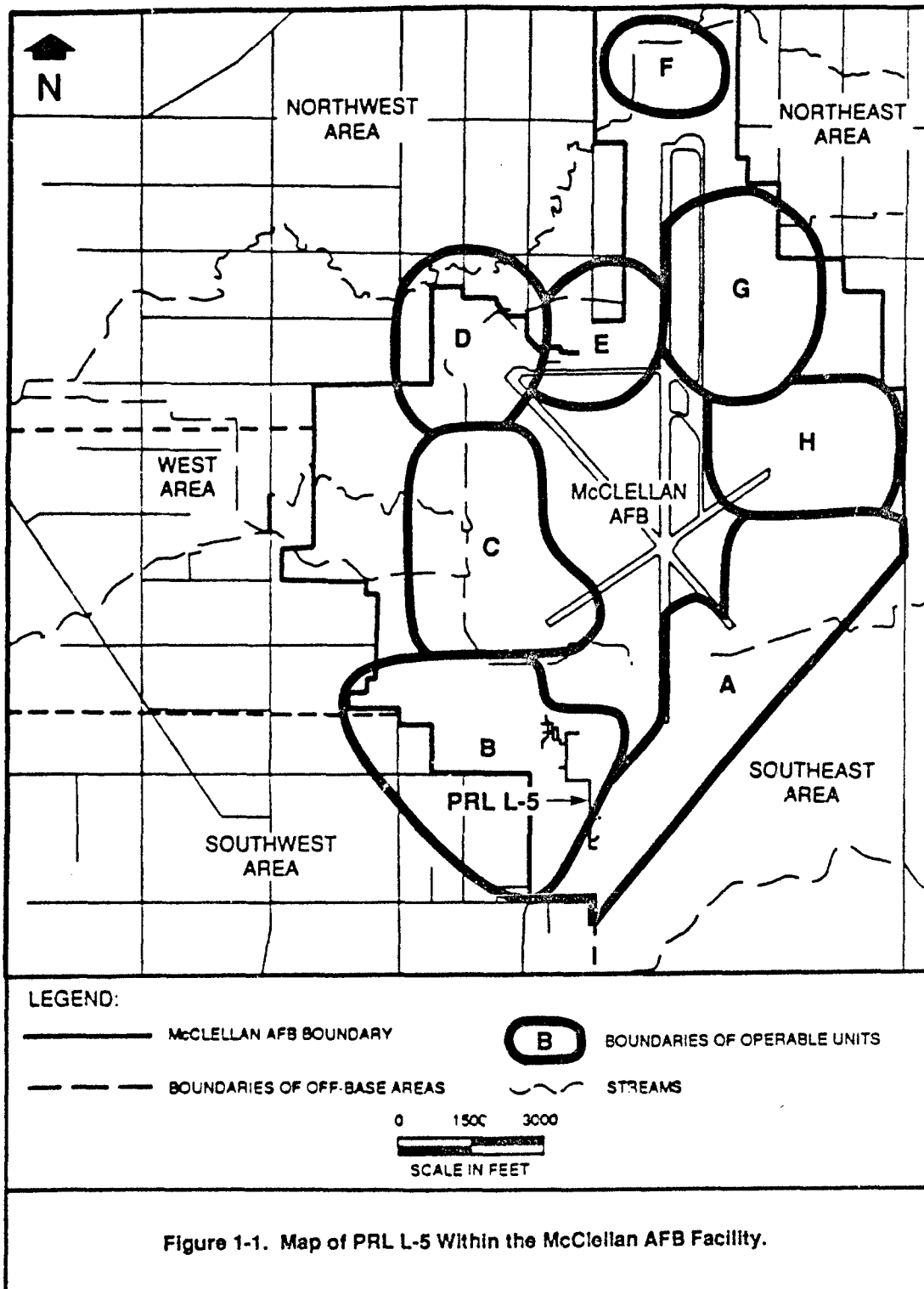


Figure 1-1. Map of PRL L-5 Within the McClellan AFB Facility.

Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1981, CH2M Hill conducted a records search of McClellan Air Force Base (AFB) files to identify hazardous waste disposal sites on base in order to determine the potential for hazardous materials to migrate off base (CH2M Hill, 1981). As part of this investigation, the operations of several buildings connected to the Industrial Wastewater Line (IWL) at Potential Release Location (PRL) L-5 were identified.

In 1988, EG&G Idaho, Inc. examined the Industrial Wastewater Collection System (IWCS) for leaks and analyzed wastewater passing through the wastewater lines (the IWL) at McClellan AFB (EG&G Idaho, Inc., 1988). On the basis of the 1988 investigation, a section of the IWL identified as PRL L-5 was added to the list of McClellan AFB potential release locations.

2.2 Personnel Interviews

Personnel interviews with McClellan AFB employees regarding the IWCS at PRL L-5 have not been conducted at this time. Base personnel who may be able to provide pertinent site-specific information could not be located. Interviews have been conducted with personnel familiar with operations at Buildings 613, 640, 654, 655 and 658, which connect to the section of the IWL designated PRL L-5. The IWL also connects to five other buildings, but personnel knowledgeable with operations in these buildings could not be located.

2.3 Location Visit

Radian personnel visited PRL L-5 on 22 March 1989 for the purpose of investigating the current status of the location.

2.4 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary

C Assessment. Civil Engineering files contained maps showing the location of the IWL (McClellan AFB, 1988). Bioenvironmental Engineering files contained information regarding past operations performed in the buildings connected to the section of the IWL designated as PRL L-5 (McClellan AFB, 1973). Information concerning the historical operations within buildings connected to the IWL was also obtained from the McClellan AFB Real Estate Office (McClellan AFB, Real Estate Office).

3.0 LOCATION DESCRIPTION

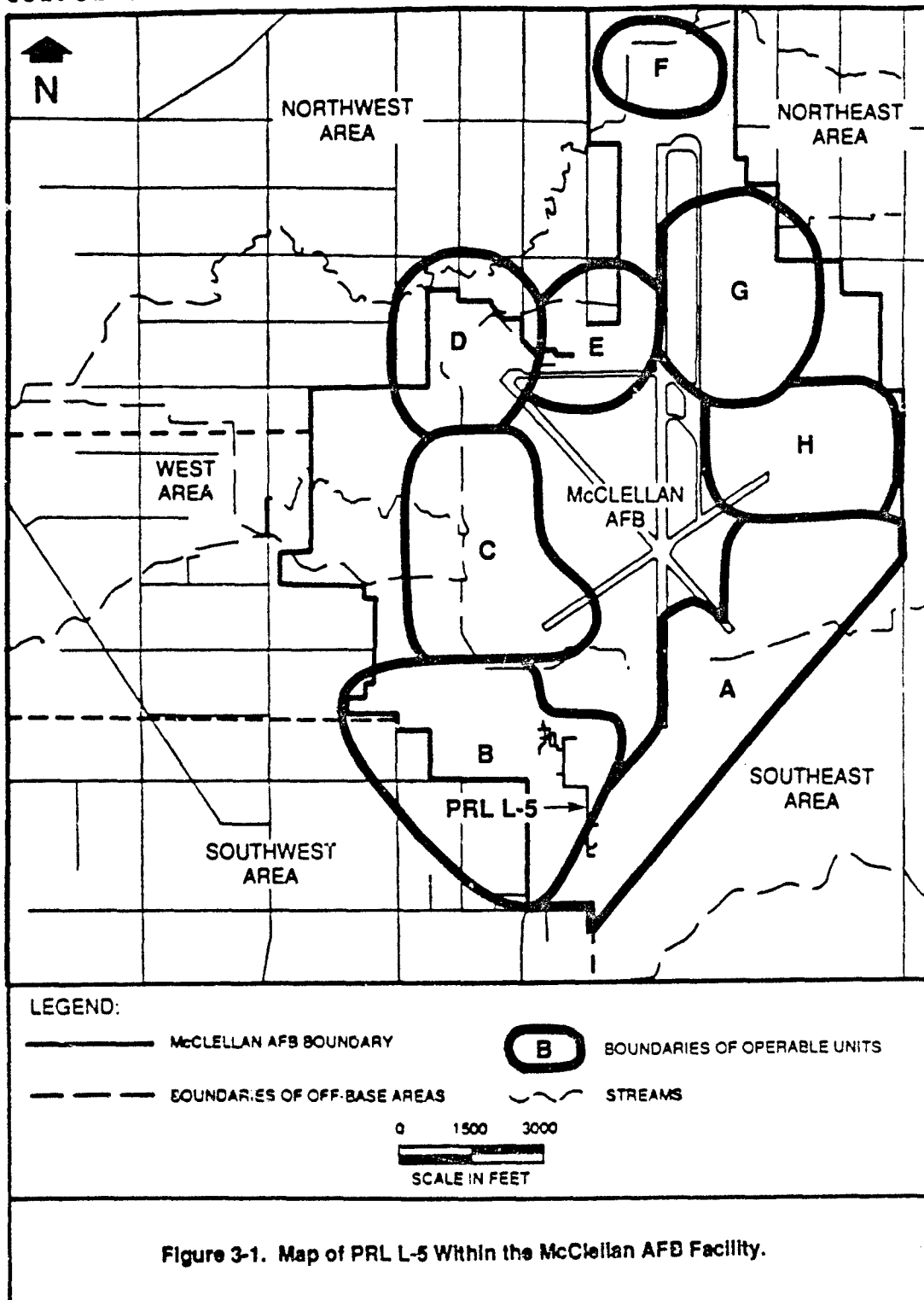
Potential Release Location (PRL) L-5 consists of the section of the Industrial Wastewater Line (IWL) that runs along the eastern side of Operable Unit (OU) B of McClellan Air Force Base (AFB) (Figure 3-1). A location map showing the IWL and the surrounding area is presented in Figures 3-2 and 3-3. Some sections of the IWL within PRL L-5 are not covered by pavement; the approximate locations of the unpaved areas are shown in Figure 3-2.

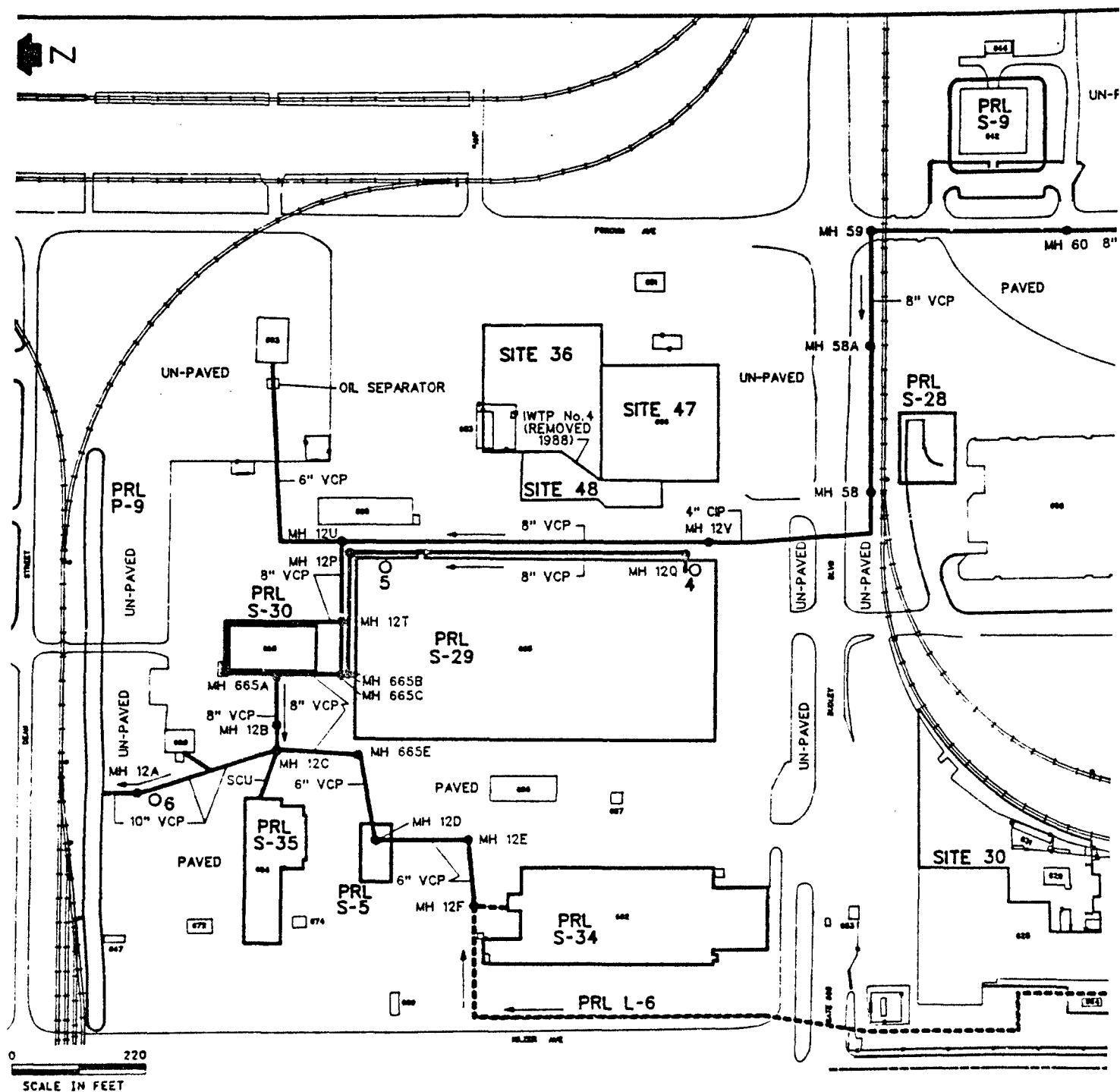
The McClellan AFB Industrial Wastewater Collection System (IWCS) is a system of underground pipes and lift stations used to collect the wastewater from the various base processes and work areas for treatment at one centralized Industrial Wastewater Treatment Plant (IWTP) located in OU C McClellan AFB. Most of the system is gravity flow, but various lift stations are located throughout the system. The piping system (the IWL) throughout the base is constructed of cast iron pipe, asbestos concrete pipe, reinforced concrete pipe, corrugated metal pipe, vitrified clay pipe, and polyvinyl chloride pipe. Pipe diameters range from 4 to 36 inches (EG&G Idaho, Inc., 1988). Approximately 6,000 feet of IWL are included in PRL L-5.

The following sections discuss site delineation, historical and current activities, reported releases, and remedial actions at PRL L-5.

3.1 Location Delineation

The IWL within PRL L-5 consists of the underground piping originating at Building 610 and running northward where it connects with Building 659 as shown in Figure 3-2. The location delineation was made by Radian Corporation in a letter of recommendation to the Air Force dated 16 January 1989. Wastewater flow in the pipeline is in a generally northward direction to the IWTP north of OU B. The contents of PRL L-6 flow into and then through a portion of PRL-5. Information regarding the age of the pipeline was not available. Refer to Figure 3-2 for information regarding the size and composition of the pipeline. This section of piping was documented by the EG&G Idaho (1988) investigation to have a number of leaks. Because this location is unstudied except for pipe integrity and because the presence of contaminated soils is not known, location boundaries are only approximate and are intended to include only the surface trace of the IWL.





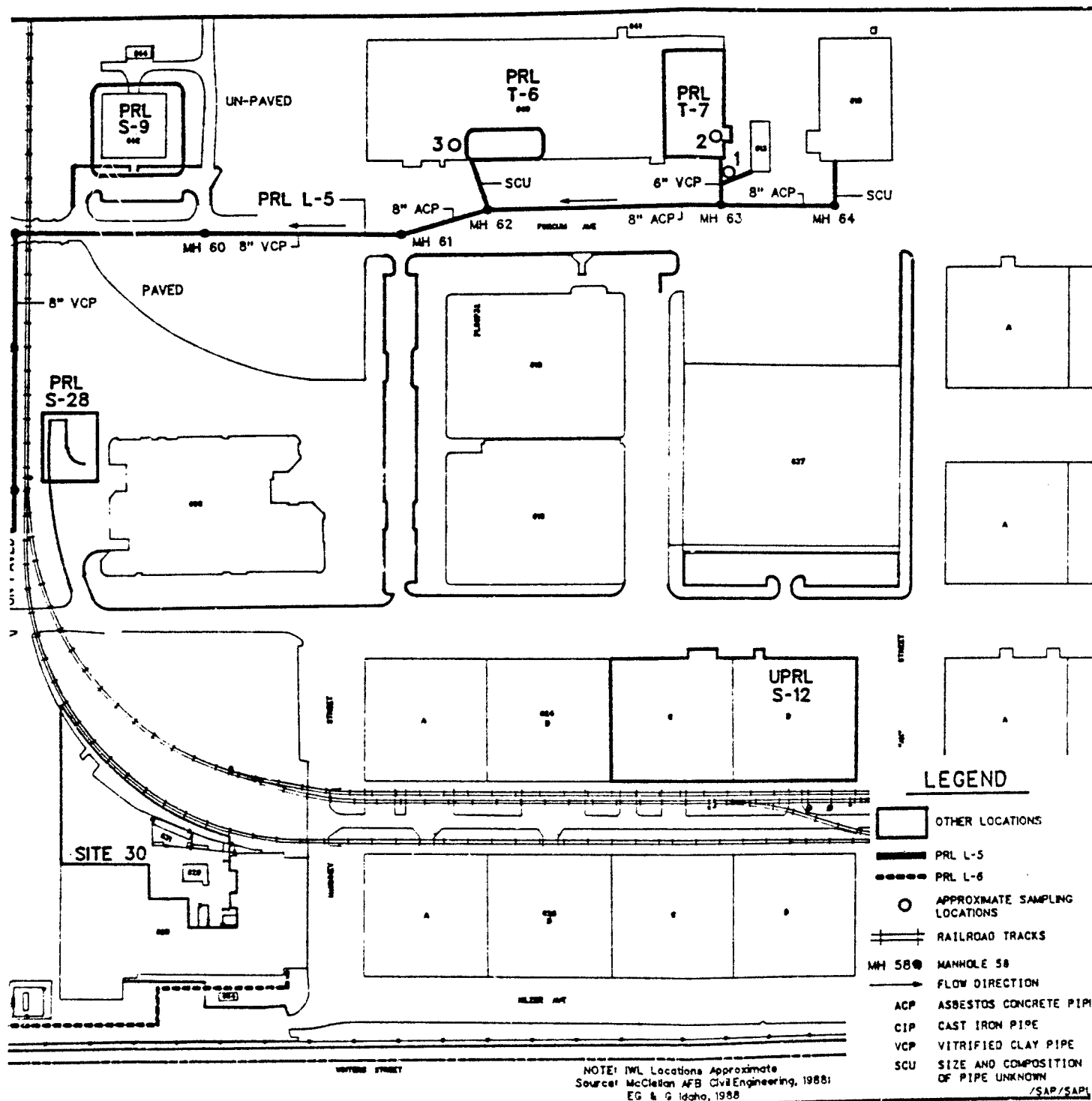
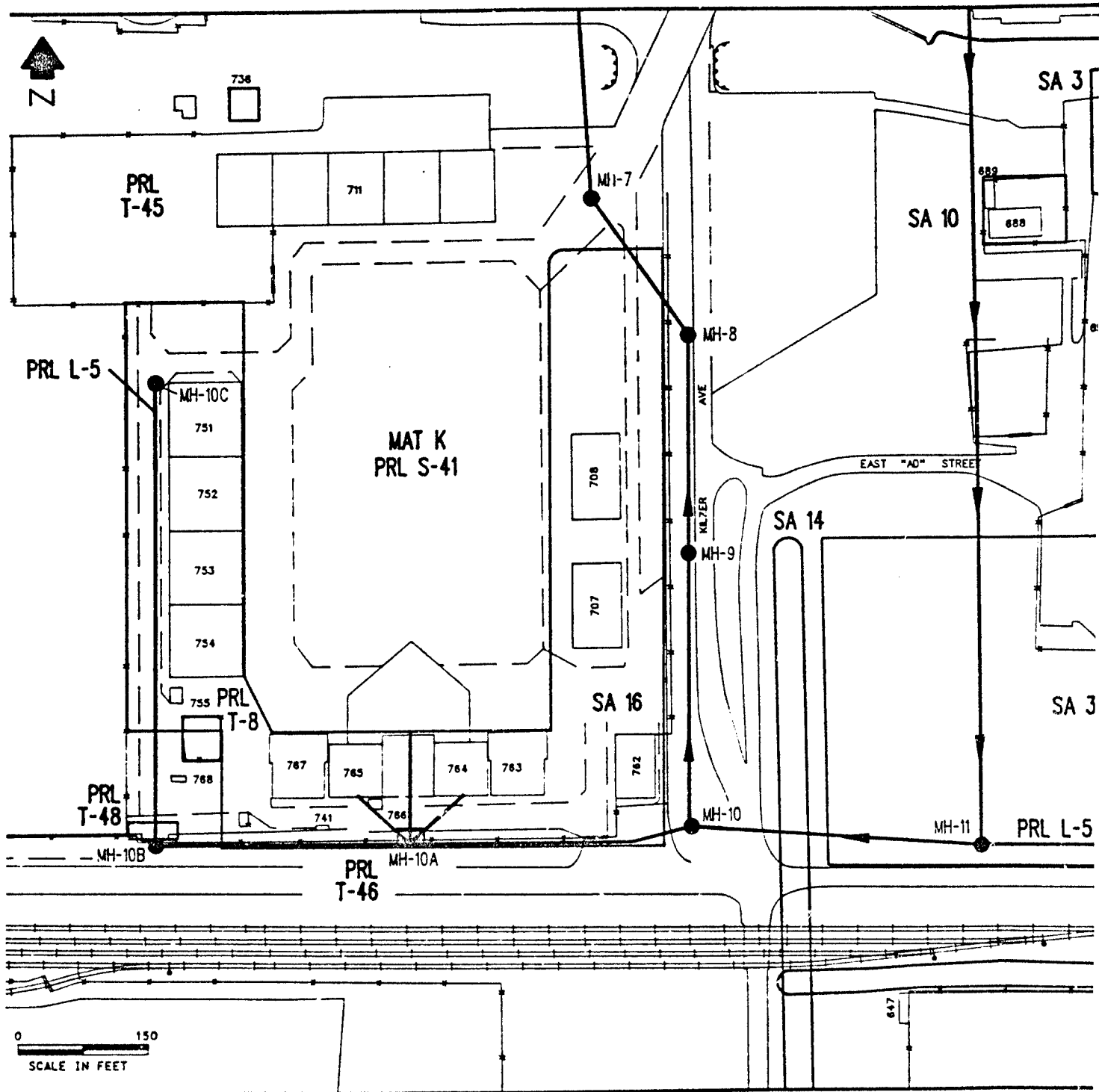


Figure 3-2. Map of Southern Section of PRL L-5 and Vicinity. Approximate Sampling Locations also Included.



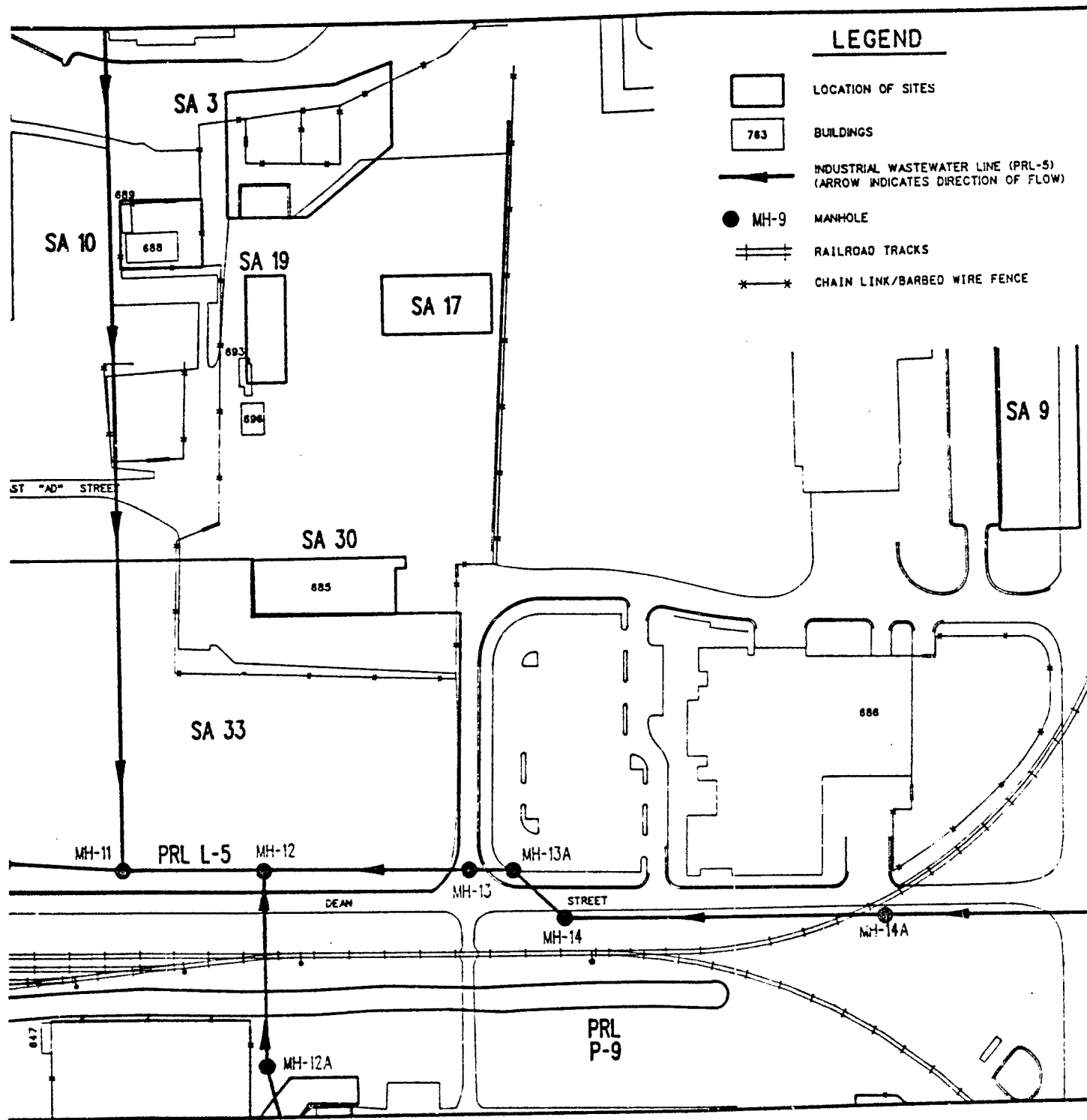


Figure 3-3. Map of Northern Section of PRL L-5

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3.2 Historical Activities

The IWL within PRL L-5 is connected to and receives discharges from 10 buildings; therefore, the discussion of historical activities will relate to the operations performed within these buildings and waste streams discharged from them into the PRL L-5 section of the IWL. Table 3-1 summarizes the available information concerning the historical operations performed in the buildings connected to the IWL in PRL L-5. Limited historical information was obtained for each building except for Buildings 603 and 641; only information concerning the current function of Buildings 603 and 641 was available.

The investigation of the IWCS by EG&G Idaho included collection and analysis of wastewater passing through the underground piping. Samples were collected from surface manholes. Within the section of the IWL now designated as PRL L-5, samples were collected from six different locations. The sampling locations are shown in Figure 3-2. Samples collected from the IWL were analyzed for inorganic compounds (United States Environmental Protection Agency [U.S. EPA] Method 6010) and volatile organic compounds (U.S. EPA Method 8240). EG&G Idaho's investigation followed procedures contained in the U.S. EPA Resource Conservation and Recovery Act (RCRA) waste sampling protocols guide. A list of compounds detected above analytical detection limits for each sampling location is presented in Table 3-2. Quantified analytical results are not presented in this table; detected concentrations indicate only what the IWL contained at the time of sampling and may not be representative of historical waste flow in this section of the line. Quantified analytical results for these samples are presented in the McClellan AFB IWCS Characterization Report (EG&G Idaho, Inc., 1988). All data were evaluated by U.S. EPA contract laboratory protocols and quality assurance/quality control (QA/QC) data were reduced after validation by a statistical protocol.

In 1988, EG&G Idaho, Inc. tested the integrity of the IWL at PRL L-5. During the investigation, the pipe segments and access covers in the main lines were cleaned, observed either by direct or remote inspection, and pressure tested. If a pipe joint was found to lack integrity, it was temporarily repaired by pressure grouting and was retested for integrity. Table 3-3 presents the types and locations of leaks found in the IWL at PRL L-5 during the EG&G Idaho investigation.

TABLE 3-1. SUMMARY OF OPERATIONS HISTORICALLY PERFORMED IN BUILDINGS CONNECTED TO THE IWL AT PRL L-5

Building or Facility	Operations (approximate years, if known)	Chemicals Used
610	GCA Van Repair; Maintenance of Ground Electronic Equipment (1970s)	Dichloromethane; Acetone; Lacquer Thinner
613	Washrack; Electronics Shop (1982)	NA
640	Electronic Repair Shop; Gear Box Repair; Paint Shop; Paint Booth; Solvent Booths	PD 680
654	Ground Power Equipment Repair	PD 680; Hydraulic Fluids
655	Radar Van Repair Shop (current)	Stoddard Solvent
	Tank Repairs; Radar Van Repairs; Sheet Metal Repair; Paint Shop; Plastic Shop (1973)	1,1,1-TCE; Methyl Ethyl Ketone; Toluene Sealant; Acetone; Zinc Chromate Primer; Naphthalene; Freon
	Plastics/Fiberglass Shop (1968-1976) Vehicle Maintenance and Repair (1956) Woodmill	Epoxy; Solvents
658	Paint Stripping Washrack (1961 to present)	Ammonia; Aniline; Chromic Acid; Cresol; Ethyl Alcohol; Methyl Alcohol; Methylene Chloride; Methyl Ethyl Ketone; Phenol; Phosphoric Acid; Sodium Chromate; PD 680
	Auto Service Rack (1956-1961)	NA

(Continued)

TABLE 3-1. (Continued)

Building or Facility	Operations (approximate years, if known)	Chemicals Used
659	Engine Test Facility; Meter Testing of Special Purpose Vehicles (1954)	NA
IWTP No. 4	Pretreatment for wastes generated from Building 666 (Plating Shop) (mid-1960s to 1980; IWTP No. 4 now removed)	Possibly Chromium, Nickel, Zinc, Lead, Silver, Cadmium, Copper, solvents, caustics, and acids
685	Washrack located north of Building 685 used to dispose of wastewater and sediment generated in the washing of vehicles (unknown to present).	No specific chemicals were identified.
688	Location of herbicide/pesticide storage area, washrack, and wastewater storage tank and sump (1980 to present).	Total of 72 chemicals used; refer to Information Summary Sheet for SA 10

NA = Not available.

SOURCES: McClellan AFB Bioenvironmental Historical File, 19A, 1973; Jeffrey, personal communication, 1989; McClellan AFB Real Estate Office, Historical Files.

TABLE 3-2. COMPOUNDS DETECTED FROM THE EG&G IDAHO INVESTIGATION OF THE IWL AT PRL L-5**SAMPLING POINT NO. 1****Inorganic Compounds^a**

Aluminum
Antimony
Boron
Cadmium
Calcium
Chromium
Copper
Iron
Magnesium
Manganese
Nickel
Silicon
Sodium
Zinc

Volatile Organic Compounds^b

Methylene chloride
Acetone
1,1-Dichloroethane
1,1,1-Trichloroethane
Tetrachloroethene

SAMPLING POINT NO. 3**Inorganic Compounds**

Boron
Calcium
Copper
Iron
Lead
Magnesium
Potassium
Silicon
Sodium
Zinc

Volatile Organic Compounds

Methylene chloride
2-Butanone

SAMPLING POINT NO. 2**Inorganic Compounds**

Aluminum
Barium
Cadmium
Calcium
Chromium
Copper
Iron
Magnesium
Manganese
Potassium
Silicon
Silver
Sodium
Vanadium
Zinc

Volatile Organic Compounds

Methylene chloride
Acetone
Carbon disulfide
2-Butanone

SAMPLING POINT NO. 4**Inorganic Compounds**

Aluminum
Barium
Boron
Calcium
Chromium
Iron
Magnesium
Manganese
Nickel
Silicon
Sodium
Zinc
Cyanide

(Continued)

TABLE 3-2. (Continued)

SAMPLING POINT NO. 5**Inorganic Compounds**

Aluminum
Antimony
Barium
Cadmium
Calcium
Chromium
Copper
Iron
Lead
Magnesium
Manganese
Nickel
Silicon
Silver
Zinc

Volatile Organic Compounds

Methylene chloride
Acetone
1,1-Dichloroethane
2-Butanone
1,1,1-Trichloroethane
Tetrachloroethene

SAMPLING POINT NO. 4**Volatile Organic Compounds**

Methylene chloride

SAMPLING POINT NO. 6**Inorganic Compounds**

Boron
Calcium
Chromium
Copper
Iron
Lead
Magnesium
Potassium
Silicon
Sodium
Zinc

Volatile Organic Compounds

Methylene chloride
Acetone
2-Butanone
Toluene

^a Analyzed by U.S. EPA Method 6010.

^b Analyzed by U.S. EPA Method 8240.

SOURCE: EG&G Idaho, Inc., 1988.

TABLE 3-3. IWL LEAK LOCATIONS AND TYPES AT PRL L-5

Leak Location	Leak Type
PRL L-5	
250' East of bend in pipe	Line failed pressure testing
200' East of bend in pipe	Line failed pressure testing
150' East of bend in pipe	Line failed pressure testing
100' East of bend in pipe	Line failed pressure testing
50' East of bend in pipe	Line failed pressure testing
100' North of MH 12P	Line failed pressure testing
54' East of MH 12T	Joint that failed leak testing
31' West of MH 655A	Joint that failed leak testing
3' West of MH 12B	Joint that failed leak testing
135' West of MH 12B	Joint that failed leak testing
75' Northeast of MH 12D	Joint that failed leak testing
3' East of MH 12P	Joint that failed leak testing
35' South of MH 12P	Joint that failed leak testing
56' North of MH 655D	Cracked joint
42' North of MH 655D	Cracked joint
332' North of MH 12V	Joint that failed leak testing
257' North of MH 12V	Joint that failed leak testing
98' North of MH 12V	Joint that failed leak testing
29' North of MH 12V	Cracked joint
229' West of MH 12V	Offset joint
217' West of MH 58A	Cracked joint
22' West of MH 58A	Cracked joint
306' North of MH 60	Offset joint
6' South of MH 61	Longitudinal crack
344' North of MH 63	Longitudinal and circumferential cracks
3' North of MH 63	Circumferential crack
30' North of MH 64	Longitudinal and circumferential cracks
261' East of MH 10A	Circumferential crack
268' East of MH 10A	Circumferential crack
12' North of MH 14A	Joints that failed leak testing
24' North of MH 14A	Joints that failed leak testing
30' North of MH 14A	Joints that failed leak testing
36' North of MH 14A	Joints that failed leak testing
48' North of MH 14A	Joints that failed leak testing
54' North of MH 14A	Joints that failed leak testing
84' North of MH 14A	Joints that failed leak testing
90' North of MH 14A	Joints that failed leak testing
96' North of MH 14A	Joints that failed leak testing
8' West of MH 14A	Joints that failed leak testing
20' West of MH 14A	Joints that failed leak testing
140' West of MH 14A	Joints that failed leak testing
8' South of MH 13A	Joints that failed leak testing
44' South of MH 13A	Joints that failed leak testing
50' South of MH 13A	Joints that failed leak testing
68' South of MH 13A	Joints that failed leak testing
230' North of MH 10	Joints that failed leak testing

(Continued)

TABLE 3-3. (Continued)

Leak Location	Leak Type
248' North of MH 10	Joints that failed leak testing
254' North of MH 10	Joints that failed leak testing
44' North of MH 9	Joints that failed leak testing
56' North of MH 9	Joints that failed leak testing
62' North of MH 9	Joints that failed leak testing
86' North of MH 9	Joints that failed leak testing
164' North of MH 9	Joints that failed leak testing
170' North of MH 9	Joints that failed leak testing
176' North of MH 9	Joints that failed leak testing
182' North of MH 9	Joints that failed leak testing
188' North of MH 9	Joints that failed leak testing
194' North of MH 9	Joints that failed leak testing
200' North of MH 9	Joints that failed leak testing
117' West of MH 11	Joints that failed leak testing
135' West of MH 11	Joints that failed leak testing

3.3 Current Activities

As part of their 1988 investigation of the IWL, EG&G Idaho identified the processes currently producing wastewater for each building or facility connected to the IWL (EG&G Idaho, Inc., 1988). Interviews that Radian conducted with personnel who were familiar with current operations within Buildings 654 and 653 identified additional processes contributing wastewater to the IWL in PRL L-5. Table 3-4 summarizes the processes that currently discharge to the IWL. The Industrial Wastewater Treatment Plant No. 4 is not listed in Table 3-4 because it was removed in 1988 and no longer discharges to the IWL.

3.4 Reported Releases

The reported releases from the IWL at PRL L-5 are documented in the EG&G Idaho investigation. The section of line identified as PRL L-5 has been found to contain a number of leaks along the entire length of the line (EG&G Idaho, Inc., 1988).

3.5 Remedial Actions

Many of the leaks found in the IWL by EG&G Idaho were repaired by grouting technique. Some cracked joints and offset or cracked portions of the line could not be repaired in situ (EG&G Idaho, Inc., 1988). Subsequently, it was reported that all detected leaks were repaired (Garcia, personal communication, 1989).

TABLE 3-4. BUILDINGS CURRENTLY CONNECTED TO THE IWL AT PRL L-5 AND PROCESSES PRODUCING WASTEWATER

Bldg. No.	Process Producing Wastewater	Waste Produced
603	Washrack and service of fuel tanks, trucks, valves, pumps, filters	AV-605
610	Produces no wastewater	None
613	High pressure steam cleaning from ground CEM Electrical Equipment	CALLA 301
640	Electroplating operation/printed wire boards. Cleaning tank for parts (has not been used since 1986)	Metals; CALLA 301
	Rinse water tank for small metals (has not been used since 1987)	None
	Paint spray painting in two water-fall type booths	Paint Enamel PD 680 (Type II)
	Lacquer thinners	NA
641	Boiler water blowdown at Water Treatment Plant	NA
654	Ground Power Equipment Repair	PD 680; Hydraulic Fluids
655	Three paint booths	Paint; waterbased and enamel
	Cleaning and washdown of electronic components	Isopropyl alcohol
658	Cleaning and paint stripping of equipment (under renovation--1988)	Possibly: ammonia, chromic acid, cresol, ethanalamine, ethyl hol,
alcohol, methyl alco	Rinse water for equipment after chemical paint stripping	methylene chloride, methyl ethyl ketone, phenol, phenolic paint remover, phosphoric acid, sodium chromate, Stoddard solvent

(Continued)

TABLE 3-4. (Continued)

Bldg. No.	Process Producing Wastewater	Waste Produced
659	Storage for recycled cleaning solvent flammable waste and hazardous material	NA

NA = Not available.

SOURCES: EG&G Idaho, Inc., 1988; Enix, personal files, 1989; Mason, personal communication, 1989.

4.0 POTENTIAL HAZARDS

This section presents or describes the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) L-5.

4.1 Potential Contaminants of Concern

Industrial activities at the facilities that are currently connected to the Industrial Wastewater Line (IWL) at PRL L-5 produce wastewater associated with wash-rack, electroplating, paint and solvent spray booth, and paint stripping operations. In the past, facilities such as a vehicle maintenance shop, plastics/fiberglass shop, and an Industrial Wastewater Treatment Plant had been connected to the IWL in PRL L-5. A number of chemicals were used at these facilities, including oils, solvents, metals, acids, bases, paints, and other chemicals. Because of the variety of operations feeding wastewater to the IWL at PRL L-5, and the long history of use, volatile organic compounds (VOCs), semivolatile organic compounds, acids, bases, cyanide, and metals are known to have passed through the line in wastewater.

Six wastewater samples from the IWL at PRL L-5 were collected by EG&G Idaho, Inc., in 1988 and analyzed for VOCs and metals. Eight VOCs and 20 priority pollutant metals were detected. Table 3-2 lists contaminants in wastewater of the IWL at the time of the sampling. Although the IWL lacked integrity when tested in 1988, the presence of contamination in adjacent soils is unverified along the total length of the IWL at PRL L-5.

4.2 Immediate Hazards

This section describes potential immediate hazards associated with potential contamination at PRL L-5, including the potential for fire and explosion and the possible hazards to worker health and safety, that require immediate action due to contaminants present at PRL L-5. The potential for fire and explosion cannot be stated because soil gas emissions from the location have not been characterized. However, the IWL and adjacent soils are covered by asphalt or concrete which would limit volatile gas emissions. None of the available information suggests there are immediate hazards at PRL L-5.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact with contaminated soils beneath or adjacent to leaks in the IWL. The location consists of an underground piping system that is mostly covered with concrete or asphalt. The covering prohibits human contact with potentially contaminated soils adjacent to the IWL. Because the ground surface is paved and any leaks from the IWL would have occurred below the ground surface, potential hazards to worker health and safety is considered low. No soil samples have been collected in PRL L-5, and the potential hazards to worker health and safety should be reevaluated if construction or excavation activities are planned along the IWL in the future.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL L-5 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the percolation rate of the soil, and contaminant characteristics.

The surface of PRL L-5 is mostly covered by concrete and asphalt, which minimizes the surface water infiltration. Because the IWL in PRL L-5 was found to have visible leaking joints and cracks and because the line has transported large volumes of wastewater for some time, the potential exists that the IWL has leaked wastewater containing dissolved contaminants into the soil over time.

The percolation rate of contaminants depends on soil permeability, structure, stratification, and characteristics of the contaminants. Although permeability data on the soils at PRL L-5 are not available, basewide boring information reveals that soils generally range from sandy loams to clay loams, and any relatively impermeable layers are not continuous and are not effective barriers to percolation. Therefore, the percolation rate for this location is probably low to moderate. With low to moderate percolation rates, wastewater containing contaminants may have penetrated to groundwater if sufficient volumes of wastewater were discharged from the IWL over a long enough

period of time. The volumes and time interval of any discharge cannot be evaluated with the data available.

A variety of contaminant compounds have been discharged into the IWL. Therefore, VOCs, semivolatile organic compounds, cyanide, acids, bases, and metal compounds may have entered the soils adjacent to PRL L-5. Volatile organic compounds generally are the most soluble of these contaminants and have the highest potential for migrating with percolating groundwater. The least soluble of these contaminants, metals, do not easily dissolve in percolating water and have a tendency to remain in the soils near the point of discharge.

4.3.2 Potential for Migration to Surface Water

Potential Release Location L-5 consists of an underground piping system. Surface soil contamination is not likely because exfiltration from the IWL would be below the paved ground surface into adjacent soils.

4.3.3 Potential for Migration to Air

Surface characteristics of the location, potential discharge points, and contaminant characteristics influence the potential for migration to air. Because the IWL is buried and almost completely covered by concrete or asphalt, the potential for volatile contaminants to migrate from the soils to air is low.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Limited site-specific information was available for the preparation of this Preliminary Assessment of Potential Release Location (PRL) L-5. The Industrial Wastewater Line (IWL) at this location has had a number of documented leaks (EG&G Idaho, Inc., 1988), and therefore, is a potential source of contamination to soils. All of the detected leaks in the IWL were repaired by EG&G Idaho in 1988 and 1989.

The potential hazards posed by any contaminants at the location cannot be completely evaluated until the location is fully characterized. Therefore, Radian recommends site characterization of PRL L-5 to determine the nature and extent of any contamination at the location. This investigation should include the sampling of subsurface soils at the locations along the IWL where leaks have been identified. If sections of the IWL are uncovered for repair or replacement activities, samples of any soils exposed during excavation should be taken for analyses. Soil samples should be collected at several depth intervals and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds, pesticides, and polychlorinated biphenyls (PCBs), and priority pollutant metals using appropriate analytical methods. If contaminants are detected at depths approaching or having the potential to approach the water table surface (approximately 90 to 120 feet below ground surface [BGS]), the construction of a monitoring well or wells may be necessary to evaluate the migration of contaminants to the groundwater pathway.

6.0

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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL L-6
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

**Radian Corporation
10395 Old Placerville Road
Sacramento, California 95827**

**USAF CONTRACT NO. F33615-87-D-4023, DELIVERY ORDER NO. 0012
CONTRACTOR CONTRACT NO. 227-005, DELIVERY ORDER NO. 0012**

**United States Air Force Center for Environmental Excellence
Mr. Patrick Haas (Technical Project Manager)
Environmental Services Office/Environmental Restoration Division (AFCEE/ESR)
Brooks Air Force Base, Texas 78235-5501**

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1.0 INTRODUCTION

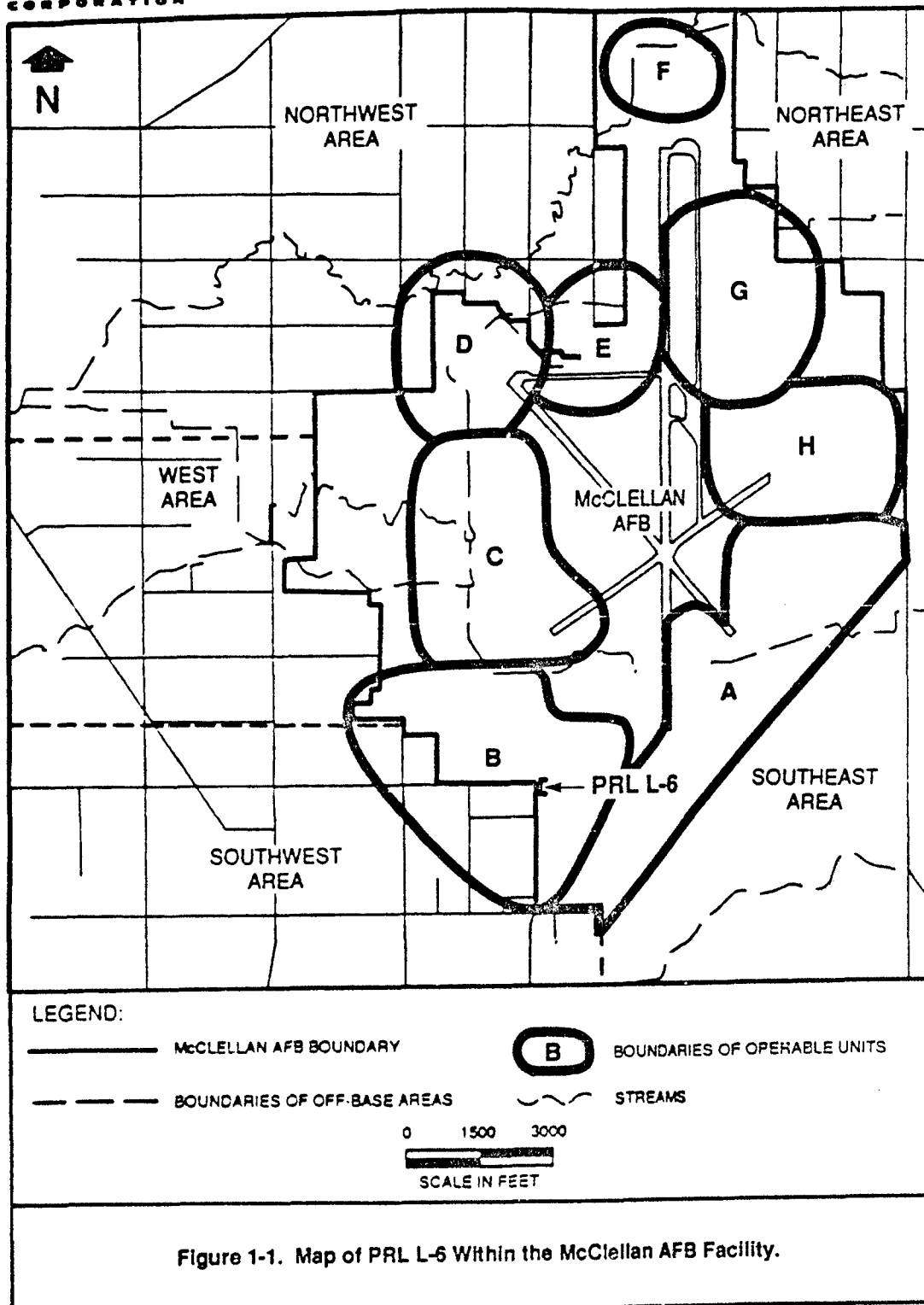
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) L-6 at McClellan Air Force Base (AFB), California. The location of PRL L-6 is shown in Figure 1-1. Potential Release Location L-6 is the location of the Industrial Wastewater Line along the western side of Operable Unit (OU) B at McClellan AFB. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

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- Determine whether further action is needed at the location;
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The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document, which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards;
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1988, EG&G Idaho, Inc., examined the Industrial Wastewater Collection System (IWCS) for leaks and analyzed wastewater passing through the wastewater lines at McClellan Air Force Base (AFB) (EG&G Idaho, Inc., 1988). On the basis of the 1988 investigation, Potential Release Location (PRL) L-6 was added to the list of McClellan AFB potential release locations.

2.2 Personnel Interviews

Personnel interviews regarding the IWCS at PRL L-6 have not been conducted by Radian because base personnel who may be able to provide pertinent site-specific information have not been identified; however, interviews have been conducted with personnel familiar with operations at Building 628, which connects with the IWCS at PRL L-6. Documentation of the interviews can be found in the location file.

2.3 Location Visit

Radian personnel visited PRL L-6 on 15 February 1989, for the purpose of investigating the current status of the location.

2.4 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment. Civil Engineering files provided AFB maps showing the location of the IWCS; no information was found in Bioenvironmental Engineering files.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) L-6 (shown in Figure 3-1) is located in Operable Unit (OU) B of McClellan Air Force Base (AFB). The location consists of the Industrial Wastewater Line (IWL) in the central portion of OU B. A location map showing the IWL and the surrounding area is presented in Figure 3-2.

The McClellan AFB Industrial Wastewater Collection System (IWCS) is an underground piping system used to collect the wastewater from the various base processes and work areas for treatment at one centralized Industrial Wastewater Treatment Plant (IWTP) located in OU C of the base. Most of the system is gravity flow, with various lift stations throughout the system. The piping system throughout the base is constructed of cast iron pipe, asbestos concrete pipe, reinforced concrete pipe, corrugated metal pipe, vitrified clay pipe, and polyvinyl chloride pipe. Pipe diameters range from 4 to 36 inches; depth below ground surface was not specified (EG&G Idaho, Inc., 1988).

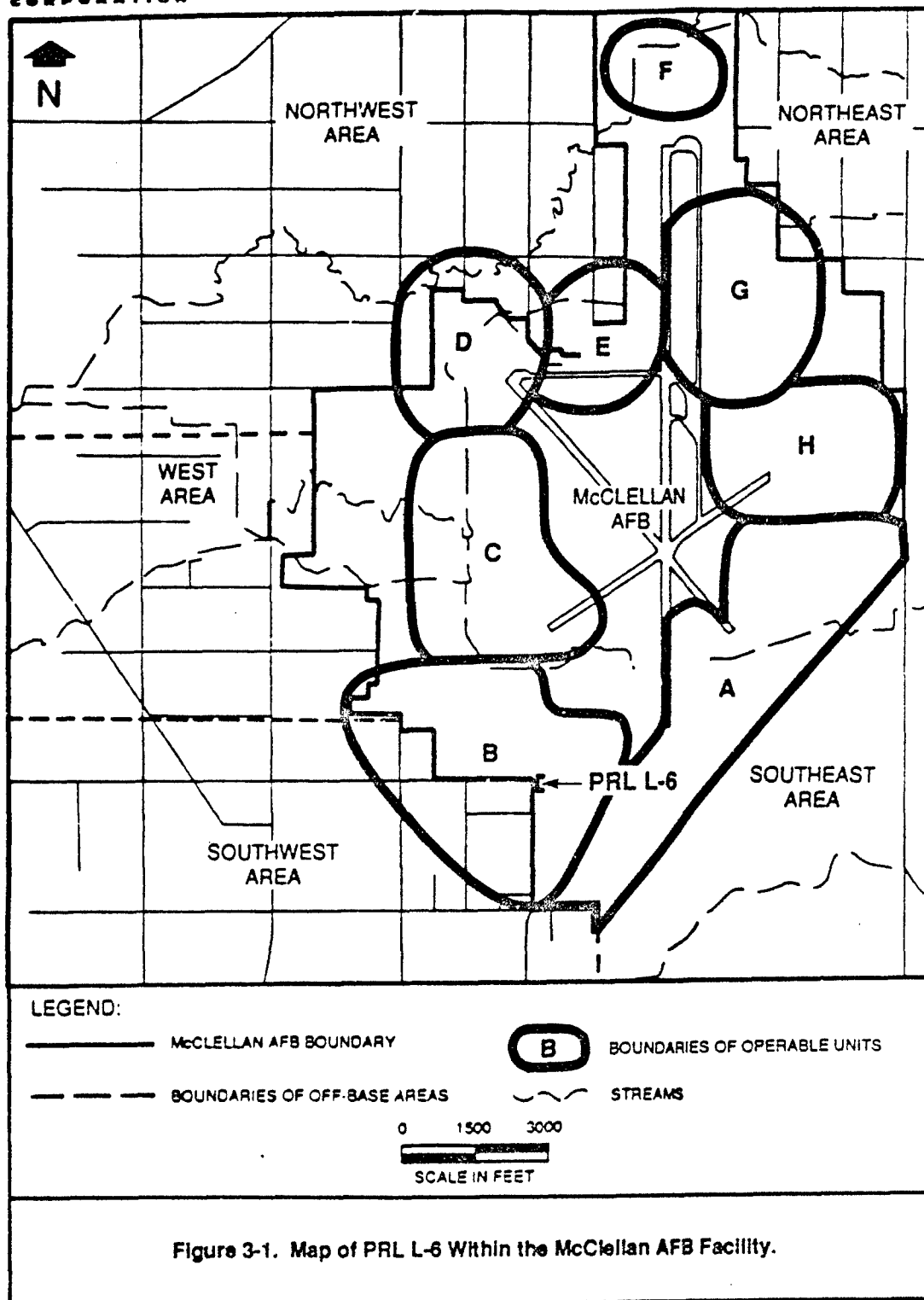
The following sections discuss site delineation, historical and current activities, reported releases, and remedial actions at PRL L-6.

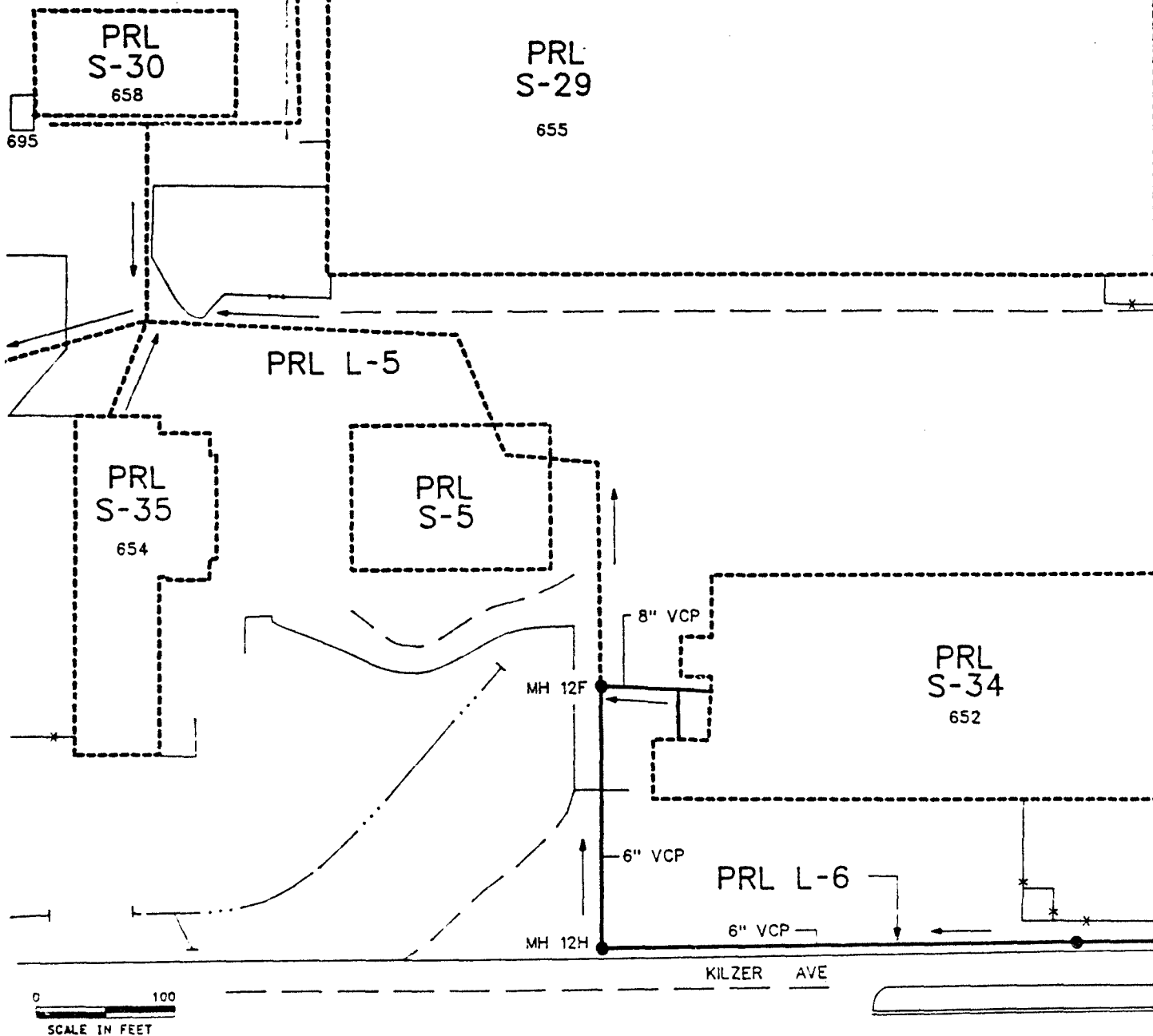
3.1 Location Delineation

The IWL at PRL L-6 consists of the underground piping originating at Building 628 running northward where it connects with another section of the line north of Building 652, as shown on Figure 3-2. This delineation was made by Radian in a letter of recommendation to the Air Force dated 16 January 1989. Wastewater flow in this section of the pipeline is in a generally northward direction to the IWTP north of OU B. This section of piping was documented by the EG&G Idaho, Inc., investigation to have a number of leaks at pipe joints. Because this location is unstudied and the horizontal or vertical extent of contamination is not known, location boundaries are only approximate and are intended to include only the surface trace of the IWL.

3.2 Historical Activities

The IWL at PRL L-6 has connections to Building 628 and Building 652. Wastewater from PRL L-6 is discharged into PRL L-5 and then flows northward to the IWTP north of OU B. Because the wastewater within PRL L-6 originates from Building





NOTE: IWL Location is Approximate; Source: McClellan AFB Civil Engineering

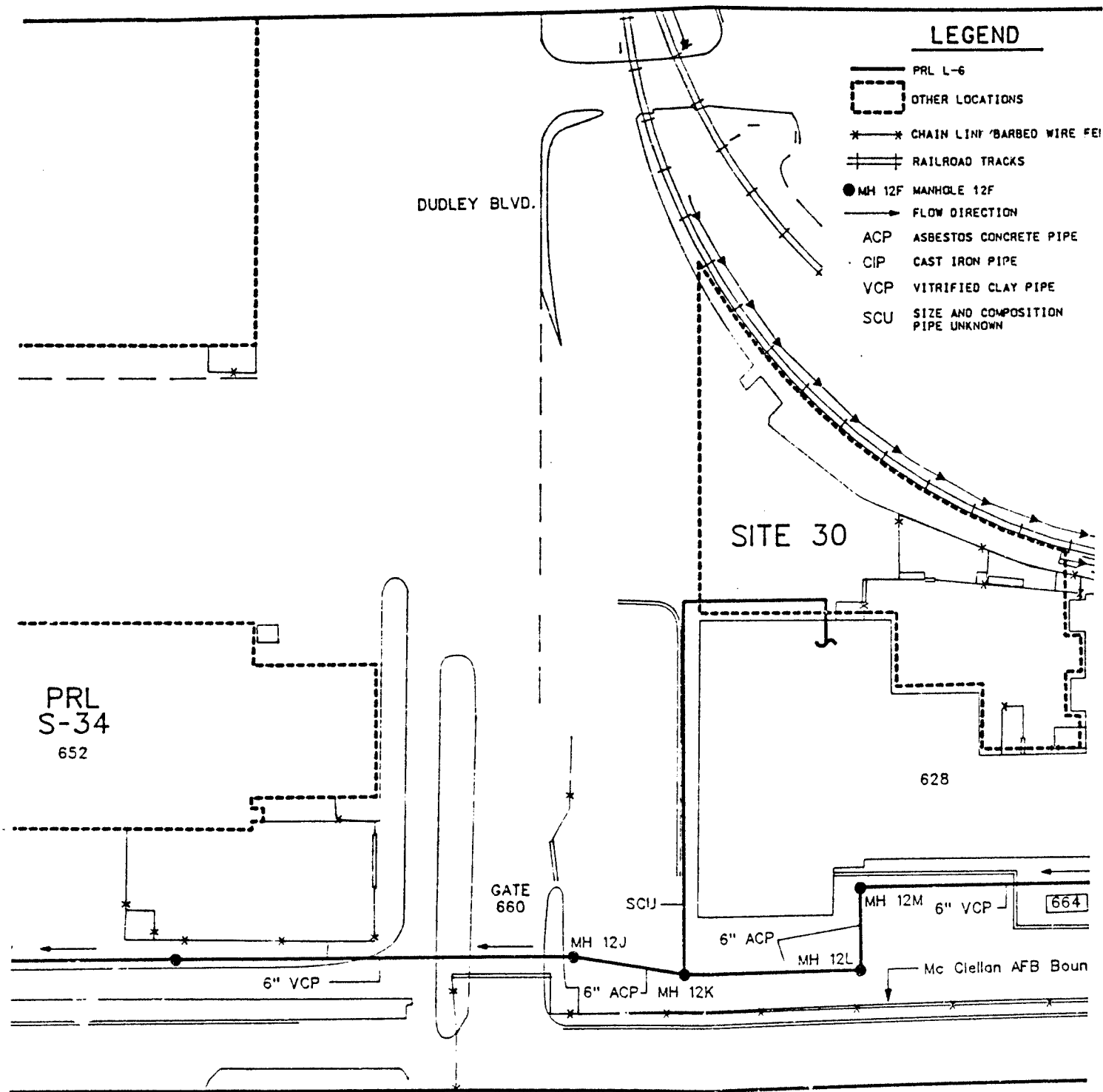


Figure 3-2. Map of PRL L and Vicinity.

628 and 652, the discussion of historical activities will relate to those buildings. The 1155th Technical Squadron operated a classified research laboratory in Building 628 from 1957 until late 1988 (CH2M Hill, 1981; Paisley, personal communication, 1989). Laboratory analyses performed in this building included gas analyses, applied physics-related analyses, and radiation analyses. The laboratory was a classified research facility; therefore, documentation describing specific historical activities within Building 628 was not available for review in the preparation of this Preliminary Assessment. However, the following list of hazardous substances used in support of the laboratory was included in the "1980 Hazardous Waste System Evaluation" contained in CH2M Hill's Phase I Report (CH2M Hill, 1981):

- Methyl ethyl ketone (MEK);
- Ortho-xylene;
- Phenol;
- Carbon tetrachloride;
- High purity benzene;
- Trichloroethene (TCE);
- Ethyl acetate;
- Methyl isobutyl ketone; and
- Heavy metals including molybdenum, lanthanides, lead, and nickel.

No information was available regarding the quantities of chemicals that were used in the laboratory or disposed of into the IWL.

Building 652 (PRLS-34) was historically an equipment repair center for the cleaning and repair of automotive equipment, primarily using solvents. Facilities at Building 652 have included a washrack used to wash and steam clean air conditioning units, and a paint spray booth that may have generated paint wastes and solvents; both facilities are connected to the IWL (PRL L-6). Dates of operation at Building 652 are unknown; however, the washrack and spray booth are no longer in operation. The building is currently undergoing refurbishment for a new maintenance operation.

The EG&G Idaho, Inc., investigation of the IWL at McClellan AFB collected and analyzed wastewater passing through the underground piping. Samples were collected from surface manholes. Within the section of the IWL identified as PRL L-6, two samples were collected and analyzed for base/neutral and acid extractable compounds (U.S. EPA Method 8270), volatile organic compounds (U.S. EPA Method 8240), and inorganic compounds (U.S. EPA Method 6010). EG&G Idaho's investigation used procedures contained in the U.S. EPA Resource, Conservation, and Recovery Act

(RCRA) waste sampling protocols guide. All data were evaluated by U.S EPA contract laboratory protocols and QA/QC data were reduced after validation by a statistical protocol. A list of compounds detected as positive results of these analyses is presented in Table 3-1. Quantified analytical results are presented in the EG&G Idaho IWCS Characterization Report (EG&G Idaho, Inc., 1988).

In 1988, EG&G Idaho, Inc. tested the integrity of the IWL at PRL L-6. During the investigation, the pipe segments and access covers in the main lines were cleaned, observed either by direct or remote inspection, and pressure tested. If a pipe joint was found to lack integrity, it was temporarily repaired by pressure grouting and was retested for integrity. Table 3-2 presents the types and locations of leaks found in the IWL at PRL L-6 during the EG&G Idaho investigation.

The EG&G Idaho investigation was performed in late 1987/early 1988; operations in Building 628 ceased in late 1988. However, it is unknown whether the EG&G Idaho wastewater samples were representative of wastes from previous operations at Building 628.

3.3 Current Activities

Presently, Buildings 628 and 652 are inactive; therefore, no wastes are currently being transported through the section of the IWL identified as PRL L-6. It is not known if the IWL at this location remains open.

3.4 Reported Releases

Based on EG&G Idaho's investigation of the IWL, the section of line identified as PRL L-6 has been found to contain a number of leaks (EG&G Idaho, Inc., 1988).

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL L-6.



TABLE 3-1. POSITIVE ANALYTICAL RESULTS FROM EG&G IDAHO INVESTIGATION
OF THE IWL AT PRL L-6

Base/Neutral and Acid Extractable Compounds
detected (by U.S. EPA Method 8270):

Bis(2-ethylhexyl)phthalate

Volatile Organic Compounds detected (by U.S.
EPA Method 8240):

Methylene chloride

Acetone

Inorganic Compounds detected (by U.S. EPA
Method 6010):

Aluminum

Calcium

Chromium

Copper

Iron

Lead

Magnesium

Manganese

Nickel

Silicon

Sodium

Zinc

SOURCE: EG&G Idaho, Inc., 1988.

TABLE 3-2. IWL LEAK LOCATIONS AND TYPES AT PRL L-6

Leak Locations	Leak Types
Next to washrack 652	Line failed/could not test
MH 12F	Leaking access cover
108' East of MH 12H	Joint failed leak test
15' East of MH 12H	Joint failed leak test
415' North of MH 12I	Crack in joint
226' North of MH 12I	Crushed pipe
166' North of MH 12I	Longitudinal crack
109' North of MH 12I	Crack in joint
75' North of MH 12I	Crushed pipe
28' North of MH 12I	Crushed pipe
284' North of MH 12J	Circumferential crack
207' North of MH 12J	Circumferential crack
163' North of MH 12J	Joint failed leak test
89' North of MH 12J	Roots or holes in pipe
MH 12J	Leaking access cover
5' North of MH 12K	Missing pipe
105' North of MH 12L	Incompatible pipe material
55' North of MH 12K	Incompatible pipe material
5' North of MH 12K	Incompatible pipe material
12' West of MH 12M	Incompatible pipe material/low area
182' North of MH 12N	Crack in joint
26' North of MH 12N	Longitudinal crack

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) L-6.

4.1 Potential Contaminants of Concern

Industrial activities at the facilities connected to the Industrial Wastewater Line (IWL) at PRL L-6 produces wastes associated with research laboratory operations at Building 628 and maintenance operations at Building 652. Many types of chemicals were probably used at these facilities. However, because the laboratory at Building 628 was a classified research facility, documentation describing specific activities and materials used within the Building was not available. Because of the numerous potential waste materials entering the IWL and of its long history of use, volatile organic compounds (VOCs), semivolatile organic compounds, metals, and radioactive isotopes are suspected as potential contaminants of concern at PRL L-6.

Wastewater samples from the IWL within PRL L-6 were collected and analyzed by EG&G Idaho, Inc., for metals, semivolatile organic compounds, and VOCs. Two VOCs, one semivolatile organic compound, and twelve priority pollutant metals were detected in the samples from the IWL at PRL L-6. (See Table 3-1)

Although the IWL at PRL L-6 is known to have leaked, the lateral and vertical extent of contamination in adjacent soils is unknown because soil sampling has not been conducted along the IWL.

4.2 Immediate Hazards

This section describes any potential hazards, including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL L-6. Soil gas measurement data are not available for PRL L-6; therefore, the potential for fire and explosion is unknown. Because volatile organic contaminants are suspected at this location, any future excavations or construction activities should include monitoring of soil gas with a flame ionization detector and a lower explosive limit meter.



Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated soil. The ground surface at PRL L-6 is covered by pavement; therefore, the potential hazards to worker health and safety are minimal. However, exposure risk from potentially contaminated soil may be present to workers involved in any future construction or excavation activities at this location.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL L-6 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important characteristics that influence migration to groundwater are the amount of surface water infiltrating at the location, other sources of percolating liquids, and the contaminant percolation rate.

The infiltration rate for surface water into soil is primarily related to surface characteristics of the area and permeability of the soil. The ground surface at PRL L-6 is covered with pavement. Because non-degraded concrete or asphalt has a very low permeability, the potential infiltration rate for the location is very low. However, leaks from the IWL are likely to be a substantial historical source of percolating water and contaminants at PRL L-6.

The percolation rate of contaminants depends on the permeability, structure, and stratification of the soil and characteristics of contaminants. No information is available on the soil permeability. Basewide boring information indicates that soils consist of sandy and clay loams and that relatively impermeable layers (i.e., hardpans or clay layers) are not continuous and not effective barriers to percolation. Therefore, soluble contaminants which have leaked from the IWL at PRL L-6 are likely to have migrated downward through the soil beneath the line.

Many priority pollutant compounds could have been historically discharged into the IWL at PRL L-6; therefore, all priority pollutant compounds are suspected at PRL L-6. Because physical characteristics vary for each contaminant, the potential for



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5.0

CONCLUSIONS AND RECOMMENDATIONS

Limited site-specific information was available for the preparation of this Preliminary Assessment of Potential Release Location (PRL) L-6. The Industrial Wastewater Line (IWL) at this location has numerous documented leaks (EG&G Idaho, Inc., 1988) and, therefore, is a potential source of contamination to soils at this location. The potential hazards posed by any contaminants at the location cannot be completely evaluated until the location is fully characterized. Therefore, Radian recommends site characterization of PRL L-6 to determine the nature and extent of any contamination at the location. This investigation should include the sampling of subsurface soils at regular intervals along the length of the IWL, particularly near locations where major leaks were found, and at several depth intervals; chemical analyses of soil samples should be performed for volatile organic compounds, semivolatile organic compounds, pesticides and PCBs, priority pollutant metals, and radionuclides using appropriate analytical methods. If contaminants are detected at depths approaching the water table surface (approximately 90 to 120 feet below ground surface), the construction of one or more monitoring wells should be planned to evaluate the migration of contaminants to the groundwater pathway.

6.0

REFERENCES

CH2M Hill, 1981. "Installation Restoration Plan, Phase I Record Search for McClellan Air Force Base, California." Prepared for Air Force Engineering Services Center, Directorate of Environmental Planning, Tyndall Air Force Base, Florida.

EG&G Idaho, Inc., 1988. "Informal Report, McClellan Air Force Base Industrial Wastewater Collection System Characterization Report." Prepared for McClellan Air Force Base, Directorate of Environmental Management.

Paisley, personal communication, 1989. Personal communication, with Don Paisley, Defense Logistics Service, McClellan Air Force Base, California. 31 January 1989.



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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL P-2
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

**Radian Corporation
10395 Old Placerville Road
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1.0 INTRODUCTION

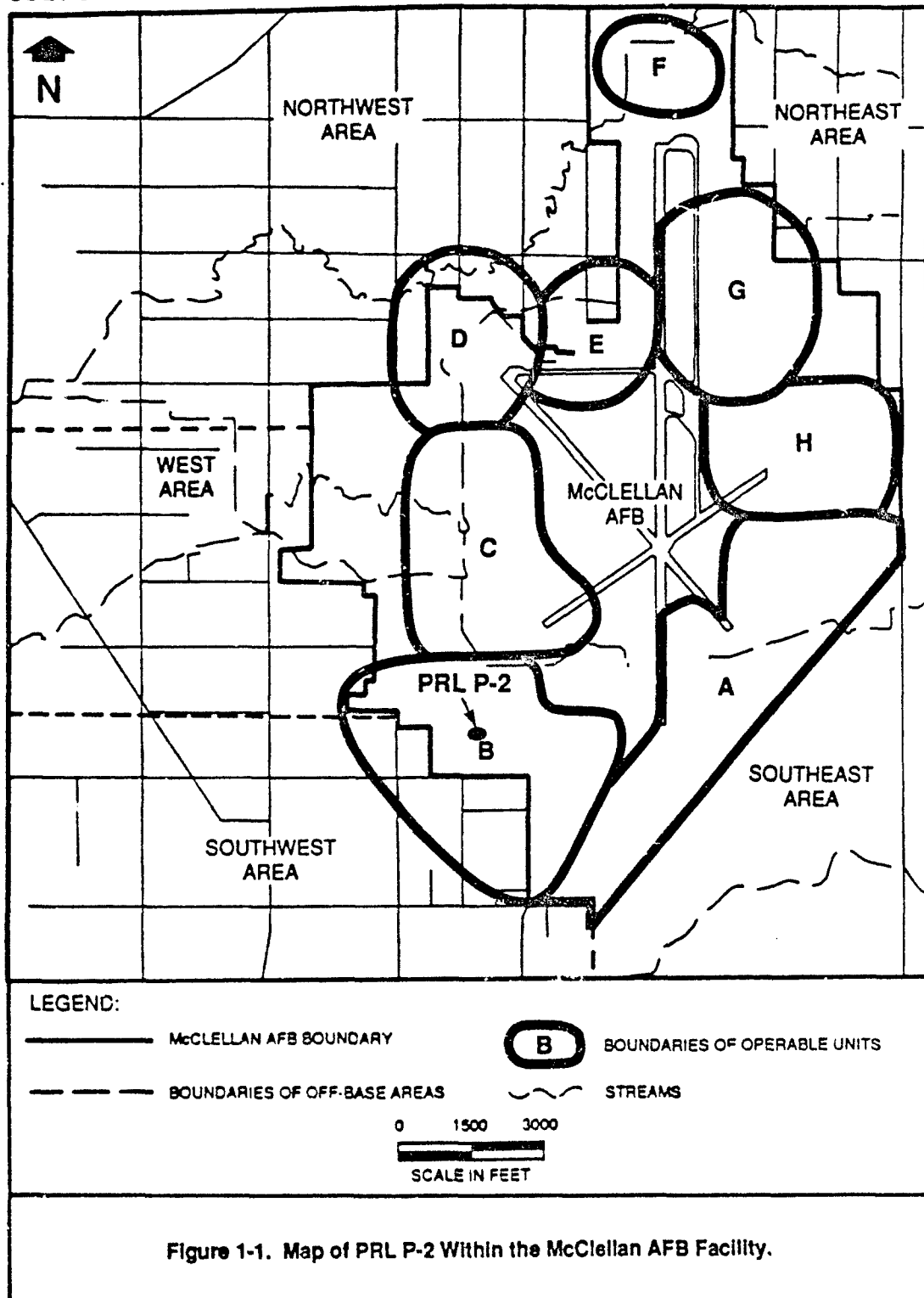
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) P-2 at McClellan Air Force Base (AFB), California. The location of PRL P-2 is shown in Figure 1-1. Potential Release Location P-2 was reportedly the location of a possible waste pit in Operable Unit (OU) B of McClellan AFB. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

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2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

The area now designated as Potential Release Location (PRL) P-2 was one of 47 "additional potential sources of contamination" identified by McLaren Environmental Engineering, Inc., during the course of their Area B investigation (McLaren, 1986).

2.2 Personnel Interviews

Personnel interviews regarding waste disposal at PRL P-2 have not been conducted by Radian because base personnel who may be able to provide pertinent site-specific information could not be located.

2.3 Location Visit

Radian personnel visited PRL P-2 on 15 January 1989 to document current features and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. Table 2-1 lists the photographs that were reviewed. Aerial photographs is discussed in more detail in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil and Biocenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment; however, no information was available for PRL P-2.

TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
 REVIEWED FOR PRL P-2

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1600'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agriculture Stabilization and Conservation Service.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) P-2 is located within Operable Unit (OU) B of the base, as shown in Figure 3-1. A location map showing PRL P-2 and the surrounding area is presented in Figure 3-2. Potential Release Location 29 and Site 31 are located within 300 feet of PRL P-2 (see Figure 3-2) and will be assessed in separate reports.

The following sections discuss site delineation, historical and current activities, reported releases, and remedial actions at PRL P-2.

3.1 Location Delineation

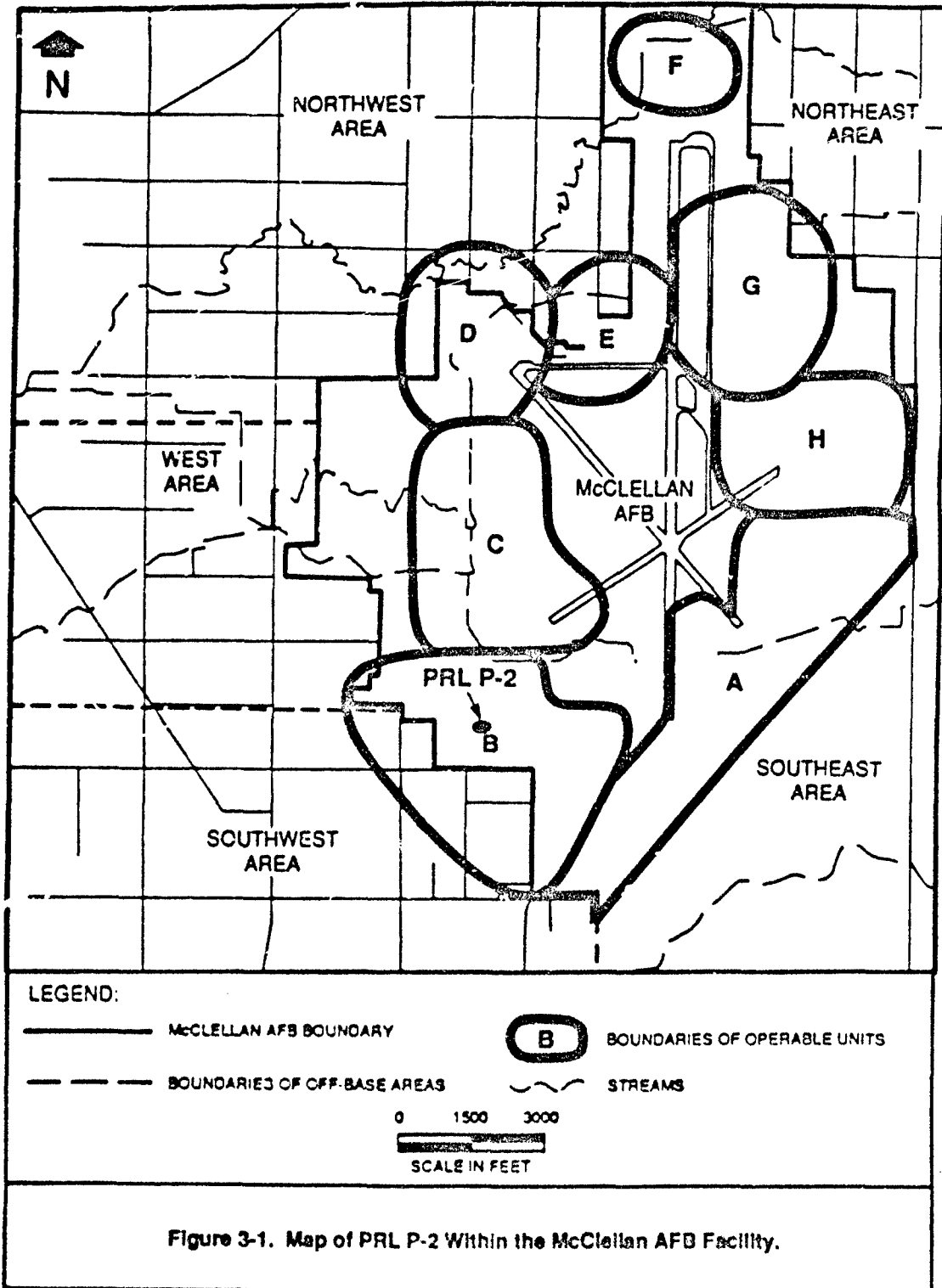
The area now designated as PRL P-2 was first identified in 1986 by McLaren Environmental Engineering, Inc. (McLaren, 1986). After reviewing aerial photographs, McLaren identified an area of discoloration northeast of the Civil Engineering (CE) storage yard as a possible waste pit. McLaren delineated the boundary of PRL P-2 from a 1965 aerial photograph (McLaren, 1986). The boundaries of PRL P-2 are circular with a diameter of 30 feet.

3.2 Historical Activities

Aerial photographs are the only source of information for PRL P-2. Prior to 1962, the area of PRL P-2 was undeveloped grassland. In photographs from 1962 to 1968, the discoloration McLaren identified as a possible waste pit is visible. The cause of the discoloration has not been identified. A dirt road is visible to the east of PRL P-2. The next available photograph, taken in 1971, shows PRL P-2 covered with asphalt and being used for storage. All subsequent photographs show the area being used for storage.

3.3 Current Activities

Potential Release Location P-2 is currently entirely covered by asphalt and is used to store spare parts for McClellan AFB Civil Engineering. The asphalt slopes to the south and drainage from PRL P-2 apparently flows to an open dirt area immediately south of PRL P-2.



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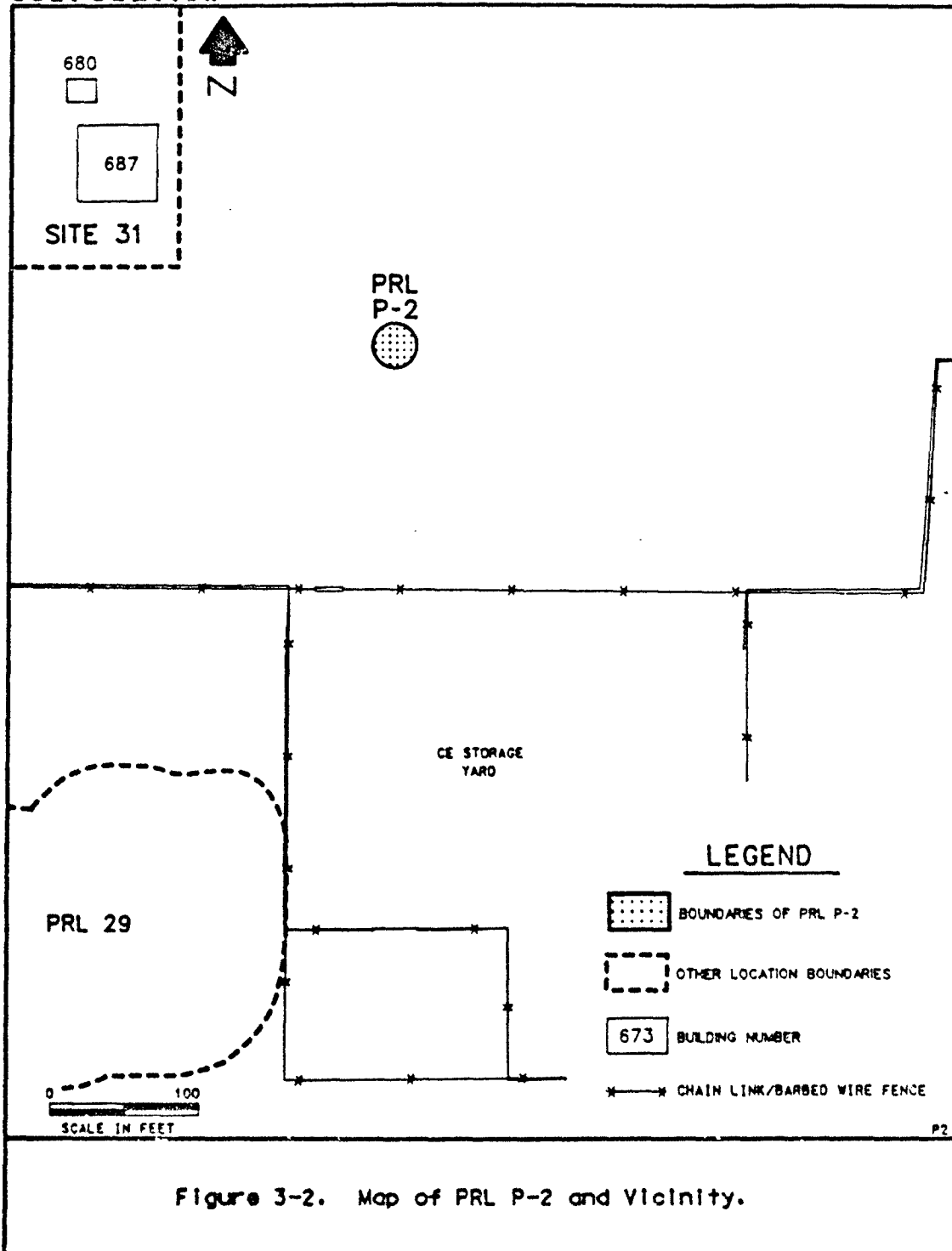


Figure 3-2. Map of PRL P-2 and Vicinity.

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL P-2.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL P-2.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential immediate hazards and the potential for contaminant migration associated with any on-site contamination at Potential Release Location (PRL) P-2.

4.1 Potential Contaminants of Concern

No specific contaminants have been associated with the discoloration visible in historic aerial photographs. Therefore, any contaminant must be considered as a potential contaminant of concern at PRL P-2, including volatile organic compounds (VOCs), semivolatile organic compounds, pesticides, polychlorinated biphenyls (PCBs), and metals.

4.2 Immediate Hazards

This section describes any potential hazards, including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL P-2. The potential for fire and explosion is unknown because the soil gas and emissions from the location have not been characterized. However, none of the available information suggests there are immediate hazards at PRL P-2.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. Potential Release Location P-2 is covered with asphalt pavement, which prevents contact with any contaminated soil. However, no samples have been collected from the cement foundation, and the potential hazards to worker health and safety are unknown.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL P-2 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the percolation rate of the soil, and contaminant characteristics. The entire surface of PRL P-2 is covered with asphalt, which minimizes the amount of infiltrating surface water. No other sources of percolating water are suspected at this location.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of the contaminants. Although permeability data on the soil at PRL P-2 are not available, basewide boring information reveals that soils generally range from sandy loams to clay loams and any relatively impermeable layers are not continuous and not effective barriers to percolation. Therefore, the percolation rate for this location is potentially low to moderate.

The contaminants of concern at PRL P-2 are VOCs, semivolatile organic compounds, pesticides, PCBs, and metals. In general, VOCs have a relatively high potential for dissolving into water and being carried with the flow of percolating water. Semivolatile compounds, pesticides, PCBs, and metals are generally much more likely to remain in surface soil and not migrate with percolating water. However, as other organic compounds dissolve in water, any semivolatile compounds may also dissolve more readily due to the solvent properties of other organics.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. Since the surface of PRL P-2 is covered with asphalt, the potential for migration of contaminants to surface water is very low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. Vapor pressure is a relative measure of the volatility of a chemical in its pure state and is an important determinant of the rate of vaporization from soils and solid waste sites. Any VOCs present in exposed surface and near-surface soils are likely to migrate to the air.

The surface flux (concentration of organic compounds entering the air from the soil in a unit time) is dependent upon soil permeability, soil moisture, depth of contaminants, concentration of contaminants in the soil gas, and other physical soil properties that have not been quantified. Because the site is covered with asphalt, the surface flux of volatile contaminants is probably low.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Aerial photographs provide the only available source of information on Potential Release Location (PRL) P-2. Photographs from 1963 and 1965 show PRL P-2 is darker in color than the surrounding area. The cause of the discoloration is unknown. Because no soil investigation has been conducted at PRL P-2 to determine if contamination is present, Radian recommends that near surface soil samples from below the asphalt at the location be collected and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds, pesticides, polychlorinated biphenyls (PCBs), and priority pollutant metals using appropriate analytical methods. Because the discolored area was not large, the depth of the proposed disposal pit could not have been very deep. Soil sampling to a depth of approximately 10 feet would determine if contaminants are present.

6.0

REFERENCES

McLaren Environmental Engineering, Inc., 1986. "Technical Memorandum for the Shallow Investigation Program in Areas A, B, C, and Other Area Sites, Part III - Technical Memorandum, Area B." Prepared for Department of the Air Force, Sacramento Air Logistics Center, McClellan AFB, California.



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INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3

PRELIMINARY ASSESSMENT FOR PRL P-9
FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991

PREPARED BY:

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1.0 INTRODUCTION

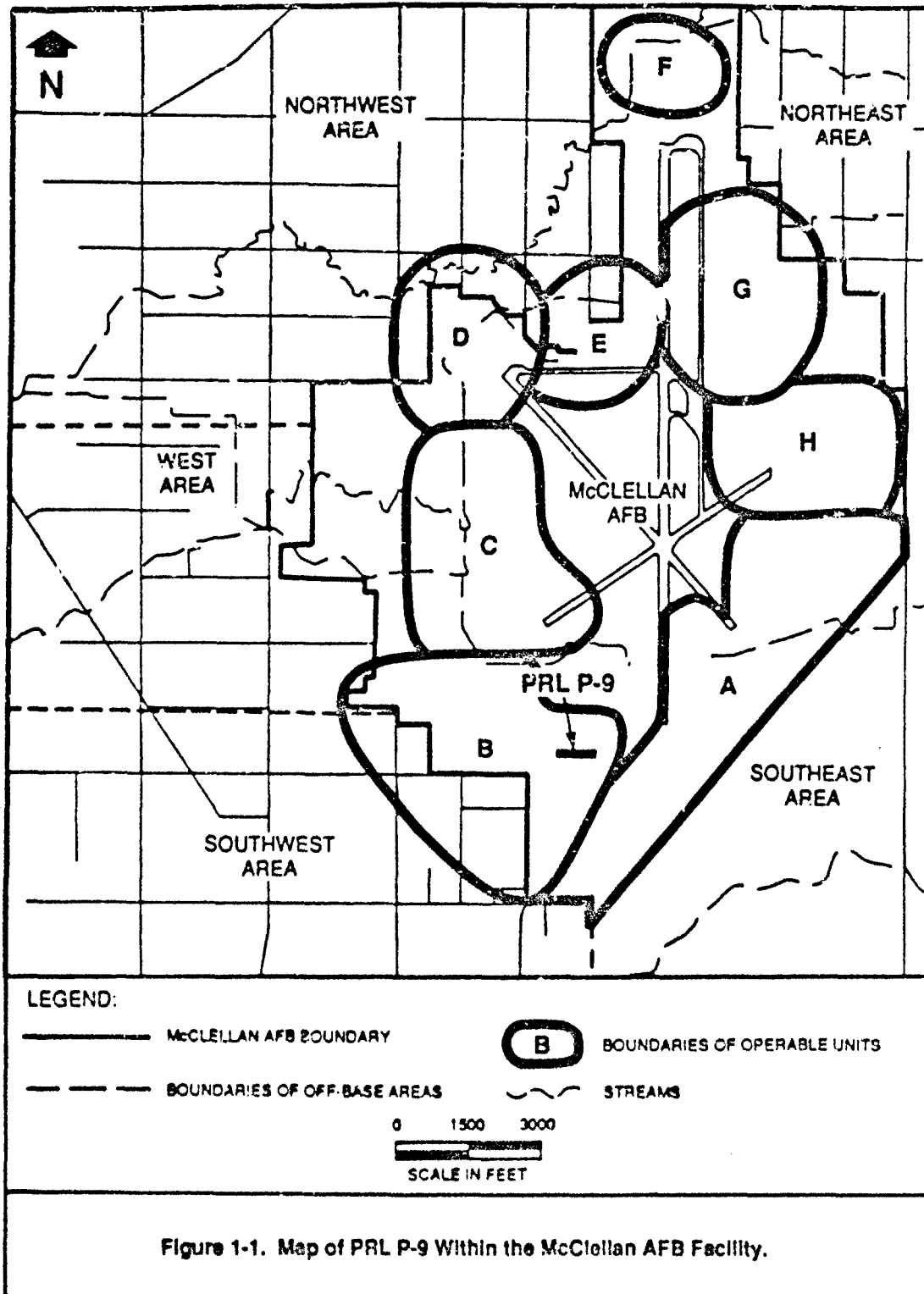
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) P-9 at McClellan Air Force Base (AFB), California. The location of PRL P-9 is shown in Figure 1-1. Potential Release Location P-9 is the location of an unlined drainage ditch in Operable Unit B of McClellan AFB. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop response actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document, which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

The area now designated as Potential Release Location (PRL) P-9 was one of 47 "additional potential sources of contamination" identified by McLaren Environmental Engineering (McLaren) during the course of their Area B investigation. McLaren identified P-9 as "an open drainage ditch from Building 666" (former plating shop) (McLaren, 1986, pp. 27-29). No other investigations have been conducted at this location.

2.2 Personnel Interviews

Radian personnel interviewed staff from the McClellan Air Force Base (AFB) Civil Engineering Division (Wastewater Unit) to gather information regarding historical and current activities at PRL P-9. The interviews were conducted on 3 March 1989 and 13 March 1989. Results of the interviews are discussed in Section 3, Location Description. Documentation of the interviews can be found in the PRL P-9 Location Files.

2.3 Location Visit

Radian personnel visited PRL P-9 on 13 March 1989 to document current conditions at the location.

2.4 Interpretation of Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. Table 2-1 lists the photographs that were reviewed. Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1938)
REVIEWED FOR PRL P-9

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

2.5 Review of Base Files

McClellan AFB Civil Engineering, Bioenvironmental Engineering, and History Office files were reviewed for historical information during the preparation of this Preliminary Assessment. No information was found in the Bioenvironmental Engineering files for PRL P-9. Base Civil Engineering files contained a drawing of the storm drainage system on base (GRW, 1986, Sheet 2). The History Office files contained the McClellan AFB Master Plan, which includes a 1956 construction drawing of the storm drainage and industrial waste systems (McClellan AFB, 1956).

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) P-9 is located within Operable Unit (OU) B of McClellan Air Force Base (AFB), as shown in Figure 3-1. The location consists of an unlined drainage ditch situated south of and adjacent to Dean Street, and about 800 feet north of former Building 666 (former plating shop). The ditch is approximately 800 feet long and ranges from 10 to 20 feet wide. A location map showing PRL P-9 and the surrounding area is presented in Figure 3-2. Sites that are located near PRL P-9 include Site 36 (former chemical storage area), Site 47 (former plating shop) and Site 48 (former Industrial Wastewater Treatment Plant [IWTP] No. 4). These sites are discussed in separate Technical Memorandums.

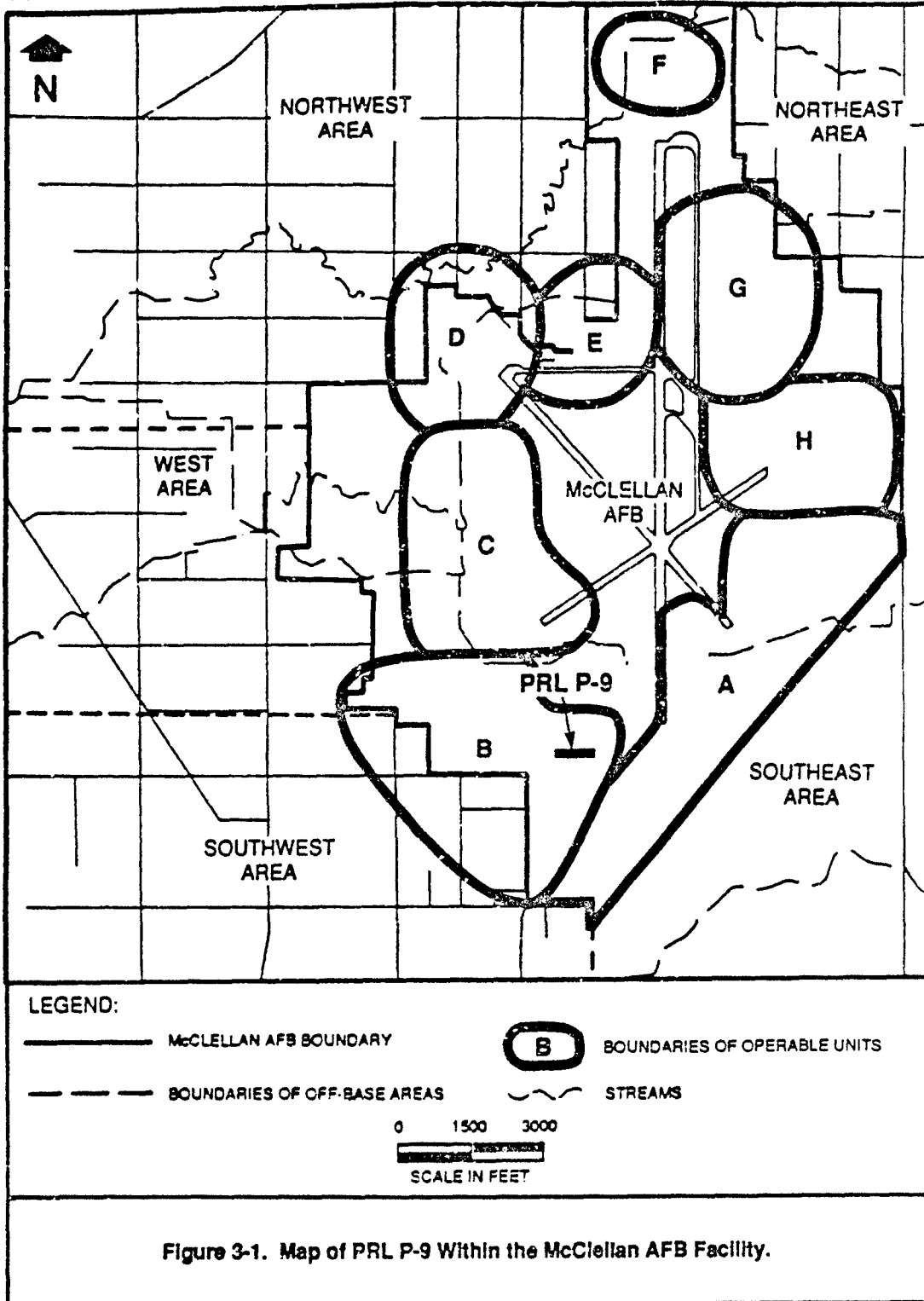
The following sections discuss site delineation, historical and current activities, reported releases, and remedial actions at PRL P-9.

3.1 Location Delineation

Potential Release Location P-9 was first identified in 1986 by McLaren Environmental Engineering (McLaren) as an "open drainage ditch from Building 666" (former plating shop) (McLaren, 1986, pp. 27-29). Although McLaren did not establish formal site boundaries, their delineation located the ditch approximately 500 feet north of Building 666 and oriented in a north-south direction. McLaren indicated that documentation for the location could be found in a McClellan AFB Plan Drawing dated 6 June 1985. The drawing could not be located in the base Civil Engineering files.

Personnel interviews confirmed that treated wastewater was piped from IWTP No. 4 (a pretreatment facility for plating shop wastes) to an open drainage ditch. However, the ditch was identified as being adjacent to Dean Street and oriented in an east-west direction as opposed to the north-south direction described by McLaren (Gregory, personal communication, 1989).

The historical aerial photographs indicate that the area encompassing McLaren's site delineation has remained undeveloped from the mid-1940s to the present. No evidence of a north-south open drainage ditch associated with Building 666 was seen in the aerial photographs. However, the east-west ditch is visible in photographs from 1955 to present.





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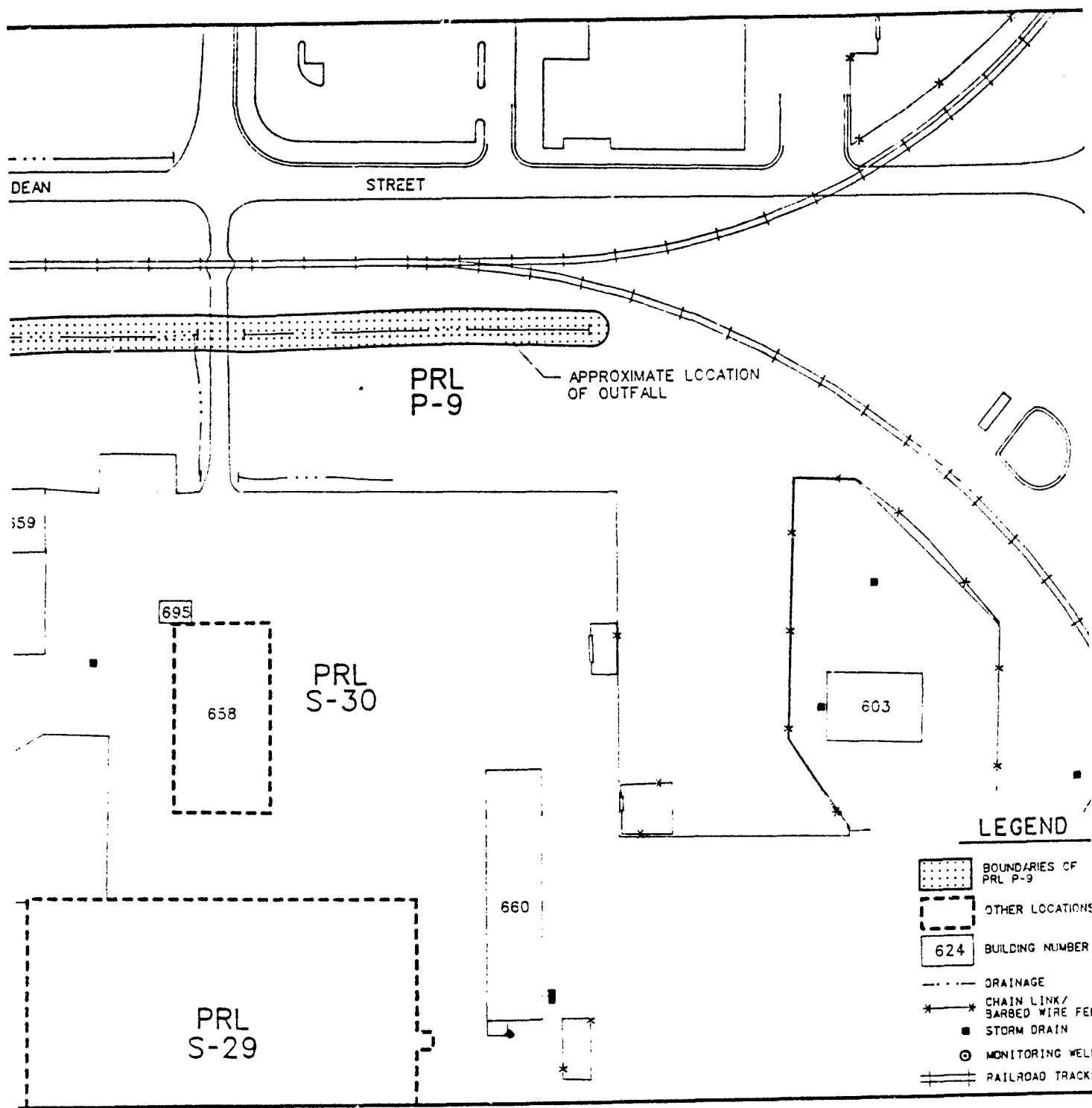


Figure 3-2. Map of PRL P-9 and Vicinity.

Radian believes that the east-west drainage ditch shown on Figure 3-2 is, in fact, PRL P-9 for the following reasons:

- McLaren's description of PRL P-9 indicated an association with Building 666 operations, including the hazardous materials of concern (solvents, metals, acids, and cyanide);
- Interviews confirmed that IWTP No. 4 discharged pretreated wastewater to the east-west ditch (and not a north-south ditch); and
- Aerial photographs show no evidence of a north-south open drainage ditch near Building 666.

3.2 Historical Activities

The open drainage ditch identified as PRL P-9 has been used to receive storm runoff as part of the base storm drainage system since 1956 (McClellan AFB, 1956). According to personnel interviews, IWTP No. 4 discharged pretreated wastewater to the drainage ditch from 1957 until the mid-1960s. After the mid-1960s, the plant discharged wastewater to the Industrial Wastewater Line (IWL). Interviews indicated that the wastewater was piped from the plant to the ditch. No information was available describing the location of the discharge pipe; however, the outfall of the wastewater was located approximately 100 feet west of the eastern boundary of the location (Gregory, personal communication, 1989, Costa, personal communication, 1989).

Pretreated wastewater from IWTP No. 4 may have contained high levels of heavy metals, volatile and semivolatile organic compounds, cyanide, acids, and caustics. Some of the heavy metals in the wastewater were zinc, chromium, copper, silver, nickel, and iron. According to interviews, the ditch contained accumulated sludge. No information was available describing the quantities of wastewater discharged to the ditch. Liquids in the ditch flowed to Magpie Creek, located approximately 1,000 feet north from the ditch (Gregory, personal communication, 1989, Costa, personal communication, 1989).

A review of aerial photographs of the area (see Table 2-1) showed that between 1928 and 1955, the location was undeveloped. The ditch appears in aerial photographs from 1957 to 1988.

3.3 Current Activities

Radian personnel visited the PRL P-9 on 7 March 1989 to observe the current conditions of the location. Recent storm runoff, originating from the area adjacent to Dean Street, had accumulated in the unlined ditch. The surface water runoff in the unlined ditch flows west and converges with runoff from another drainage ditch that runs north-south along the east side of 53rd Street. Runoff from both ditches eventually discharges to Magpie Creek. No discoloration, odors, or other indications of contamination were observed in the ditch.

According to a map of the Base Industrial Wastewater Collection System, the IWL crosses the ditch approximately 400 feet east of Kilzer Avenue. Wastewater in the IWL is transported to the IWTP, located in the western part of the base. Inspection reports of the IWL indicated that the pipe crossing the ditch is in good condition (EG&G Idaho, 1988).

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL P-9.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL P-9.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) P-9.

4.1 Potential Contaminants of Concern

The contaminants of concern at PRL P-9 are volatile organic compounds (VOCs), semivolatile organic compounds, metals, acids, bases, and cyanide suspected to have been in the pretreated wastewater originating from Industrial Wastewater Treatment Plant No. 4 that was discharged to the ditch. The presence of contaminants at PRL P-9 has not been confirmed; investigations have not been performed to determine if any contaminants have been related into the environment at the location.

4.2 Immediate Hazards

This section describes any potential hazards, including the potential for fire and explosion and the possible hazards to worker health and safety, that require immediate action due to contaminants present at PRL P-9. No soil gas measurements have been taken at PRL P-9; therefore, the potential for fire and explosion cannot be determined.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. Because the ditch at PRL P-9 is unlined, the potential exists for worker contact with any contaminated soil, especially during any excavation or construction activities at the location.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL P-9 to the groundwater, surface water, and air. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount to infiltrating surface water, other sources of infiltrating water, percolation

rate of the soil, and contaminant characteristics. The infiltration rate for the soil is primarily determined by surface characteristics of the area and permeability of the surface soils. The ground surface at PRL P-9 is an unlined depression which would increase infiltration of surface water or any discharges to the ditch.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of the contaminants. Although no site-specific information is available for PRL P-9, basewide boring information shows that soils range from fine-grained sands and silts to clays and that relatively impermeable layers are not continuous or effective barriers to percolation. Therefore, the percolation rate for this location is probably low to moderate.

The suspected contaminants of concern at PRL P-9 are VOCs, semivolatile organic compounds, metals, acids, bases, and cyanide. Because physical characteristics vary for each contaminant, the potential for contaminant migration to groundwater cannot be presently evaluated. However, VOCs generally are the most soluble of these contaminants and have the highest potential for dissolving in surface water in the soils and migrating with percolating water. Metals and many semivolatile organic compounds do not easily dissolve in percolating groundwater and have a tendency to remain in near-surface soils.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration of dissolved contaminants to surface water. At PRL P-9, surface water runoff in the unlined ditch flows west and converges with runoff from another drainage ditch that runs northward and discharges to Magpie Creek. The ditch at PRL P-9 is unlined, and although the potential for any contaminants that were historically discharged into the ditch over 25 years ago to still be present in near-surface soils is limited, metals may still be present in sediments that could migrate to surface water during periods of runoff after heavy rainfall events. Therefore, potential for release to surface water should be considered.

4.3.3 Potential for Migration to Air

Both the surface characteristics of the location and individual contaminant characteristics influence the potential for migration to air. The surface flux (mass of contaminant entering the air from soil in a unit time per unit area) is dependent upon soil permeability, soil moisture, depth of contaminants, concentration of contaminants in the soil gas, and other physical soil properties that have not been quantified. No surface soil samples have been collected from PRL P-9; therefore, the potential for migration to air cannot be fully evaluated at this time. However, because discharges from the nearby Industrial Wastewater Treatment Plant ceased approximately 25 years ago, there is very little potential for any VOCs to be remaining in near-surface soils and therefore to migrate to air.

5.0 CONCLUSIONS AND RECOMMENDATIONS

As a result of this Preliminary Assessment, no immediate response needs have been identified for Potential Release Location (PRL) P-9. The drainage ditch identified as PRL P-9 may have received large volumes of wastewater from former Industrial Wastewater Treatment Plant (IWTP) No. 4 over a period of several years. Several potential contaminants including heavy metals, volatile and semivolatile organic compounds, acids, and caustic solutions may have been discharged at this location. Therefore, Radian recommends that further investigations be conducted to determine the presence or absence of contamination at PRL P-9.

No field data have been collected confirming the presence or absence of contamination at PRL P-9. Radian recommends a characterization of surface and subsurface soils at the location. The investigation may include screening soil gas with organic vapor analyzers, and sampling and analyses of soil and sediment samples from hand auger borings to approximately 5-15 feet below ground surface. Based on results of soil sampling and analyses, deeper borings and monitoring wells may be necessary to determine the impact of soil contaminants on groundwater.

6.0

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INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3

PRELIMINARY ASSESSMENT FOR PRL S-5
FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991

PREPARED BY:

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USAF CONTRACT NO. F33615-87-D-4023, DELIVERY ORDER NO. 0012
CONTRACTOR CONTRACT NO. 227-005, DELIVERY ORDER NO. 0012

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1.0 INTRODUCTION

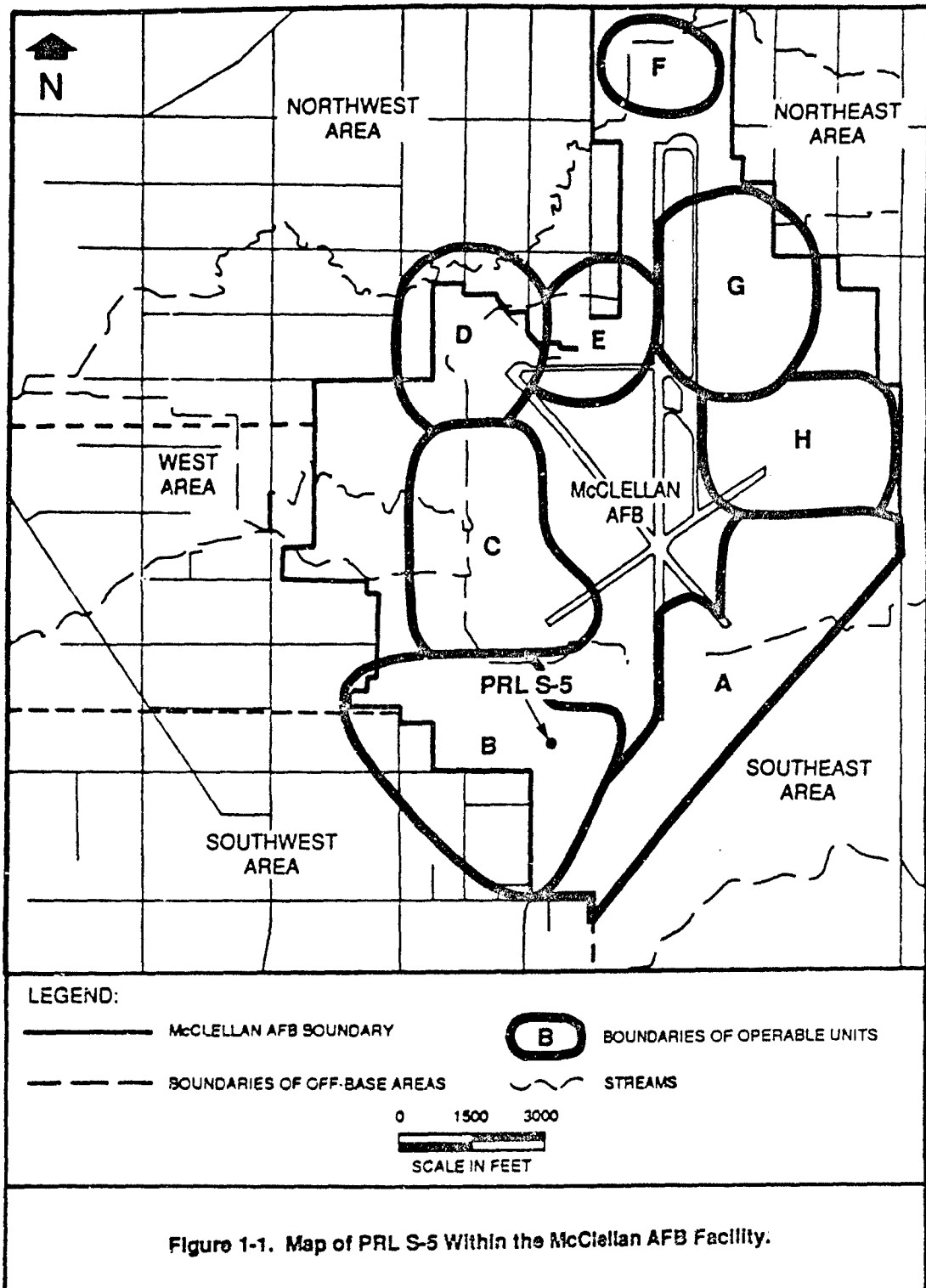
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-5 at McClellan Air Force Base (AFB), California. Potential Release Location S-5 is the location of former Industrial Wastewater Treatment Plant No. 2. Figure 1-1 shows the location of UPRL S-5 within the McClellan AFB facility. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

The area now designated as Potential Release Location (PRL) S-5 was one of 11 "additional potential sources of contamination" identified by McLaren Environmental Engineering (McLaren) during the course of their Area B investigation (McLaren, 1986, p. 27-29). McLaren described the location as "Industrial Waste Treatment Plant No. 2 - north of Building 652." No other investigations have been conducted at the location.

2.2 Personnel Interviews

Radian personnel interviewed staff from the McClellan Air Force Base (AFB) Civil Engineering Division (Wastewater Unit) to gather information regarding historical and current activities at PRL S-5. The interviews were conducted on 9 February 1989. Results of the interviews are discussed in Section 3.0, Location Description. Documentation of the interviews can be found in the PRL S-5 Location Files.

2.3 Location Visit

Radian personnel visited PRL S-5 on 8 March 1989 for the purpose of investigating the current status of the location.

2.4 Interpretation of Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. Table 2-1 lists the photographs that were reviewed. Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil Engineering, Bioenvironmental Engineering, and History Office files were reviewed for historical information during the preparation of

**TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
 REVIEWED FOR PRL S-5**

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
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1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

this Preliminary Assessment. No information was found in Bioenvironmental Engineering files for PRL S-5. Civil Engineering files contained as-built drawings prepared in January 1956 by Coddington Company (Coddington, 1956, Sheets 2, 17, and 18). Several drawings were reviewed, specifically: Layout Plan, Plan and Details, Schematic Flow Diagram, and Sections. Also reviewed was an August 1986 drawing of the base storm drainage system prepared by GRW Engineers, Inc. (GRW, 1986). The History Office files contained the McClellan AFB Master Plan, which describes historical operating information and a construction drawing of the storm drainage and industrial waste systems (McClellan AFB, 1956).

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) S-5 (shown in Figure 3-1) is located in Operable Unit (OU) B of McClellan Air Force Base (AFB). The location consists of a parking area for cargo containers and tractor trailers. Prior to 1976, the area was the site of Industrial Wastewater Treatment Plant (IWTP) No. 2. A location map showing details of the location and the surrounding area is presented in Figure 3-2. The location is approximately 100 feet long and 50 feet wide and is situated approximately 150 feet west of Building 655. Other PRLs that are near PRL S-5 and will be discussed in separate Preliminary Assessments include PRLs S-29, S-30, S-34, and S-35.

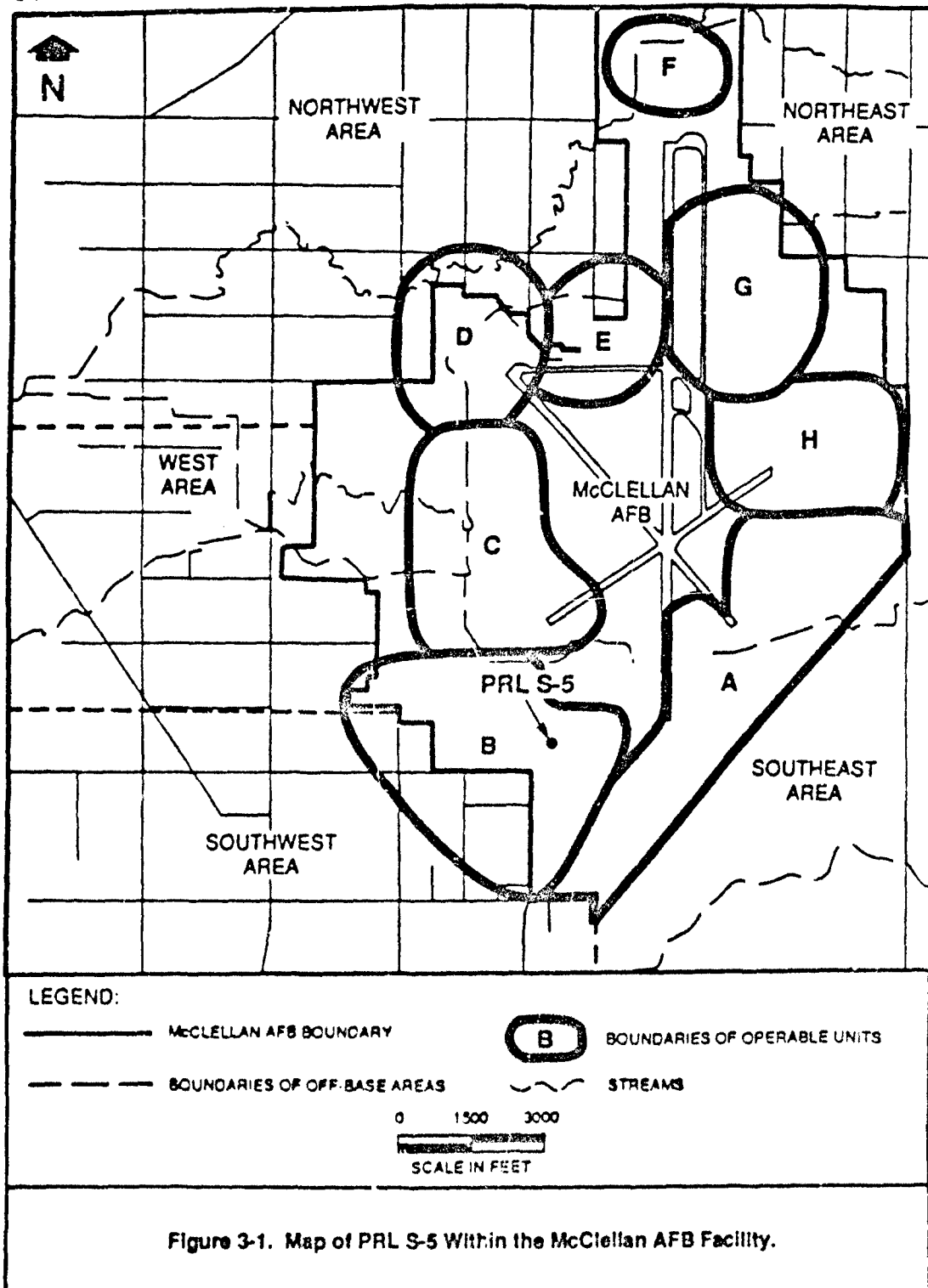
3.1 Location Delineation

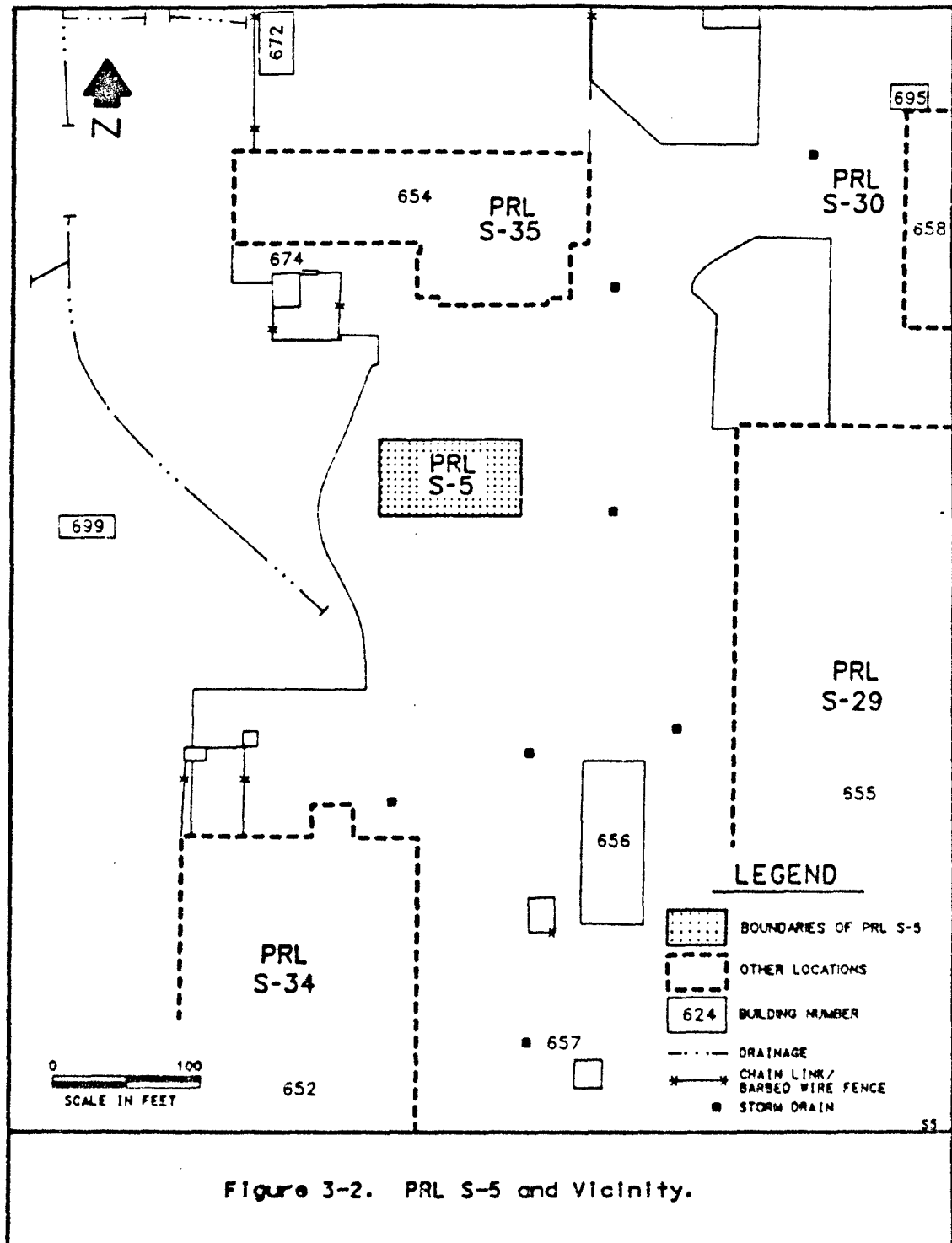
McLaren Environmental Engineering (McLaren) initially identified the location, now designated as PRL S-5, during their Area B investigation (McLaren, 1986, pp. 27-29). Although McLaren personnel did not establish formal boundaries, they did give a general description of the location's position and dimensions. After a review of historical aerial photographs and construction drawings, Radian considers that the location boundaries shown in Figure 3-2 adequately encompass the area of concern.

3.2 Historical Activities

Industrial Wastewater Treatment Plant No. 2 treated wastes from a variety of facilities located near the plant for approximately 18 years. Facilities sending waste to the IWTP included the Vehicle Repair Area including Building 652 (former Technical Laboratory Building), Building 655 (former Ground Powered Equipment Area), and Building 658 (Vehicle Washrack) (McClellan AFB, 1956, Tab A, Sheet 6). According to employee interviews, influent to the plant primarily consisted of paints, oils, solvents, chromate from paint stripping operations, and possibly other heavy metals (Gregory, personal communication, 1989). Although not confirmed, aerial photographs indicate the plant operated from 1956 to 1974. The major components of IWTP No. 2 were a collection sump, a 37,000-gallon open-top equalizer tank, a building containing equipment for an aeration/flotation treatment process (including a 2,100-gallon flotation tank), and a discharge pipeline to an unlined drainage ditch approximately 100 feet west of the site.

The unlined drainage ditch is not located within the PRL S-5 boundaries and will be investigated separately. The collection sump extended 11 feet below grade





and was contained within a 9-inch thick concrete shell (Coddington, 1954, Sheets 17, 18). The equalizer tank and the building located stood on a concrete pad surrounded by an unpaved area. All tanks were composed of carbon steel and were in good condition; however, the tanks lacked secondary containment structures. All piping was above ground except for piping from the collection sump and the discharge line; these were approximately 2 feet below grade (Gregory, personal communication, 1989). Available information does not indicate the exact locations of the underground piping. Floor drains in the building that housed the flotation system received washwater that discharged to the unlined drainage ditch west of the site (Gregory, personal communication, 1989).

Treatment chemicals used at IWTP No. 2 included ferrous sulfate, sulfuric acid, aluminum sulfate (alum), and lime. No chemicals were stored on site; instead, the chemicals were brought to the plant from a warehouse on an as-needed basis (Gregory, personal communication, 1989). Treatment chemicals were used in quantities of approximately 1,050 pounds of ferrous sulfate, 1,160 pounds of lime, and 1,480 pounds of alum per month (McClellan AFB, 1956, Tab A, Sheet 6).

The treatment processes at IWTP No. 2 included reducing hexavalent chromium to trivalent chromium and clarifying the wastewater by removing oils and solids (Gregory, personal communication, 1989). Influent first entered the collection sump where oils were skimmed and drained to a dumpster. Two pumps lifted non-oily waste from the collection sump to the equalizer tank. If chrome was present, ferrous sulfate was pumped into the tank. Sulfuric acid was added for pH control. The tank had a skimmer and sludge scraper; skimmings and sludges were discharged and contained in dumpsters prior to disposal (McClellan AFB, 1956, Tab A, Sheet 6).

Effluent from the equalizer tank flowed by gravity to the flotation tank. Before reaching the tank, wastes were mixed with lime, passed through an air saturation tank and then mixed with alum. Sludges and float were discharged to a dumpster for disposal (McClellan AFB, 1956, Tab A, Sheet 6). Effluent from the flotation tank was discharged to the unlined drainage ditch located west of the plant.

Plant No. 2 produced approximately 3,400 gallons per month of oil wastes and 40,000 gallons per month of sludges, oils, and flocculated wastes. The oil wastes were disposed of in an on-base burning pit, and the sludges were disposed of in the Area D sludge pits (McClellan AFB, 1956, Tab A, Sheet 6). The effluent was

discharged to the drainage ditch, which discharges into Magpie Creek (McClellan AFB, 1956, Tab G-3).

A review of aerial photographs taken between 1928 and 1953 showed that the location was undeveloped. In photographs taken from 1957 to 1974, the equalizing tank, the building housing the flotation system, a large square storage yard immediately southeast of the location, and various objects stored around the plant can be seen. According to employee interviews, none of the storage operations around the location were related to plant operations (Gregory, personal communication, 1989). Also seen in the photographs is the unlined drainage ditch located west of the location. In 1976, the plant was dismantled, with only the foundation remaining. No information was available describing dismantlement procedures. In photographs taken from 1978 to 1988, the location is shown to be paved and used as a storage area.

3.3 Current Activities

Radian personnel visited PRL S-5 on 9 March 1989 to observe the current conditions and activities at the location. All above-ground structures have been dismantled, and the location is asphalt paved. Much of the area surrounding the location also is asphalt paved. The area is used for cargo container and tractor trailer parking. Approximately 5 feet east of the eastern boundary of the location is a concrete sump (approximately 10 feet deep). A fire hose extends from the sump to a manhole approximately 150 feet south of the location. No information was available confirming whether the sump was originally part of IWTP No. 2, or describing the current use of the sump. West of PRL S-5 is the unlined drainage ditch previously used by the plant for receiving treated effluent from the IWTP. Currently, the ditch is part of the base storm drainage system (GRW, 1986, Sheet 2). The discharge pipe from the IWTP No. 2 to the ditch could not be found during the 9 March site visit.

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL S-5.

3.5 Remedial Actions

No information was available describing dismantlement procedures for PRL S-5; therefore, it is not known if remedial actions have occurred at the location.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any contamination at Potential Release Location (PRL) S-5.

4.1 Potential Contaminants of Concern

The suspected contaminants of concern at PRL S-5 are those associated with wastes treated at the former Industrial Wastewater Treatment Plant (IWTP) No. 2. These may have included volatile organic compounds (VOCs), semivolatile organic compounds, metals, and cyanide.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL S-5. No soil gas measurements have been taken at PRL S-5. The location is completely paved; therefore, the emission of explosive gases from the soil is reduced.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. Because the ground surface at PRL S-5 is paved, dermal contact is not likely and the potential for dust or particulate releases from the location is very low. However, exposure risk from potentially contaminated soil may be present to workers involved in any future construction or excavation activities at this location.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL S-5 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site and the nature of the contaminants. Site-specific information is limited; however, it is possible to discuss general considerations of contaminant migration at this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are surface water infiltration rate, percolation rate, and contaminant characteristics. The infiltration rate for soil is primarily determined by surface characteristics of the area and permeability of the surface soils. The ground surface of PRL S-5 is paved, which reduces infiltration by intercepting rainfall and promoting runoff before it reaches the soil. Although the soil at PRL S-5 has not been characterized, soils collected from borings drilled at other sites in Area B range from clay loams to sandy loams. These characteristics indicate that the infiltration rate at PRL S-5 is very low.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of the contaminants. No information is available on soil characteristics and no contaminants is unknown. During its 20 years of operation, the IWTP No. 2 may have allowed deep migration of contaminants toward groundwater if discharges from any tanks or pipelines occurred. Volatile organic compounds, phenols, and cyanide compounds have a higher potential to migrate to the groundwater in areas of infiltration. Semivolatile organic compounds and metals have a low potential to migrate at neutral pH; however, metals have a high potential to migrate at low pH.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration to surface water. The topography at PRL S-5 is essentially flat. Surface runoff from the location enters the base storm drainage system via nearby storm drains. Water entering the drainage system in this area of the base eventually drains into Magpie Creek to the north.

The surface of PRL S-5 is paved, which reduces the potential for surface water contacting any contaminated surface soils. Therefore, the potential for transport of contaminants dissolved in surface runoff is considered low. Similarly, the potential for erosion and transport of particulate-borne contaminants is also low.

4.3.3

Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. The surface at PRL S-5 is paved, limiting the ability of volatile contaminants in soils to migrate to air. Therefore, the potential for migration to air is considered to be very low.

5.0 CONCLUSIONS AND RECOMMENDATIONS

No immediate response needs have been identified as a result of this Preliminary Assessment. Industrial Wastewater Treatment Plant (IWTP) No. 2 treated large volumes of waste from a variety of sources over an 18-year operating history. Several contaminants that may have been discharged, including heavy metals, volatile and semivolatile organic compounds, and acids and caustic solutions, are of concern at this location. Factors that may have contributed to contaminant discharge to soils at this location include: lack of integrity of sumps, piping, and tanks; operational spills migrating to unpaved ground; and incompletely treated effluent that possibly contained concentrations of metals and solvents discharging to the unlined drainage ditch. Therefore, Radian recommends that further investigations be conducted to determine the presence or absence of contamination at Potential Release Location (PRL) S-5.

No information describing the dismantlement of IWTP No. 2 was available during the preparation of this Preliminary Assessment. That information would be useful for determining if any remedial actions such as soil removal, removal of underground structures, or pertinent closure activities were performed at the location. Potential sources of that information would be base personnel familiar with base dismantling procedures. Therefore, it is recommended that additional personnel be identified and located and that interviews be conducted.

No field data have been collected that confirm the presence or absence of contamination at PRL S-5. Radian recommends a characterization of surface and subsurface soils at the location. The investigation may include screening of soil gas with organic vapor analyzers, sampling of soil from hand auger bores to approximately 5-15 feet below ground surface, and analyses of soil samples for metals and organic contamination. If soil sampling and analysis results warrant, deeper borings and monitoring wells may be necessary to determine the impact of soil contaminants on groundwater.

6.0

REFERENCES

Coddington Company, Consulting Engineers, 1956. As-Built Drawings of Industrial Wastewater Treatment Plant No. 2: Layout Plan, Drawer No. 67, Drawing No. 71-07-11, Sheet 2 of 23; Plan and Details, Drawer No. 67, Drawing No. 71-07-11, Sheet 17 of 23; Sections, Drawer No. 67, Drawing No. 71-07-11, Sheet 18 of 23; Schematic Flow Diagram, Drawer No. 67. 4 January 1956.

Gregory, George, personal communication, 1989. Personal communication with George Gregory, Foreman, Civil Engineering Wastewater Unit, 9 February 1989.

GRW Engineers, Inc. As-Built Drawing of Storm Drainage System, Drawer No. "G Tabs," Tab G-3, Sheet 2 of 2. August 1986.

McClellan AFB, 1956. McClellan Air Force Base History Office Files, 1956 Master Plan. Book 2, Tab "A" Sheet 6 and Tab "G-3." 7 September 1956.

McLaren Environmental Engineering, 1986. "Technical Memorandum for Shallow Investigation Program in Areas A, B, C, and Other Area Sites, Part II- Technical Memorandum, Area B." Prepared for the Department of the Air Force, Sacramento Air Logistics Center, McClellan Air Force Base, California.



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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL S-12
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

**Radian Corporation
10395 Old Placerville Road
Sacramento, California 95827**

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**United States Air Force Center for Environmental Excellence
Mr. Patrick Haas (Technical Project Manager)
Environmental Services Office/Environmental Restoration Division (AFCEE/ESR)
Brooks Air Force Base, Texas 78235-5501**

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1.0 INTRODUCTION

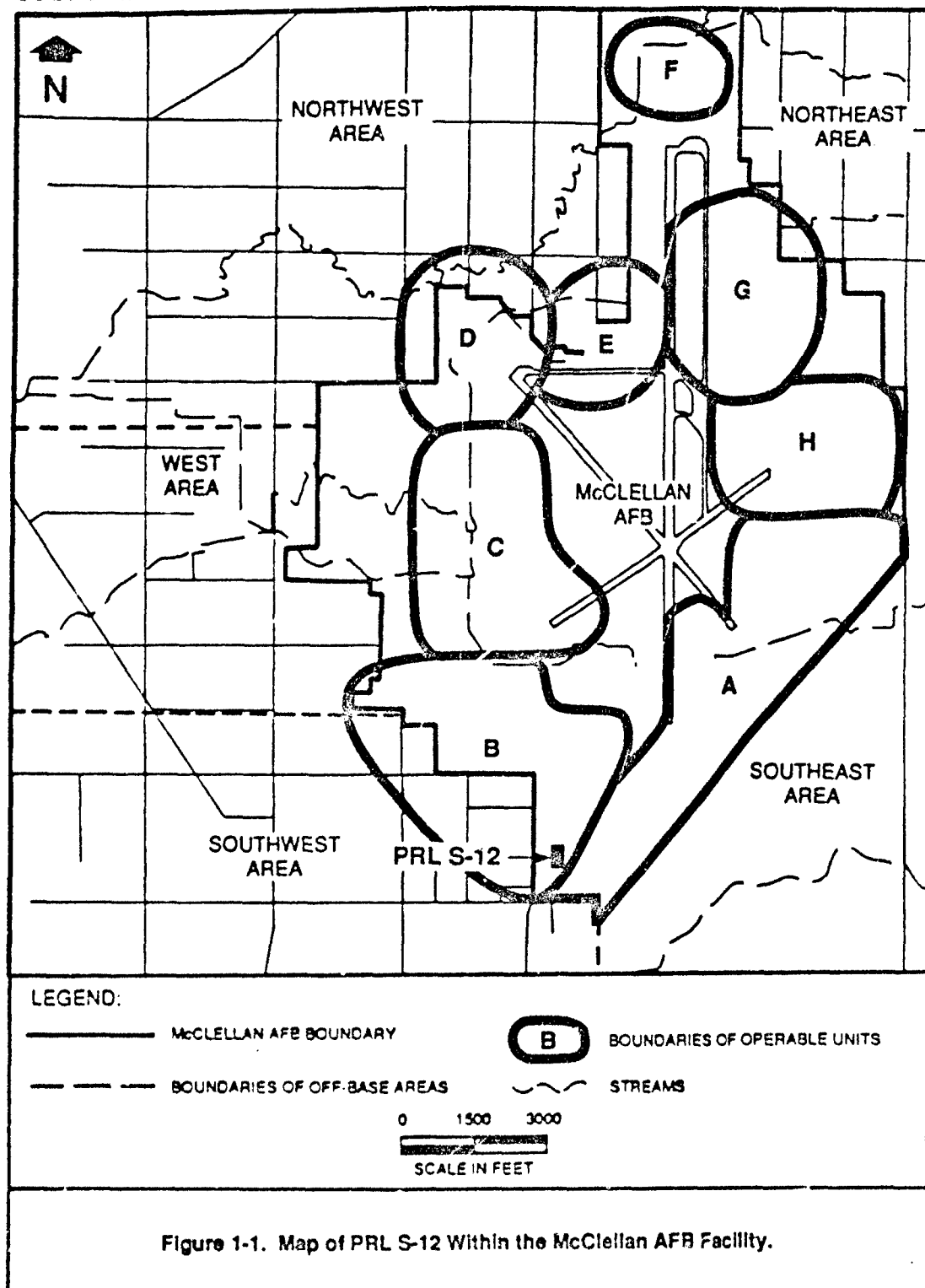
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-12 at McClellan Air Force Base (AFB), California. Potential Release Location S-12 is the location of Buildings 624C and 624D which were used to store materials containing polychlorinated biphenyls. The location of PRL S-12 can be found on Figure 1-1. The compilation of data for this Preliminary Assessment is part of the Remedial Investigation/Feasibility Study (RI/FS) process of the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill locations on Air Force installations and develop remedial actions consistent with the National Contingency Plan (NCP) for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting Remedial Investigation/Feasibility Study at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
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The scope of this Preliminary Assessment includes site-specific data regarding the following four categories of information:

- Facility operations and waste management practices;



- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.

Data on all four categories are necessary to develop an understanding of the site, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Facility operations, waste management practices, waste characteristics, and migration pathways are discussed in this document. A separate General Information document that addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document, includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1981, CH2M Hill conducted a records search to identify hazardous waste disposal sites on base in order to determine the potential for hazardous materials to migrate off base. Although the report does not list Potential Release Location (PRL) S-12 as a Potential Release Location, Buildings 624C and 624D are described as a storage facilities for transformers, capacitors, and drums containing polychlorinated biphenyls (PCBs) (CH2M Hill, 1981, p. II-21).

In 1986, McLaren Environmental Engineering (McLaren) included Buildings 624C and 624D, now designated PRL S-12, as an "additional potential sources area" (McLaren, 1986, p. 13).

2.2 Personnel Interviews

McClellan Air Force Base (AFB) personnel were interviewed by Radian personnel for information regarding historic waste handling and disposal practices at PRL S-12. Information from these interviews has been included in this Preliminary Assessment. Documentation for these interviews can be found in the PRL S-12 Location File.

2.3 Location Visit

Radian personnel visited PRL S-12 on 10 February 1989 to document current conditions and features.

2.4 Review of Base Files

Civil and Bioenvironmental Engineering files at McClellan AFB were reviewed during the preparation of this Preliminary Assessment. Construction drawings of Buildings 624C and 624D were obtained from the Civil Engineering files, and



hazardous material data sheets were obtained from the Civil Engineering Contracts Office files (McClellan AFB, undated).

2.5 **Aerial Photographs**

Historical aerial photographs from 1928 to 1988 were reviewed to determine when Buildings 624C and 624D were constructed. Table 2-1 lists the date, scale, and source of each aerial photograph reviewed for this Preliminary Assessment. Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

**TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL S-12**

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
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1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) S-12 (shown in Figure 3-1) is located within Operable Unit (OU) B of McClellan Air Force Base (AFB), in the southern portion of Building 624 (Buildings 624C and 624D). A map showing PRL S-12 and vicinity is presented in Figure 3-2.

3.1 Location Delineation

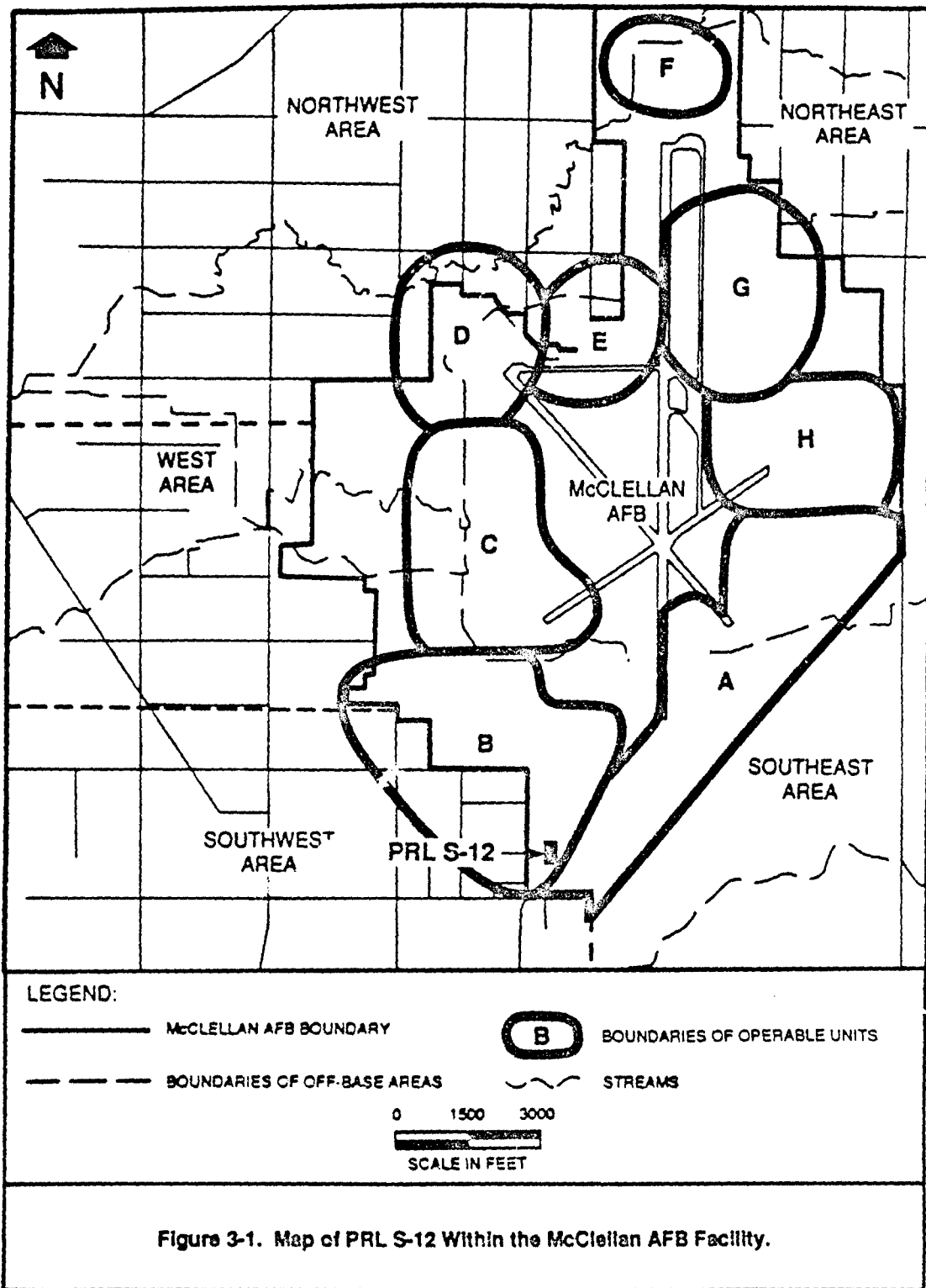
In 1981, CH2M Hill identified Buildings 624C and 624D as the main polychlorinated biphenyl (PCB) storage area at McClellan AFB (CH2M Hill, 1981, p. II-21). In 1986, McLaren Environmental Engineering (McLaren) described Buildings 624C and 624D as an "additional potential source area" and designated the area Site S-12 (McLaren, 1986, p. 13). The area, approximately 200 feet wide and 150 feet long, was subsequently designated PRL S-12 by McClellan AFB Environmental Management.

3.2 Historic Operations

Aerial photographs reveal Buildings 624C and 624D were constructed in the mid-1940s. Apparently, both buildings have been used for storage since their construction; however, the types of materials were stored in the buildings prior to the 1970s is unknown. During the 1970s, Buildings 624C and 624D were used to store transformers and capacitors (Lee, personal communication, 1989). In 1979, a spill of PCB-contaminated oil occurred in Building 624C. Shortly thereafter, berms were constructed in Building 624D to contain any spills of PCB-contaminated material. After the berms were built, all materials potentially containing PCBs were moved out of Building 624C and into Building 624D (Lee, personal communication, 1989).

3.3 Current Operations

Radian personnel visited PRL S-12 on 10 February 1989 to document the current site features (shown in Figure 3-3). Loading docks border the east and west sides of Buildings 624C and 624D; an asphalt parking lot borders the south side of Building 624D. Buildings 624C and 624D are separated by concrete firewalls. Building 624C is currently being used to store miscellaneous nonhazardous base stock (spare parts) (Lee, personal communication, 1989). The floor of Building 624C is concrete.



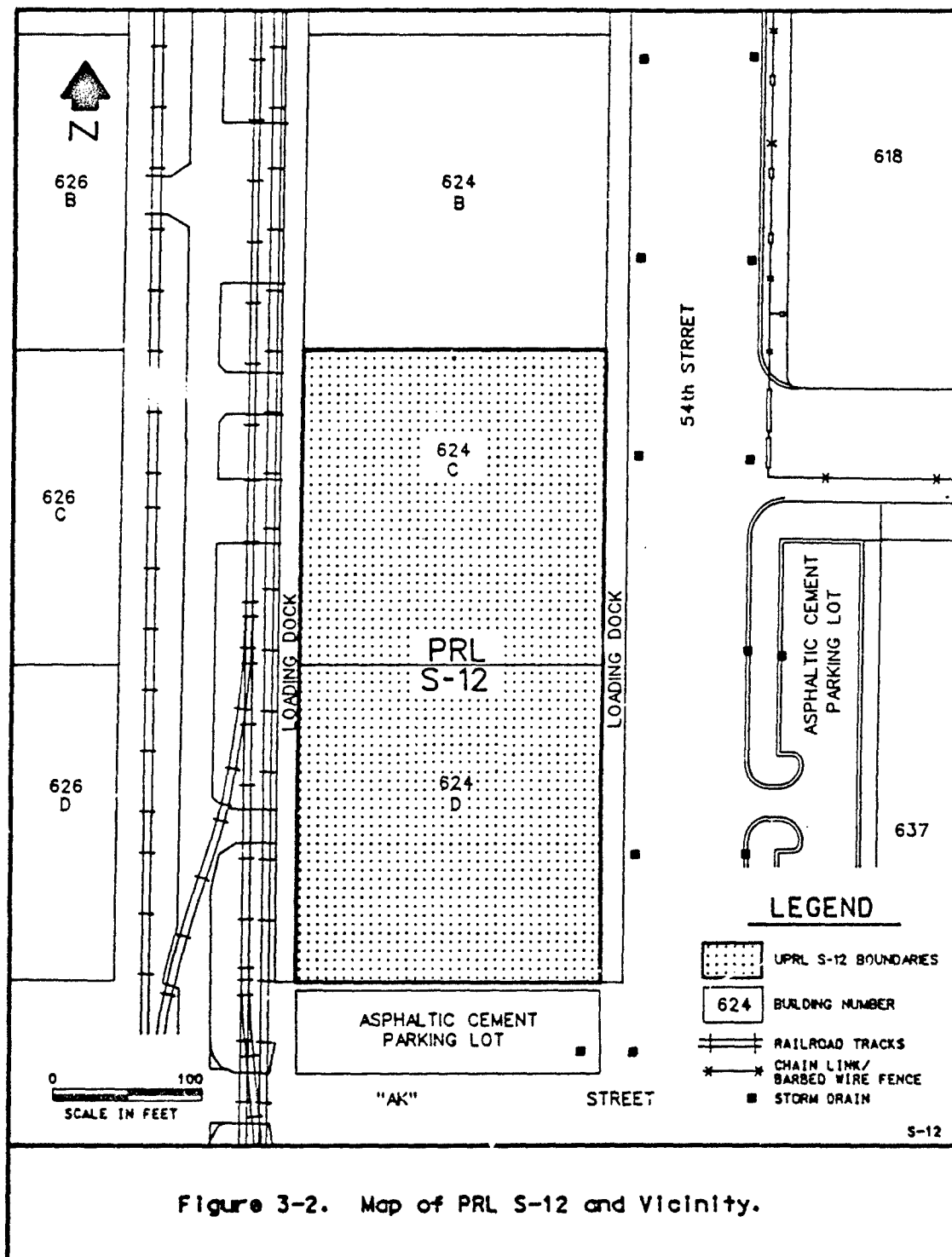
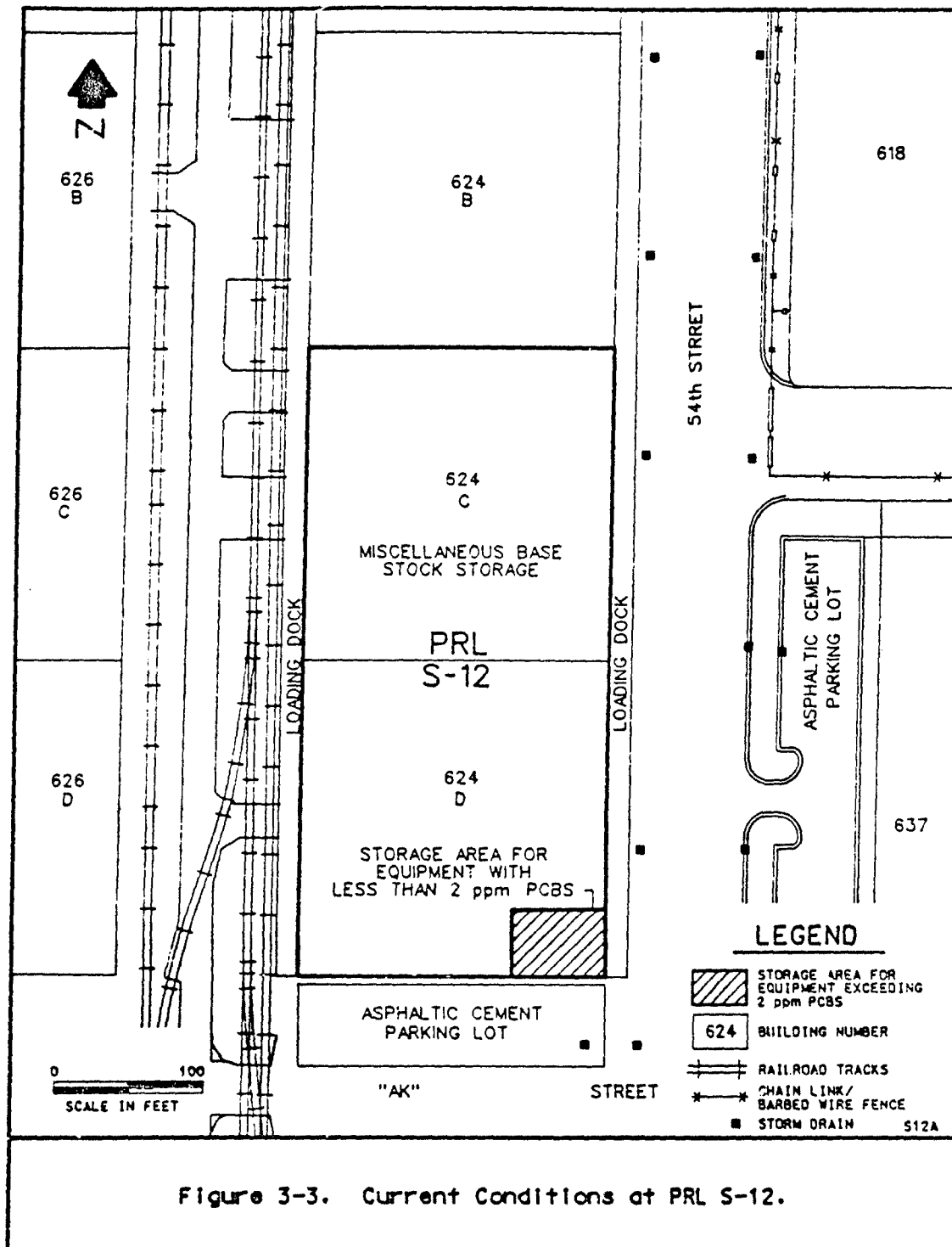


Figure 3-2. Map of PRL S-12 and Vicinity.



In the area where oil was spilled in 1979, the concrete is darker in color than the surrounding area.

Building 624D is currently being used to store transformers, capacitors, and other equipment potentially containing oils contaminated with PCBs. Most of the equipment in storage in Building 624D contains insulating oils with less than 2 ppm PCBs and will be put back into service. Approximately one percent of the equipment stored in Building 624D contains oils with greater than 2 ppm PCBs; these will be transported and disposed of by the Defense Reutilization and Marketing Office (DRMO). The floor of Building 624D is concrete with concrete berms to contain any spills that may occur. If any minor spills occur, they are mopped up with rags. The rags are put into containers and disposed of by DRMO (Lee, personal communication, 1989).

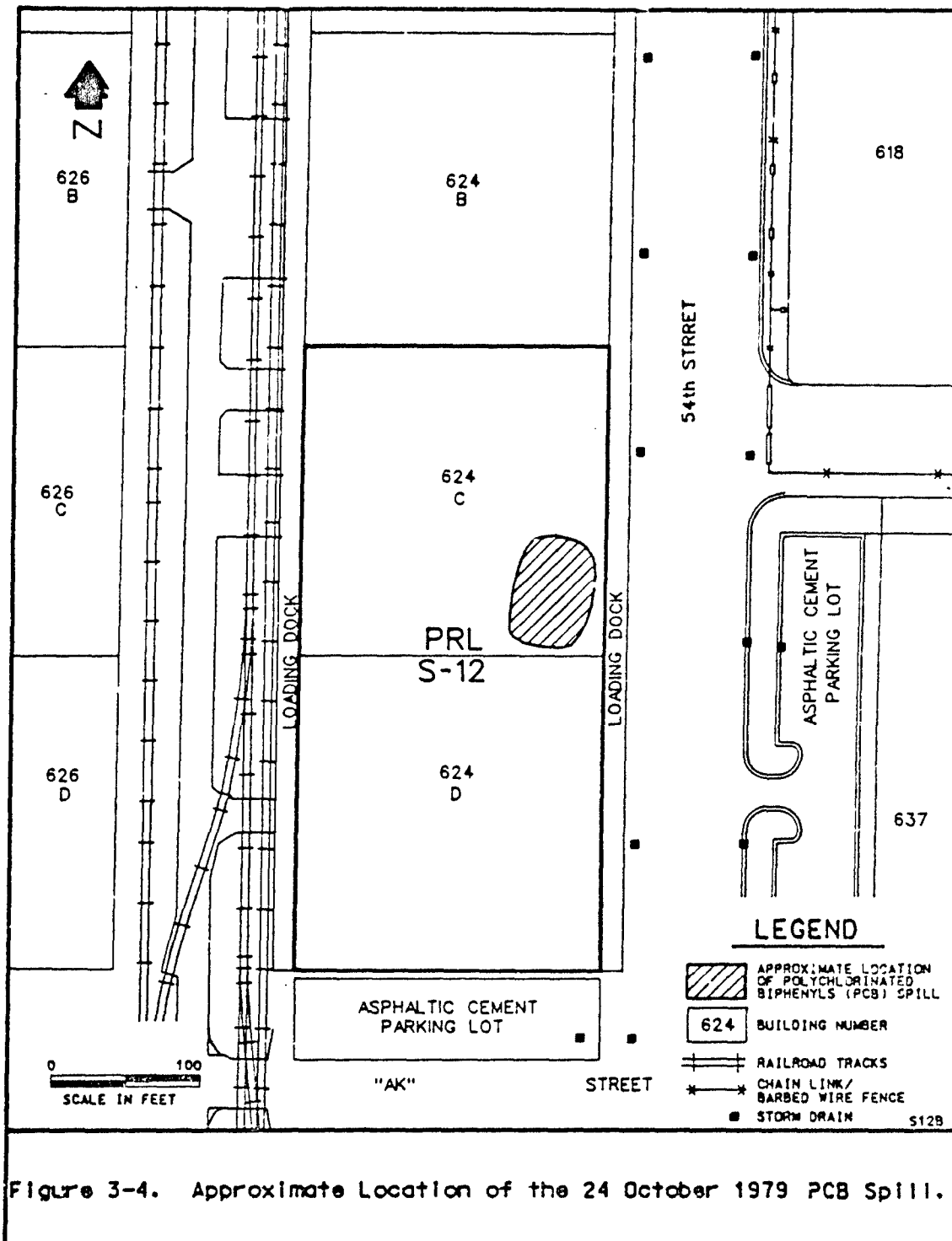
3.4 Reported Releases

Approximately 200 gallons of PCB-contaminated oil spilled at PRL S-12 on 24 October 1979 (CH2M Hill, 1981, p. II-22; Lee, personal communication, 1989). The spill occurred in Building 624C when a forklift ruptured an Askarel transformer. McClellan AFB Fire Department contained the spill within the area shown in Figure 3-4; the oil did not flow outside of the building. All of the material in storage that was contaminated by the oil was put into 55-gallon drums and transported to a United States Environmental Protection Agency (U.S. EPA) approved PCB disposal site (McClellan AFB Civil Engineering Contracts Office Files). After removing the oil from the concrete floor, the floor was cleaned using trichloroethene (TCE).

Minor leaks and seepage from transformers containing PCBs may have also occurred at PRL S-12; however, documentation of any other spills is not available (CH2M Hill, 1981, p. II-22).

3.5 Remedial Actions

No known remedial actions have occurred at PRL S-12.



4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) S-12.

4.1 Potential Contaminants of Concern

Available information indicates the only potential contaminant of concern is polychlorinated biphenyls (PCBs).

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL S-12. Based on available information, Radian believes that no immediate hazards exist at PRL S-12.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL S-12 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Although contamination of soils at PRL S-12 is not believed to exist, it is possible to discuss general considerations of contaminant migration at this location.

4.3.1 Potential Migration to Groundwater

The most important factors that influence migration to groundwater are surface water infiltration rate, percolation rate, and contaminant characteristics. The infiltration rate for soil is primarily determined by the permeability of the soil and the surface characteristics of the area. No soil permeability data have been collected at PRL S-12, but the concrete foundation of Building 624 which covered the soil at PRL S-12 should be an effective barrier to infiltration of surface water.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of contaminants. Although no site-specific data are available on the soil at PRL S-12, basewide boring information indicates that

C any relatively impermeable layers that may be present are not continuous or effective barriers to percolation. However, because PRL S-12 is covered by the concrete foundation of Building 624, the overall potential for migration of groundwater is very low.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration to surface water. The topography in the vicinity at PRL S-12 is essentially flat. Surface runoff from the area surrounding Building 624 enters the base storm drainage system via storm drains adjacent to the building.

The surface of PRL S-12 is covered by the foundation of Building 624, which should be an effective barrier between surface water and surface soils; therefore, the potential for transport of contaminants dissolved in surface runoff is considered very low. Similarly, the potential for erosion and transport of particulate-borne contaminants is also very low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and characteristics also influence the potential for migration to air. No contaminants have been detected in the soil, so the potential for migration for specific contaminants cannot be evaluated. However, the surface at PRL S-12 is covered by the concrete foundation of Building 624, which limits the ability of volatile contaminants in soils to migrate to the air; therefore, the potential for migration to air is generally considered to be very low.

5.0

CONCLUSIONS AND RECOMMENDATIONS

Although equipment containing polychlorinated biphenyls (PCBs) has been stored at Potential Release Location (PRL) S-12, it is unlikely that the location is a source of contamination to the environment. The only reported contaminant discharge at PRL S-12 occurred when approximately 200 gallons of PCB-contaminated oil spilled on the concrete floor of Building 624C. The spill was contained and oil did not migrate to the environment. Only a small area of PRL S-12 (the southeast corner of Building 624D) is being used to store material containing PCBs above concentrations considered hazardous. The area appears to be well organized and is surrounded by concrete berms to contain any spills that may occur.

Because there is no indication of past or present hazards to human health or the environment, Radian recommends that PRL S-12 be removed from the list of Potential Release Locations. If future operations within Buildings 624C or 624D change, samples of the concrete flooring may need to be analyzed for PCBs to verify the presence or absence of contamination at PRL S-12.

6.0

REFERENCES

CH2M Hill, 1981. "Installation Restoration Program Records Search for McClellan Air Force Base, California." Prepared for the Department of the Air Force, Engineering and Services Center, Directorate of Environmental Planning, Tyndall Air Force Base, Florida. July 1981.

Lee, W., personal communication. Personal communication with Wayne Lee, Foreman, Building 624 D, McClellan Air Force Base, 10 February 1989.

McClellan AFB, undated. McClellan AFB Civil Engineering Contracts Office Files.

McLaren Environmental Engineering, Inc., 1986. "Technical Memorandum for the Shallow Investigation Program in Areas A, B, C, and Other Area Sites, Part III - Technical Memorandum, Area B." Prepared for the Department of the Air Force Sacramento Air Logistics Center, McClellan Air Force Base.



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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL S-13
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

**Radian Corporation
10395 Old Placerville Road
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**USAF CONTRACT NO. F33615-87-D-4023, DELIVERY ORDER NO. 0012
CONTRACTOR CONTRACT NO. 227-005, DELIVERY ORDER NO. 0012**

**United States Air Force Center for Environmental Excellence
Mr. Patrick Haas (Technical Project Manager)
Environmental Services Office/Environmental Restoration Division (AFCEE/ESR)
Brooks Air Force Base, Texas 78235-5501**

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APPENDIX A: Analytical Results for Sediment Samples

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1.0 INTRODUCTION

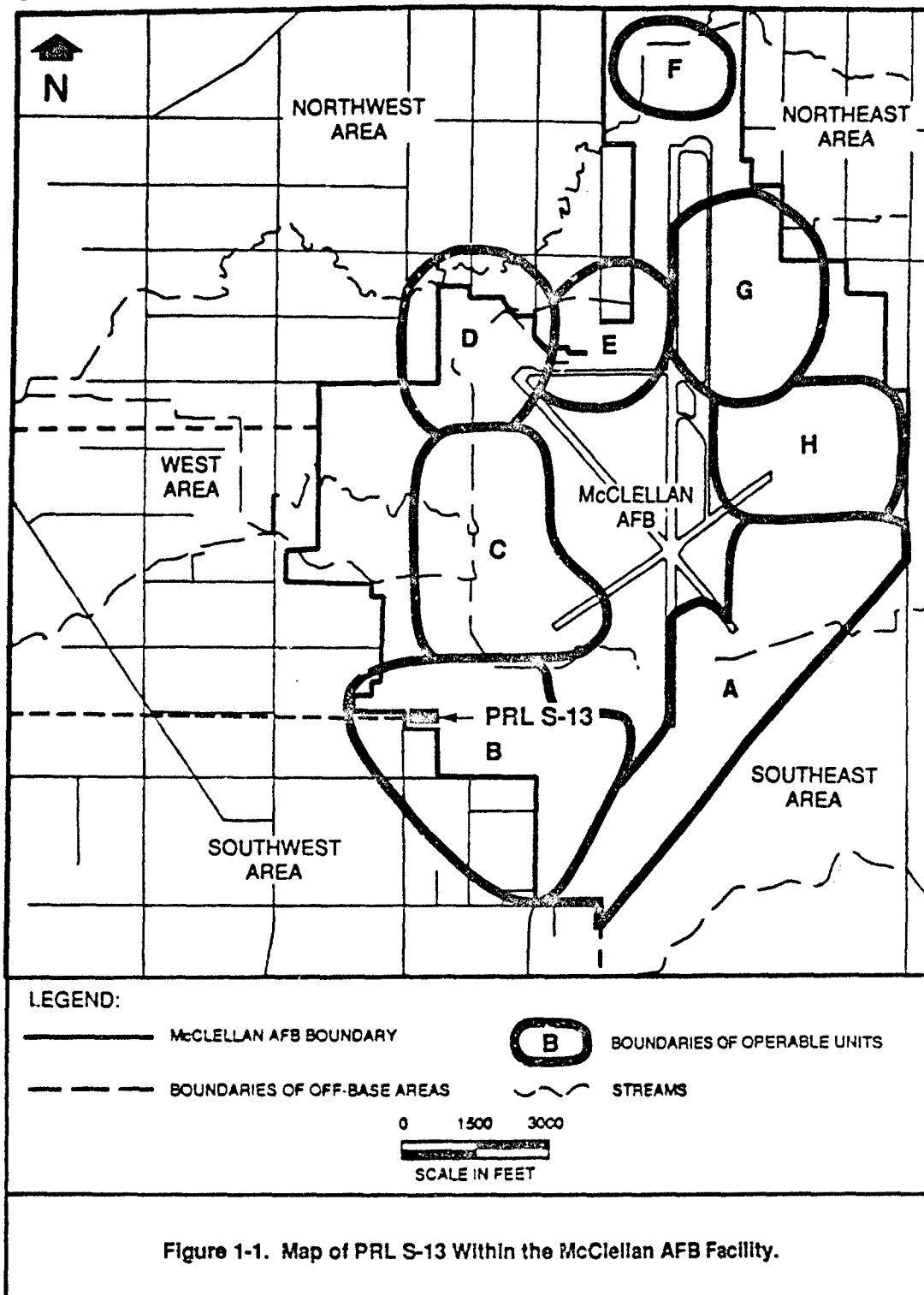
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-13 at McClellan Air Force Base (AFB), California. Figure 1-1 depicts the location of PRL S-13 at McClellan AFB. Potential Release Location S-13 is the location of a hazardous waste storage lot. The compilation of data for this Preliminary Assessment is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the PRL;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following four categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



C Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document, including environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Location description, including historical operations;
- Information sources used to prepare the document;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

Storage Lot No. 3 (Potential Release Location [PRL] S-13) was first identified as the "Defense Property Disposal Office (DPDO) outside chemical storage lot" by CH2M Hill (CH2M Hill, 1981, p. I-3). Later, the area was designated as one of 19 "potential new sites in other areas" by McLaren Environmental Engineering, Inc. (McLaren, 1986a, p. 51). McLaren described the location as "open storage near Building 709" and listed potential chemicals of concern as solvents (McLaren, 1986b, p. 12). The location includes Buildings 709, 727, and 679.

2.2 Personnel Interviews

Personnel interviews with Defense Reutilization and Marketing Office (DRMO) employees regarding hazardous material storage practices at the lot were conducted by Radian in March 1989. Information obtained from personnel interviews is contained in Section 3, Location Description. Written records of these interviews can be found in the PRL S-13 Location File.

2.3 Location Visit

Radian personnel visited PRL S-13 on 20 March 1989 for the purpose of investigating the current conditions and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. Table 2-1 lists the photographs that were reviewed. Interpretation of aerial photographs is discussed in more detail in Section 3.0, Location Description.

TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988) REVIEWED FOR PRL S-13

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment. Civil Engineering (CE) files contained two construction drawings for PRL S-13 (McClellan AFB, 1980). Bioenvironmental Engineering files contained a Chemical Substance Survey Data Sheet and a site map delineating the location of a polychlorinated biphenyl (PCB) spill at PRL S-13 (McClellan AFB, undated).

3.0 LOCATION DESCRIPTION

The area now designated as Potential Release Location (PRL) S-13 (Figure 3-1) is situated in the northwest portion of Operable Unit (OU) B at McClellan Air Force Base (AFB). The location is a hazardous material storage lot operated by the Defense Reutilization and Marketing Office (DRMO) (Figure 3-2). The storage lot contains liquid and solid hazardous wastes and hazardous materials such as acids, bases, corrosives, polychlorinated biphenyls (PCBs), lead batteries, scrap metal, and flammable materials (e.g., solvents and paints) (Wishart, personal communication, 1989).

Site 23 and PRL S-33 are located in the vicinity of PRL S-13. Site 23 is approximately 600 feet west of PRL S-13, and PRL S-33 is approximately 800 feet northwest of PRL S-13. Both locations are discussed in separate reports.

The following sections describe location delineation, historical and current activities, reported releases, and remedial actions at PRL S-13.

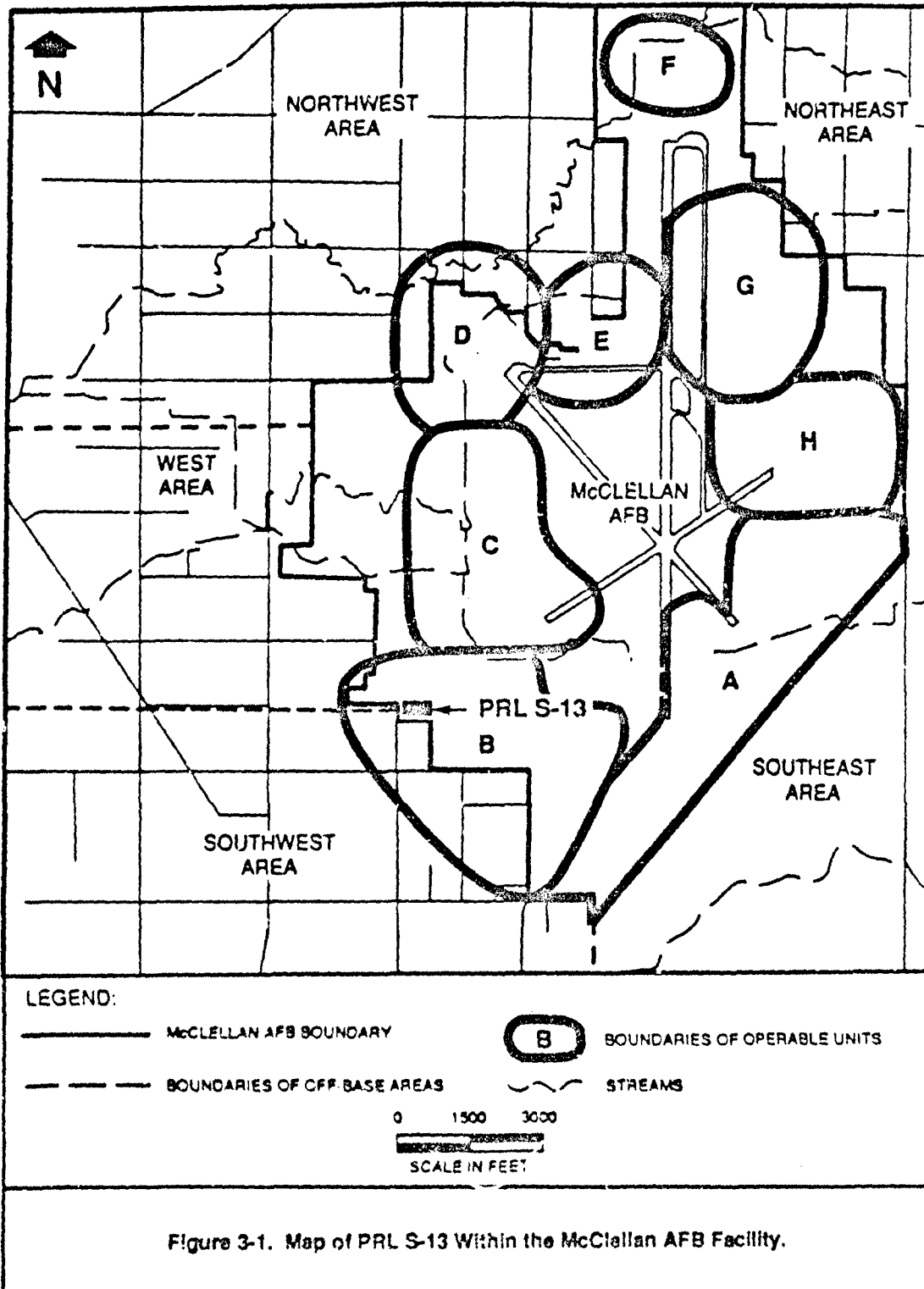
3.1 Location Delineation

The area now designated as PRL S-13 was first identified by CH2M Hill as Storage Lot No. 3 in their 1981 Phase I Report, classifying it as a hazardous storage facility (CH2M Hill, 1981, p. I-3). The location includes Buildings 709, 727, and 679 and the land southwest of the intersection of Dean and Parker Streets to the McClellan AFB boundary (Figure 3-2). McLaren Environmental Engineering, Inc., designated this location as potential source area S-13 during its investigation of other area sites at McClellan AFB in 1986 (McLaren, 1986a, p. 51). McLaren identified the location as a possible release location because it was associated with the storage and use of solvents and other chemicals (McLaren, 1986c, pp. 184-185). However, McLaren did not provide a rationale for delineating PRL S-13 boundaries.

3.2 Historical Activities

A review of historical aerial photographs reveals that PRL S-13 has been used as a storage facility at McClellan AFB since 1955. The 1955 aerial photograph is the first photograph that shows the location utilized for the storage of drums. The 1957 aerial photograph reveals drums in approximately 50 rows approximately 50 feet long and stacked 3 to 4 drums high. A 1962 aerial photograph shows that a loading ramp had been constructed along the railroad tracks north of the location. The 1962 oblique

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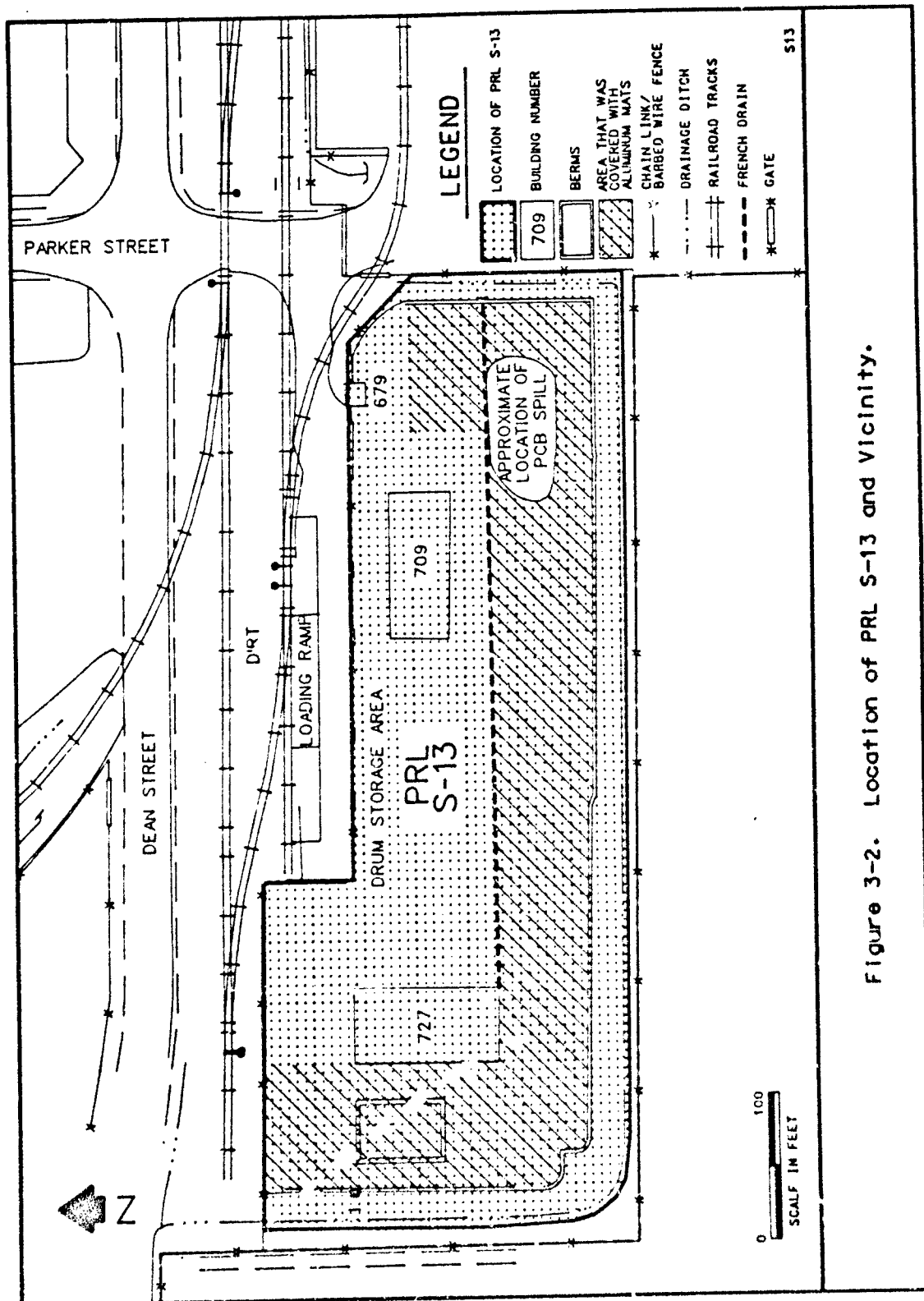


Figure 3-2. Location of PRL S-13 and Vicinity.

1 aerial photograph shows earthen berms surrounding the storage area and a drainage ditch along the southern edge of the storage area. Runoff from PRL S-13 is not treated before it flows into the drainage ditch. However, the sumps are controlled with a valve and are closed except when it is raining (the valves are opened periodically to allow the sumps to drain).

A 1974 aerial photograph indicates a new drainage ditch was constructed along the eastern, southern, and western boundaries of the present location. The ditch was coated with Gunitite® (Yettner, personal communication, 1989). The dirt surrounding the paved storage area was covered with aluminum mats and was used to store empty drums (Wishart, personal communication, 1989; Yettner, personal communication, 1989).

[A French drain ran from the central portion of the ditch perpendicular to the eastern drainage ditch to the approximate future location of Building 727. The French drain and trench drains are two different sets of drains at PRL S-13. The French drain is oriented east-west and discharged into the drainage ditch that eventually leads to Magpie Creek. The other trenches are located inside the buildings and directly north of Building 727. The French drain was used to collect rainwater and chemical spills that occurred at the storage lot (Yettner, personal communication, 1989). The French drain was paved over in 1977 or 1978, but the drainage pipe that emptied into the eastern drainage ditch was left open (Yettner, personal communication, 1989).

Buildings 709 and 727 are first apparent in a 1981 aerial photograph. Building 709 was built to store hazardous materials such as acids, bases, corrosives, poisons, and PCBs (Hart, personal communication, 1989; Wishart, personal communication, 1989). Building 727 was built to store flammable materials such as solvents and paints (Wishart, personal communication, 1989). At the same time the buildings were constructed, the storage area was completely paved with asphalt, new containment curbs were built, and a new drainage system was installed (Wishart, personal communication, 1989).

During the construction of Building 727, soil samples were collected but showed no signs of contamination (Wishart, personal communication, 1989). No other information regarding the sampling or analyses was available.

1 It was reported that in the early 1980s Building 709 was temporarily unsafe to work in, when vapors collected (condensed) on the ceiling and dripped to the floor (Yettner, personal communication, 1989). The asphalt floor of the building had numerous cracks during the period of vapor contamination (Yettner, personal

communication, 1989). The floor was later replaced with concrete (Wishart, personal communication, 1989). There is no information suggesting that any soil was removed or if it was discolored when the floor to Building 709 was replaced.

Building 679 is first apparent in the 1982 aerial photograph. No storage activities were evident at Building 679.

McClellan AFB Bioenvironmental Engineering (BE) files contained a map of PRL S-13, dated 13 May 1982, that showed a PCB spill in the southeastern part of the location. All PCB-contaminated asphalt and soil were removed from the location (Wishart, personal communication, 1989). The BE files also contained an undated Chemical Substance Survey Data Sheet, in which 1,1,1-trichloroethane was identified as the chemical substance used to clean PCB-contaminated materials during a PCB spill cleanup. The data sheet also indicated that the wastes produced during the cleanup were disposed of by DRMO.

A United States Environmental Protection Agency (U.S. EPA) Hazardous Waste Permit Application for Storage Lot No. 3 (PRL S-13) listed 36 hazardous wastes stored at the location and the estimated quantity stored each year (CH2M Hill, 1981) (Table 3-1). McClellan AFB applied for the permit in 1980.

3.3 Current Activities

Potential Release Location S-13 was visited by Radian personnel on 20 March 1989 to observe the current conditions and activities at the location. Figure 3-3 shows the current features and other relevant information for PRL S-13. The location is currently used by DRMO for storage of hazardous materials and wastes that will be sold off base, and for repacking of drums. Stored material includes: acids, bases, corrosives, PCBs, solvents, paints, lead batteries, scrap metal, contaminated rags, and empty drums. Hazardous materials are stored in a variety of containers, including: paper boxes, plastic drums, metal drums, and metal bins.

Building 679 is the yard office and does not appear to be a potential source of contamination.

Building 709 is the hazardous materials storage building containing acids, bases, corrosives, and PCBs. Two containment trenches run the length of the building.



TABLE 3-1. HAZARDOUS SUBSTANCES IDENTIFIED IN A 1980 U.S.EPA HAZARDOUS WASTE PERMIT APPLICATION FOR STORAGE LOT NO. 3 AT McCLELLAN AFB

Contaminants	Annual Amount Used (gal)
Potassium Cyanide	1
Acetone	57
Butanol	4
Hexahydro-benzene	2
Cyclohexanone	14
Mercury	300
Methyl ethyl ketone peroxide	55
Nitrobenzene	2
Tetrachloroethylene	39
Toluene	7
Toluene diisocyanate	35
Trichloroethene	35
Xylene	468
Ignitable compounds	358,050
Corrosive compounds	35
Spent halogenated solvents (degreasing) ^a	98,448
Spent halogenated solvents ^b	1,680
Spent non-halogenated solvents ^c	330
Wastewater treatment sludge	54,720
Unknown	115,720
Spent non-halogenated solvents ^d	VSQ
Spent non-halogenated solvents ^e	VSQ
Calcium Cyanide	VSQ
Carbon disulfide	VSQ
Unknown	VSQ
Parathion	VSQ
Unknown	VSQ
Strychnidin-10-one, and salts	VSQ
Chlordane, technical	VSQ
Methyl isobutyl ketone	VSQ
1,1,1,2-Tetrachloroethane	VSQ
1,1,2,2-Tetrachloroethane	VSQ

(Continued)

TABLE 3-1. (Continued)

Contaminants	Annual Amount Used (gal)
1,1,1-Trichloroethane	VSQ
1,1,2-Trichloroethane	VSQ
Unknown	VSQ
Carbamic acid, ethyl ester	VSQ

^a Mixture of: tetrachloroethene, trichloroethene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons.

^b Mixture of: tetrachloroethene, trichloroethene, methylene chloride, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,1-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, 1,1,2-trichloroethane.

^c Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, methanol.

^d Cresols, cresylic acid, nitrobenzene.

^e Toluene, methyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, 2-nitropropane.

VSQ = Very small quantities.

SOURCE: CH2M Hill, 1981. Phase I Record Search for McClellan AFB, Sacramento CA.

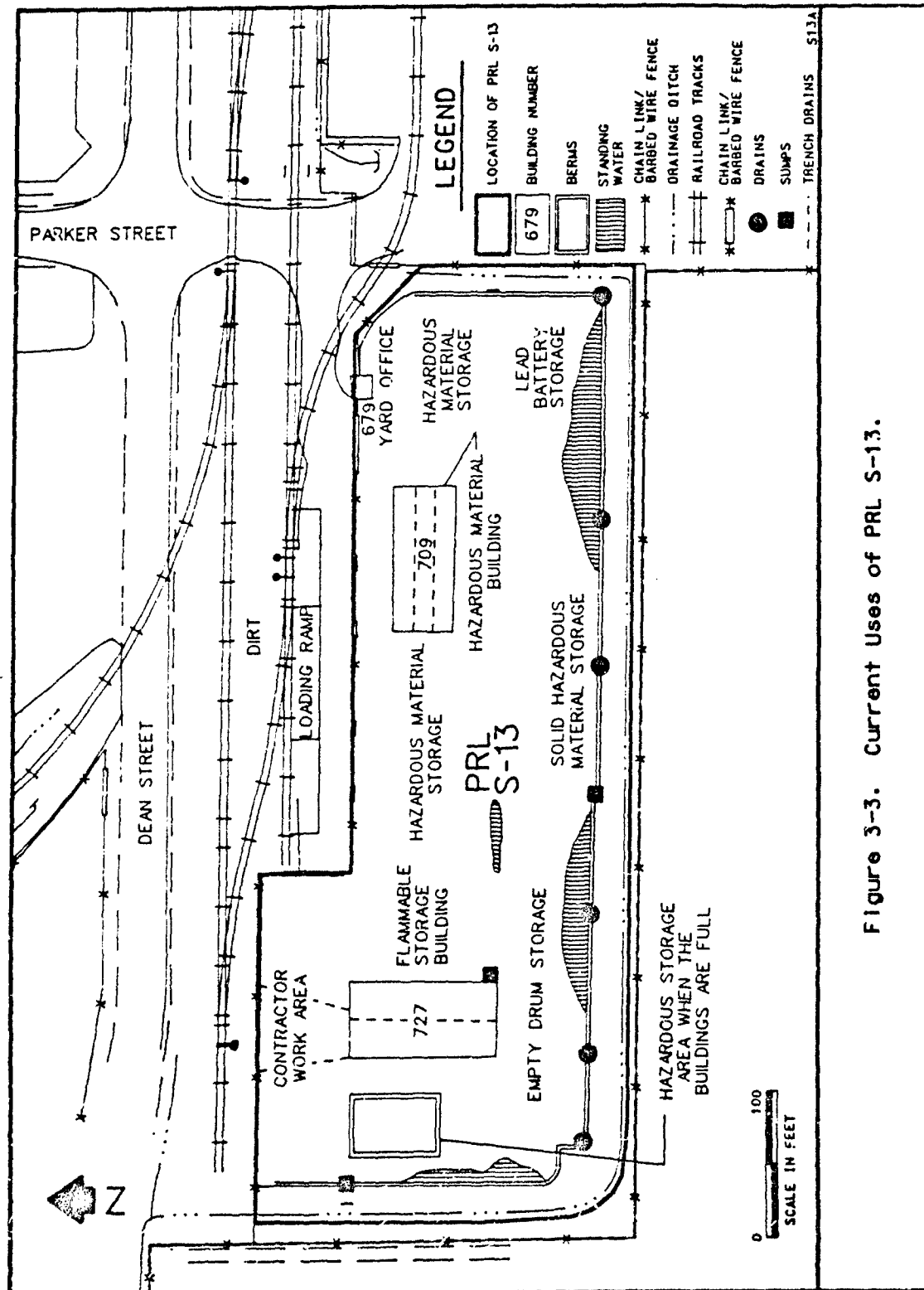


Figure 3-3. Current Uses of PRL S-13.

The trenches are divided into segments to prevent mixing of any incompatible substances (Wishart, personal communication, 1989).

Building 727 is the flammable material storage building and contains solvents and paints. The building has two spill-containment systems. The first is a trench drain that runs down the center of the building and into a sump at the southeastern corner of the building (Civil Engineering [CE] As-built Drawing, File No.100-25-1928, Sheet C4,Drawer BN 700). The second system consists of two trench drains that run north from Building 727 to the fence line. From there an underground pipe carries drainage to a sump on the west side of the location. A valve in the sump controls the rate of discharge into the adjacent drainage ditch.

The surface topography of PRL S-13 is relatively flat with a gentle slope to the south. Containment curbs provide drainage barriers on the east, south, and west sides of the location. Six drains are positioned along the southern edge of the asphalt to collect runoff from the location. The six drains are connected by 12-inch drainpipe, which is coupled together by metal bands (Wishart, personal communication, 1989). The drainpipe empties into a sump (on the south side of the location) where a valve controls the rate of discharge into the drainage ditch south of the location. It was reported that the system would not provide 100 percent containment of a spill because the pipe joints leak (Wishart, personal communication, 1989).

Currently, DRMO is planning to move the hazardous materials to a new facility that will be built east of Building 700 in the general vicinity of Potential Release Location (PRLs) 29, PRL P-2, and Site 31 (Wishart, personal communication, 1989).

3.4 Reported Releases

Two releases were reported in the Bioenvironmental Engineering (BE) files. The first release, a small PCB spill on the eastern portion of the location, occurred in May 1982 (BE files, BN. 700). This information was confirmed by base personnel (Wishart, personal communication, 1989). The spill was cleaned up with 1,1,1-trichloroethane, and PCB-contaminated asphalt and soil were excavated and removed (Wishart, personal communication, 1989). The second release reported in the BE files was the 1,1,1-trichloroethane which was used for cleaning PCB-contaminated materials; however, the BE files contained no information about the date, size, or specific location of the spill.

3 Additional releases were reported during base personnel interviews. The first reported release occurred in the 1970s when a green liquid of unknown composition spilled into the French drain that empties into the drainage ditch, turning the water green for approximately 800 feet to the west of PRL S-13 (Yettner, personal communication, 1989). Several small paint and solvent spills have apparently occurred at the location (Wishart, personal communication, 1989; Hart, personal communication, 1989). The spills were generally cleaned up using water, solvents, paint thinner, or absorbants such as vermiculite, depending on the characteristics of the spilled material (Wishart, personal communication, 1989). In 1983 or 1984 a 55-gallon drum containing 1,1,1-trichloroethane ruptured on the eastern part of the location (Wishart, personal communication, 1989). The spill was cleaned up; however, no asphalt or soil was removed (Wishart, personal communication, 1989).

Environmental Management Spill Response Incident Reports document other releases at PRL S-13, including:

- The spill of a 55-gallon drum of sulfuric acid waste on 2 April 1987. The spill was contained.
- A leaking 30-gallon drum containing cyanide filters on 17 April 1989.
- Ten leaking drums containing sludge from the Industrial Waste-Water Treatment Plant on 14 July 1989.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL S-13.

4.0 EXTENT OF CONTAMINATION

The following sections present the results of a previous investigation of sediment from Potential Release Location (PRL) S-13.

4.1 Analytical Results

A sediment sample was collected on 18 January 1989 by Radian from accumulated sediments on the bottom of the Gunite®-lined drainage ditch in the southwestern corner of PRL S-13 (Figure 4-1), during the Preliminary Pathways Assessment sampling effort (Radian, 1989). For a detailed explanation of Radian field procedures refer to the "McClellan AFB Quality Assurance Project Plan Field Procedures" (Radian, 1988). Table 4-1 presents a summary of positive analytical results for sediment samples from UPRL S-13.

Volatile Organic Compounds (VOCs)

One sediment sample was collected from the drainage ditch and analyzed for VOCs using United States Environmental Protection Agency (U.S. EPA) Method 8240. (See Table A-1 [Appendix A] for detailed sampling information and analytical results for the sample.) Two VOCs, acetone and methylene chloride, were detected in the sediment sample; however, the same compounds were also detected at similar levels in the reagent blank indicating probable laboratory contamination.

Semivolatile Organic Compounds (VOCs)

One sediment sample was collected from the drainage ditch and analyzed for semivolatile organic compounds using U.S. EPA Method 8270. (See Table A-2 [Appendix A] for detailed sampling information and analytical results for the sample.) Three semivolatile organic compounds were detected in the sediment sample. These were acetophenone, di-n-butylphthalate, and phenol. These same compounds were also detected at similar levels in the reagent blank indicating probable laboratory contamination. Bis(2-ethylhexyl)phthalate was reported as an estimate because it was detected at less than five times the detection limit.

Metals

Part of the sediment sample from the drainage ditch was analyzed for total metals listed in the California Code of Regulations, Title 22 using the U.S. EPA Method

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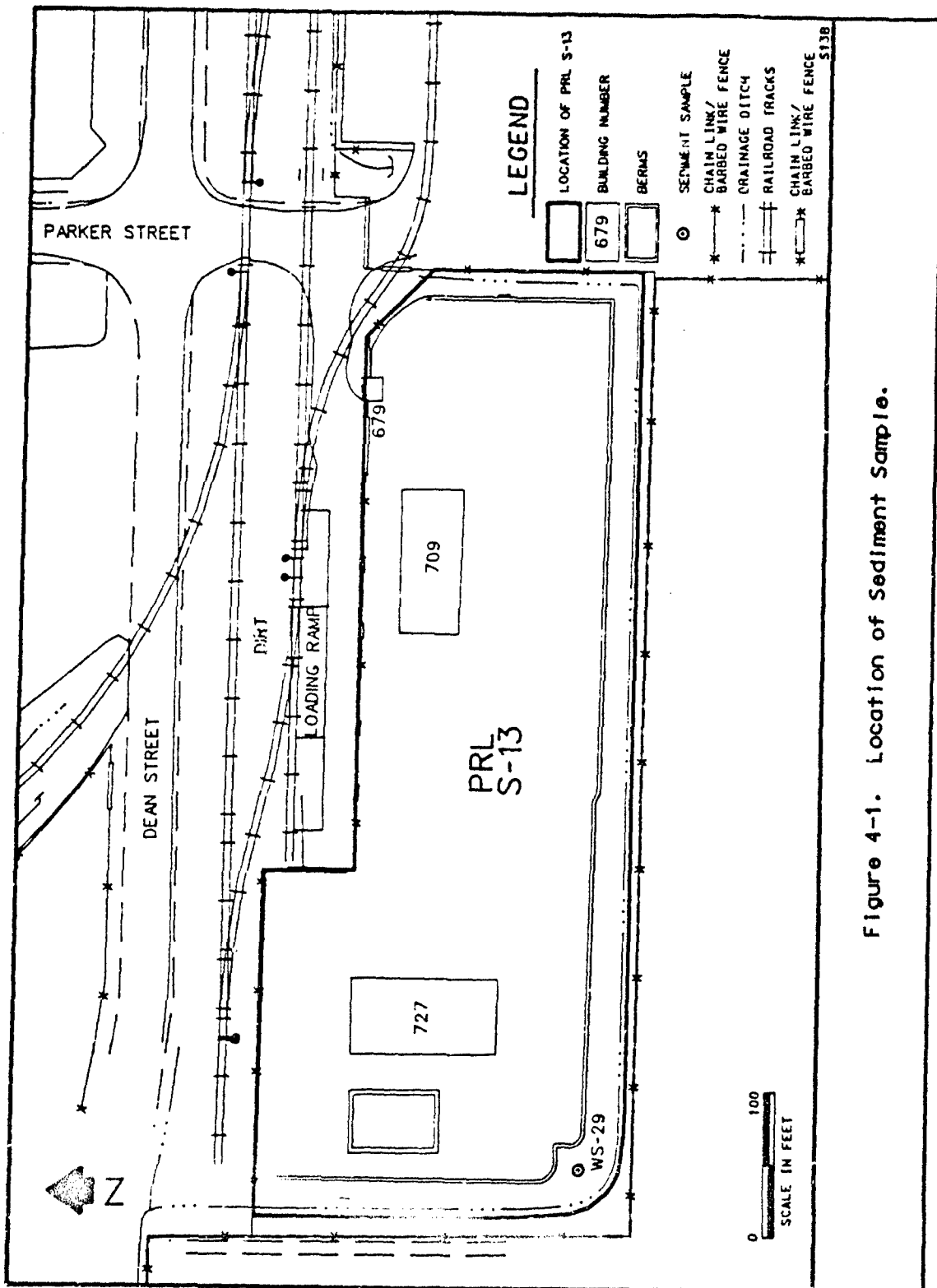


Figure 4-1. Location of Sediment Sample.

**TABLE 4-1. SUMMARY OF POSITIVE ANALYTICAL RESULTS FOR SEDIMENT
SAMPLE FROM PRL S-13**

Compound Detected	Sample Number	Concentration
Volatile Organic Compounds		
Acetone	WS 29	6.2 µg/kg B,J
Methylene chloride	WS 29	2.4 µg/kg B,J
Semivolatile Organic Compounds		
Acetophenone	WS 29	140 µg/kg B,J
Di-n-butylphthalate	WS 29	610 µg/kg *,B
bis(2-Ethylhexyl)phthalate	WS 29	350 µg/kg *
Phenol	WS 29	82 µg/kg B,J

B = Detected in reagent blank.

J = Detected at less than detection limit.

* = Estimate; result less than five times detection limit.

6010. (See Table A-3 [Appendix A] for detailed sampling information and analytical results for the samples.)

Whereas the presence of any priority pollutant organic compound indicates contamination from a manufactured source, most soils have some natural concentrations of metals present. Because no other criteria have been established for evaluating metal/soil contamination at McClellan Air Force Base (AFB), California hazardous waste criteria were used as a basis of comparison (California Code of Regulation, Title 22, Section 66699). All total metal concentrations were below the applicable Total Threshold Limit Concentrations (TTLCs).

Cyanide

Part of the sediment sample collected from the drainage ditch was analyzed for total cyanide using U.S. EPA Method 9010. (See Table A-3 [Appendix A] for the available information and analytical results for the sample.) Results showed cyanide detected at a concentration of 14 µg/kg.

Mercury

Part of the sediment sample collected from the drainage ditch was analyzed for mercury U.S. EPA Method 7471. Table A-3 (Appendix A) summarizes the available information and analytical results for the sample. Mercury was not detected in the sample.

Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) information for these analyses is contained in the "Informal Technical Information Report for the Preliminary Pathways Assessment: Analytical Data & QA/QC Summary Report--Surface Water & Stream Sediment Samples," 1989 (Radian, 1989).

4.2 Adequacy of Soil Characterization

The Radian sediment sample was part of the Preliminary Pathways Assessment Field sampling effort. The sediment samples were collected to determine if stream sediments at selected locations on McClellan AFB contain contaminants. The sample was adequate for a preliminary screening of the stream sediments in the drainage ditch, but not for a full characterization of PRL S-13.

5.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) S-13.

5.1 Potential Contaminants of Concern

The contaminants of concern at PRL S-13 are volatile organic compounds (VOCs), semivolatile organic compounds, and metals that were either detected in sediment samples or may have been constituents of hazardous materials stored at the location. Section 4, Extent of Contamination, provides a detailed description of previous sampling at PRL S-13, and is summarized below:

- One sediment sample was collected from the drainage ditch located in the southwest corner of PRL S-13.
- The sediment samples was analyzed for VOCs. Two VOCs were detected in the sample.
- The sediment sample was analyzed for semivolatile organic compounds. Four compounds were detected in the sample.
- The sediment sample was analyzed for total concentrations of metals. All results were below threshold limit concentrations.
- Additional soil sampling and analysis is necessary at PRL S-13 to characterize potential contamination at the location.

Table 5-1 lists the organic chemicals detected at this location along with certain physical characteristic values that influence their mobility.

5.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL S-13. The potential for fire and

**TABLE 5-1. PHYSICAL CHARACTERISTIC VALUES FOR ORGANIC COMPOUNDS
 DETECTED AT PRL S-13**

Compound	Water Solubility ^a (mg/L)	Vapor Pressure ^a (mm Hg)	Log K _{ow} ^b
<u>Volatile Organic Compounds</u>			
Acetone	1,000,000	270	-0.24
Methylene chloride	20,000	362	1.30
<u>Semivolatile Organic Compounds</u>			
Acetophenone	5,500 ^c	1 ^c	1.58 ^c
Di-n-butylphthalate ^d	13.0	1.00 x 10 ⁻⁵	5.60
bis(2-Ethylhexyl)phthalate ^d	1.3 ^c	NA	5.30 ^c
Phenol	93,000	0.34	1.46

^a At neutral pH at 20 to 30 °C.

^b Log of octanol/water partition coefficient.

^c Source: U.S. EPA Database, 1988. Water Engineering Research Laboratory.

^d Laboratory contaminant.

NA = Information not available.

SOURCE: U.S. Environmental Protection Agency, 1986. Superfund Public Health Evaluation Manual
 OSWER Directive 9285.4-1.

explosion is unknown because the soil gas and emissions from the location have not been characterized.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. The ground surface at PRL S-13 is paved; therefore, the potential for exposure to any contaminated soil is very low. Exposure risk from potentially contaminated near-surface soil may be present to workers involved in any future construction or excavation activities at this location.

5.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL S-13 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

5.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the percolation rate of the soil, and contaminant characteristics.

The amount of infiltration at PRL S-13 is primarily related to surface characteristics of the area and permeability of the soil. The ground surface of PRL S-13 is covered with either pavement or building foundations which would minimize the amount of infiltrating surface water. However, underground drain pipes reportedly leak (Wishart, personal communication, 1989) and may allow potentially contaminated drainage to enter directly into subsurface soils.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of the contaminants. Although permeability data on the soil at PRL S-13 are not available, basewide boring information indicates that soils range from clay loams to sandy loams and that any relatively impermeable layers are not continuous or effective barriers to percolation. Therefore, the percolation rate for this location is probably low to moderate.

The contaminants of concern at PRL S-13 are the VOCs, semivolatile organic compounds, metals, and polychlorinated biphenyls (PCBs) that are constituents of hazardous materials stored at this location. In general, VOCs are the most soluble of these contaminants and have the highest potential for dissolving into water and being carried with the flow of percolating water. Semivolatile organic compounds and metals are generally much more likely to remain in near-surface soils and not migrate with percolating water. However, as other organic compounds dissolve in water, any semivolatile compounds may also dissolve more readily due to the solvent properties of other organics.

The opportunity for contaminants to migrate to groundwater may have been historically present at PRL S-13. In the 1960s and 1970s, the only paved area of the location was the area beneath and immediately surrounding Building 709; the remaining portion of the location was exposed soil or soil covered with aluminum mats. The exposed soil may have allowed surface water infiltration and contaminant percolation through the soil column to groundwater.

5.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration of dissolved contaminants to surface water. The ground surface of PRL S-13 is paved with asphalt or covered by building foundations; therefore, the potential for any contaminants that may be present in the soil to migrate to surface water is low.

Two drainage systems collect surface water from the paved area of PRL S-13. Each system has a separate sump, one on the south side of the location and one on the west side (see Figure 3-3). The sumps discharge water into the lined drainage ditch adjacent to the location. Water in the drainage ditch flows west along the southern part of the location and then north along the west boundary of the location and ultimately to Magpie Creek.

Surface water at McClellan AFB is regularly monitored under two National Pollutant Discharge Elimination System (NPDES) permits. The first requires that surface water from Arcade Creek, Second Creek, and Magpie Creek be sampled monthly where it enters the base, and again where it exits; these samples are analyzed for VOCs and heavy metals. At present, sufficient data does not exist to relate any

contamination that may have been detected in surface water samples at McClellan AFB to specific sites; however, these relationships will be investigated during the Remedial Investigation. The second permit outlines waste discharge regulations for the base groundwater treatment plant (located in Operable Unit C of McClellan AFB), including effluent analyses of VOCs, semivolatile organic compounds, and heavy metals. The NPDES permits establish limits on concentrations of VOCs, semivolatile organic compounds, and heavy metals in surface water discharged from McClellan AFB. Under the permit requirements, concentrations of these compounds must not exceed the established limits.

5.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. Vapor pressure is a relative measure of the volatility of a chemical in its pure state and is an important determinant of the rate of vaporization from soils. Table 5-1 lists the available vapor pressures for the organic chemicals detected at PRL S-13.

The ground surface at PRL S-13 is paved which limits the ability of any volatile contaminants in soils to migrate to air. Therefore, the potential for migration to air is considered to be very low; however, the absence or presence of subsurface soil contamination at PRL S-13 has not been established.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Aerial photographs, personnel interviews, and base records confirm that hazardous materials have been stored at Potential Release Location (PRL) S-13 from approximately 1955 to 1989; personnel interviews indicate that materials stored at PRL S-13 were occasionally spilled.

The potential hazards posed by any contaminants at the location cannot be completely evaluated until the location is fully characterized. Therefore, Radian recommends additional site characterization work at PRL S-13, including:

- Conducting personnel interviews with base personnel familiar with operations at PRL S-13 between 1950 and 1970;
- Collecting subsurface soil samples beneath asphalt and adjacent to ditches and sumps to fully determine the areal and vertical extent of contamination at the location;
- Sampling storm water runoff from the location; and
- Resampling and analyzing sediment in the ditches for volatile and semivolatile organic compounds and metals, because the previous laboratory results from ditch sediment samples is questionable due to apparent laboratory contamination.

7.0

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APPENDIX A

Analytical Results for Sediment Samples

TABLE A-1. VOLATILE ORGANIC COMPOUND ANALYTICAL RESULTS FOR THE SEDIMENT SAMPLE AT
 PRL S-13 (UNITS IN UG/KG)

Boring Number	WS 29
Depth (feet BGS)	Surface
Date Sampled	01/18/89
Sampled By	RAD
Analytical Method	EPA 8240
Date Analyzed	--
Laboratory	RAS
Field QC	
Laboratory QC	
Acetone	6.2 BJ
Acetonitrile	<8.3
Acrolein	<96.0
Acrylonitrile	<100.0
Allyl chloride	<4.7
Benzene	<5.6
Bromodichloromethane	<2.8
Bromoform	<6.0
Bromomethane	<6.4
2-Butanone	<32.0
Carbon disulfide	<2.2
Carbon tetrachloride	<3.6
Chlorobenzene	<7.7
Chloroethane	<6.4
2-Chloroethylvinylether	<6.4
Chloroform	<2.0
Chloromethane	<6.4
Dibromochloromethane	<4.0
1,2-Dibromo-3-chloropropane	<8.8
Dibromomethane	<6.4
1,2-Dibromomethane	<6.1
1,4-Dichlorobutene (total)	<3.3
1,1-Dichloroethane	<3.6
1,2-Dichloroethane	<3.6
1,1-Dichloroethane	<6.0
1,2-Dichloroethane (total)	<2.0

(Continued)

TABLE A-1. (Continued)

Boring Number	WS 29
Depth (feet BGS)	Surface
Dichlorodifluoromethane	<5.0
1,2-Dichloropropane	<7.7
cis-1,3-Dichloropropane	<6.4
trans-1,2-Dichloropropane	<6.4
trans-1,3-Dichloropropane	<6.4
Ethyl methacrylate	<22.0
Ethylbenzene	<9.2
2-Hexanone	<46.0
Iodomethane	<7.3
Methylene chloride	2.4 BJ
Methyl methacrylate	<36.0
4-Methyl-2-pentanone	<59.0
Propanenitrile	<55.0
Styrene	<3.8
1,1,1,2-Tetrachloroethane	<5.0
1,1,2,2-Tetrachloroethane	<8.8
Tetrachloroethane	<5.2
Toluene	<7.7
1,1,1-Trichloroethane	<4.9
1,1,2-Trichloroethane	<6.4
Trichloroethane	<2.4
Trichlorofluoromethane	<6.4
1,2,3-Trichloropropane	<5.1
Vinyl acetate	<8.8
Vinyl chloride	<6.4
total Xylenes	<5.9

RAD = Radian Corporation.

RAS = Radian Analytical Services Laboratory.

B = Detected in reagent blank.

J = Estimated value; less than detection limit.

SOURCE: Radian Corporation, 1989.

TABLE A-2. SEMIVOLATILE ORGANIC COMPOUND ANALYTICAL RESULTS FOR THE SEDIMENT SAMPLE AT PRL S-13 (UNITS IN UG/KG)

Boring Number	WS 29
Depth (feet BGS)	Surface
Date Sampled	01/18/89
Sampled By	RAD
Analytical Method	EPA 8270
Date Analyzed	--
Laboratory	RAS
Field QC	
Laboratory QC	
enaphthene	<160.0
cenaphthylene	<290.0
Acetophenone	140.0 BJ
Aldrin	<160.0
Aniline	<820.0
Anthracene	<160.0
4-Aminobiphenyl	<250.0
4-Bromophenyl-phenylether	<160.0
Benidine	<3,600.0
Benzo(a)anthracene	<640.0
Benzo(a)pyrene	<210.0
Benzo(b)fluoranthene	<390.0
Benzo(g,h,i)perylene	<340.0
Benzo(k)fluoranthene	<210.0
Benzoic acid	<4,100.0
Benzyl alcohol	<82,700.0
alpha-BHC	<250.0
beta-BHC	<410.0
delta-BHC	<330.0
gamma-BHC (Lindane)	<330.0
Butylbenzylphthalate	<213.0
alpha Chlordane	<820.0
gamma Chlordane	<820.0
4-Chloroaniline	<320.0
bis(2-Chloroethoxy)methane	<440.0
bis(2-Chloroethyl)ether	<470.0
bis(2-Chloroisopropyl)ether	<470.0
4-Chloro-3-methylphenol	<250.0
1-Chloronaphthalene	<170.0
2-Chloronaphthalene	<160.0
2-Chlorophenol	<270.0
4-Chlorophenyl-phenylether	<350.0

(Continued)

TABLE A-2. (Continued)

Boring Number	US 29
Depth (feet BGS)	Surface
Chrysene	<210.0
4,4'-DDD	<230.0
4,4'-DDE	<460.0
4,4'-DEF	<390.0
Dibenz(a,h)anthracene	<210.0
Dibenz(a,j)acridine	<180.0
Dibenzofuran	<820.0
1,2-Dichlorobenzene	<160.0
1,3-Dichlorobenzene	<160.0
1,4-Dichlorobenzene	<360.0
3,3'-Dichlorobenzidine	<1,400.0
2,4-Dichlorophenol	<220.0
2,6-Dichlorophenol	<360.0
Dieldrin	<210.0
Diethylphthalate	<160.0
p-Dimethylamino-azobenzene	<280.0
7,12-Dimethylbenz(a)anthracene	<120.0
2,4-Dimethylphenol	<220.0
2,6-Dimethylphenol	<620.0
2,4-Dimethylphenylamine	<130.0
Dimethyl phthalate	610.0 *B
Di-n-butylphthalate	<2,000.0
4,6-Dinitro-2-methylphenol	<3,500.0
2,4-Dinitrophenol	<470.0
2,4-Dinitrotoluene	<160.0
2,6-Dinitrotoluene	<110.0
Di-n-octyl phthalate	<490.0
Endosulfan I	<820.0
Endosulfan II	<460.0
Endosulfan sulfate	<660.0
Endrin	<820.0
Endrin aldehyde	350.0 *
bis(2-Ethylhexyl)phthalate	<280.0
ethylmethanesulfonate	<180.0
Fluorethane	<160.0
Fluorene	<160.0
Heptachlor	<180.0
Heptachlor epoxide	<160.0
Hexachlorobenzene	<74.0
Hexachlorobutadiene	

(Continued)

TABLE A-2. (Continued)

Boring Number	US 29
Depth (feet BGS)	Surface
Resachlorocyclopentadiene	<190.0
Hexachlorocyclopentadiene	<130.0
Indeno(1,2,3-cd)pyrene	<300.0
Isophorone	<180.0
Methylmethanesulfonate	<400.0
2-Methylnaphthalene	<820.0
2-Methylphenol	<820.0
4-Methylphenol	<820.0
Naphthalene	<130.0
1-Naphthylamine	<470.0
2-Naphthylamine	<1,100.0
2-Nitroaniline	<4,100.0
3-Nitroaniline	<4,100.0
4-Nitroaniline	<4,100.0
Nitrobenzene	<160.0
2-Nitrophenol	<300.0
4-Nitrophenol	<200.0
N-nitroso-di-n-propylamine	<82,200.0
N-nitroso-di-n-butylamine	<250.0
N-nitrosodimethylamine	<820.0
N-nitrosodiphenylamine (2)	<160.0
N-nitrosopiperidine	<240.0
2-Picoline	<200.0
PCB-1016	<12,000.0
PCB-1221	<2,500.0
PCB-1232	<9,900.0
PCB-1242	<9,900.0
PCB-1248	<30,000.0
PCB-1254	<2,800.0
PCB-1260	<41,000.0
Pentachlorobenzene	<120.0
Pentachloronitrobenzene	<210.0
Pentachlorophenol	<300.0
Phenanthrene	<440.0
Phenol	82.0BJ
Promamide	<150.0
Pyrene	<160.0
1,2,4,5-Tetrachlorobenzene	<120.0
2,3,4,6-Tetrachlorophenol	<560.0

(Continued)

TABLE A-2. (Continued)

Boring Number	US 29
Depth (feet BGS)	Surface
1,2,4-Trichlorobenzene	<160.0
2,4,5-Trichlorophenol	<80.0
2,4,6-Trichlorophenol	<220.0

RAD = Radian Corporation.
 RAS = Radian Analytical Services Laboratory.
 B = Detected in reagent blank.
 J = Detected at less than detection limit.
 * = Estimate; result less than five times detection limit.

SOURCE: Radian Corporation, 1989.

TABLE A-2. INORGANIC AND MISCELLANEOUS ANALYTICAL RESULTS FOR THE SEDIMENT SAMPLES
PRL S-13 (UNITS IN UG/KG)

Boring Number	US 29
Depth (feet BGS)	Surface
Date Sampled	01/18/84
Sampled By	RAD
Analytical Method	EPA 6010
Date Analyzed	--
Laboratory	RAS
Field QC	
Laboratory QC	
Aluminum	2,500.0
Antimony	<3.3
Arsenic	<5.1
Barium	55.0
Beryllium	0.19
Cadmium	13.0
Calcium	<1,100.0
Chromium	15.0
Cobalt	10.0
Copper	13.0
Cyanide (total)	14.0
Iron	5,200.0 S
Lead	28.0
Magnesium	1,400.0
Manganese	330.0 S
Mercury	<0.25
Molybdenum	<0.78
Nickel	19.0
Potassium	<290.0
Selenium	<7.3
Silicon	<5.6

(Continued)

TABLE A-3. (Continued)

Boring Number	WS 29
Depth (feet BGS)	Surface
Silver	<0.68
Sodium	70.0
Thallium	<4.9
Vanadium	18.0
Zinc	320.0 S
pH determination	8.1

RAD - Radian Corporation.
 RAS - Radian Analytical Services Laboratory.
 B - Detected in reagent blank.
 J - Detected at less than detection limit.
 S - Determined by Method of Standard Addition.

SOURCE: Radian Corporation, 1989.



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INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3

PRELIMINARY ASSESSMENT FOR PRL S-28
FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991

PREPARED BY:

Radian Corporation
10395 Old Placerville Road
Sacramento, California 95827

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United States Air Force Center for Environmental Excellence
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1.0 INTRODUCTION

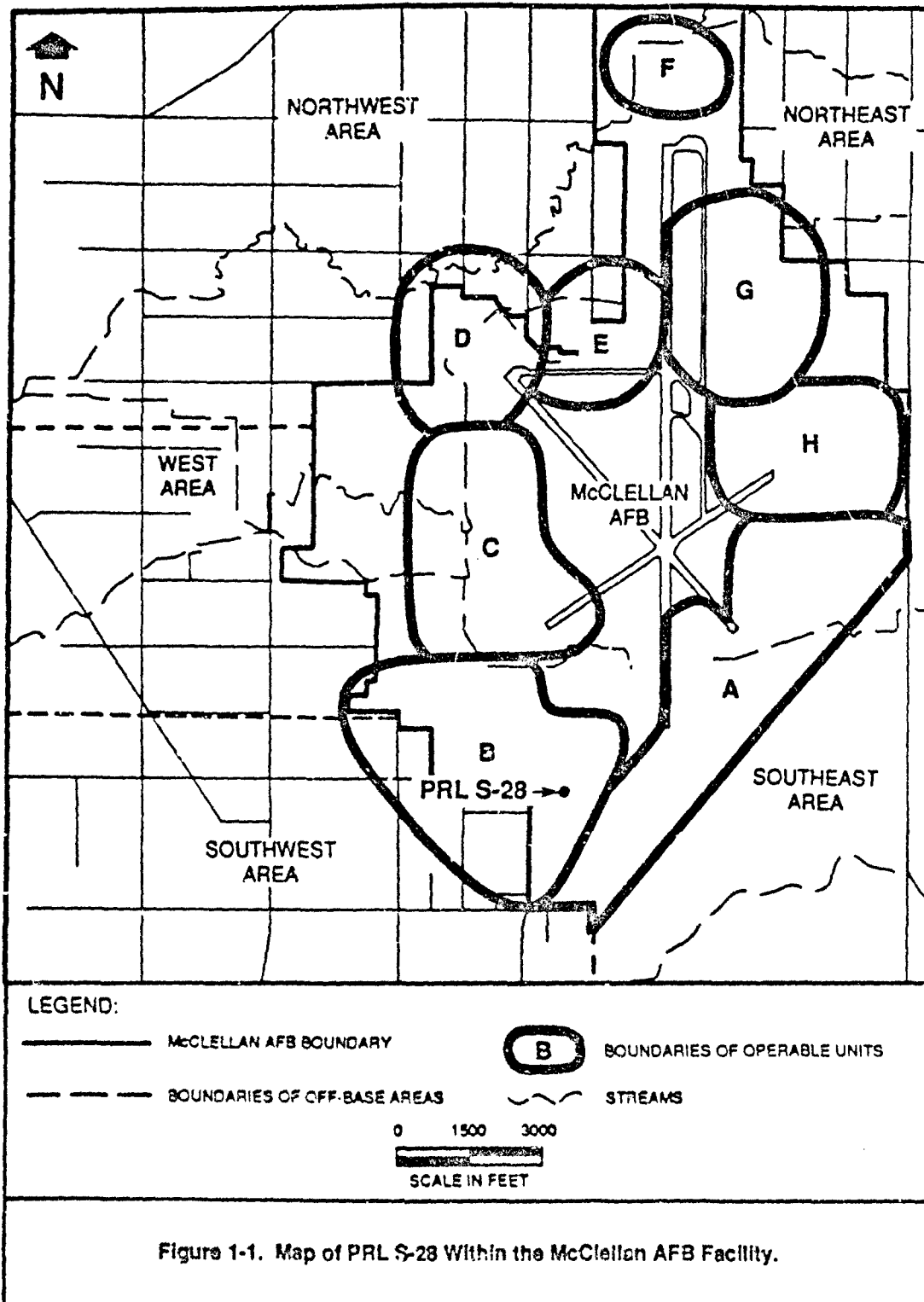
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-28 at McClellan Air Force Base (AFB), California. Potential Release Location S-28 is reportedly the location of a former oil and paint storage area. Figure 1-1 depicts the location of PRL S-28 at McClellan AFB. The compilation of data for this Preliminary Assessment is part of the Remedial Response process of the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following four categories of information:

- Facility operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Facility operations, waste management practices, waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document, which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

The area now designated as Potential Release Location (PRL) S-28 was one of 11 "additional potential sources of contamination" identified by McLaren Environmental Engineering during the course of their Area B investigation (McLaren, 1986, p. 13). The rationale for including PRL S-28 as a source of possible contamination was not documented.

2.2 Personnel Interviews

Personnel interviews regarding hazardous material storage at PRL S-28 have not been conducted at this time. McClellan Air Force Base (AFB) personnel who may be able to provide pertinent site-specific information could not be located.

2.3 Location Visit

Radian personnel visited PRL S-28 on 6 February 1989 to investigate the current status of the location.

2.4 Aerial Photographs

Historical aerial photographs of McClellan AFB were reviewed for physical features and evidence of contamination at PRL S-28. Table 2-1 lists the photographs that were reviewed. Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment. However, no information was available in any of the files for PRL S-28. The base History Office files contained the 1956 Master Plan showing the basic layout plan of McClellan AFB (McClellan AFB, 1956).

TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988) REVIEWED FOR PRL S-28

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) S-28 (shown in Figure 3-1) is located in Operable Unit (OU) B of McClellan Air Force Base (AFB). Potential Release Location S-28 is situated northeast of Building 600, which was completed in 1988. Potential Release Location S-28 was the site of temporary Building 615 and was reportedly used for oil and paint storage (McLaren, 1986). A location map showing PRL S-28 and the surrounding area is presented in Figure 3-2.

Potential Release Location S-29, Site 47, and Site 48 are located approximately 300 feet north of PRL S-28 and will be addressed in separate Preliminary Assessments or Technical Memorandums.

3.1 Location Delineation

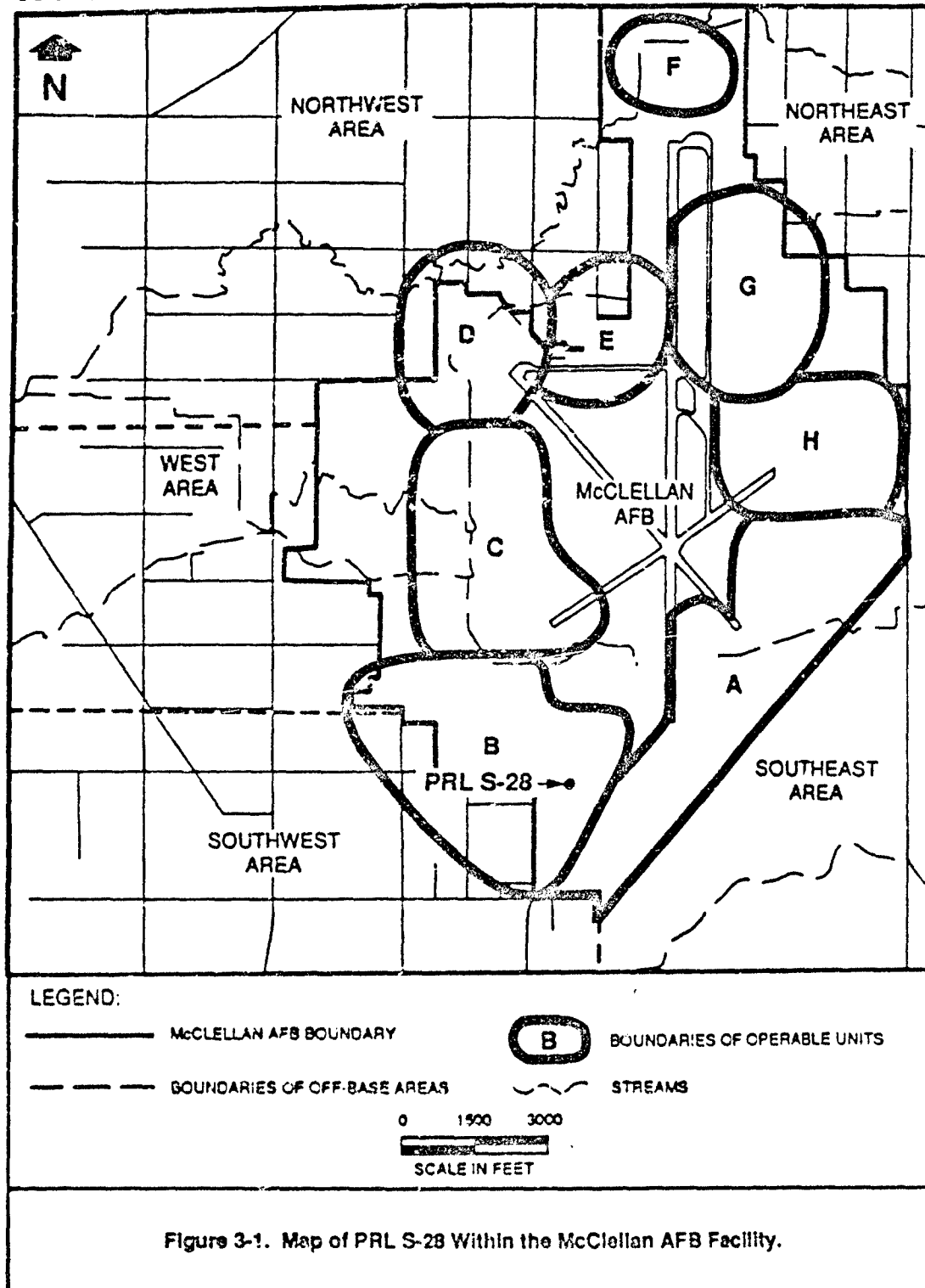
Potential Release Location S-28 was originally delineated by McLaren Environmental Engineering in 1986. Present location boundaries were determined to include temporary Building 615.

3.2 Historical Activities

A review of historical aerial photographs of McClellan AFB indicates the approximate time period during which temporary Building 615 existed. The building is not present in a 1965 aerial photograph. Building 615 is evident in aerial photographs from 1968 to 1987. By 1988, Building 615 is no longer present in the photographs and has been replaced by a parking lot for Building 600. Therefore, based on these photographs Building 615 existed at PRL S-28 from approximately 1968 to 1987.

A review of aerial photographs revealed that another temporary building (T-50) was located southeast of PRL S-28 from approximately 1949 to 1986. The purpose of this building is unknown. Aerial photographs taken between 1949 and 1984 show that materials were stored outside in the vicinity of this building. Aerial photographs show that the area has been paved since 1949.

Outside storage is also evident in the vicinity of Building 615 in 1971 to 1986 aerial photographs.



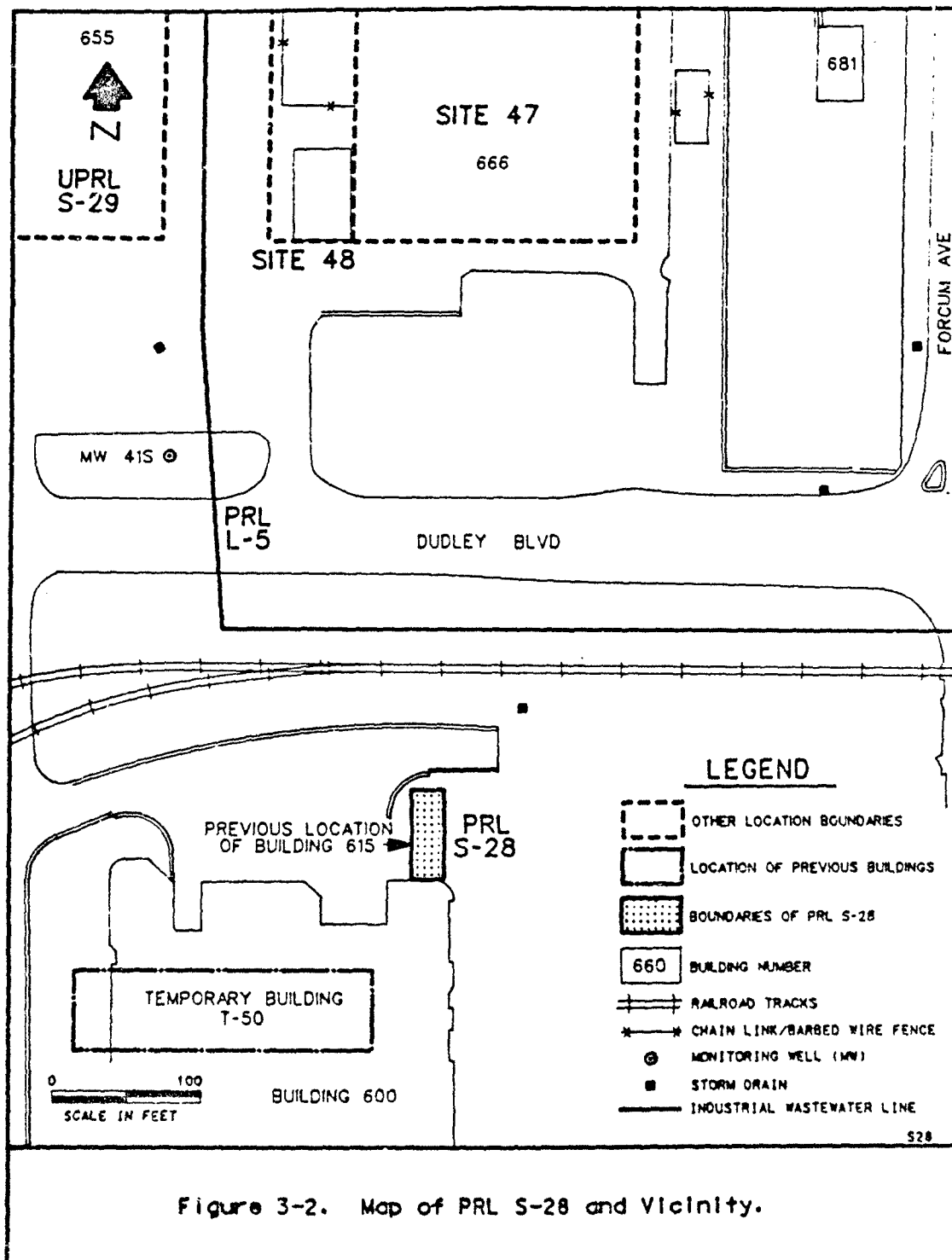


Figure 3-2. Map of PRL S-28 and Vicinity.

Little information is available regarding historical activities at PRL S-28. The location is the historical site of temporary Building 615. Building 615 reportedly was used for oil and paint storage. Persons responsible for operations within this building are unknown. The types and amounts of oils and paints reportedly stored at this building are also unknown.

3.3 Current Activities

Building 615 is no longer present at the location delineated by McLaren. Potential Release Location S-28 is currently a parking lot for Building 600. Building 615 stood on what is now the eastern side of the parking lot, but the asphalt has no depressions or other signs of Building 615. Building 615 was present at PRL S-28 from approximately 1968 to 1987. The 1981 CH2M Hill report lists Building 615 as an oil and paint storage location; therefore, the building was probably in use at that time (CH2M Hill, 1981, p. I-2).

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL S-28.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL S-28.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) S-28.

4.1 Potential Contaminants of Concern

The suspected contaminants of concern at this site are the compounds contained in the oils and paints that were reportedly stored in temporary Building 615. These compounds would include many volatile organic compounds (VOCs), semivolatile organic compounds, and metals which are common constituents of oils and paints. However, substantive information has not been found to confirm the reported storage of these materials at this location.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL S-28. No soil gas measurements have been taken at PRL S-28. The location is completely paved; therefore, the emission of explosive gases from the soil would be reduced.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. Because the ground surface at PRL S-28 is paved, dermal contact is not likely, and the potential for dust or particulate releases from the location is very low. However, exposure risk from potentially contaminated soil may be present to workers involved in any future construction or excavation activities at this location.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL S-28 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the location, and the nature of the contaminants. Site-specific information is limited; however, it is possible to discuss general considerations of contaminant migration at this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are surface water infiltration rate, percolation rate, contaminant characteristics of the area, and permeability of the surface soils. The ground surface at PRL S-28 is paved, which reduces infiltration by intercepting rainfall and promoting runoff before it reaches the soil. Although the soil at PRL S-28 has not been characterized, soils collected from borings drilled at other sites in Operable Unit (OU) B range from clay loams to sandy loams. These characteristics indicate that the infiltration rate at PRL S-28 would be very low.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of the contaminants. No information is available on soil characteristics and no contaminants have been detected at PRL S-28; therefore, the percolation rate of contaminants is unknown. In general, VOCs have a high potential to migrate to the groundwater in areas of infiltration. Semivolatile organic compounds and metals have a low potential to migrate at neutral pH; however, metals have a high potential to migrate at low pH.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration to surface water. The topography of PRL S-28 is essentially flat. Surface runoff from the location enters the base storm drainage system via nearby storm drains. Water entering the drainage system in this area of the base eventually flows into Magpie Creek to the north.

The surface of PRL S-28 is paved which reduces the potential for surface water contacting any contaminated surface soils. Therefore, the potential for transport of contaminants dissolved in surface runoff is considered low. Similarly, the potential for erosion and transport of particulate-borne contaminants is also low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. The surface at PRL S-28 is paved which



limits the ability of volatile contaminants in soils to migrate to the air. Therefore, the potential for migration to air is considered to be very low.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Insufficient historical information was available for a complete Preliminary Assessment of Potential Release Location (PRL) S-28. In particular, more information about historic oil and paint storage is needed. Of particular interest are descriptions of oils, paints, and other chemicals that may have been stored at the location, and the type of flooring in the temporary building. Such information would provide an indication of the potential for discharge of those liquids to the environment. The primary source of information may be any McClellan Air Force Base (AFB) personnel familiar with historical activities at this location. Therefore, it is recommended that personnel who are potential sources of information be identified and interviewed. If those sources of information are not available, a limited soil vapor and soil sampling and analysis program at PRL S-28 is warranted. If soil gas results indicate the need for collection of soil samples, analyses will include volatile and semivolatile organic compounds and metals.

6.0

REFERENCES

CH2M Hill, 1981. "Installation Restoration Program Records Search for McClellan Air Force Base, California, Phase I." Prepared for Air Force Engineering Services Center Directorate of Environmental Planning, Tyndall Air Force Base, Florida.

McClellan Air Force Base, 1956. McClellan Air Force Base History Office Files, 1956 Master Plan. Master Plan Basic Layout Plan, Tab No. C-1, 1 of 22.

McLaren Environmental Engineering, Inc., 1986. "Technical Memorandum for the Shallow Investigation Program in Areas A, B, C, and Other Area Sites, Part III - Technical Memorandum, Area B." Prepared for Department of the Air Force, Sacramento Air Logistics Center, McClellan AFB, California.



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INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3

PRELIMINARY ASSESSMENT FOR PRL S-29
FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991

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1.0 INTRODUCTION

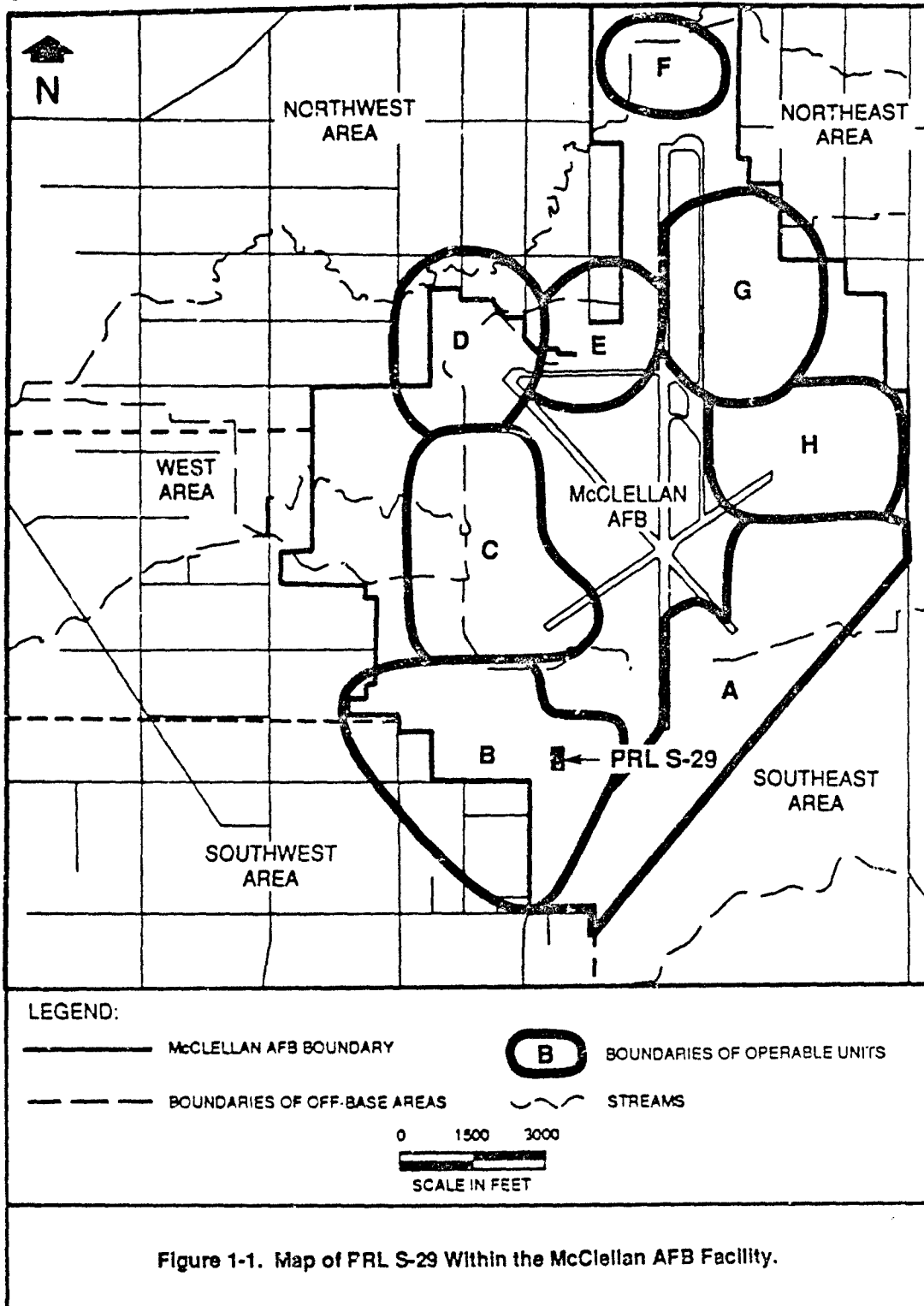
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-29 at McClellan Air Force Base (AFB), California. The location of PRL S-29 is shown in Figure 1-1. Potential Release Location S-29 was reportedly the location of a polychlorinated biphenyl (PCB) storage area within Operable Unit (OU) B of McClellan AFB. The task of compiling data for a Preliminary Assessment is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

The initial investigation identifying the site now designated as Potential Release Location (PRL) S-29 was prepared by CH2M Hill in a 1981 records search of McClellan Air Force Base (AFB) files. The objective of the investigation was to identify hazardous waste disposal sites on base in order to determine the potential for hazardous materials to migrate off the base (CH2M Hill, 1981). During the preparation of this report, past disposal activities, base records, maps, and photographs, were reviewed and employees familiar with base disposal practices were interviewed. The information obtained during the investigation led to the identification of PRL S-29, the site of polychlorinated biphenyl (PCB) storage in Building 655.

In 1988, EG&G Idaho, Inc., examined the Industrial Wastewater Collection System for leaks and analyzed wastewater passing through the wastewater line servicing Building 655 and several adjacent buildings (EG&G Idaho, Inc., 1988).

2.2 Personnel Interviews

Personnel interviews regarding historical activities and waste disposal at PRL S-29 were conducted by Radian in January 1989. Documentation of the interviews can be found in the Location File. Information obtained from the interviews is contained in Section 3, Location Description. Although personnel interviews were apparently conducted as part of the CH2M Hill and McLaren Environmental Engineering, Inc., investigations, documentation for those interviews was not kept.

2.3 Location Visit

Radian personnel visited PRL S-29 on 9 February 1989 for the purpose of investigating the current status of the location.

2.4 Interpretation of Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. Table 2-1 lists the photographs that were reviewed. Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment; however, no information was available for PRL S-29.

TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL S-29

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) S-29 (shown in Figure 3-1) is located in Operable Unit (OU) B of McClellan Air Force Base (AFB). The location consists of Building 655, the site of a radar van repair shop and a polychlorinated biphenyl (PCB) storage area (CH2M Hill, 1981). A location map showing details of the building and the surrounding area is presented in Figure 3-2. Other locations are situated nearby. Potential Release Location (PRL) S-5, PRL S-9, PRL S-30, and PRL S-35 lie to the west and north of PRL S-29 and are shown in Figure 3-2. These locations will be discussed under separate Preliminary Assessments.

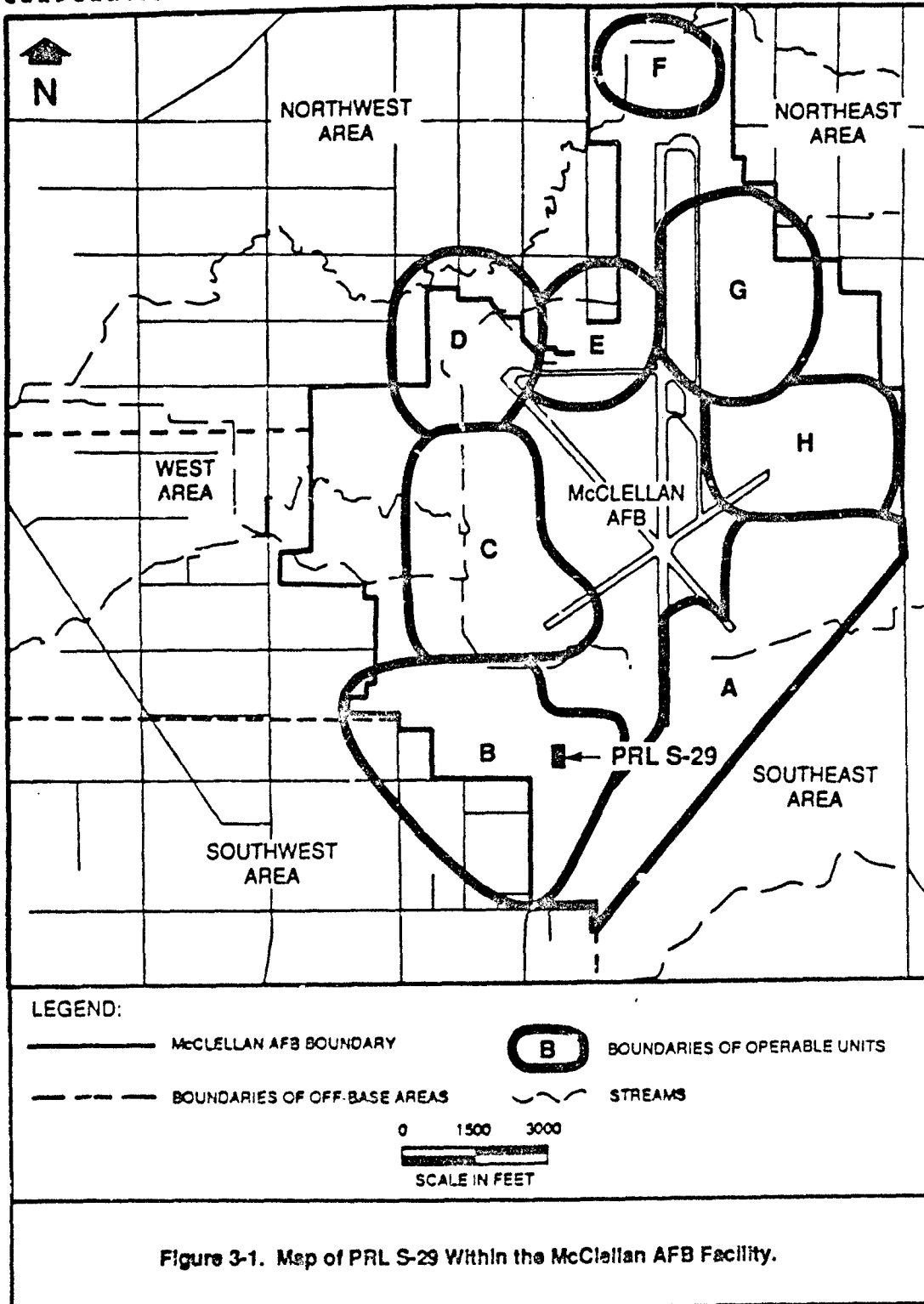
3.1 Location Delineation

CH2M Hill first identified the location now designated PRL S-29 in their Phase I Records Search report as a painting and maintenance shop (CH2M Hill, 1981). McLaren Environmental Engineering, Inc., identified this location as PRL S-29 during their investigation of Area B (McLaren, 1986). Detailed rationale for including this location as a source of possible contamination was not documented. However, this site was identified by McLaren because it was designed as a PCB storage area (McLaren, 1986).

3.2 Historical Activities

Several operations have been housed in Building 655 (CH2M Hill, 1981). These included fuel tank servicing, radar van repair, painting booths, and PCB storage (CH2M Hill, 1981). No information was available that described when the operations were performed or where they were located in Building 655. The fuel tanker servicing operation generated waste oil and contaminated fuel which was sent to the Facility 346 A-B Oil Skimmer Tank (CH2M Hill, 1981). A small amount of fuel was washed down a drain to the Industrial Wastewater Line that led to the Industrial Wastewater Treatment Plant. The radar van repair shop was reported to have a transformer and semiconductor device containing about 70 gallons of PCB.

Dirty oil was stored in Building 655 in a 1,300-gallon bowser which was shared with Smith Engineering, an operation and maintenance contractor. The bowser was periodically emptied by Civil Engineering at the Facility 346 A-B Oil Skimmer/Storage Tank.



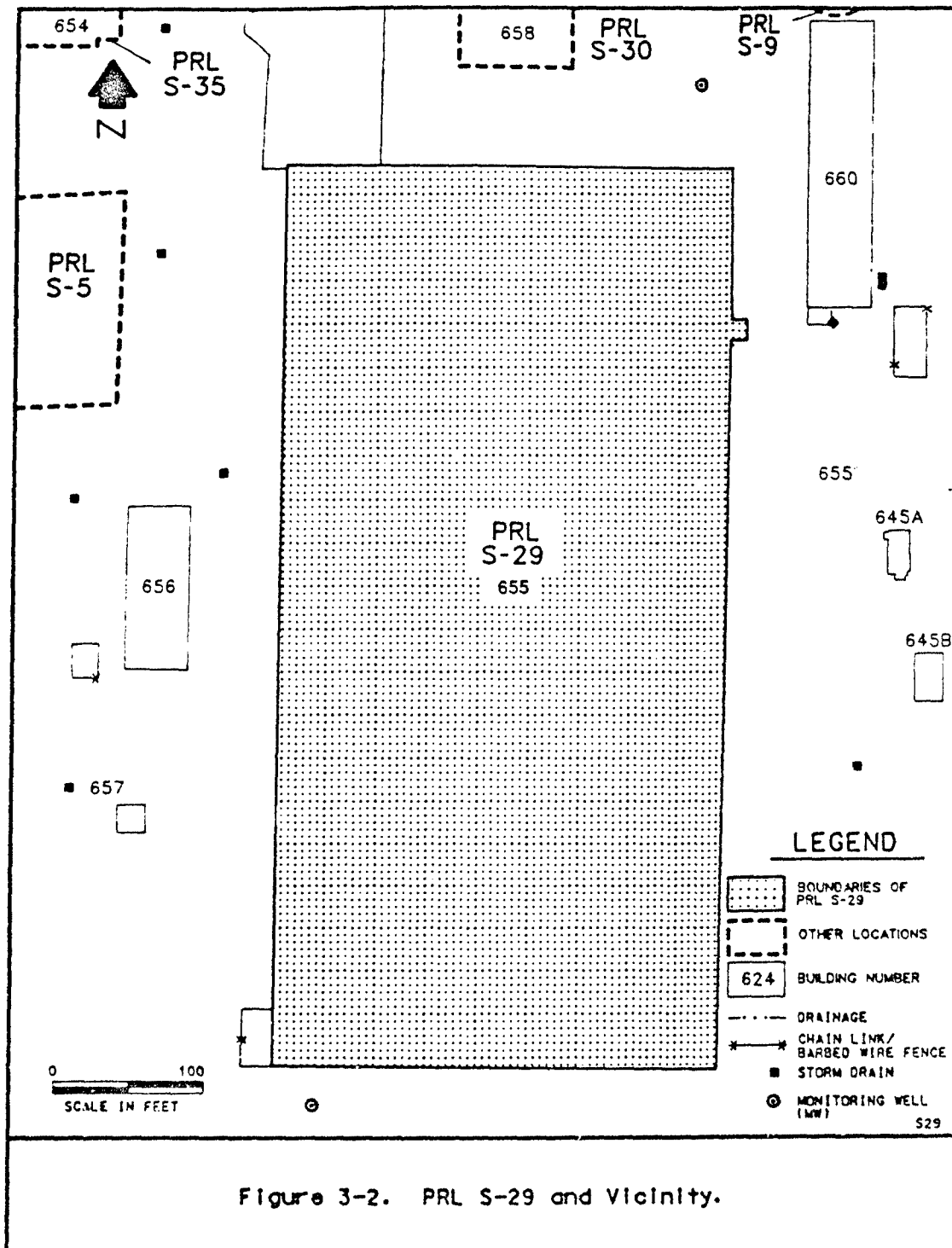


Figure 3-2. PRL S-29 and Vicinity.

Painting of vehicles and aircraft parts was reported to have been performed in Building 655. Waste paint and solvents were put in containers and sent to the hazardous waste storage Facility 1086 to await proper contractor disposal.

3.3 Current Activities

The EG&G Idaho, Inc., 1988 report and personnel interviews performed by Radian in January 1989 are the sources of information about ongoing activities in Building 655. Current operations in Building 655 include a paint shop for vans and the cleaning and repair activities of electronic components (Dupray, personal communication, 1989; Garvine, personal communication, 1989). Three paint booths generate water-based and enamel paint wastes. Isopropyl alcohol is used in the cleaning and washdown of electronic components. Other wastes are generated from the domestic cleaning of floor surfaces with mop and bucket using a Soap System 1000 product.

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL S-29.

3.5 Remedial Actions

No known remedial actions are known to have occurred at PRL S-29.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) S-29.

4.1 Potential Contaminants of Concern

The contaminants of concern at PRL S-29 are the volatile organic compounds (VOCs), semivolatile organic compounds, and polychlorinated biphenyls (PCBs) known to have been used or stored at this location.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL S-29. The potential for fire and explosion is unknown because the soil gas and emissions from the location have not been characterized. However, none of the available information suggests there are immediate hazards at PRL S-29.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. Most of PRL S-29 is covered with the foundation of Building 655 which prevents contact with any contaminated soil.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL S-29 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the

percolation rate of the soil, and contaminant characteristics. Most of PRL S-29 is covered with the roof and concrete foundation of Building 655, which minimizes the amount of infiltrating surface water. Potential sources of percolating water at this location may include any leaking drains or underground piping connected to the Industrial Wastewater Line.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of the contaminants. Although permeability data on the soil at PRL S-29 are not available, basewide boring information reveals that soils generally range from sandy loams to clay loams and any relatively impermeable layers are not continuous and not effective barriers to percolation. Therefore, the percolation rate for this location is potentially low to moderate.

The contaminants of concern at PRL S-29 are VOCs, semivolatile organic compounds, and PCBs. In general, VOCs have a relatively high potential for dissolving into water and being carried with the flow of percolating water. Semivolatile compounds and PCBs are generally much more likely to remain in surface soil and not migrate with percolating water. However, as other organic compounds dissolve in water, any semivolatile compounds may also dissolve more readily due to the solvent properties of other organics.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. Since PRL S-29 is covered with the foundation and roof of Building 655, the potential for migration of contaminants to surface water is very low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. Vapor pressure is a relative measure of the volatility of a chemical in its pure state and is an important determinant of the rate of vaporization from soils and solid waste sites. Any VOCs present in exposed surface and near-surface soils are likely to migrate to the air.

The surface flux (concentration of organic compounds entering the air from the soil in a unit time) is dependent upon soil permeability, soil moisture, depth of

contaminants, concentration of contaminants in the soil gas, and other physical soil properties that have not been quantified. Because the most of the site is covered with Building 655, the surface flux of volatile contaminants is probably low.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Limited historical information was available for the preparation of this Preliminary Assessment. In particular, more information is needed describing possible hazardous waste activities at Potential Release Location (PRL) S-29. The primary source of information would be base personnel that may be familiar with historical operations performed within Building 655. Therefore, an attempt should be made to identify additional sources of information and that to conduct personnel interviews. With or without additional historical information on activities in the building, the potential for discharge of fluids from floor drains and subsurface piping should be evaluated. The drains and piping leading to the Industrial Wastewater Line (IWL) are perhaps the only pathway of contaminant migration from the building, and that pathway may have caused groundwater contamination.

Appropriate methods to test the floor drains and piping should be identified and implemented. If no leaks are apparent, no further action may be required at PRL S-29.

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CH2M Hill, 1981. "Installation Restoration Program, Phase I Record Search for McClellan Air Force Base, California." Prepared for Air Force Engineering Services Center, Directorate of Environmental Planning, Tyndall Air Force Base, Florida.

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INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3

PRELIMINARY ASSESSMENT FOR PRL S-30
FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991

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1.0 INTRODUCTION

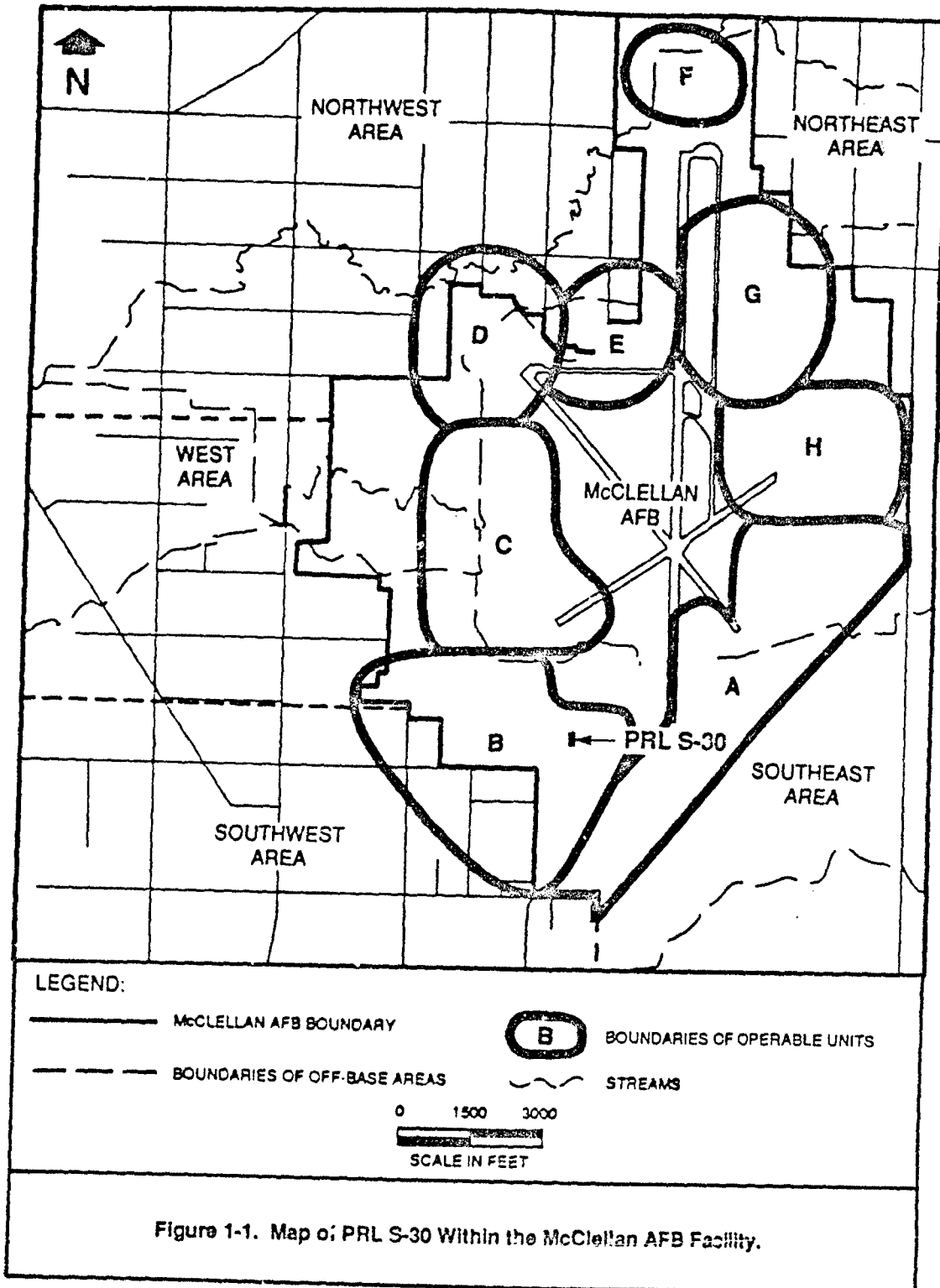
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-30 at McClellan Air Force Base (AFB), California. Potential Release Location S-30 is the location of a paint stripping washrack at Building 658. The location of PRL S-30 within McClellan AFB is shown in Figure 1-1. The compilation of data for this Preliminary Assessment is part of the Remedial Response process of the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill locations on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the PRL location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this assessment includes site-specific data regarding the following four categories of information:

- Facility operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Facility operations, waste management practices, and waste characteristics are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1981, CH2M Hill conducted a records search of McClellan Air Force Base (AFB) files to identify hazardous waste disposal sites on base and to determine the potential for hazardous materials to migrate off base (CH2M Hill, 1981). Interviews with past and present employees were also conducted. One of the disposal sites identified, now designated Potential Release Location (PRL) S-30, was Building 658, which housed a paint stripping and equipment cleaning washrack that generated large amounts of caustic and phenolic wastes.

In 1988, EG&G Idaho, Inc. examined the Industrial Wastewater Line (IWL) in the vicinity of Building 658 for leaks and analyzed wastewater samples (EG&G Idaho, Inc., 1988, IR No. 037).

2.2 Personnel Interviews

Radian conducted interviews on 8 January 1989 and 8 March 1989 with base personnel familiar with the washrack operations at Building 658 during the 1980s. Information from the interviews is included in Section 3, Location Description. Documentation of the interviews can be found in the PRL S-30 Location File. No personnel familiar with the historical operations of Building 658 during the 1950s, 1960s, and early 1970s could be identified.

2.3 Location Visits

Potential Release Location S-30 was visited by Radian personnel on 8 January 1989 to document current conditions at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. Table 2-1 lists the photographs that were reviewed. Interpretation of aerial photographs is discussed in detail in Section 3, Location Description.

TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL S-30

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
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1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
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1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment. A 1974 construction drawing showing the floor plan of Building 658 was obtained from the Civil Engineering files (McClellan AFB, 1974). Several 1984 construction drawings outlining the renovation of Building 658 were also found in the Civil Engineering files (McClellan AFB, 1984). Industrial hygiene inspection reports describing the operations performed in Building 658 between 1972 and 1976 were obtained from Bioenvironmental Engineering files (McClellan AFB, 1972-1976).

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) S-30 is located within Operable Unit (OU) B of McClellan Air Force Base (AFB), as shown in Figure 3-1. The location consists of Building 658, the paint stripping washrack located north of Building 655. A location map showing PRL S-30 and the surrounding area is shown in Figure 3-2. Potential Release Location S-35, PRL S-5, PRL P-9, and PRL S-29 are also located in the general area of PRL S-30 and will be discussed in separate Preliminary Assessments.

3.1 Location Delineation

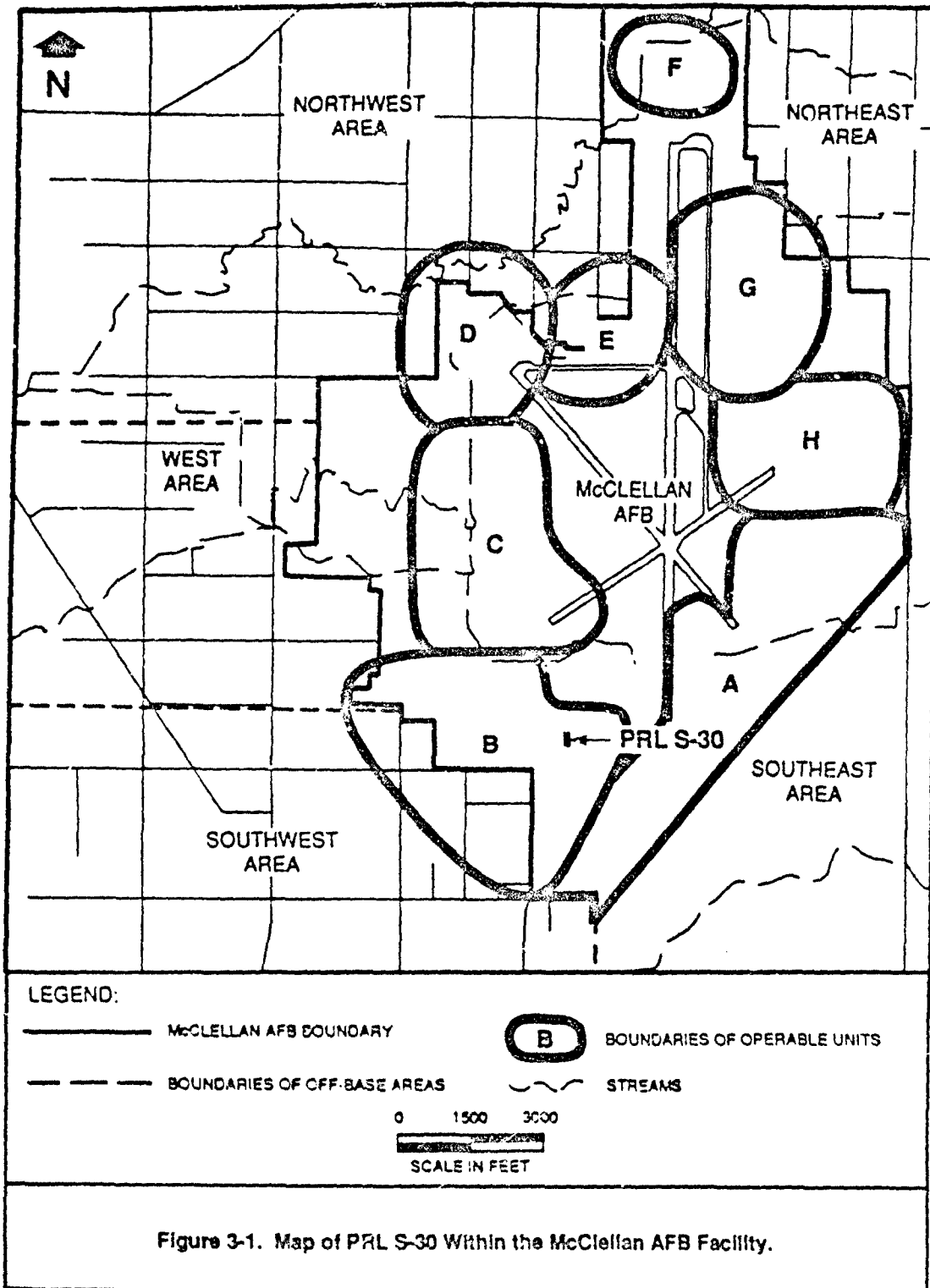
In 1981, CH2M Hill identified the locations of paint stripping operations throughout McClellan AFB. Building 658 was identified as a paint stripping operation that generated large amounts of caustic and phenolic wastes (CH2M Hill, 1981, p. II-43).

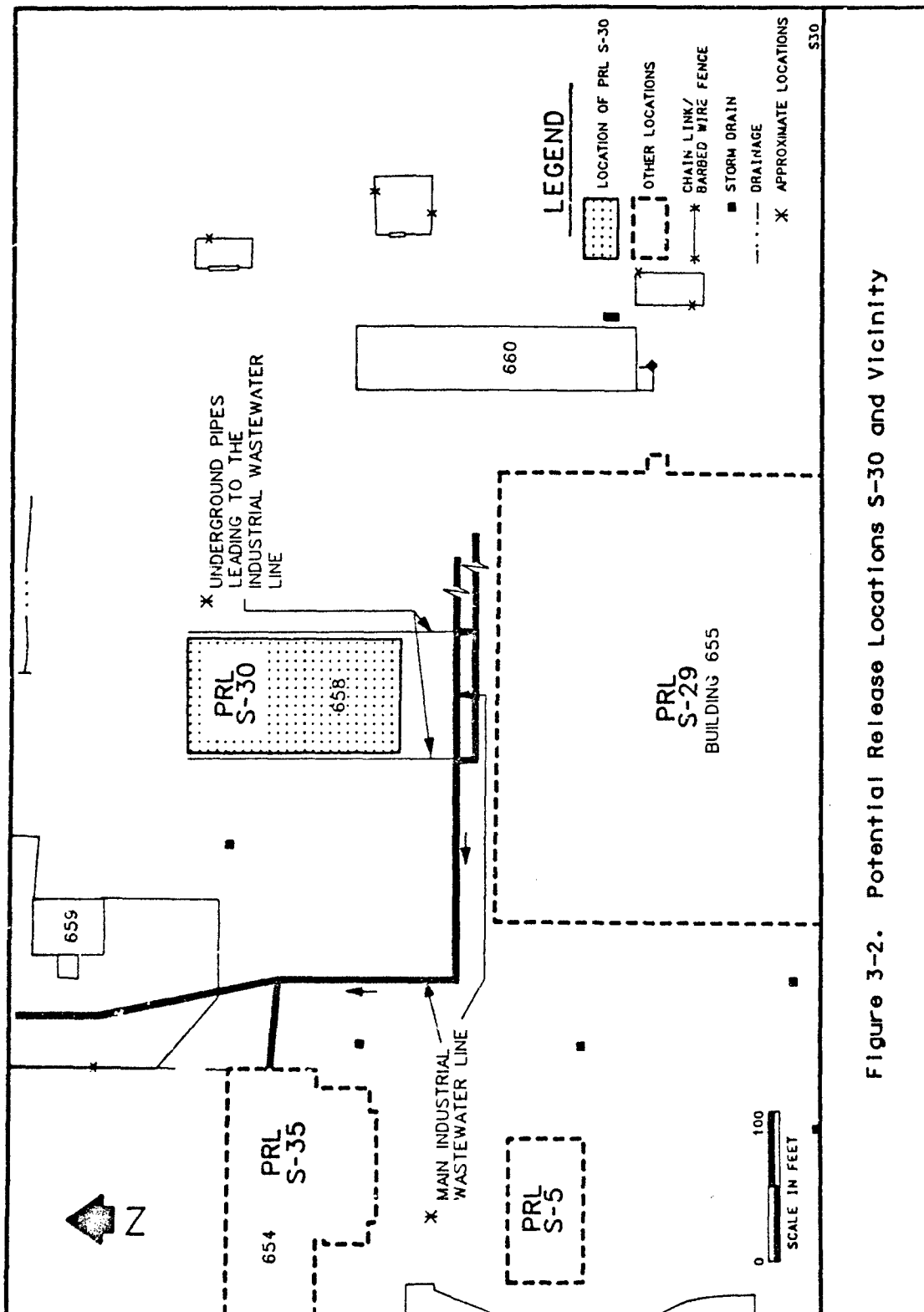
In 1986, McLaren Environmental Engineering identified 11 "additional potential sites" in Area B. McLaren identified Building 658 as site S-30 (now designated as PRL S-30), citing CH2M Hill's report as documentation (McLaren, 1986, p.14).

3.2 Historical Operations

A review of historical aerial photographs indicated that no activity occurred at PRL S-30 until 1946. Aerial photographs taken in the period between approximately 1946 and 1949 indicate that airplanes and what appear to be tractor-trailer trucks were parked across the site. In a 1951 photograph, the planes and trucks are no longer visible, and no other activity at the location is evident in aerial photographs until the construction of Building 658.

Aerial photographs indicate Building 658 was constructed between 1951 and 1953. The facility is approximately 75 feet wide and 150 feet long. The floor of the building consists of a cement pad that contains a network of floor drains. The building is not enclosed by walls, and the roof is supported by columns. Limited information is available concerning the operations performed in Building 658 during the 1950s and 1960s. The building may have been used as a truck wash area during the 1950s (Enix, personal communication, 1989). Low-level radioactive materials used to calibrate radioactive sensing equipment were stored in Building 658 until 1968 (CH2M Hill, 1981, p. II-26).





Industrial hygiene inspection reports, obtained from Bioenvironmental Engineering files, describe the operations performed in Building 658 between 1972 and 1976. The washrack operations included solvent and steam cleaning of parts, as well as removing paint from parts. A list of chemicals used in the washrack is given in Table 3-1. Two hot paint stripping tanks containing butyl cellosolve, and three other paint remover tanks were used in the washrack. Details of the washrack operations before 1972 and in the late 1970s were not documented.

A 1973 Bioenvironmental Engineering sketch of Building 658 indicated that a 4500-gallon paint stripping solvent storage tank and several 180-gallon portable solvent tanks were located along the east edge of the washrack. The northwest corner of the building was enclosed and was "used by other organizations, chiefly the tank cleaning and sheet metal shops" (McClellan AFB 1973, Bioenvironmental Engineering).

A 1974 Civil Engineering construction drawing of Building 658 outlines the floor plan of the washrack (McClellan AFB, 1974, Civil Engineering Drawing No. SMBE-S-4715). The floor contains 44 floor drains spaced approximately 15 feet apart. Two parallel trench drains run down the center of the washrack. Pipes transport wastes from each of the 44 floor drains to the two center trenches. At the north end of the center trenches is a sump pit. The drawing also shows nine "hoist pits" that were to be removed and a hydrosieve that was to be installed.

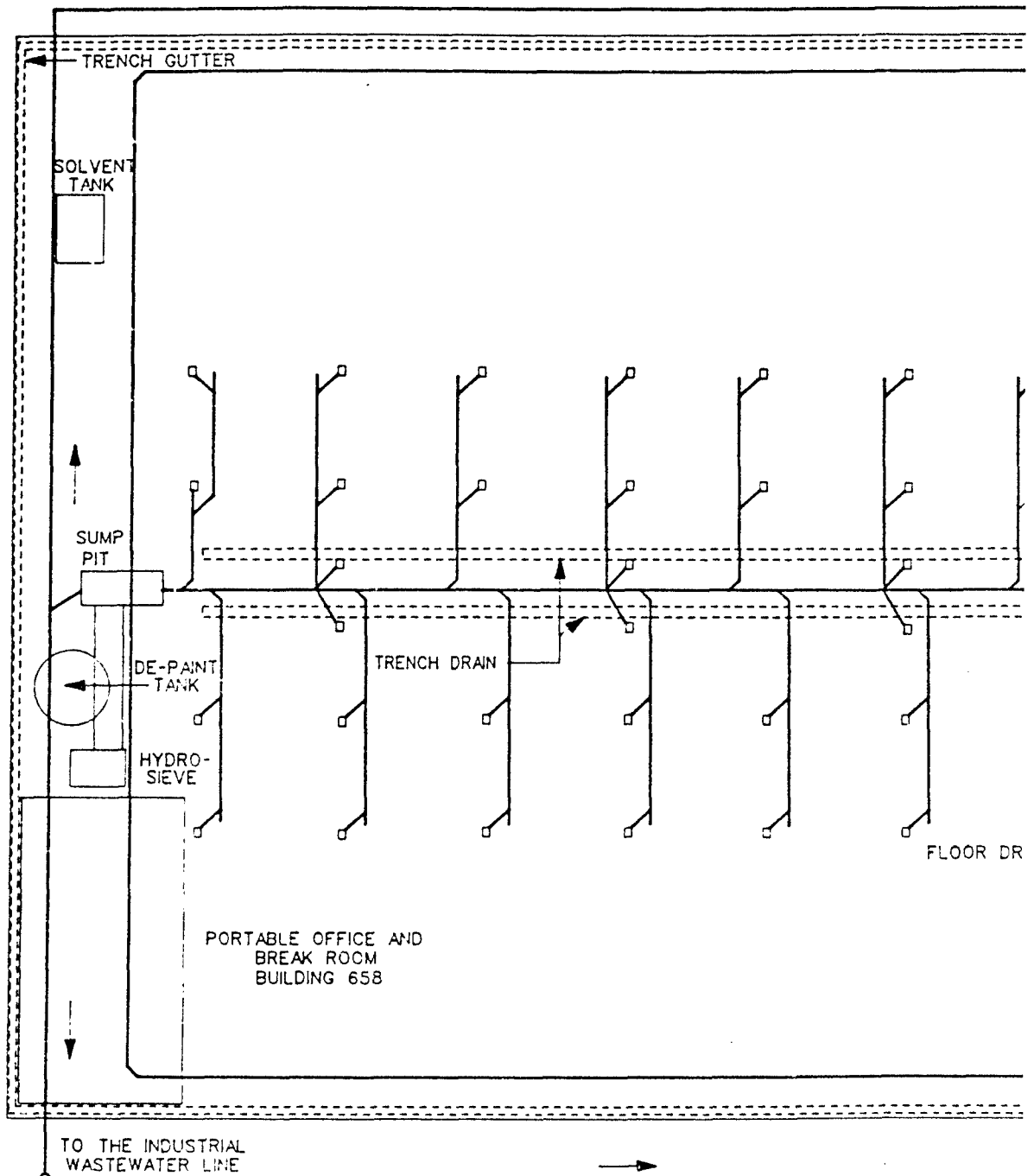
Information about the washrack operations and renovation during the 1980s was obtained from Civil Engineering drawings and interviews with personnel familiar with the site (McClellan AFB, Civil Engineering Files; Sperling, personal communication, 1989; Enix, personal communication, 1989). The floor plan of the washrack (prior to its renovation between 1986 and 1988) was obtained from a 1984 Civil Engineering drawing and is reproduced in Figure 3-3 (McClellan AFB, 1984, Civil Engineering, Drawing No. SMBE-S-6079). The southwest corner of the building was enclosed and used to store barrels of solvent and paint stripping solutions. The northwest corner was used for a portable office and break room. The remainder of the area was open and used for the cleaning and paint stripping operations.

Paint chips and other wastes that collected in the sump pit at the north end of the washrack (see Figure 3-3) were cleaned out weekly. This waste was transferred to containers and sent to the base Defense Reutilization and Marketing Offices (DRMO). The solution in the paint stripping dip tanks was also transferred to containers and disposed of off site (Sperling, personal communication, 1989).

TABLE 3-1. LIST OF CHEMICALS USED IN BUILDING 658 (1972-1976)

Perchloroethylene
Dichromate
Hydrofluoric acid
Butyl cellosolve
Methylene chloride
Methanol
Toluene
Ethyl acetate
Methyl ethyl ketone
Isopropyl alcohol
Ammonia

SOURCE: McClellan AFB Bioenvironmental Engineering Inspection Report, 1972-1976.



15.5
SCALE IN FEET
APPROXIMATE

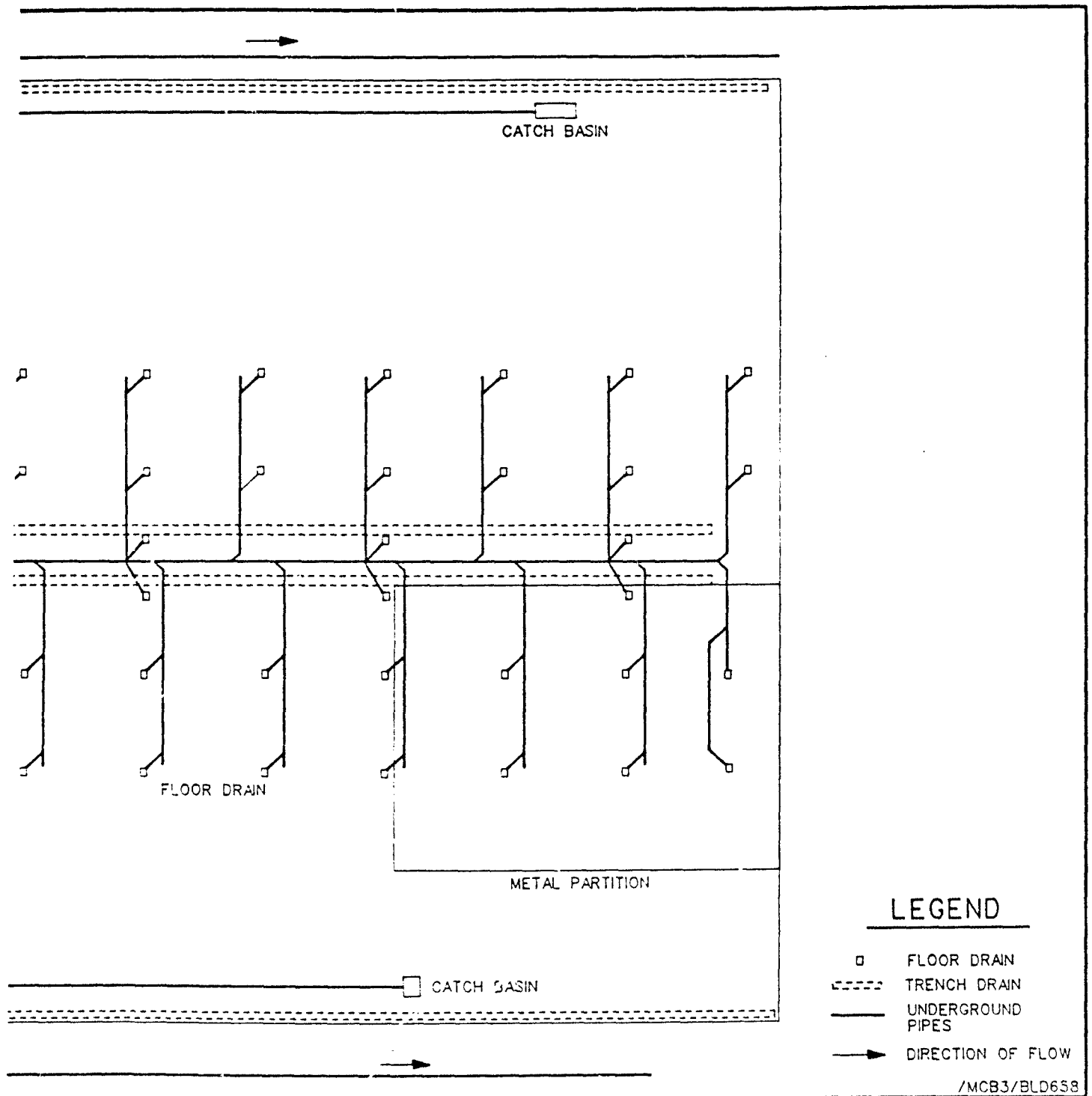


Figure 3-3. Floor Plan of Building 658.

The 1984 Civil Engineering drawing shows a trench drain that runs along the north, east, and west perimeter of the washrack floor (see Figure 3-3) to prevent any liquid wastes from flowing beyond the cement pad. This trench drain is connected to the Industrial Wastewater Line (IWL). With the exception of this trench drain, the layout of the washrack drains and underground piping is essentially the same in both the 1974 and 1984 Civil Engineering drawings. The trench drain is shown in the 1984 Civil Engineering drawing, but not in the 1974 Civil Engineering drawing; it is unknown when the trench drain was installed.

Between approximately 1986 and 1988, Building 658 was renovated. The concrete washrack floor was repaved and the enclosed area of the washrack was expanded to include approximately half of the washrack area. There is no available information about stains on the old floor or if it was removed before the new floor was constructed. The paint stripping storage and solvent storage tanks were replaced with new tanks. Eight work stations--including air, steam, paint stripping, and water--were installed. The existing drain system was left essentially intact (although at least 10 floor drains were plugged) and the existing drain lines were cleaned with high-pressure water. A new hydrosieve was connected to the sump pit to remove heavy particulate matter (McClellan AFB, 1984, Civil Engineering, Drawing No. S-MBE-S-6079).

The sump pit on the north side of the washrack (see Figure 3-3) is currently connected to the IWL and liquid wastes collected in the washrack eventually discharge to it (Sperling, personal communication, 1989). Wastewater is not treated prior to discharge into the IWL. At the sump pit, solid material (e.g., paint chips) are collected and shoveled into 55-gallon drums. It is unknown when Building 658 was connected to the IWL. The integrity of the underground pipes connecting Building 658 to the main IWL (see Figure 3-2) has not been determined. However, the section of the main IWL that carries waste away from Building 658 (see Figure 3-2) was investigated by EG&G Idaho in 1988 and found to contain a number of leaks. While EG&G Idaho repaired most of the leaks in situ, some could not be repaired (EG&G Idaho, Inc., 1988).

3.3 Current Activities

The enclosed area of Building 658 is currently used as a media blast paint stripping area. In the open area, six spray wands are used for cleaning and stripping parts. A hot paint stripping tank is also still in use. Table 3-2 lists the chemicals currently used at PRL S-30. The present washrack layout matches the Civil Engineering

TABLE 3-2. SUMMARY OF CHEMICALS CURRENTLY USED AT PRL S-30

Alkaline soap
Ammonia
B & B 1567A
Chromic acid
Coating conversion chromate
Cresol
Ethanolamine
Ethyl alcohol
HT 2230/strippers
Methyl alcohol
Methylene chloride
Methyl ethyl ketone
Phenol
Phenolic paint remover
Phosphoric acid
PR 3400
PR 3500
Sodium chromate
Stoddard solvent (PD 680)
Turco 6453

SOURCE: McClellan AFB, Enix, personal files, 1989.



drawings that outlined the 1986 renovation of the site (Civil Engineering, 1984). The floor of the washrack, as well as the area surrounding the washrack, is covered with concrete. A separate trench drain located approximately 40 feet from the washrack surrounds Building 658 on all four sides. This trench drain collects surface water runoff which discharges to the base storm drainage system (Sperling, personal communication, 1989).

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) S-30.

4.1 Potential Contaminants of Concern

Substances used in stripping and cleaning operations, and present in the wastewater generated at the Building 658 washrack, are the suspected contaminants of concern in the soils at PRL S-30. These substances would include a variety of volatile organic compounds (VOCs), semivolatile organic compounds, and metals which may be components of compounds used or wastes generated in washrack operations.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action at PRL S-30. The soil gas at PRL S-30 has not been characterized; therefore, the potential for fire and explosion due to any contaminated soil cannot be evaluated. Potential hazards to worker health and safety include inhalation, ingestion, or dermal contact of washrack wastewater or any contaminated near-surface soil. Because the ground surface at PRL S-30 is paved, dermal contact with contaminated soil is not likely, and the potential for dust or particulate releases from the location is very low. However, exposure risk from potentially contaminated soil may be present to workers involved in any future construction or excavation activities at this location, especially around washrack trenches, catch basins, and underground piping.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL S-30 to groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Site-specific information is limited; however, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are surface water infiltration rate, percolation rate, and contaminant characteristics. The infiltration rate for soil is primarily determined by the permeability of the soil and the surface characteristics of the area. No soil permeability data have been collected at PRL S-30. The concrete floor of the washrack at PRL S-30 should be an effective barrier to infiltration of wastewater to the soil directly below the washrack. However, if any of the drains, sumps, catch basins, or underground piping at the location have leaked, the potential exists for wastewater to infiltrate into soils and migrate to groundwater.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of contaminants. Although no site-specific data are available on the soil at PRL S-30, basewide boring information indicates that any relatively impermeable layers that may be present are not continuous and not effective barriers to percolation.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration to surface water. The topography at PRL S-30 is essentially flat. Surface runoff from the location enters the base storm drainage system via a trench drain located approximately 40 feet from the washrack on all four sides. Storm water drainage entering the trench drain system around Building 658 eventually flows into Magpie Creek to the north.

The surface of PRL S-30 is paved, which reduces the potential for surface water contacting any contaminated surface soils; therefore, the potential for transport of contaminants dissolved in surface runoff is considered low. Similarly, the potential for erosion and transport of particulate-borne contaminants is also low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. The surface at PRL S-30 is paved which

limits the ability of volatile contaminants in soils to migrate to the air; therefore, the potential for migration to air is considered to be very low.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Limited historical information is available concerning the operations of Potential Release Location (PRL) S-30 (Building 658), particularly during the 1950s and 1960s. Historical information regarding the washrack operations during the 1970s and 1980s was available from personnel interviews and from Bioenvironmental Engineering inspection reports.

During the 1970s and 1980s, Building 658 was used as the washrack for removing paint from parts and equipment. Equipment to be cleaned or stripped of paint was either dipped in paint stripping tanks or sprayed with paint-removing solution. The waste generated in these operations was collected in a system of floor drains that were connected to two trenches running down the center of the washrack. A drain along the perimeter of the site prevented liquid wastes from flowing past the edge of the washrack's concrete pad. All wastes collected in the drains and trenches were discharged to the Industrial Wastewater Line (IWL). Chemical paint stripping operations are still performed in Building 658; however, approximately half of the washrack is now enclosed and used for media blast paint removal.

The potential impacts of historical discharges of any contaminants at the location cannot be completely evaluated until the location is better characterized. The investigation of the IWL has indicated leakage to the soils, and the potential exists that drains, trenches, and piping beneath the washrack may also have discharged liquids. An investigation of PRL S-30 is recommended to determine the presence or absence of contamination in soils that has the potential to migrate to groundwater. The principal areas of concern are the soils beneath and adjacent to the underground piping, catch basins, sump pit, and wastewater pipes leading from Building 658. Radian recommends that the integrity of the trenches, catch basins, sump pit, and underground piping leading to trenches and to the IWL be checked and repaired, if necessary. If the pipes are found to be leaking, then a soil investigation should be conducted to determine the presence of contaminants.

6.0

REFERENCES

CH2M Hill, 1981. "Installation Restoration Program, Phase I Record Search for McClellan Air Force Base, California." Prepared for Air Force Engineering and Services Center Directorate of Environmental Planning, Tyndall Air Force Base, Florida.

EG&G Idaho, Inc., 1988. "Appendix 3-E, IR No. 037, McClellan Air Force Base Industrial Wastewater Collection System Characterization Report." Prepared for McClellan Air Force Base, Sacramento, California. May 1988.

Enix, H., personal communication. Personal communication with Harlan Enix, Building 658 Washrack Employee, McClellan AFB, 8 January 1989.

Enix, H., Building 658 Washrack Employee, McClellan AFB. Personal Files, Hazardous Chemicals List.

McClellan AFB, 1972-1976, Bioenvironmental Engineering. Industrial Hygiene Inspection Reports, McClellan AFB, Directorate of Environmental.

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McClellan AFB, 1984, Civil Engineering. McClellan AFB Drawing No. SMBE-S-6079, 9 of 16; Building 658.

McLaren Environmental Engineering, April 1986. "Report on Contamination in Area B, McClellan Air Force Base, Sacramento, California." Prepared for the Department of the Air Force, Sacramento Air Logistics Center, McClellan Air Force Base, Sacramento, California.

Sperling, D., personal communication, 1989. Personal communication with Don Sperling, MAB Safety Coordinator, MABER, McClellan AFB, 8 March 1989.



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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL S-33
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

**Radian Corporation
10395 Old Placerville Road
Sacramento, California 95827**

**USAF CONTRACT NO. F33615-87-D-4023, DELIVERY ORDER NO. 0012
CONTRACTOR CONTRACT NO. 227-005, DELIVERY ORDER NO. 0012**

**United States Air Force Center for Environmental Excellence
Mr. Patrick Haas (Technical Project Manager)
Environmental Services Office/Environmental Restoration Division (AFCEE/ESR)
Brooks Air Force Base, Texas 78235-5501**

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1.0 INTRODUCTION

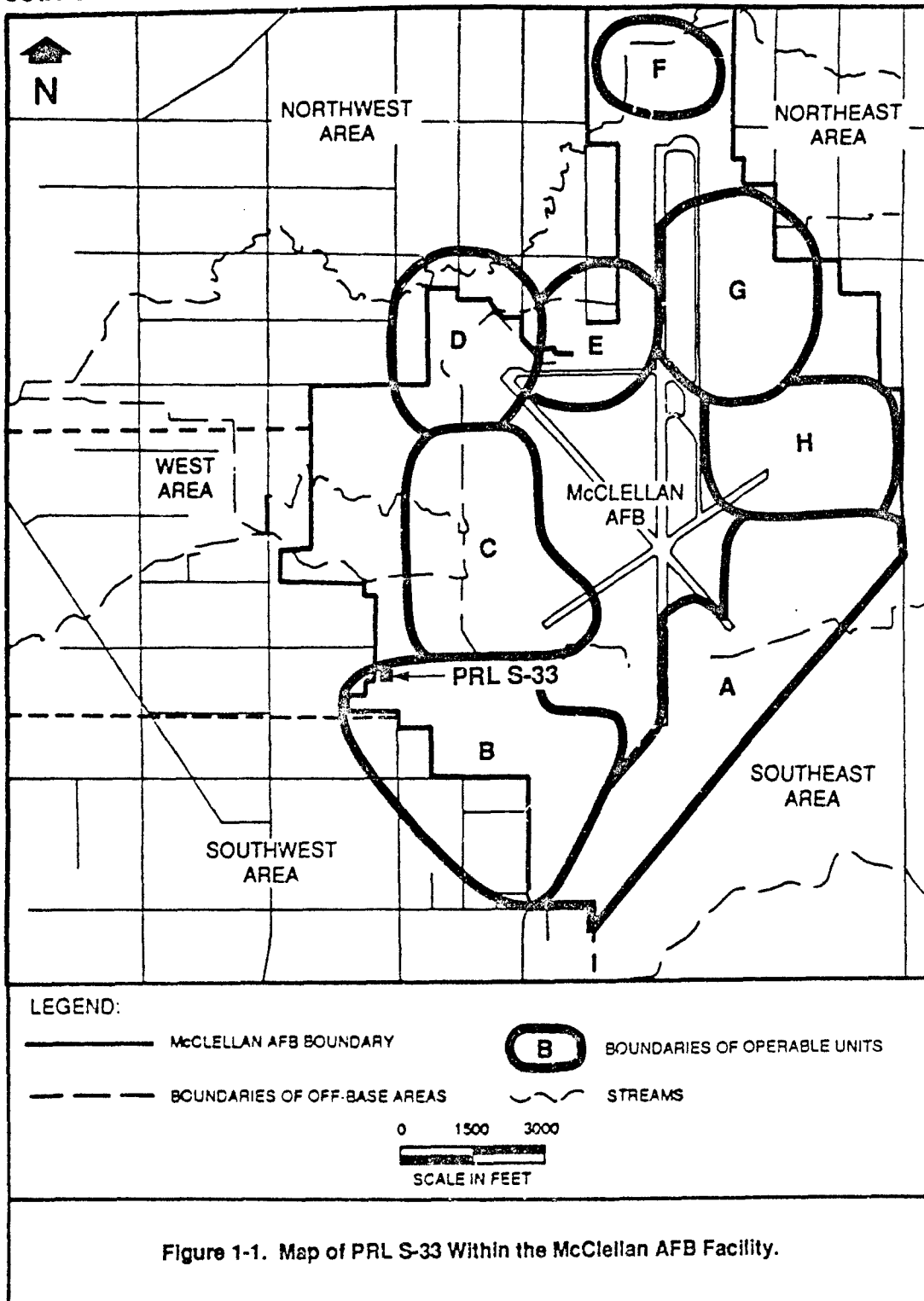
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-33 at McClellan Air Force Base (AFB), California. Figure 1-1 depicts the location of PRL S-33 at McClellan AFB. Potential Release Location S-33 was reportedly the historical location of a chemical and chemical waste storage facility at Building 786A. The compilation of data for this Preliminary Assessment is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
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- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following four categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.





Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document, which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1981, CH2M Hill identified the industrial activities at Building 786A as "Hazardous Material Storage" (CH2M Hill, 1981, p. I-3). In 1986, McLaren Environmental Engineering, Inc., designated Building 786A as one of 19 "Potential New Sites in Other Areas" (McLaren, 1986a, p. 51). McLaren listed potential chemicals of concern for the location as solvents and other chemicals (McLaren, 1986b, p. 12). McLaren's rationale for including the area of Potential Release Location (PRL) S-33 as a source of possible contamination was apparently based on CH2M Hill's 1981 Phase I Report (McLaren, 1986a, p. 51). McClellan Air Force Base (AFB) subsequently added S-33 to a list of Potential Release Locations (PRLs).

2.2 Personnel Interviews

Personnel interviews regarding hazardous material storage at PRL S-33 were conducted by Radian on 8 February, 28 April, and 20 July 1989. Information obtained from personnel interviews is included in Section 3, Location Description. Documentation of these interviews can be found in the PRL S-33 Location File.

2.3 Location Visit

Radian personnel visited PRL S-33 on 28 April 1989 for the purpose of investigating the current conditions and activities of the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. Table 2-1 lists the photographs that were reviewed. Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL S-33

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
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1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment. Three construction drawings were found in the Base Civil Engineering (CE) files (As built, Special A.M.C. Warehouse Floor 45" Above Track 400' x 2000' elevations [6 May 1955]: Drawing No. 33-02-31, File No. 100-25-1148, Sheet 9 of 55; As-built, Special A.M.C. Warehouse Floor 45" Above Track 400' x 2000', Foundation Plan Stock Rms. A, B, & C. [6 May 1955]: Drawing No. 33-02-31, File No. 100-25-1148, Sheet 18 of 55; Revised As-built, Special A.M.C. Warehouse Floor 45" Above Track 400' x 2000', Foundation Details [4 March 1958]: Drawing No. 33-02-31, File No. 100-25-1148, Sheet 21 of 55).

One Hazardous Materials Data Sheet was found in Bioenvironmental Engineering (BE) Files (Hazardous Materials Data Sheet, 22 August 1984 Form No. 2761).

3.0 LOCATION DESCRIPTION

The area now designated as Potential Release Location (PRL) S-33 (shown in Figure 3-1) is situated in the northwest portion of Operable Unit (OU) B at McClellan Air Force Base (AFB). The location encompasses the southernmost section of Building 786, designated as 786A. Building 786A (shown in Figure 3-2) was reportedly used for hazardous material storage (CH2M Hill, 1981, p. I-3); currently it is used for office space and storage.

Site 23 and PRL S-13 are located in the vicinity of PRL S-33. Site 23 is approximately 600 feet southwest, and PRL S-13 is approximately 800 feet southeast of PRL S-33. Both locations are discussed in separate Technical Memorandums or Preliminary Assessments.

The following sections describe site delineation, historical and current activities, reported releases, and remedial actions at PRL S-33.

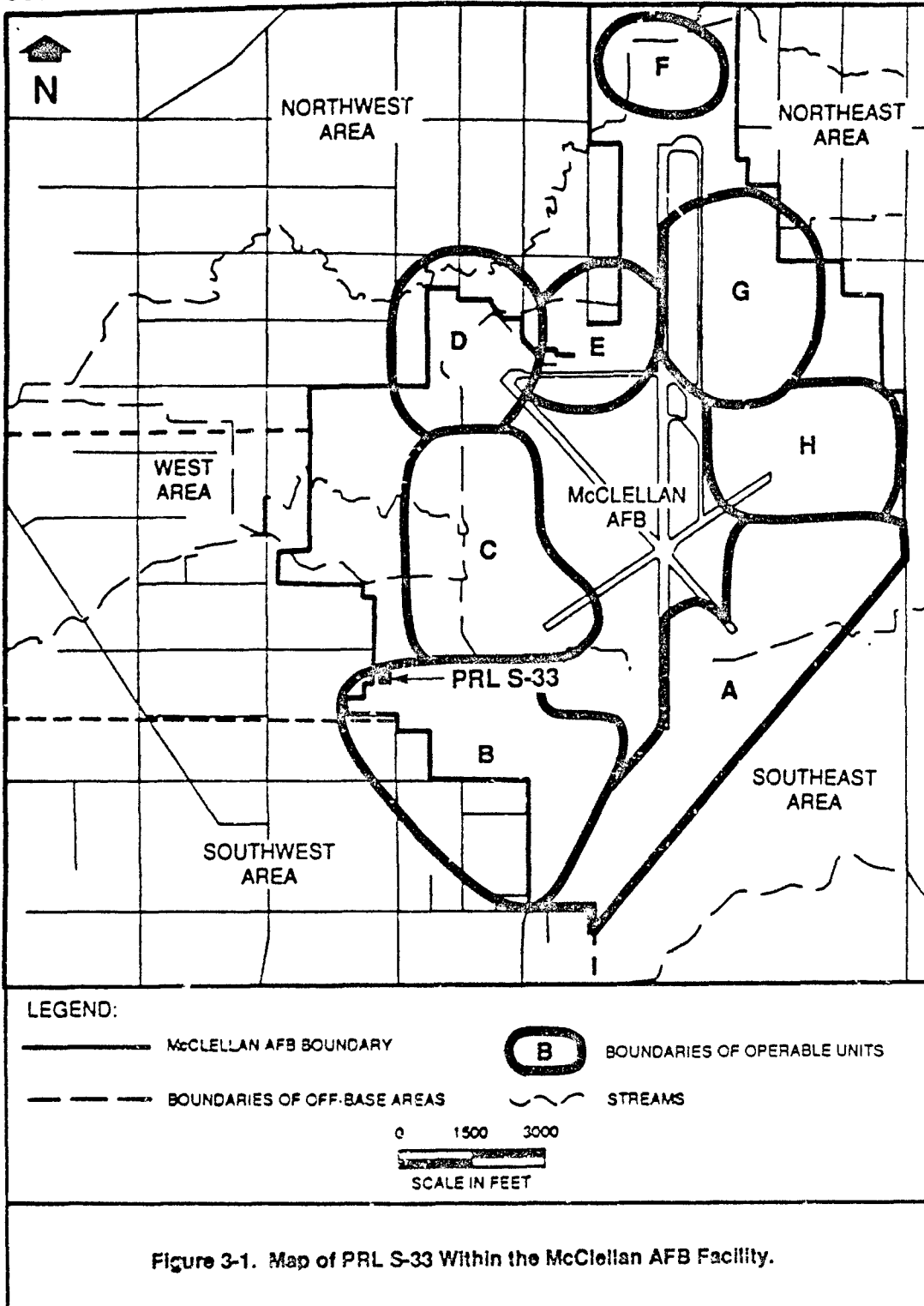
3.1 Location Delineation

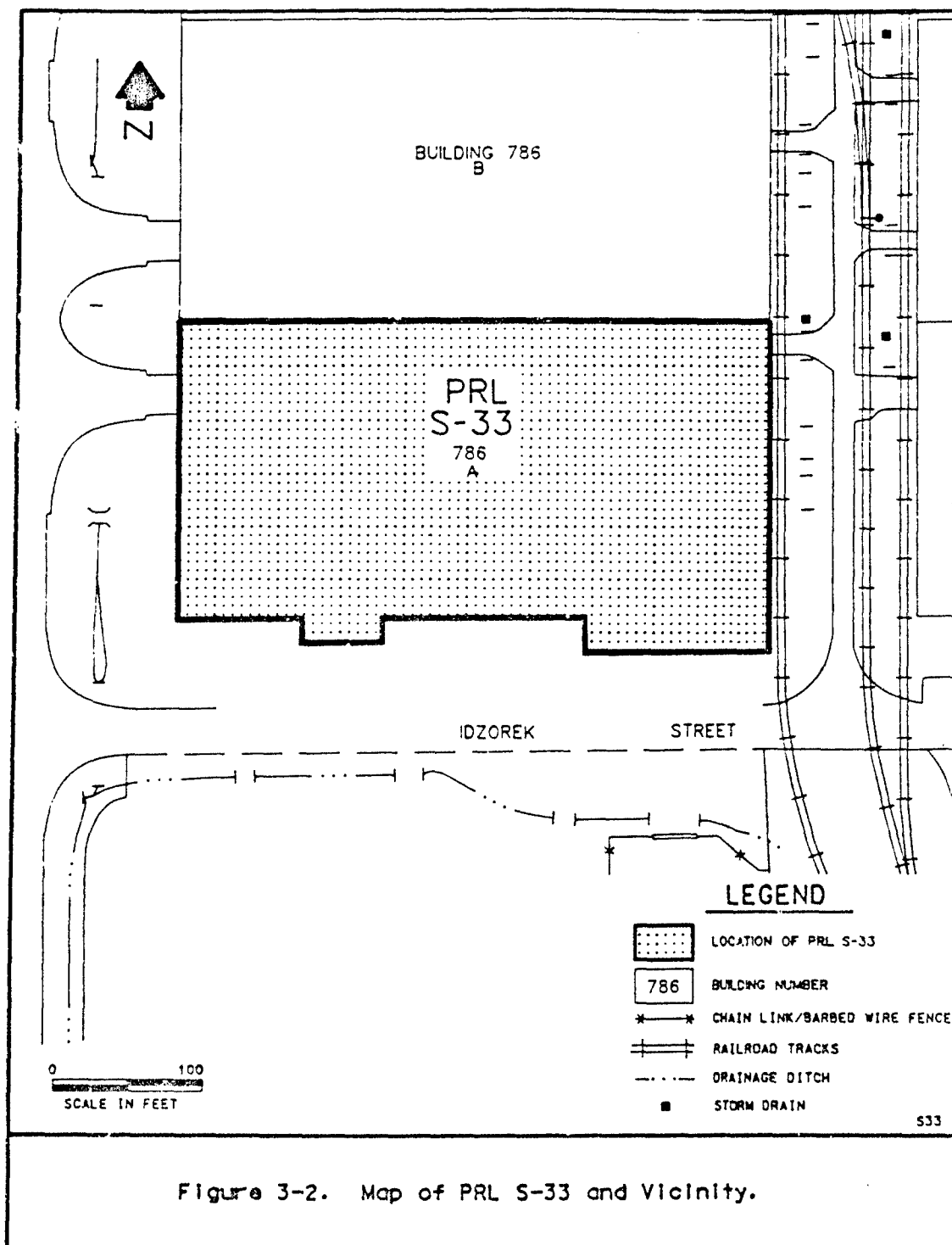
The boundaries of the area now designated as PRL S-33 were delineated by McLaren Environmental Engineering in 1986 (McLaren, 1986a, p. 50). McLaren did not cite specific evidence or rationale for delineating the location boundaries; however, McLaren did reference CH2M Hill's 1981 Phase I Report as documentation (McLaren, 1986a, p. 51).

3.2 Historical Activities

A review of aerial photographs indicates that Building 786A was built between 1953 and 1955, because it first appears in a 1955 aerial photograph. In earlier photographs the area is a grassy field. Aerial photographs taken between 1957 and 1988 show that some materials were stored along the southern part of the building; however, the types of materials have not been identified.

Building 786A was historically used for distributing chemicals and collecting chemical wastes from most of the industrial buildings on the base. Deliveries included oils, hydraulic fluids, solvents (including trichloroethene [TCE]), acids, and bases (Juarez, personal communication, 1989). Drums were unloaded along the southern and western docks of Building 786A. Spills from any leaking drums were





typically small and reportedly cleaned up in accordance with the spill plan (Thompson, personal communication, 1989).

Bioenvironmental Engineering (BE) files contained a 1984 Hazardous Material Data Sheet listing eight hazardous materials that were used regularly at PRL S-33 for general vehicle maintenance. Table 3-1 lists the chemicals and amounts used. The materials were reportedly used in small quantities and were either consumed in use or diluted and poured down an off-site industrial drain (McClellan AFB, undated).

3.3 Current Activities

Radian personnel visited PRL S-33 on 28 April 1989 to document the current location features and activities. A concrete walkway (formerly the loading dock) abuts the south side of Building 786A; an asphalt parking lot borders on the south side of the walkway. Loading bays are located on the east and west sides of the building.

Surface water drains away from Building 786A into unlined drainage ditches on the east, south, and west side of the building. Surface water flows into Magpie Creek via drainage ditches or the base storm drainage system (GRW, 1986). The western side of Building 786A is landscaped. Railroad tracks parallel the eastern edge of the building; there is a layer of gravel between the building and the railroad tracks. At the time of Radian's location visit, an open excavation (approximately 8 feet deep and 30 feet long) was observed near the southwest corner of Building 786A; the excavation was reportedly to be used for transformer installation.

Building 786A is currently used for depot stock control. The southern half of the building contains offices and a boiler room. The northern half of the building is used for furniture storage. No floor drains were apparent during the site visit.

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL S-33.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL S-33.

TABLE 3-1. HAZARDOUS MATERIALS USED AT PRL S-33

Material	Major Ingredients	Quantity Used	Disposal Method
Water displacing compound	1,1,1-Trichloroethane	10 12-oz cans/year	Consumed in use
Ralley, car wax	Wax	3 cans/month	Consumed in use
Battery terminal cleaner	--	1 can/month	Consumed in use
Spray paint	--	1/2 can/month	Consumed in use
Glass cleaner	--	2 cans/month	Consumed in use
Flush type emulsion degreaser	--	1 can/month	Industrial wasteline
Windshield cleaner	Methyl alcohol	6 ounces/month	Consumed in use
Deicing-defrosting fluid	--	2 cans/month (when needed)	Consumed in use

-- = Information not available.

SOURCE: McClellan AFB, Bioenvironmental Active Files, Hazardous Material Data Sheet (Form 2761), August 1984.



4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) S-33.

4.1 Potential Contaminants of Concern

The potential contaminants of concern at PRL S-33 are those associated with oil, hydraulic fluids, solvents, acids, and bases that were reportedly stored on site. These include volatile organic compounds (VOCs), semivolatile organic compounds, and metals. Soil samples have not been collected from the location.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL S-33. The potential for fire and explosion cannot be evaluated because the soil gas has not been characterized. Soils are covered by the concrete building foundation, and none of the available information suggests there are any immediate hazards at PRL S-33.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL S-33 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Although no contaminants are believed to be present in the soils at PRL S-33, it is possible to discuss general considerations of contaminant migration at this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are surface water infiltration rate, percolation rate, and contaminant characteristics. The infiltration rate for soil is primarily determined by the permeability of the soil and the surface characteristics of the area. No soil permeability data have been collected at PRL S-33. However, the concrete foundation of Building 786, which covers the soil at PRL S-33, should be an effective barrier to infiltration of surface water.



The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of contaminants. Although no site-specific data are available on the soil at PRL S-33, basewide boring information indicates that any relatively impermeable layers that may be present are not continuous or effective barriers to percolation. However, because the soil at PRL S-12 is covered by the foundation of Building 786, the overall potential for migration to groundwater is very low.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration to surface water. The topography in the vicinity of PRL S-33 is essentially flat. Surface runoff from the area surrounding Building 786 enters the base storm drainage system via storm drains adjacent to the building.

The surface of PRL S-33 is covered by a concrete foundation, which should provide an effective barrier between surface water and any surface soils which may be contaminated; therefore, the potential for transport of contaminants dissolved in surface runoff is considered very low. Similarly, the potential for erosion and transport of particulate-borne contaminants is also very low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. The surface at PRL S-33 is covered by the concrete foundation of Building 786, which limits the ability of volatile contaminants in soils to migrate to the air; therefore, the potential for migration to air is considered to be very low.

5.0

CONCLUSIONS AND RECOMMENDATIONS

Potential Release Location (PRL) S-33 was reportedly the location of a chemical and chemical waste storage facility at Building 786A. Exact dates of historical operation for this use are not known. The building is currently used for offices and furniture storage. Although the site does not pose any apparent environmental threat, hazardous chemicals historically were handled and stored on site; therefore, Radian recommends that screening with soil gas sampling and analysis be performed along the outside perimeter of the building. Further investigation of PRL S-33 will depend on results of the screening. If the screening detects high concentrations of organic vapor, then soil samples beneath the cracks in the concrete foundation should be collected and analyzed. If the screening does not detect levels of organic vapors, then Radian recommends that PRL S-33 be removed from the potential release location list.

6.0

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CORPORATION

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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL S-34
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

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1.0 INTRODUCTION

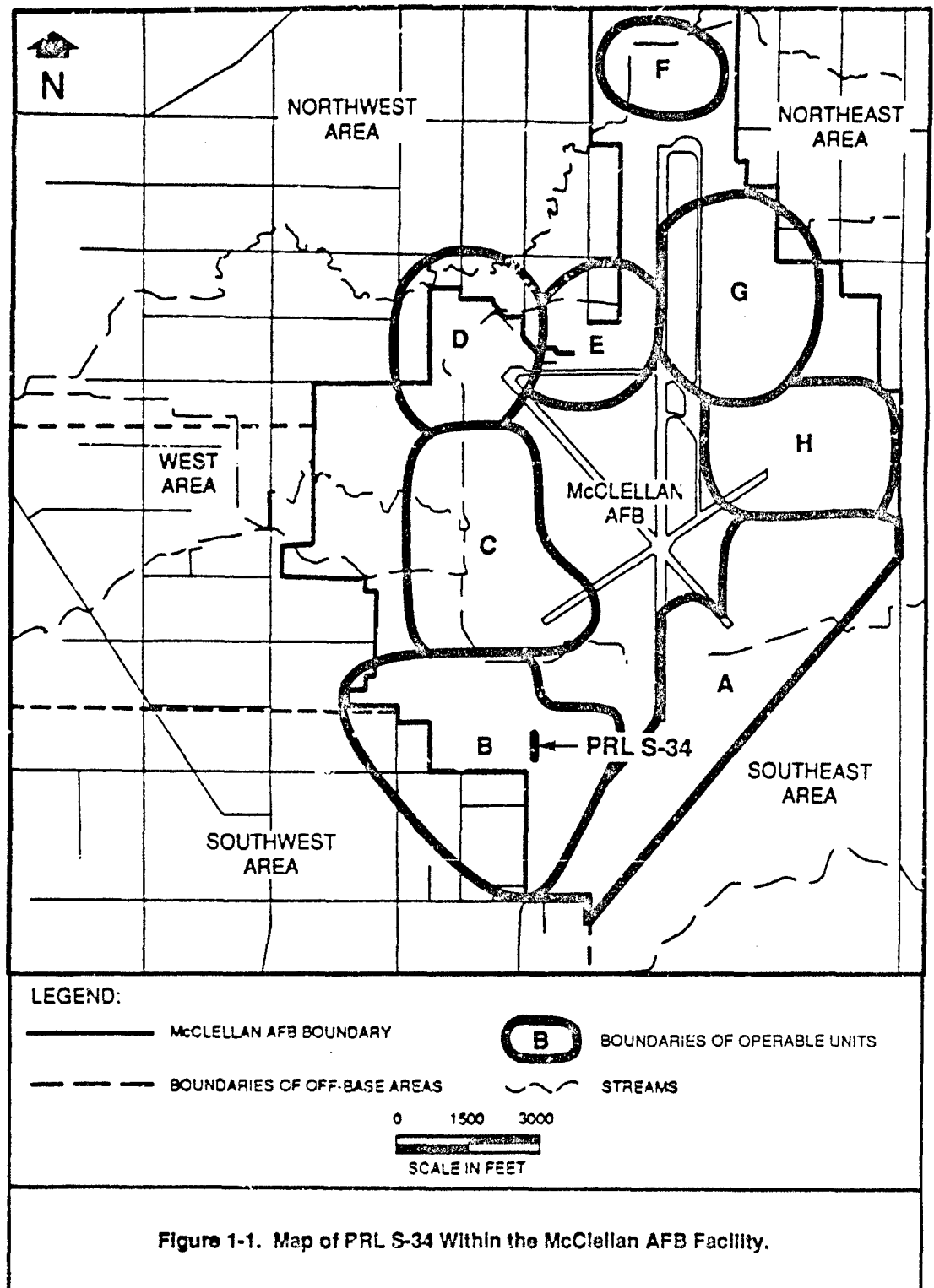
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-34 at McClellan Air Force Base (AFB), California. The location of PRL S-34 is shown in Figure 1-1. Potential Release Location S-34 is the location of a degreaser and paint spray booth at Building 652 in Operable Unit (OU) B of McClellan AFB. The task of compiling data for a Preliminary Assessment is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.





Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document, which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1981, CH2M Hill conducted a records search of McClellan Air Force Base (AFB) files to identify hazardous waste disposal sites on base in order to determine the potential for hazardous materials to migrate off the base (CH2M Hill, 1981). Interviews with past and present employees and the review of McClellan AFB records resulted in the identification of waste disposal locations at McClellan AFB. One of the identified disposal sites, now designated Potential Release Location (PRL) S-34, was identified as a degreaser and paint spray booth. Potential Release Location S-34 is the location of old Building 88, now designated Building 652. A review of aerial photographs indicates Building 652 was constructed in approximately 1949. The building was part of a vehicle repair shop operation that involved the adjacent Building 655 and Building 658 (Coddington Company, 1954). The repair shop operation continued in Building 652 until 1955, when the operations were transferred to Building 655 (Allenbach, personal communication, 1989).

In 1988, EG&G Idaho, Inc., examined the Industrial Wastewater Line (IWL) for leaks and analyzed wastewater samples from the wastewater lines in the vicinity of Building 652 (EG&G Idaho, Inc., 1988a,b). However, the IWL from Building 652 washrack steam cleaning operations was not sampled because the EG&G Idaho investigators considered that data obtained from the IWL from the Building 426 washracks were representative of all steam cleaning operations, including the Building 652 operations. This assumption may or may not be appropriate for the historical operations that occurred at Building 652.

2.2 Personnel Interviews

A personnel interview regarding waste disposal at PRL S-34 (Building 652) was conducted by Radian in January 1989. Information obtained from the interview is contained in Section 3, Location Description. Interviews with base personnel familiar with historical operations that occurred at Building 652 have not been conducted because personnel could not be identified. Although personnel interviews were apparently conducted as part of the CH2M Hill and McLaren investigations, documentation for these interviews was not available for this report.

2.3 Location Visit

Radian personnel visited PRL S-34 on 9 February 1939 for the purpose of investigating current features and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. Table 2-1 lists the photographs that were reviewed. Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment. No information was found in Bioenvironmental Engineering files for PRL S-34. Civil Engineering files contained as-built drawings prepared in June 1951 by George E. Goodall and Associates of the Special Purpose Vehicle and Power Equipment Repair Shop. Several drawings were reviewed, specifically: "washracks"; "degreaser pit and 36-inch to 240-inch twin-post hoist pit"; "pits for washrack hoist, bus and truck hoist and drag chain conveyor"; "paint spray booth pit and 102-inch to 204-inch twin-post hoist pit"; "outside washrack and fuel tanker P.M. canopy"; and "oil storage tank and blowoff tank" (Goodall and Associates, 1951).

TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1923 - 1983) REVIEWED FOR PRL S-34

Year	Source	Scale
1923	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) S-34 (shown in Figure 3-1) is located in Operable Unit (OU) B of McClellan Air Force Base (AFB). The location consists of Building 652 and the degreaser and paint spray booth that operated there, as well as Industrial Wastewater Lines and drains leading from the building. A location map showing details of the building and the surrounding area is presented in Figure 3-2. Potential Release Location S-5 and PRL S-29 lie to the northeast of PRL S-34 and are discussed in separate Preliminary Assessments.

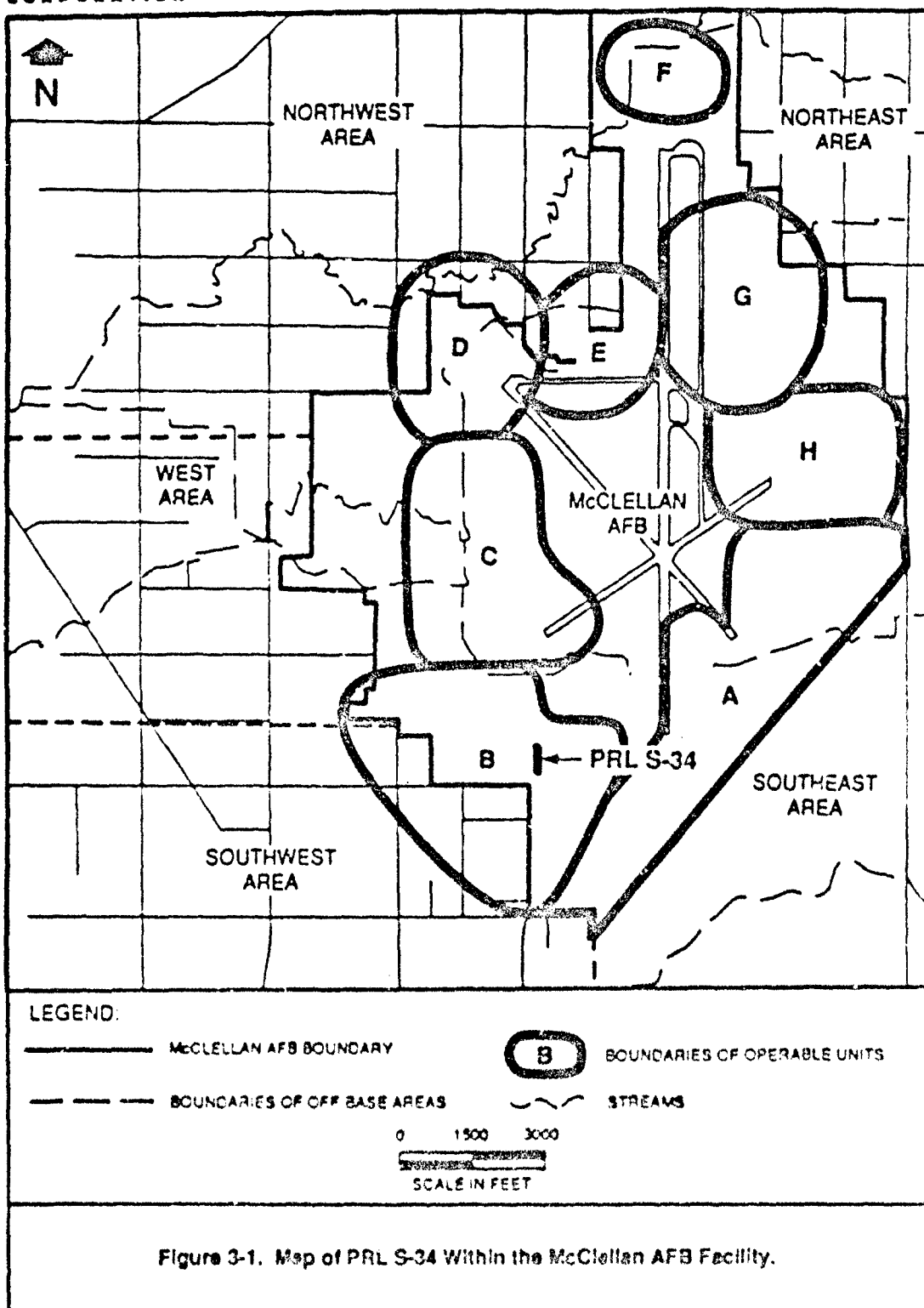
3.1 Location Delineation

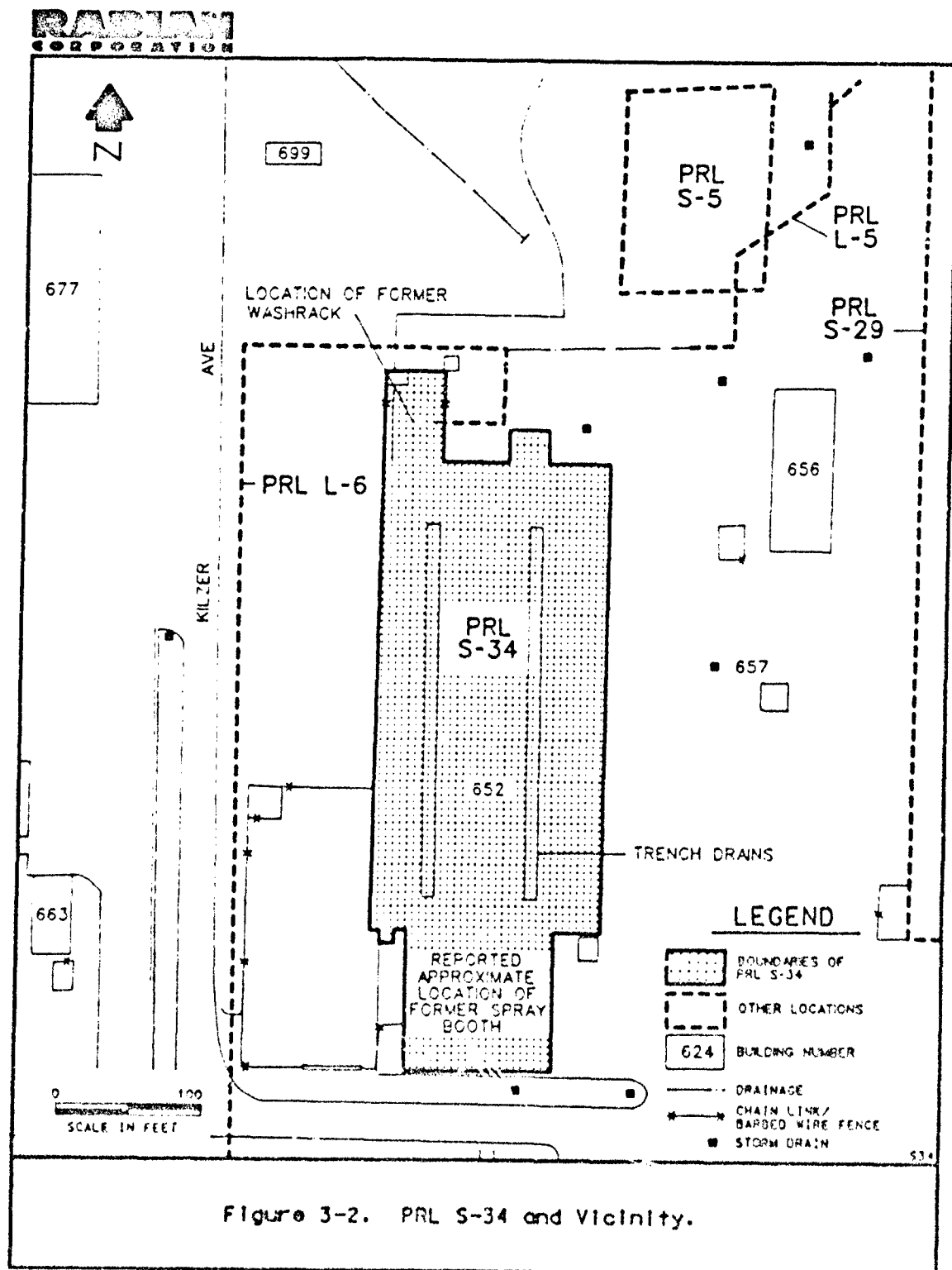
CH2M Hill first identified the location, now designated as PRL S-34, in their Phase I Records Search report (CH2M Hill, 1981). Potential Release Location S-34 consists of Building 652 and a degreaser and paint spray booth that was associated with the operations performed in Building 652. McLaren Environmental Engineering, Inc., also identified this location during their investigation of Area B (McLaren, 1986). Detailed rationale for including this location as a source of possible contamination was not documented. However, the location was identified because it was one of group of sites associated with the use of solvents where specific volatile organic chemicals had been treated, stored or disposed of (McLaren 1986).

3.2 Historical Activities

Building 652 was part of the special equipment repair center and was the location for the cleaning and repair of automotive equipment with solvents and automotive maintenance products (Coddington Company, 1954). Based on historical information from other similar operations at McClellan AFB, cleaning solvents that may have been used include trichloroethene and methylene chloride. Automotive maintenance products used may have included fuel oil, motor oil, and hydraulic fluids.

Building 652 also contained a paint spray booth that may have generated paint wastes and solvents. Washracks for steam cleaning and washing air conditioning units were also located at Building 652 (EG&G Idaho, Inc., 1988a).





3.3 Current Activities

Building 652 is currently being refurbished for a new operation. The building will become the location of a repair and manufacturing operation for the servicing and repairing of wing tanks (Allenbach, personal communication, 1989).

Based on the location visit, the following observations were noted. The degreaser operation is no longer used and the paint spray booth has been removed. The exterior washrack structures that were located along the northern, eastern, and western perimeters of the building have been removed. Siding material and new windows are being installed. Other refurbishing activities are planned, but the details were not available at the time of the preparation of this assessment. The pits and sumps were not inspected at the time of the site visit.

Building 652 is currently unoccupied, but still contains structural facilities that were integral to the operations performed at the site when the degreaser and the paint spray booth were in operation. These structures include the two parallel concrete trenches that run the length of Building 652; the two drains and the degreaser pit located in the northern portion of Building 652, which were integral to the preparation and cleaning of equipment and parts prior to maintenance and repairs; and the underground drains and piping from the building which discharged to the Industrial Wastewater Line.

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL S-34.

3.5 Remedial Actions

No documented remedial actions are known to have occurred at PRL S-34. Limited information has been discovered about the history of Building 652 operations.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) S-34.

4.1 Potential Contaminants of Concern

The contaminants of concern at PRL S-34 are the volatile organic compounds (VOCs), semivolatile organic compounds, and metals used at the degreaser and paint spray booth in Building 652.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL S-34. The potential for fire and explosion is unknown because the soil gas and emissions from the location have not been characterized. However, none of the available information suggests there are immediate hazards at PRL S-34.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. Most of PRL S-34 is covered with the foundation of Building 652, which prevents contact with any contaminated soil.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL S-34 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the

percolation rate of the soil, and contaminant characteristics. Most of PRL S-34 is covered with the roof and concrete foundation of Building 652, which minimizes the amount of infiltrating surface water. No other sources of percolating water is suspected at this location.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of the contaminants. Although permeability data on the soil at PRL S-34 are not available, basewide boring information reveals that soils generally range from sandy loams to clay loams and any relatively impermeable layers are not continuous and not effective barriers to percolation. Therefore, the percolation rate for this location is potentially low to moderate.

The contaminants of concern at PRL S-34 are VOCs, semivolatile organic compounds, and metals. In general, VOCs have a relatively high potential for dissolving into water and being carried with the flow of percolating water. Semivolatile compounds and metals are generally much more likely to remain in surface soil and not migrate with percolating water. However, as other organic compounds dissolve in water, any semivolatile compounds may also dissolve more readily due to the solvent properties of other organics.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. Since PRL S-34 is covered with the foundation and roof of Building 652, the potential for migration of contaminants to surface water is very low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. Vapor pressure is a relative measure of the volatility of a chemical in its pure state and is an important determinant of the rate of vaporization from soils and solid waste sites. Any VOCs present in exposed surface and near-surface soils are likely to migrate to the air.

The surface flux (concentration of organic compounds entering the air from the soil in a unit time) is dependent upon soil permeability, soil moisture, depth of contaminants, concentration of contaminants in the soil gas, and other physical soil



properties that have not been quantified. Because most of the site is covered with Building 652, the surface flux of volatile contaminants is probably low.

5.0

CONCLUSIONS AND RECOMMENDATIONS

Limited information about the historical operations performed at Potential Release Location (PRL) S-34 was available for the preparation of this Preliminary Assessment. The degreasing and painting operations that alerted previous contractors to identify this site as a possible source of contamination were discontinued in 1955. Subsequent to these operations, the site underwent major renovations.

The potential impacts of any historical discharges of contaminants at the location cannot be completely evaluated until the location is better characterized. An investigation of PRL S-34 is recommended to determine the presence of any historical soil or groundwater contamination. Because most of the soil beneath Building 652 is covered by a cap of concrete, the principal areas of concern regarding historical or future contaminant discharge and migration are the soils beneath and adjacent to pits, sumps, trenches, and wastewater lines that may lack integrity. Any past or present sources of contaminant or liquid discharge to soils at PRL S-34 should be identified and remediated. After any necessary remediation, the building's floor will provide a cap to prevent further migration of any contaminants.

Radian recommends characterization of PRL S-34 to include the following investigations:

- Interview base personnel who are familiar with historical activities within Building 652;
- Evaluation of the integrity of pits, sumps, trenches, drains and Industrial Wastewater Lines (IWL);
- Soil sampling and analysis along IWL and trenches and at pits, sumps, and washrack;
- Evaluation of exposed soils outside the building for presence of contaminants by sampling and analyses of surface soils and subsurface soils to approximately 5 feet below ground surface; and
- Based on results of any soil sampling and analyses, deeper borings or monitoring wells may be necessary to fully characterize the location.

6.0

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INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3

PRELIMINARY ASSESSMENT FOR PRL S-35
FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991

PREPARED BY:

Radian Corporation
10395 Old Placerville Road
Sacramento, California 95827

USAF CONTRACT NO. F33615-87-D-4023, DELIVERY ORDER NO. 0012
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United States Air Force Center for Environmental Excellence
Mr. Patrick Haas (Technical Project Manager)
Environmental Services Office/Environmental Restoration Division (AFCEE/ESR)
Brooks Air Force Base, Texas 78235-5501

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1.0 INTRODUCTION

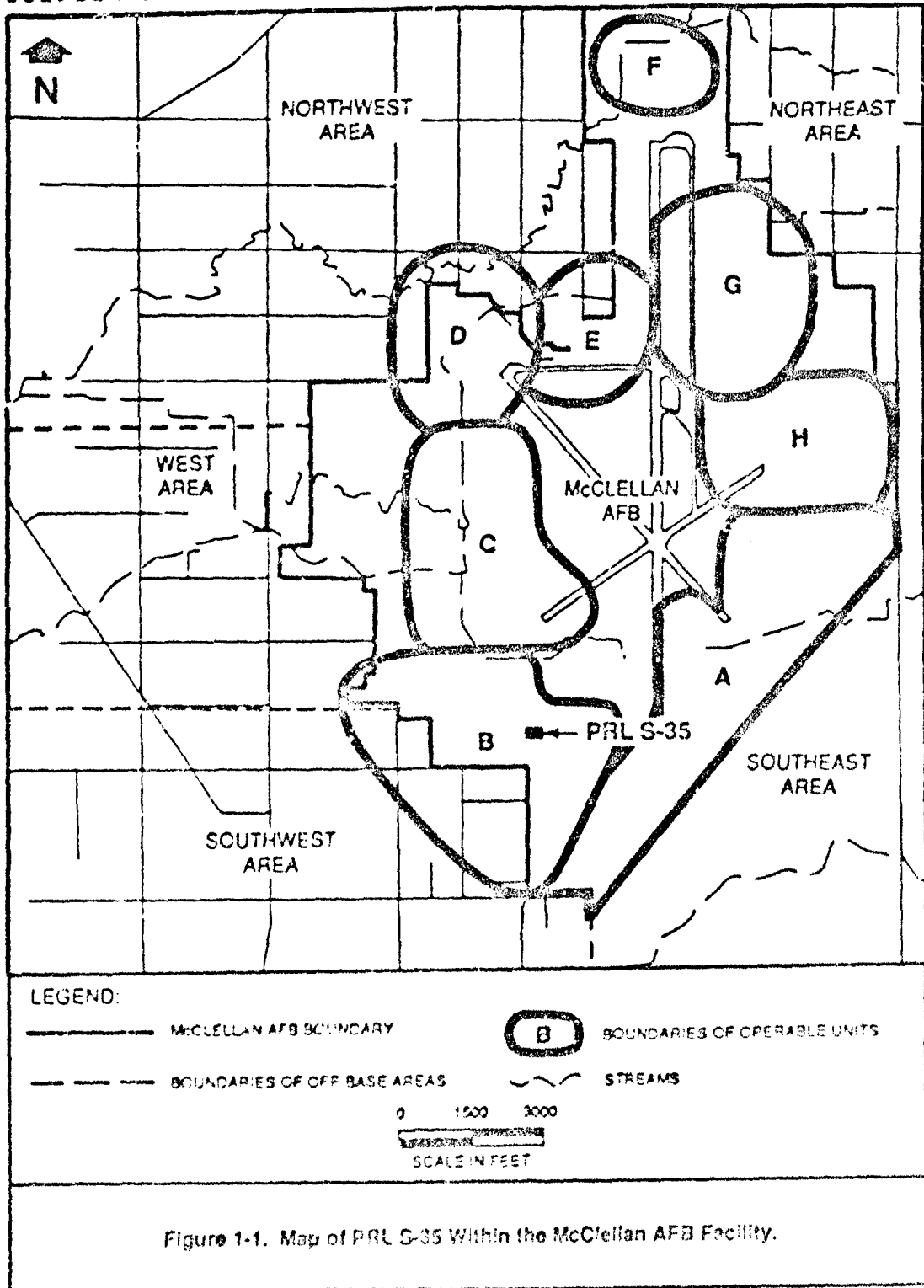
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-35 at McClellan Air Force Base (AFB), California. The location of PRL S-35 within McClellan AFB is shown in Figure 1-1. Potential Release Location S-35 is the location of Building 654 and the solvent spray booth that operated within this building. The compilation of data for this Preliminary Assessment is part of the Remedial Response process of the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill locations on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this assessment includes site-specific data regarding the following four categories of information:

- Facility operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Facility operations, waste management practices, and waste characteristics are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document, which includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

A 1986 investigation of Area B sites by McLaren Environmental Engineering identified 11 "additional potential sites" in Area B. Site S-35 (now designated PRL S-35) was identified as the solvent spray booth in Building 654 (McLaren, 1986, p. 14). McLaren cited CH2M Hill's 1981 Phase I report as the original documentation for the site designation; however, no reference to S-35 (PRL S-35) could be found in CH2M Hill's report (CH2M Hill, 1981).

2.2 Personnel Interviews

Interviews with McClellan AFB personnel regarding historical operations of Building 654 were conducted by Radian personnel in March, 1989 (Mason, personal communication, 1989; Martin, personal communication, 1989; Zytler, personal communication, 1989). Information obtained from personnel interviews is contained in Section 3, Location Description. Documentation of these interviews can be found in the PRL S-35 Location File.

2.3 Location Visit

Radian personnel visited PRL S-35 on 8 March 1989 for the purpose of investigating the current status of the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. Table 2-1 lists the photographs that were reviewed. Interpretation of aerial photographs is discussed in detail in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary

**TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL S-35**

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
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1957	U.S. Department of Agriculture, ASCS	1" = 400'
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1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
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1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

RABIAN
CORPORATION

Assessment. Several 1965 construction drawings of Building 654 were found in the Civil Engineering files (McClellan AFB, 1965. Civil Engineering, Drawing No. 100-25-1662). These files also contained a 1971 drawing of the storage tanks built west of Building 654 and a 1976 drawing of the storage area north of Building 654 (McClellan AFB, 1971. Civil Engineering, Drawing No. SMBE-S-4269; McClellan AFB, 1976. Civil Engineering, Drawing No. SMBE-S-4916). No site-specific information was available from Bioenvironmental Engineering files.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) S-35 is situated within Area B of McClellan Air Force Base (AFB), as shown in Figure 3-1. The location consists of Building 654 and the solvent spray booth that operated in it. A location map showing details of the building and the surrounding area is presented in Figure 3-2. Building 654 is located west of Building 659 and north of PRL S-5. Potential Release Location S-5 will be discussed in a separate Preliminary Assessment.

3.1 Location Delineation

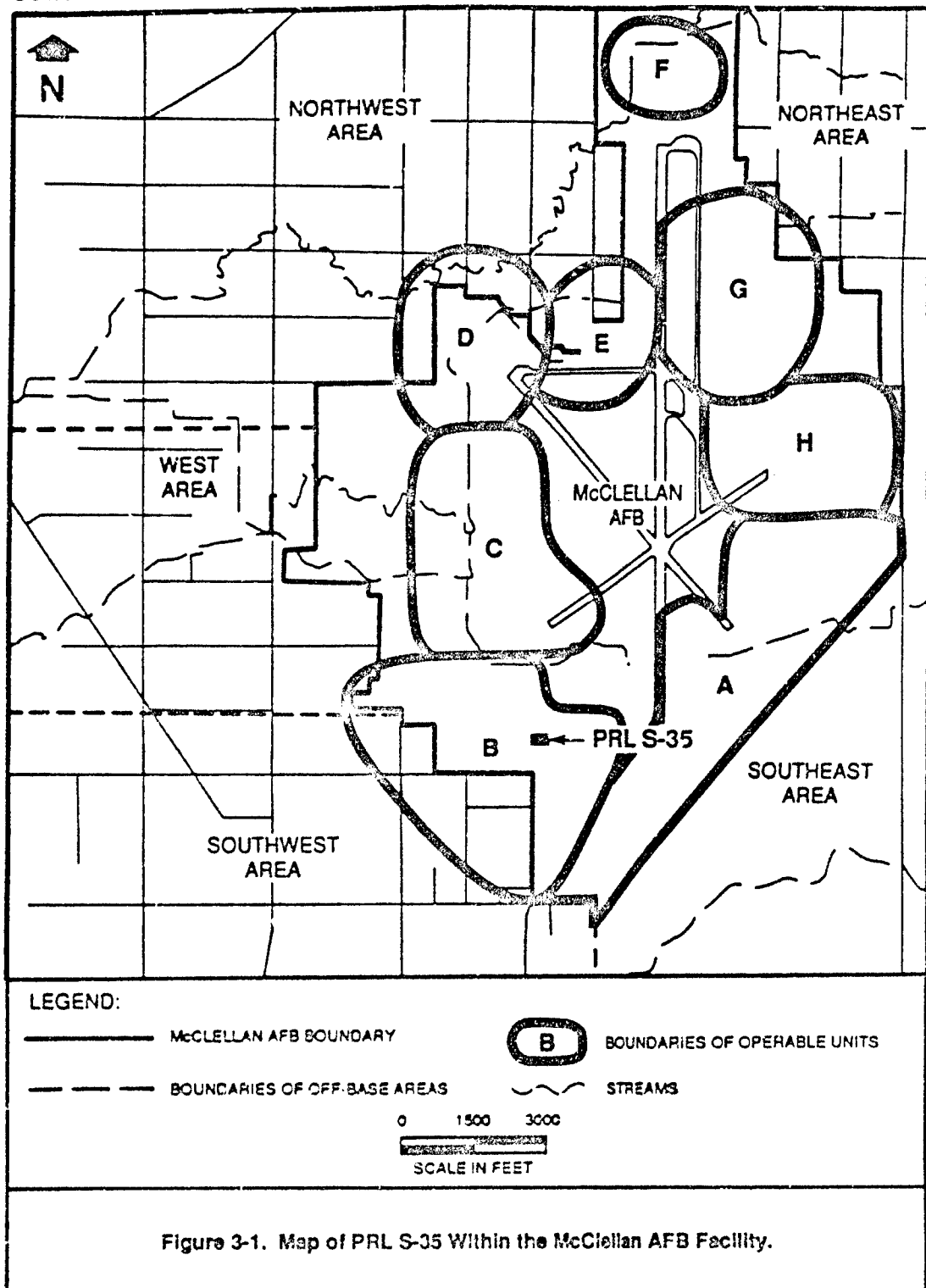
Detailed rationale for including this location as a source of possible contamination has not been documented. During their 1986 investigation of Area B, McLaren identified Site S-35 (now designated PRL S-35) as the solvent spray booth in Building 654 (McLaren, p.14, 1986). McLaren cited CH2M Hill's 1981 records search as documentation for this site delineation. However, no reference to Building 654 or the solvent booth in Building 654 could be found in CH2M Hill's report (CH2M Hill, 1981). The reason for this inconsistency is unknown.

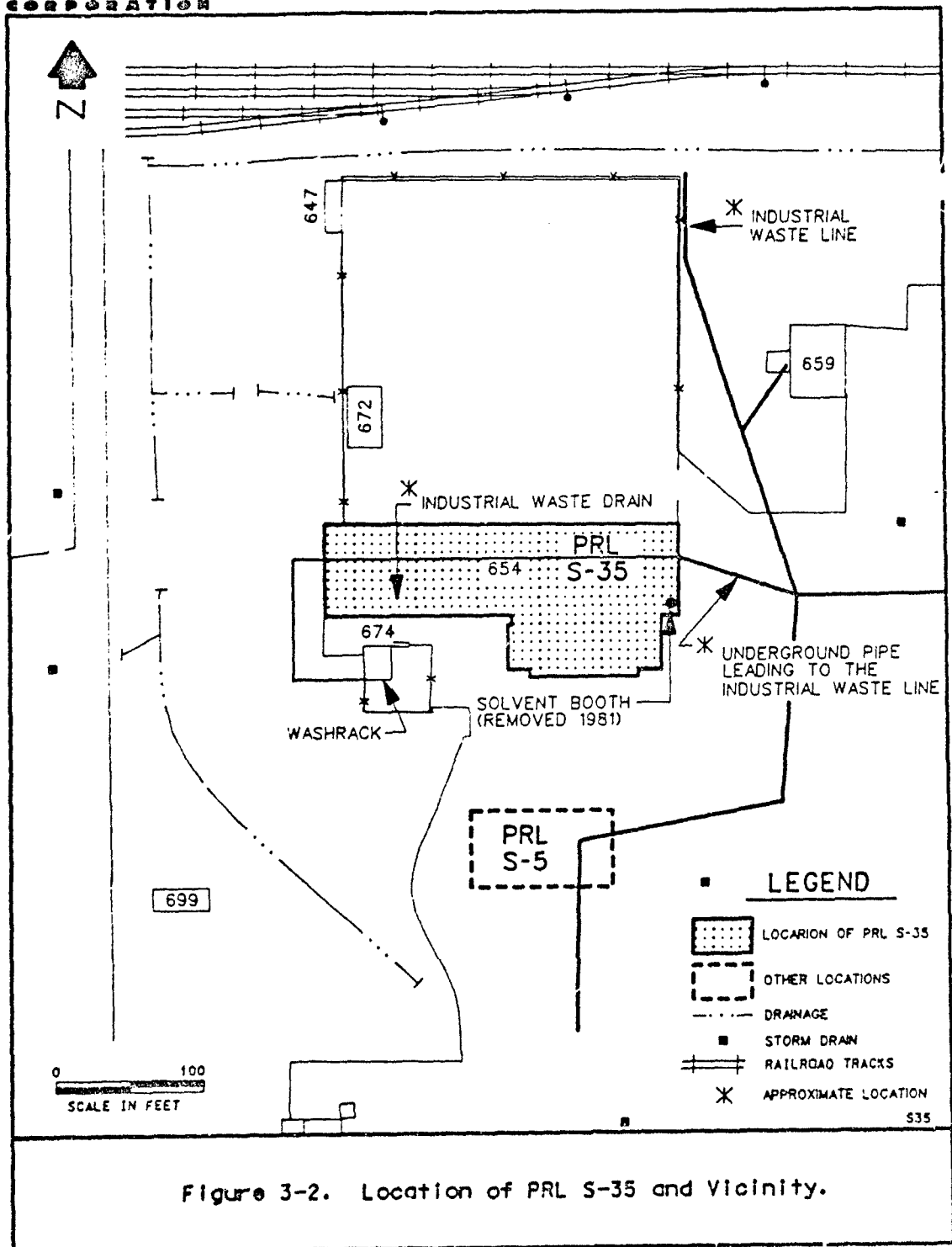
Because documentation for the PRL S-35 site delineation is unavailable, the revised boundaries of PRL S-35 have conservatively been chosen by Radian to include all of Building 654 and are not limited to the solvent booth within the building. The boundaries of PRL S-35 are shown in Figure 3-2.

3.2 Historical Activities

A review of aerial photographs reveal no activity occurred at PRL S-35 until 1946. Between approximately 1946 and 1949, aerial photographs indicate that airplanes and what appear to be tractor-trailer trucks were parked across the location. In a 1951 photograph, the planes and trucks were no longer present. The site remained unoccupied from approximately 1951 to 1962, except for some materials stored along the east edge of the location. No other activity at PRL S-35 can be seen in aerial photographs prior to the construction of Building 654.

Aerial photographs show that Building 654 was constructed in 1965. A 1965 floor plan of the building indicates that 10 "Test Cell" areas within the building were used to test ground support equipment (McClellan AFB, 1965, Civil Engineering Drawing, Drawing No. 100-25-1662). The test cell areas were used primarily to repair and test electrical generators. No solvent spray booths are shown in the drawing.





Prior to the construction of Building 654, the equipment testing operations had been performed in a temporary shelter located between PRL S-35 and Building 659 (Zytler, personal communication, 1989). Aerial photographs indicate this temporary shelter was not situated on PRL S-35, although the exact location could not be determined. In 1971, a 500-gallon antifreeze tank, a 1,000-gallon diesel fuel tank, and a 500-gallon oil tank were placed on a concrete pad 30 feet west of Building 654. A 20-inch high berm was built around the concrete pad (McClellan AFB, 1971).

After 1972, but prior to 1974, two steel hangars were constructed on the north side of Building 654, and the area north of Building 654 was paved with concrete for use as a storage area (Cartwright, 1972; Cartwright, 1974; McClellan AFB, 1976). The hangars were built to provide an enclosed area for generator repair and testing operations. Prior to the construction of the hangars, some of this repair work had taken place outside of Building 654 (Mason, personal communication, 1989).

In 1982, two more hangars were added to the northwest side of Building 654. Interviews with base personnel familiar with Building 654 indicate that the building has been used to test and repair ground support equipment such as gasoline and diesel generators (Mason, personal communication, 1989; Zytler, personal communication, 1989). Materials handled in the building included fuels and hydraulic liquids (Zytler, personal communication, 1989).

A small solvent spray booth, measuring approximately 4 feet by 4 feet, was located along the east wall of Building 654 until approximately 1981 when it was removed. It is unknown when the booth was constructed. During the time it was used, small parts were sprayed inside the booth with the solvent PD 680. Vapors produced from booth activities were vented through a duct to the outside. Used solvent was collected in a holding tank and recycled for reuse in the booth. When the solvent became unusable, it was drained into a barrel and disposed of into an above-ground tank. This portable tank is currently located on the south side of Building 654, but has previously been in other locations.

3.3 Current Activities

Potential Release Location S-35 was visited by Radian personnel on 8 March 1989 for the purpose of determining current activity and site conditions. Building

654 is currently occupied by Smith Engineering and is still used for ground power equipment repair. The floor of the building and the area surrounding the outside of the building is paved with concrete.

Compounds used in the building include the solvent PD 680, Soap Citrisome, hydraulic fluids, and other compounds. Wastes discharge to a trench drain located in the center and running the length of the building; this drain is connected to the Industrial Wastewater Line (IWL) on the east side of Building 654 (see Figure 3-2). South of Building 654 is a steam-cleaning washrack (Building 674) that is used to clean dirt and oil residues from equipment. The washrack drain connects with the west end of the Building 654 trench drain. It is unknown how long the washrack or the trench drain of Building 654 has been in operation.

The solvent booth that was previously located against the east side of Building 654 has been removed. Only a portion of the booth's vent is still attached to the ceiling. The solvent booth was located approximately 10 feet from the trench drain which would have collected any spills from the booth.

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL S-35.

3.5 Remedial Actions

In approximately 1981, the solvent spray booth was removed from Building 654 (Mason, personal communication, 1989); however, it is not known whether the purpose of this activity was for remediation. No other documented remedial actions are known to have occurred at PRL S-35.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and the potential for contaminant migration associated with any on-site contamination at Potential Release Location (PRL) S-35.

4.1 Potential Contaminants of Concern

The potential contaminants of concern at PRL S-35 are volatile organic compounds (VOCs), and semivolatile organic compounds that may have been used or stored at the location. Soil samples have not been collected from the location.

4.2 Immediate Hazards

This section describes potential immediate hazards that may result from contamination at PRL S-35, including the potential for fire and explosion and possible hazards to worker health and safety. The potential for fire and explosion is unknown because the soil gas has not been characterized. Surface soils are covered by concrete or asphalt, and none of the available information suggests there are any immediate hazards at PRL S-35.

Potential hazards to worker health and safety are limited to dermal contact with, or inhalation, or ingestion of any contaminated near-surface soil. Most of PRL S-35 is covered with the foundation of Building 654 which prevents contact with any contaminated soil.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL S-35 to the groundwater, surface water, and air. Although site-specific information is limited, it is possible to discuss the potential for contaminant migration at this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the percolation rate of soil, and contaminant characteristics.

The amount of infiltration at PRL S-35 is primarily determined by surface characteristics at and around the location. The ground surface of PRL S-35 is covered by the foundation at Building 654, and the surrounding area is completely covered with concrete. Storm drains located around Building 654 divert runoff away from the location. Because non-degraded concrete has a very low permeability, and there are no other known pathways for surface water infiltration at this location, the amount of infiltration at the location is very low. However, the Industrial Wastewater Lines underneath Building 654 are additional possible sources of percolating liquids at PRL S-35.

The percolation rate of contaminants depends on soil permeability, structure, stratification and characteristics of the contaminants. Although permeability data on the soil at PRL S-35 are not available, basewide boring information indicates that soils range from sandy loams to clay loams and that relatively impermeable layers are not continuous or effective barriers to percolation. Therefore, the percolation rate for this location is probably low to moderate. If wastewater has historically leaked from underground pipelines to the soil, the potential exists for contaminants in wastewater to migrate through the soils to groundwater at PRL S-35.

The potential contaminants of concern at PRL S-35 are VOCs and semivolatile organic compounds. Because physical characteristics vary for each contaminant, the potential for contaminant migration to groundwater cannot presently be evaluated. Generally, VOCs are the most water soluble of these contaminants and have the highest potential for dissolving in any discharged wastewater and for being carried with percolating water to groundwater.

Semivolatile compounds are generally much less soluble in water and tend to remain in near-surface soils rather than migrate with percolating water. However, if other organic compounds are dissolved in water, any semivolatile compounds may dissolve more readily due to the solvent properties of other organic compounds.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration of dissolved contaminants to surface water. The ground surface of PRL S-35 is covered with concrete, which prevents surface water from contacting any contaminated

soil that may be present. Storm drains positioned around Building 654 accept runoff from the location and divert it to Magpie Creek. These storm drains are lined, however, information regarding the type of lining material was not available. If contaminants had been spilled onto the concrete or asphalt and were not cleaned up, there is the potential that they were carried with surface runoff to the storm drains which ultimately discharge into Magpie Creek; however, there is no evidence of historical surface contamination at PRL S-35.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. The surface at PRL S-35 is paved which limits the ability of volatile contaminants in soils to migrate to the air; therefore, the potential for migration to air is considered to be very low.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Limited information concerning the historical operations of Building 654 was available for the preparation of this Preliminary Assessment of Potential Release Location (PRL) S-35. Civil Engineering drawings and personnel interviews indicate that the primary operation performed in Building 654 was the testing and repairing of ground power support equipment. Wastes generated in Building 654 were collected in a trench drain that is located in the center and runs the length of the building floor and connects to the Industrial Wastewater Line (IWL). The building has undergone at least two renovations since its construction in 1965, but the operations performed in the building have remained essentially the same. The solvent spray booth that existed in the building was removed in approximately 1981.

The potential impacts of historical discharges of any contaminants at the location cannot be completely evaluated until the location is characterized. An investigation of PRL S-35 is recommended to determine the presence or absence of contamination that has the potential to migrate through the soils to groundwater. The principle areas of concern regarding contaminant migration are the soils beneath and adjacent to the trench drain in Building 654 and the IWL leading from Building 654. Radian recommends that the integrity of the underground drain and piping be checked and repaired if necessary. A soil investigation should be conducted to determine the presence or absence of contaminants near any leaks identified in the underground drains or piping. Soil sampling from beneath any cracks in concrete flooring should be conducted if renovation or demolition of the building is performed.

6.0

REFERENCES

Cartwright Aerial Surveys, 1972; Photograph No. 3266-3-219.

Cartwright Aerial Surveys, 1974; Photograph No. 4050-5-213.

CH2M Hill, 1981. "Installation Restoration Program, Phase I Record Search for McClellan Air Force Base, California." Prepared for Air Force Engineering and Services Center, Directorate of Environmental Planning, Tyndall Air Force Base, Florida.

Martin, personal communication, 1989. Personal communication with Don Martin, Mechanical Engineering Tech (MADE), 1989.

Mason, G., personal communication, 1989. Personal communication with Gary Mason, Building 654 Supervisor, McClellan AFB, 8 March 1989, 13 March 1989, 15 March 1989, and 4 April 1989.

McClellan AFB, 1965. Civil Engineering Drawing No. 100-25-1662, Sheets 2, 3, 5, and 16, Ground Support Equipment Test, November 1965.

McClellan AFB, 1971. Civil Engineering Drawing No. SMBE-S-4269; Sheets 1 and 2, Storage Tank, Piping and Assembly (Building 654), September 1971.

McClellan AFB, 1976. Civil Engineering, Drawing No. SMBE-S-4916; Construct Storage Area Near Building 654.

McLaren Environmental Engineering, Inc., April 1986. "Report on Contamination in Area B, McClellan Air Force Base, Sacramento, California." Prepared for Department of the Air Force, Sacramento Air Logistics Center, McClellan Air Force Base, California, April 1986.

Zytler, L. personal communication, 1989. Personal communication with Lyle Zytler, Mechanical Engineer, McClellan AFB, 24 March 1989.



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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL S-41
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

**Radian Corporation
10395 Old Placerville Road
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1.0 INTRODUCTION

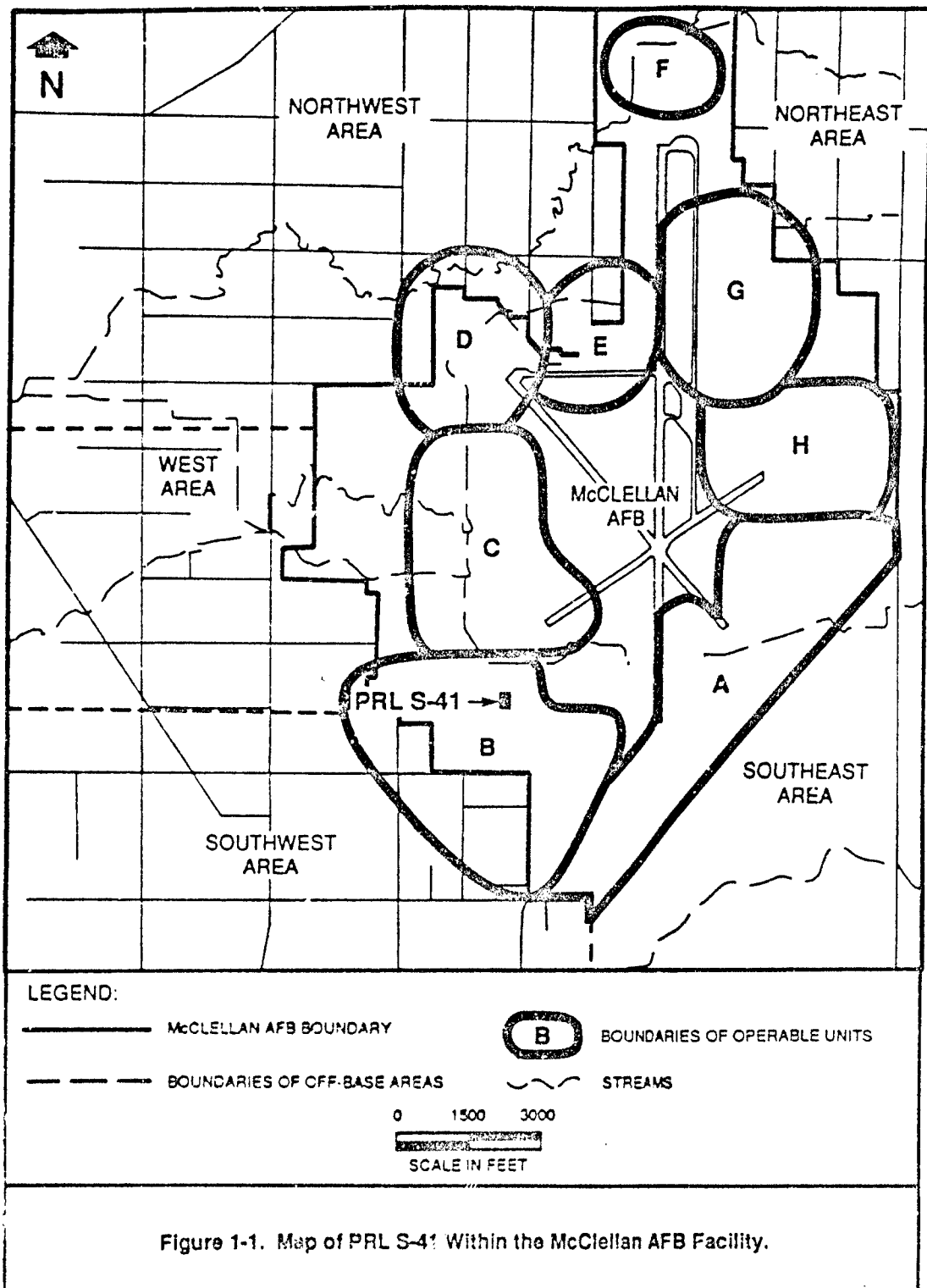
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) S-41 at McClellan Air Force Base (AFB), California. Figure 1-1 depicts the location of PRL S-41 at McClellan AFB. Potential Release Location S-41 is the location of Apron 7905 (Mat K) where aircraft fueling and defueling operations take place. The compilation of data for this Preliminary Assessment is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

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- Waste characteristics;
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Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document, including environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

The area now designated as Potential Release Location (PRL) S-41 is also known as Apron 7905 or Mat K. CH2M Hill described industrial activities at Apron 7905 as "Fuel Test and Fuel Tank Purging" during their records search to identify hazardous waste disposal sites at McClellan Air Force Base (AFB) (CH2M Hill, 1981, p. I-3). Potential Release Location S-41 is one of nine additional sites identified by McClellan AFB Office of Environmental Management (EM). Original documentation has not been found; however, a list of uninvestigated sites identified by EM was presented in a McLaren Environmental Engineering, Inc., Response to Comments document (McLaren, 1986).

2.2 Personnel Interviews

Personnel interviews regarding facility operations at PRL S-41 were conducted by Radian during April 1989 (Whiting, personal communication, 1989). Information obtained from personnel interviews is contained in appropriate Section 3, Location Description. Documentation of these interviews can be found in the PRL S-41 Location File.

2.3 Location Visit

Radian personnel visited PRL S-41 on 11 April 1989 for the purpose of investigating the current condition and activities at the location. Written records of the location visit can be found in the PRL S-41 Location File.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination (Table 2-1). Interpretation of aerial photographs is discussed in more detail in Section 3, Location Description.

**TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL S-41**

Year	Source	Scale
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¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.



2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment. Civil Engineering (CE) files contained two construction drawings for PRL S-41 (McClellan AFB, 1976; 1986). Bioenvironmental Engineering files contained no pertinent information about PRL S-41.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) S-41 (shown in Figure 3-1) is located in Operable Unit (OU) B at McClellan Air Force Base (AFB). Operations at the location include aircraft fuel testing, aircraft fuel tank purging, and aircraft fueling and defueling. Potential Release Locations T-8, T-46, and T-48 are located directly south of PRL S-41, and PRL T-45 is located directly north of PRL S-41. These locations are addressed in separate Preliminary Assessments. Figure 3-2 depicts PRL S-41 and vicinity.

The following sections discuss site delineation, historical and current activities, reported releases, and remedial actions at PRL S-41.

3.1 Location Delineation

CH2M Hill first identified the industrial activities at Apron 7905 as aircraft fueling (CH2M Hill, p. I-3, 1981); however, CH2M Hill did not delineate the location boundaries or designate the location as a Potential Release Location. McClellan AFB Environmental Management subsequently designated Apron 7905 as PRL S-41. The location boundaries delineated by Radian are shown in Figure 3-2.

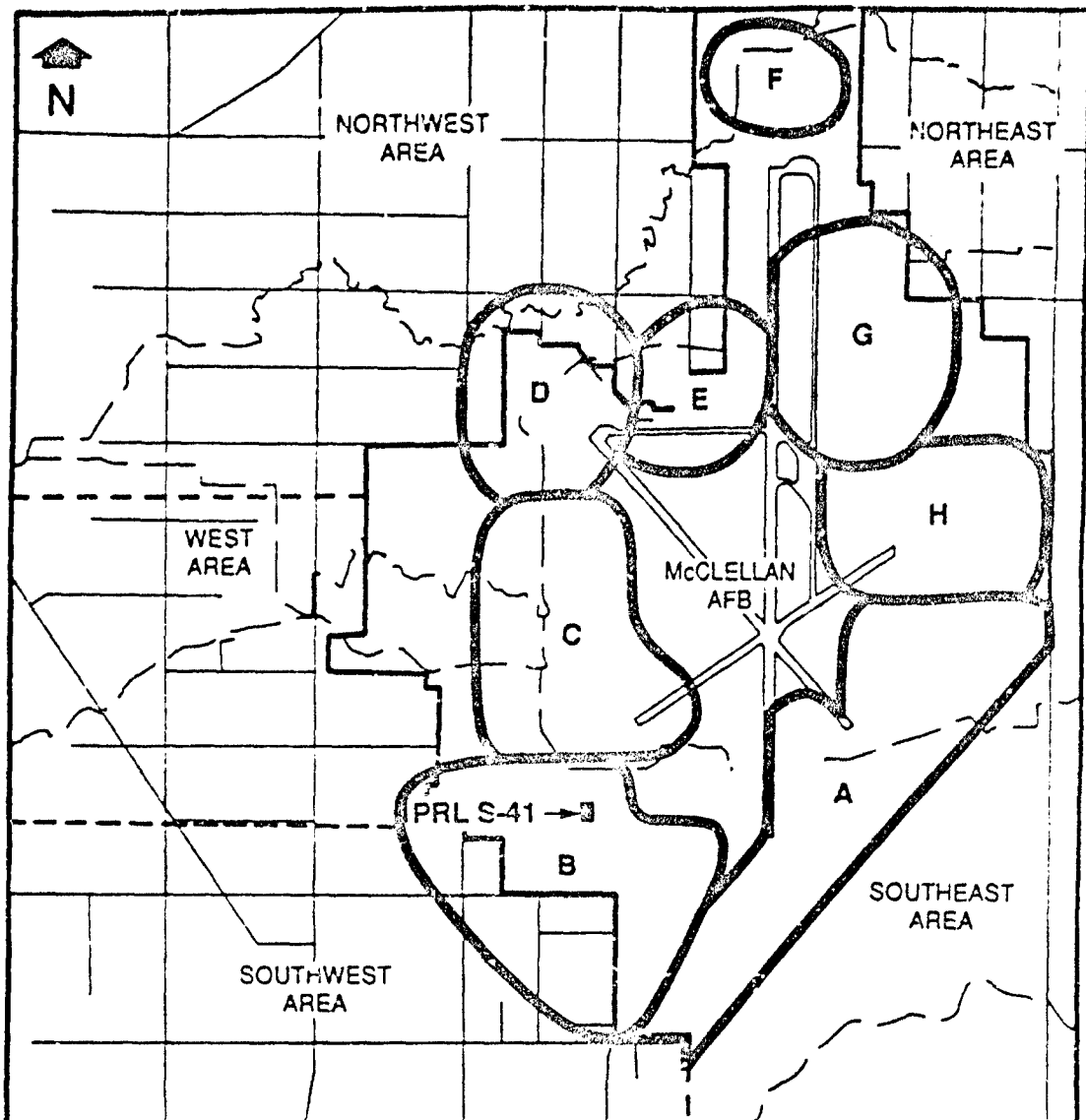
3.2 Historical Operations

Review of historical aerial photographs of McClellan AFB indicated that aircraft activities have occurred at PRL S-41 since 1955. The location has been covered with concrete or asphalt since 1955. Twelve buildings (707, 708, 709, 711, 751-754, 763, 764, 765, and 767) have been built or relocated around Apron 7905. The first buildings are apparent in the 1957 aerial photograph of McClellan AFB.

Apron 7905 was called "sick bay" during the late 1950s, when it was used as an aircraft repair area. Since 1960, the Apron has been used for aircraft refueling (Whiting, personal communication, 1989).

As-built drawings illustrate that cracks in the asphalt and concrete were repaired and sealed in 1976 and 1986. The cracks were sealed with Sinmast Evazote 50 and Sinmast Bonder Product #6 (McClellan AFB, 1976). The concrete ramps located in the southern portion of PRL S-41 were sealed with methacrylate resin (McClellan AFB, 1986).

RADIAN
CORPORATION



LEGEND:

— McCLELLAN AFB BOUNDARY

- - - BOUNDARIES OF OFF-BASE AREAS



BOUNDARIES OF OPERABLE UNITS

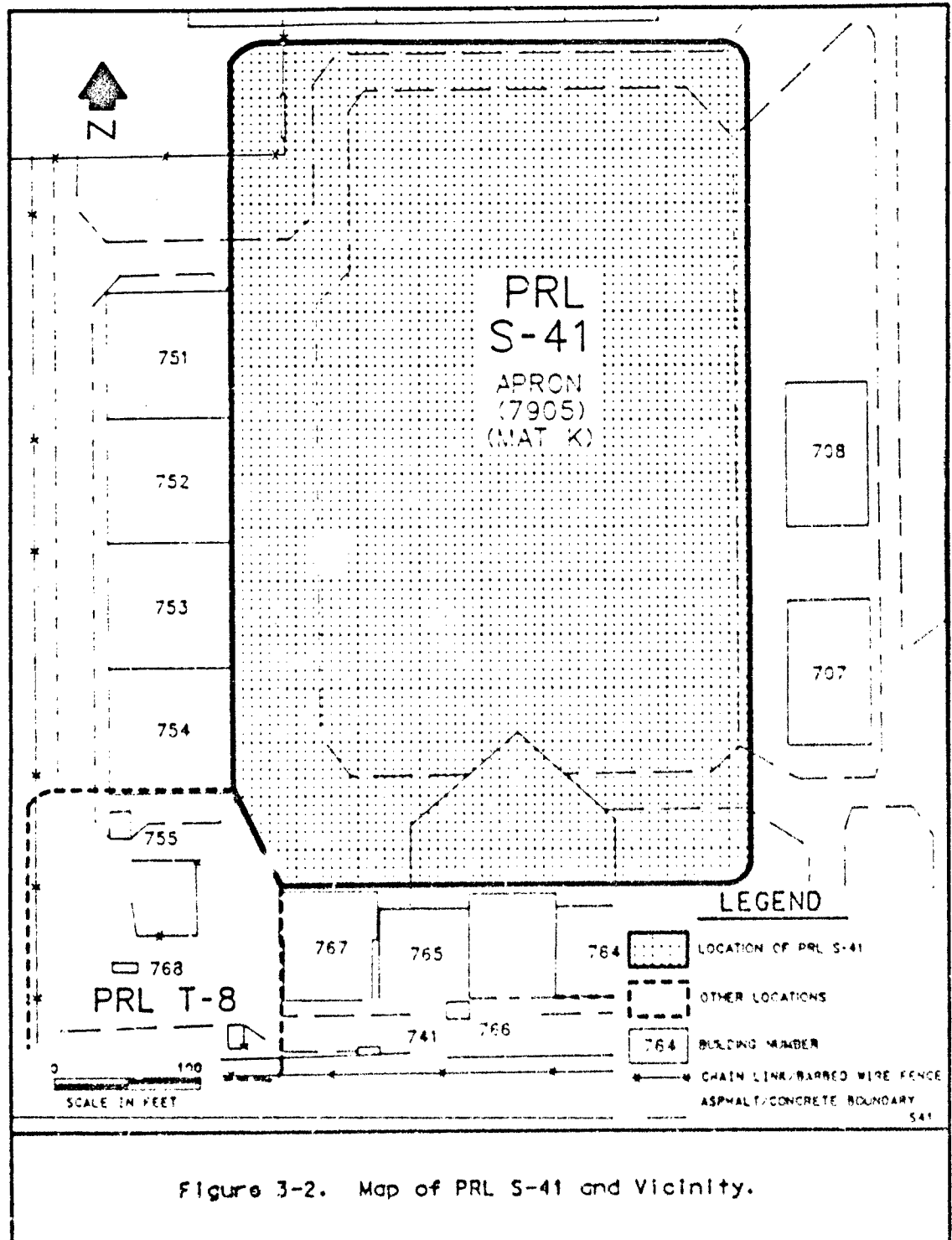
~ ~ ~ STREAMS

0 1500 3000



SCALE IN FEET

Figure 3-1. Map of PRL S-41 Within the McClellan AFB Facility.



Minor fuel and oil spills have occurred at Apron 7905, but these were cleaned up immediately with a steam cleaner (Whiting, personal communication, 1989).

3.3 Current Operations

Potential Release Location S-41 is currently used for aircraft fueling and defueling. The location is covered with concrete and asphalt; cracks appear to have been recently patched. Two small (100 square feet) oil stains (on asphalt) are located in the central part of location. Most of the airplanes are serviced in hangars surrounding PRL S-41; however, planes too large to fit into the hangars are serviced on PRL S-41. When planes are serviced on PRL S-41, drip pans are used to catch any fuel or oil that would otherwise spill onto the concrete. If spills occur, a steam cleaner is used to remove the material and clean the concrete (Whiting, personal communication, 1989).

Surface water runoff drains in a radial pattern away from the center of PRL S-41. Drains to the Industrial Waste Line (IWL) are located off-site at the rear of the hangars and receive most of the runoff from the location. A small amount of runoff drains into the unlined drainage ditch along Dean street.

3.4 Reported Releases

Releases of specific contaminants, other than the minor fuel and oil spills, have not been documented at PRL S-41.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL S-41.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) S-41.

4.1 Potential Contaminants of Concern

The potential contaminants of concern at PRL S-41 are the volatile organic compounds (VOCs) and semivolatile organic compounds associated with jet fuels. Soil samples have not been collected at this location.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL S-41. The potential for fire and explosion is unknown because the soil gas at the location has not been characterized. The location is completely paved; therefore, the emission of any explosive gases from the soil is reduced.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. Because the ground surface at PRL S-41 is paved, dermal contact is not likely and the potential for dust or particulate releases from the location is very low. However, exposure risk from potentially contaminated soil may be present to workers involved in any future construction or excavation activities at this location.

4.3 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are surface water infiltration rate, percolation rate, and contaminant characteristics. The infiltration rate for soil is primarily determined by surface characteristics of the area and permeability of the surface soils. The ground surface of PRL S-41 is paved, which reduces infiltration by intercepting rainfall and promoting runoff before it reaches the soil. Although the soil at PRL S-5 has not been characterized, soils collected from borings drilled at other sites in Operable Unit B range from clay loams to sandy loams. These characteristics indicate that the infiltration rate at PRL S-41 is very low.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of the contaminants. Small jet fuel and oil spills have occurred during routine aircraft maintenance at the location, but these were cleaned up immediately and the fuel and oil are not believed to have entered the soil (Whiting, personal communication, 1989). Although location specific, no information is available on soil characteristics, and available basewide boring information indicated that any relatively impermeable layers that may be present are not continuous and not an effective barrier to percolation.

4.3.1 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration to surface water. The topography at PRL S-41 is essentially flat. Surface water runoff drains in a radial pattern away from the center of PRL S-41. Water flows to Industrial Wastewater Line drains located immediately off site at the rear of the adjacent hangars, receiving most of the runoff from the location. Because the location is paved and any spills are immediately cleaned up, the potential for contaminant migration to surface water is very low. In addition, migration of volatile organic compounds is not likely because soils are not believed to be contaminated for the same reasons as stated above.

4.3.2 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. The surface at PRL S-41 is paved, limiting the ability of volatile contaminants in soils to migrate to air. Therefore, the potential for migration to air is considered to be very low.

5.0

CONCLUSIONS AND RECOMMENDATIONS

CH2M Hill mentioned Apron 7905 in their 1981 report when they discussed a contaminated fuel tank (now designated as Potential Release Location [PRL] T-8) and a leaking 10-10 oil line located in the vicinity of Apron 7905. McClellan Air Force Base (AFB) Office of Environmental Management (EM) designated Apron 7905 as PRL S-41 and cited maintenance personnel and McClellan AFB Civil Engineering (CE) drawings as rationale for including it as a Potential Release Location (PRL). The principal rationale appears to have been the use and potential for discharge of fuel at Apron 7905.

There is no evidence of contamination at the location, and there is a low potential for migration of any contamination that may have occurred. Therefore, Radian recommends that PRL S-41 be removed from the PRL list.

During the Preliminary Assessment investigations for PRLs S-41, T-8, T-46, and T-48, Radian found that underground pipes outside the perimeter of PRL S-41 carry jet fuel, contaminated fuel, and oil, to fuel tanks, contaminated fuel tanks, and the hangars along the perimeter of PRL S-41. The piping has not been evaluated for integrity and may represent a source of discharge. The Industrial Waste Line, which accepts surface runoff from the location, also represents a potential source of discharge. The underground piping will be assessed as a separate Potential Release Location. The drainage ditch along Dean Street south of PRL S-41 which may have received runoff from the site is unlined and will be sampled as part of the investigation of Study Area 16; the recommendations for SA 16 include this sampling. Although PRL S-41 is being recommended for no further action, samples may be taken within its boundaries to define the extent of contamination of adjacent sites (SA 16, T-8, T-46, and T-48) that have been recommended for further investigation.

6.0

REFERENCES

CH2M Hill, 1981. "Installation Restoration Program Phase I Record search for McClellan Air Force Base, California." Prepared for the Air Force Engineering Services Center Directorate of Environment Planning, Tyndall Air Force Base, Florida.

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McClellan AFB, 1986, Civil Engineering Files. As Built, RPR Surface of Fuel Area Mat K. Drawing No. S-MBE-S-6392, Sheet 2 of 3. Drawer Aprons. March.

McLaren Environmental Engineering, Inc., 1986. "Responses to Regulatory Agencies and Air Force Comments on McLaren Site Characterization Reports and Remedial Action Plans. Prepared for the Department of the Air Force Sacramento Air Logistics Center, McClellan AFB, California. December.

Whiting, P., personal communication, 1989. Personal communication with Paul Whiting, Work Leader, Mat K, McClellan Air Force Base, 11 April 1989.



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INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3

PRELIMINARY ASSESSMENT FOR PRL T-8
FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991

PREPARED BY:

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1.0

INTRODUCTION

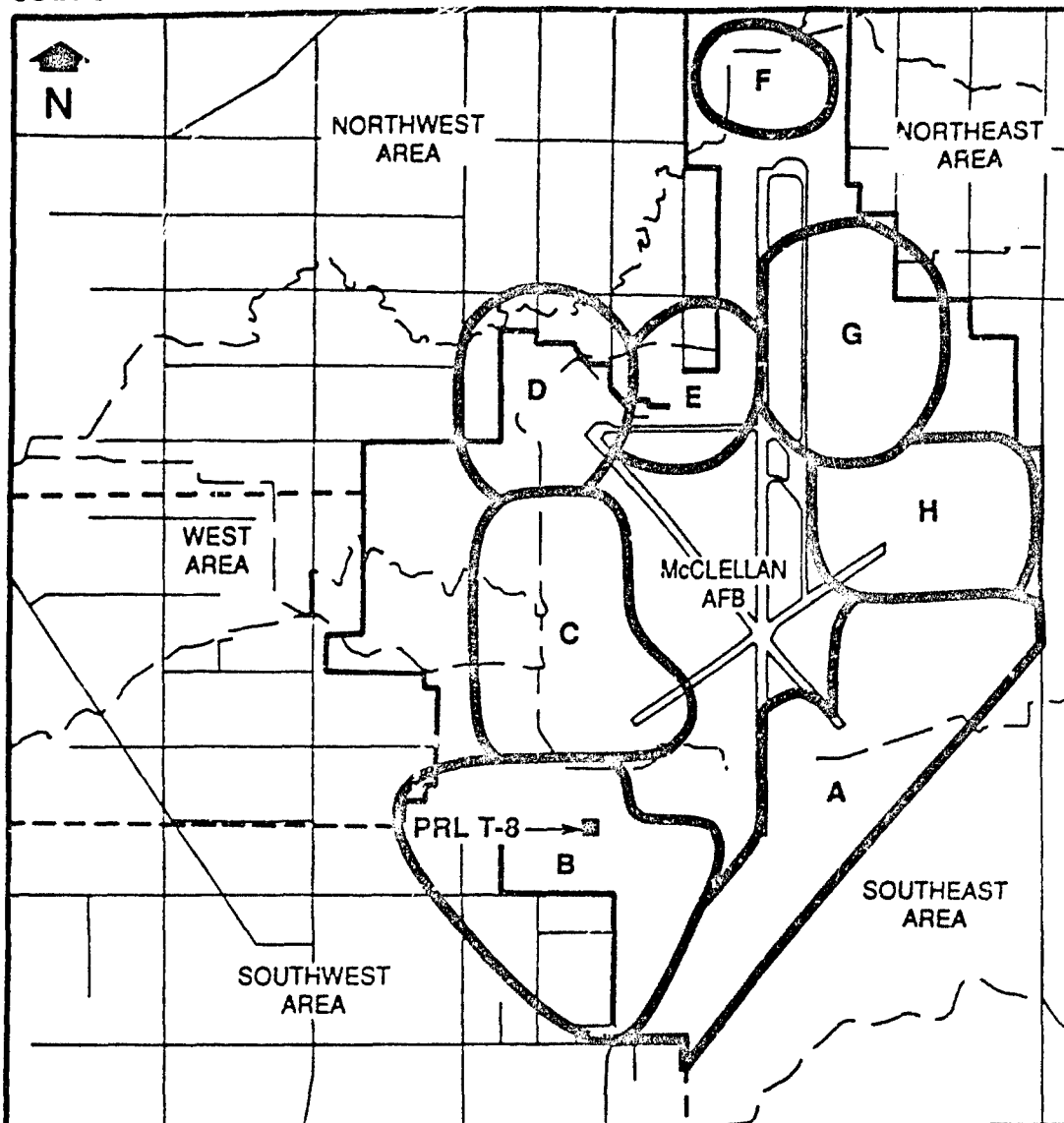
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) T-8 at McClellan Air Force Base (AFB), California. The location of PRL T-8 is shown in Figure 1-1. Potential Release Location T-8 is the location of three underground fuel storage tanks adjacent to Apron 7905 (Mat K). The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



LEGEND:

- McCLELLAN AFB BOUNDARY
- BOUNDARIES OF OFF-BASE AREAS
-  BOUNDARIES OF OPERABLE UNITS
-  STREAMS

0 1500 3000
SCALE IN FEET

Figure 1-1. Map of PRL T-8 Within the McClellan AFB Facility.

Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document and includes environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1981, CH2M Hill reviewed McClellan Air Force Base (AFB) files to determine the potential for hazardous material to migrate off the base. CH2M Hill did not identify Potential Release Location (PRL) T-8 as a Potential Release Location; however, they identified an underground 15,000-gallon contaminated fuel tank within the boundaries of PRL T-8 (CH2M Hill, 1981, p. II-43).

The location now designated PRL T-8 was identified as an "additional potential source of contamination" by McLaren Environmental Engineering, Inc., during their 1986 investigation of McClellan AFB. McLaren cited CH2M Hill's 1981 report as rationale for including PRL T-8 as a Potential Release Location (McLaren, 1986, pp. 49-51).

In 1987, EG&G Idaho, Inc., identified three tanks within the boundaries of PRL T-8 during their underground storage tank testing program (EG&G Idaho, Inc., 1987, pp. 3-12). EG&G Idaho tested two of the tanks for leaks.

2.2 Personnel Interviews

McClellan AFB personnel were interviewed by Radian for information regarding past operations at PRL T-8. Information from those interviews has been included in Section 3, Location Description. Documentation of the interviews is in the PRL T-8 Location File.

2.3 Location Visit

Radian personnel visited PRL T-8 on 11 April 1989 to document current features and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and activities. Table 2-1 lists the photographs that were reviewed for this Preliminary Assessment. Aerial photographs is discussed in more detail in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering files were reviewed for historical information during the preparation of this Preliminary Assessment. No information was found in Bioenvironmental Engineering files for PRL T-8. Civil Engineering Files contained "as-built" drawings of the Aircraft Fuel Check Facility dated 8 March 1968 by the United States Army Engineer District, Corps of Engineers (McClellan AFB, 1968). Several drawings were reviewed, specifically: "Site Plan," "Paving Plan," "Existing Facilities at Mat 'B' Apron," "Tank Details, JP-4 and Collection Tanks," "Piping Details, JP-4 and JP-5 Stations," and "Pump Equipment Layout, JP-4, JP-5 and Contaminated."

**TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL T-8**

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1956	McClellan AFB, History Office	Oblique
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) T-8 is located in Operable Unit (OU) B of McClellan Air Force Base (AFB), as shown in Figure 3-1. The location is part of the area designated "Mat K," which serves as McClellan AFB's Aircraft Fuel Check Facility. Three underground tanks used to store aircraft fuel are located within the boundaries of PRL T-8. Potential Release Location S-41 (Mat K), PRL T-46 (1010 Oil Tank), and PRL T-48 (1010 Oil with Soltrol 200 Tank) are located in the vicinity of PRL T-8 and will be assessed in separate Preliminary Assessments. A location map showing PRL T-8 and the surrounding area is presented in Figure 3-2.

The following subsections discuss location delineation, historical and current activities, reported releases, and remedial actions at PRL T-8.

3.1 Location Delineation

The location was first identified in 1981 by CH2M Hill. They described a "15,000-gallon contaminated fuel tank near Building 756" as "a site of interest" (CH2M Hill, 1981, p. II - 43).

McLaren Environmental Engineering, Inc., identified T-8 as an "additional potential source of contamination" based on the information reported by CH2M Hill (McLaren, 1986, pp. 49, 59, and 51). The boundaries of PRL T-8 are approximately 50 feet long by 40 feet wide. Radian established the boundaries of PRL T-8 to include the three underground storage tanks EG&G Idaho, Inc., identified during their underground tank testing program (EG&G Idaho, Inc., 1987, pp. 3-12).

3.2 Historical Activities

Radian's review of aerial photographs indicate that Mat K was constructed during the early 1960s. A 1962 aerial photograph shows the area now designated PRL T-8 being used for aircraft parking and storage. Aerial photographs indicate the above-ground piping associated with the tanks at PRL T-8 was installed between 1968 and 1971. These photographs corroborate construction drawings that indicate three tanks were installed within the boundaries of PRL T-8 in 1968:

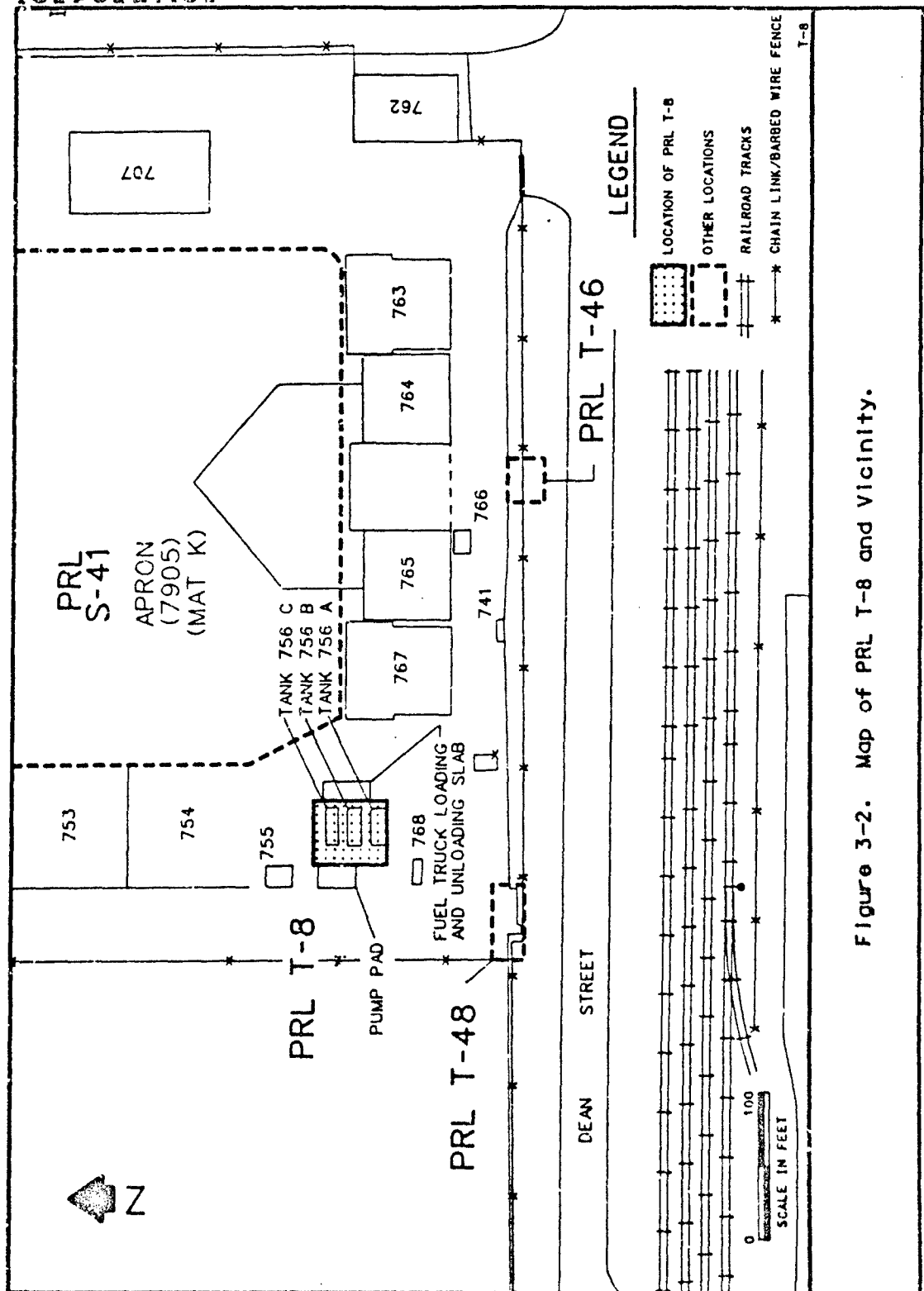


Figure 3-2. Map of PRL T-8 and vicinity.

- Tank 756-A, a 20,000-gallon tank containing JP-4;
- Tank 756-B, a 15,000-gallon tank containing JP-5; and
- Tank 756-C, a 15,000-gallon tank containing recyclable fuel.

Both types of jet aircraft fuel, JP-4 and JP-5 are similar, except JP-5 is less volatile; it is used in place of JP-4 during maintenance, to reduce the chance of explosion or fire (Whiting, personal communication, 1989).

Tank 756-C contains contaminated (used) JP-4, JP-5, 1010 oil, and Soltrol 200 solvent from the flight preparation area at Mat K. A petroleum product, 1010 oil, is used to clean aircraft fuel tanks. Soltrol 200 is a preservative used as an additive with 1010 oil to reduce corrosion during fuel system maintenance (Whiting, personal communication, 1989). Underground piping connects the tanks at PRL T-8 to some of the buildings adjacent to Mat K. Periodically, a waste oil contractor pumps the contents of the tank to a tanker truck. It is then transferred to another company, which filters the mixture and sells it as a supplement to heating fuel (CH2M Hill, 1981, p. J-9).

In November 1986, EG&G tested the two 15,000-gallon fuel tanks (Tank 756-B and Tank 756-C) at PRL T-8 for leaks using the Horner EZY-CHEK system. Both tanks were found to be leaking. They were repaired by McClellan AFB personnel and retested five days later. No leaks were found during the second test (EG&G Idaho, Inc., 1987, pp. 3-5, 3-8, 3-12). McClellan AFB Environmental Management personnel have indicated that EG&G's testing method may have caused the leaks (Hamilton, personal communication, 1989). No information is available to verify whether or not the leaks were caused by the testing procedures.

Tank 756-A was not tested because the County of Sacramento had determined that none of the approved leak testing methods were sensitive enough for tanks this large (20,000 gallons) (EG&G Idaho, Inc., 1987, p. 3-1).

In 1988, Tanks 756B and 756C were retested for leaks (Hamilton, personal communication, 1989). The results of the tests indicated the tanks were not leaking.

In September of 1988, an electronic metering system was installed on the tanks at PRL T-8 (Hamilton, personal communication, 1989). This system records the volume of fuel that enters and exits the tanks. The system is currently working very well, and none of the tanks appear to have any leaks.

3.3 Current Operations

The area within the boundaries of PRL T-8 is part of Mat K, and is covered with asphaltic cement. The site contains three underground fuel storage tanks, a pump pad containing the pumps necessary to operate the fuel tanks, and a fuel truck loading area. Potential Release Location T-8 is bounded on the north and east by aircraft hangars that are used to fuel and defuel aircraft. A lift station for the Industrial Wastewater Line (IWL) is located to the south of PRL T-8. To the west of PRL T-8 is a paved storage area.

3.4 Reported Releases

During EG&G Idaho's Underground Storage Tank Program in 1987, Tank 756-B (JP-5) and Tank 756-C (recyclable fuel) were indicated to have leaks during testing (EG&G Idaho, Inc., 1987, p. 3-12). It is unknown how long these leaks existed, but some release of contaminants may have occurred.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL T-8.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) T-8.

4.1 Potential Contaminants of Concern

The potential contaminants of concern at PRL T-8 are the volatile organic compounds (VOCs) and semivolatile organic compounds associated with the jet fuels stored in the tanks on site. Soil samples have not been collected at this location.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL T-8. The potential for fire and explosion is unknown because the soil gas at the location has not been characterized. The location is completely paved, therefore, the emission of any explosive gases from the soil would be reduced.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. Because the ground surface at PRL T-8 is paved, dermal contact is not likely and the potential for dust or particulate releases from the location is very low. However, exposure risk from potentially contaminated soil may be present to workers involved in any future construction or excavation activities at this location.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL T-8 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the location, and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the percolation rate of the soil, and contaminant characteristics.

The amount of infiltration at PRL T-8 is primarily related to surface characteristics of the area and permeability of the soil. The ground surface of PRL T-8 is covered with asphalt pavement which significantly reduces the potential for water to infiltrate surface soils.

The percolation rate of contaminants depends on soil permeability, structure, stratification, and characteristics of the contaminants. Although permeability data on the soil at PRL T-8 are not available, basewide boring information shows that soils range from clay loams to sandy loams and that relatively impermeable layers are not continuous or effective barriers to percolation. Therefore, any contaminants that may have entered the soil from leaking tanks could potentially percolate to groundwater.

The contaminants of concern at PRL T-8 are VOCs and semivolatile organic compounds. Because physical characteristics vary for each contaminant, the potential for contaminant migration to groundwater cannot presently be evaluated. However, VOCs generally are the most soluble of these contaminants and have the highest potential for dissolving in surface water and being carried with the advective flow to groundwater. Most semivolatile organic compounds do not easily dissolve in percolating water and have a tendency to remain in near-surface soils.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration of dissolved contaminants to surface water. Because the only source of potential contamination at PRL T-8 is from underground tanks, the potential for migration of any contamination to surface water is very low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. The surface at PRL T-8 is paved which limits the ability of volatile contaminants in soils to migrate to the air. Therefore, the potential for migration to air is considered to be very low.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Three underground fuel tanks are located within the boundaries of Potential Release Location (PRL) T-8:

- Tank 756-A, a 20,000-gallon tank containing JP-4;
- Tank 756-B, a 15,000-gallon tank containing JP-5; and
- Tank 756-C, a 15,000-gallon tank containing recyclable fuel.

In 1987, EG&G Idaho, Inc. tested Tanks 756-B and 756-C for leaks. Test methods indicated both tanks were leaking. Although it is unknown how long the leaks existed, fuel may have been discharged into the soil at PRL T-8. In order to determine the presence or absence of contamination, Radian recommends a soil investigation of PRL T-8. Samples of the soils and soil gas beneath and adjacent to the three fuel tanks within PRL T-8 should be collected and analyzed for volatile and semivolatile organic compounds and metals using appropriate analytical methods. If the soil and soil gas sampling does not indicate soil contamination, Radian recommends that PRL T-8 be removed from the list of Potential Release Locations.

The piping that connects the tanks at PRL T-8 to the buildings adjacent to Mat K has not been included in this Preliminary Assessment. Because the pipes carry fuel, the potential exists for contamination if the pipes have leaked. For this reason, Radian recommends that the piping located adjacent to the buildings at Mat K be added to the list of Potential Release Locations at McClellan Air Force Base (AFB). After the addition, the piping should be checked for potential discharge of fuel to soils.

6.0

REFERENCES

CH2M Hill, 1981. "Installation Restoration Program Phase I, Record Search Draft. Prepared for Air Force Engineering Services Center Directorate of Environmental Planning, Tyndall Air Force Base, Florida.

EG&G Idaho, Inc., 1987. "Interim Report, Underground Storage Tank Program, McClellan AFB, Sacramento, California." Prepared for EG&G Idaho, Inc. November.

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Whiting, P., personal communication, 1989. Personal communication with Paul Whiting, Work Leader, McClellan AFB MABPAE, 11 April 1989.



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INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3

PRELIMINARY ASSESSMENT FOR PRL T-45
FINAL

FOR

McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990

OCTOBER 1991

PREPARED BY:

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USAF CONTRACT NO. F33615-87-D-4023, DELIVERY ORDER NO. 0012
CONTRACTOR CONTRACT NO. 227-005, DELIVERY ORDER NO. 0012

United States Air Force Center for Environmental Excellence
Mr. Patrick Haas (Technical Project Manager)
Environmental Services Office/Environmental Restoration Division (AFCEE/ESR)
Brooks Air Force Base, Texas 78235-5501



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1.0 INTRODUCTION

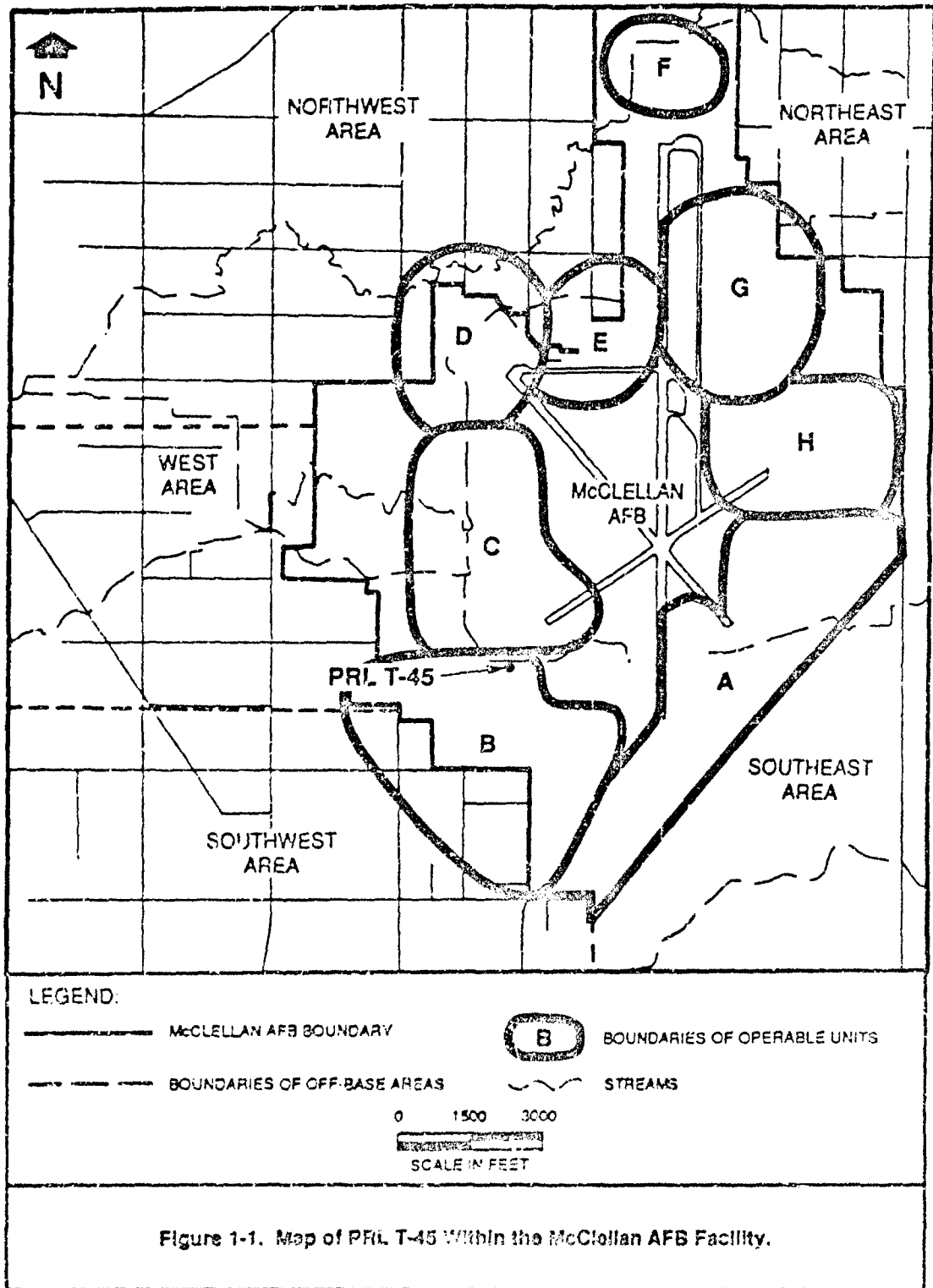
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) T-45 at McClellan Air Force Base (AFB), California. The location of PRL T-45 is shown on Figure 1-1. Potential Release Location T-45 is the location of an abandoned concrete oil-water separator tank. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document including environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards;
- Evaluation of previous contractor's recommendations; and
- Conclusions and recommendations.



2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1987, EG&G Idaho, Inc., investigated the underground storage tanks at McClellan Air Force Base (AFB) to assist in the permitting of all in-service tanks and the closure of out-of-service tanks. As part of this investigation, the location and contents of the abandoned underground tank at Potential Release Location (PRL) T-45 were determined. In addition, EG&G Idaho developed a plan and estimated the cost for removing the PRL T-45 tank (EG&G Idaho, Inc., 1987, Appendix H).

2.2 Personnel Interviews

Personnel interviews with McClellan AFB employees regarding the underground tank at PRL T-45 have not been conducted by Radian because base personnel who may be able to provide pertinent site-specific information could not be located.

2.3 Location Visit

Radian personnel visited PRL T-45 on 11 April 1989 for the purpose of investigating the current conditions and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. The year, scale, and source of each aerial photograph reviewed for this Preliminary Assessment are listed in Table 2-1. The information provided by the aerial photographs is limited because the tank at PRL T-45 is underground.



TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL T-45

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.



2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering Files were reviewed for historical information during the preparation of this Preliminary Assessment; however, no information was found in the files for PRL T-45.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) T-45 (shown in Figure 3-1) is within Operable Unit (OU) B of McClellan Air Force Base (AFB). Potential Release Location T-45 is an abandoned concrete oil-water separator tank. A map showing PRL T-45 and the surrounding area is presented in Figure 3-2.

3.1 Location Delineation

Potential Release Location T-45 is one of nine additional locations identified by McClellan AFB Directorate of Environmental Management (EM). Original documentation has not been found; however, a list of uninvestigated sites identified by EM was presented in a McLaren Environmental Engineering, Inc., "Response to Comments" document (McLaren, 1986). In this document, PRL T-45 is described as the abandoned oil-water separator system located north of Building 711.

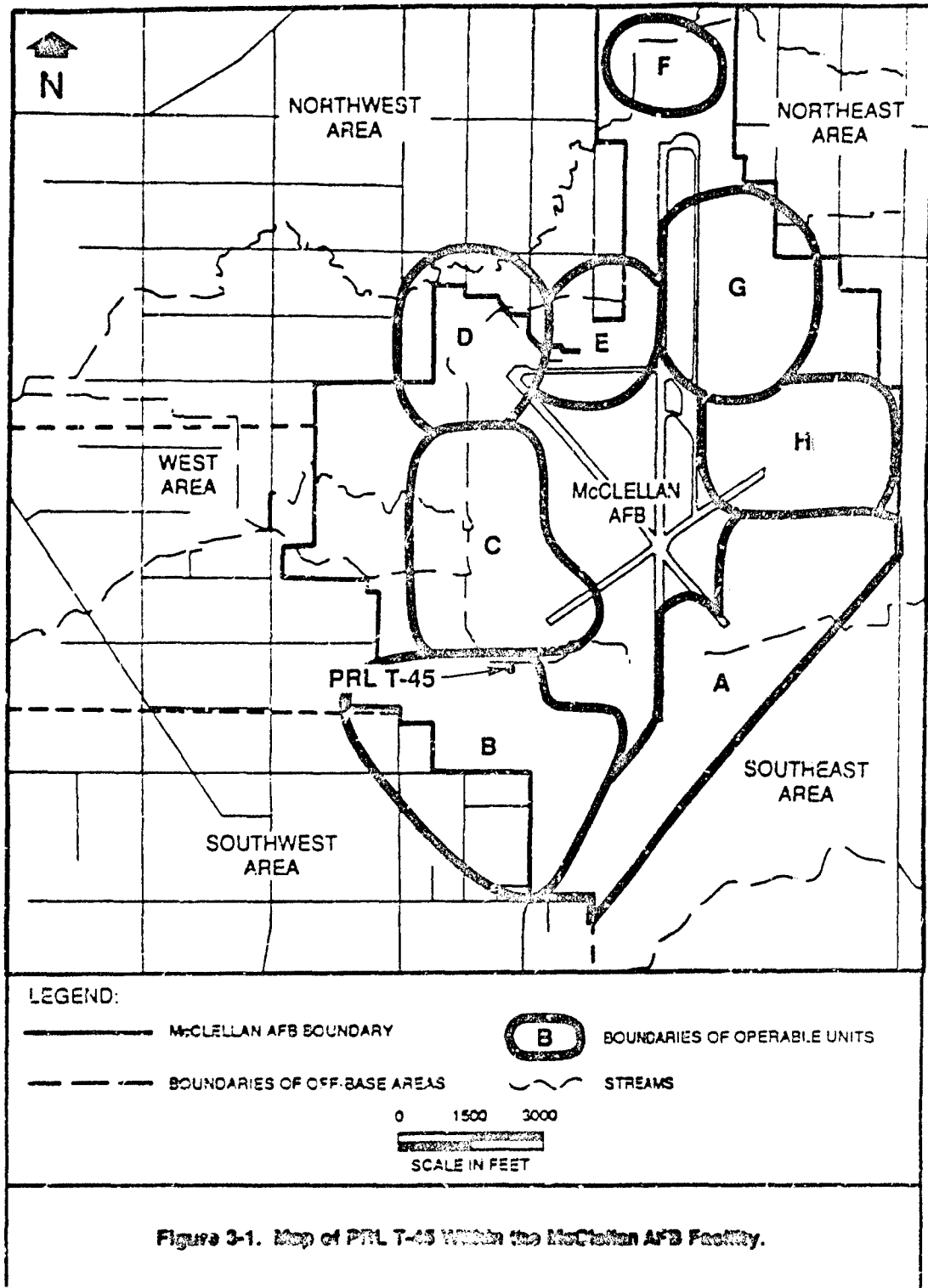
The underground storage tank investigation by EG&G Idaho, Inc., provided the first detailed description of the oil-water separator. As part of this investigation, EG&G Idaho determined the location, dimensions, and contents of the oil-water separator. Radian personnel visited the location on 11 April 1989 and confirmed the specific location of the separator. The boundaries of PRL T-45 (see Figure 3-2) include the oil-water separator and associated piping.

3.2 Historical Activities

The following subsections discuss the dates of operation, physical description of the tank, and sampling and analysis of the tank contents.

Dates of Operation

No information was available during the preparation of this Preliminary Assessment to determine when the oil-water separator was installed or when it was removed from service. Civil Engineering did not have drawings of the separator, and McClellan AFB personnel familiar with the separator could not be located. Based on the presence of abandoned piping observed during Radian's site visit, Building 711 may have been connected to the separator; Building 711 is located approximately 50 feet south of the separator and was constructed in 1968 (Cartwright Aerial Surveys, 1968, No. 2247-2-20).



Map of PRL T-45 and Vicinity.

Labels on map:

- 757
- 758
- 736
- 751
- CONCRETE SIDEWALK
- UNDERGROUND DISCHARGE PIPE
- UNDERGROUND TANK
- MAGPIE CREEK CHANNEL
- LATRINE
- ABOVE GROUND PROPANE TANK
- PAVED
- UNPAVED
- ASPHALT PARKING LOT
- PRL T-45
- PRL S-41
- UNDERGROUND PIPE LEADING FROM BN 711
- 711 C
- E
- D
- B
- A
- 75'

Legend:

- LOCATION OF PRL T-45
- OTHER LOCATION
- PAVED OVER PORTION OF CANAL
- OPEN CONCRETE DRAINAGE CANAL

Scale: 0 100 SCALE IN FEET



Physical Description

Because Civil Engineering did not have drawings of the separator, the observed physical dimension of the separator and the piping leading to the separator provide the only description of the separator. The oil-water separator (PRL T-45) is an underground concrete tank with a diameter of approximately 7 feet (EG&G Idaho, 1987, Appendix I, p. I-47), and an estimated volume of 2,000 gallons (EG&G Idaho, 1987, Appendix H). The tank has an above-ground steel top on which a pump is mounted. During its investigation, EG&G Idaho measured "waste oil" 40.5 inches deep inside the tank (EG&G Idaho, 1987, Appendix I, p. I-47).

Information gathered during the EG&G Idaho and Radian investigations of PRL T-45 indicates that supernatant liquids from the oil-water separator were discharged to Magpie Creek. A discharge pipe leads from the oil-water separator to Magpie Creek located 25 feet to the north (EG&G Idaho, 1987, Appendix H). During Radian's visit, the end of the pipe was protruding from the side of the Magpie Creek channel.

The source and method of transport of materials to the tank have not been determined; however, it appears that the tank is connected to Building 711 via piping along an open concrete drainage canal. The location of the open concrete drainage canal is shown in Figure 3-2. An underground pipe was observed protruding into the drainage canal directly south of the tank; it apparently runs northward toward the tank. Civil Engineering drawings could not be found to confirm the location of the tank inlet pipe. Building 711 is connected to the drainage canal via underground pipes. Personnel who may be knowledgeable of the historical operations of Building 711 and the type of liquids that potentially were transported to the tank could not be located. However, aerial photographs indicate that Building 711 was constructed in 1968 (Cartwright Aerial Survey, 1968, No. 2247-2-20).

Sampling and Analysis of Tank Contents

In 1986, EG&G Idaho collected and analyzed three samples from the tank. Their sampling methodology was not documented. The samples were analyzed for the following parameters:

- Oil and grease, using United States Environmental Protection Agency (U.S. EPA) Method 502A;

- Volatile organic compounds, using U.S. EPA Methods 601, 602, and 8020;
- Semivolatile organic compounds, using U.S. EPA Methods 625 and 8270;
- Pesticides, using U.S. EPA Method 608; and
- Metals, using U.S. EPA Method 6010.

The following organic compounds were detected:

- Acenaphthylene;
- Anthracene;
- Bis(2-ethylhexyl)phthalate;
- Butylbenzyl phthalate;
- 4-Chloroaniline;
- Dichloromethane;
- Dimethylphthalate;
- Di-n-butyl phthalate;
- Fluoranthene;
- 2-Methylnaphthalene;
- Naphthalene;
- Oil and grease; and
- Pyrene.

Thirteen different metals were also detected in the samples. Quantified analytical results are not presented in this Preliminary Assessment; the composition and detected concentrations are only indicative of what the separator contained at the time of sampling and may not be representative of historical wastes collected in the separator. Quantified analytical results for these samples are presented in the EG&G Idaho report, Underground Storage Tank Program (EG&G Idaho, Inc., 1987, Appendix H).

3.3 Current Activities

Radian personnel visited PRL T-45 on 11 April 1989 to observe the current conditions and activities at the location. The oil-water separator tank is not in use. A 16-inch portion of the tank is visible above the ground and is constructed of



concrete. McClellan AFB Environmental Engineering is planning to remove the tank in the near future (Hamilton, personal communication, 1989). After the tank is removed, soil samples from beneath the tank will be collected and analyzed to determine if the soil underneath the tank is contaminated.

The visible portion of the tank is located at the top of a mound of soil. The ground immediately surrounding the tank is not covered by pavement, although pavement extends to approximately 15 feet to the west of the tank and 25 feet to the south. The paved and unpaved areas of PRL T-45 and vicinity are shown in Figure 3-2. An above-ground propane tank is located approximately 20 feet southeast from the tank at PRL T-45 (see Figure 3-2).

The eastern half of the cement drainage canal located south of the tank has been filled with cement. Information from personnel interviews indicates that the eastern half of the drainage canal was filled with cement when the parking lot northeast of Building 711 was constructed (Whiting, personal communication, 1989). The western half of the cement drainage canal contains a steel pipe; it is currently used as a drain for water used in Building 711 (Whiting, personal communication, 1989). The western half of the drainage canal is open and, thus, may also serve as a drain for surface water runoff.

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL T-45.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL T-45.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) T-45.

4.1 Potential Contaminants of Concern

The potential contaminants of concern at PRL T-45 are the volatile organic compounds (VOCs), semivolatile organic compounds, and metals that may have been constituents of the contents of the storage tank at the location. Soil samples have not been collected; however, a sample of the tank contents was collected and analyzed, and thirteen organic compounds and thirteen metals were detected in the sample.

4.2 Immediate Hazards

This section describes potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action to contaminants present at PRL T-45. The potential for fire and explosion is unknown because the soil gas at the location has not been characterized.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. The ground surface immediately surrounding the tank at PRL T-45 is unpaved; however, because the potential contaminant source is below ground surface, the potential for dermal contact with or particulate release from potentially contaminated soils is minimal. In addition, exposure risk from potentially contaminated soil may be present to workers involved in any future construction or excavation activities at this location.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL T-45 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the location and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the percolation rate of the soil, and contaminant characteristics.

The amount of infiltration is primarily related to surface characteristics of the area and permeability of the soil. The ground surface at PRL T-45 is unpaved, allowing infiltration of surface water; however, the surface is sloped away from the tank, and so, would tend to minimize infiltration.

The percolation rate of contaminants depends on soil permeability, structure, stratification, and characteristics of contaminants. Although permeability data on the soil at PRL T-45 are not available, basewide boring information shows that soils range from clay loams to sandy loams and that relatively impermeable layers are not continuous or effective barriers to percolation. Therefore, any contaminants that may have entered the soil from a potentially leaking tank could possibly percolate to groundwater.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration of dissolved contaminants to surface water. Because the only source of potential contamination at PRL T-45 is from an underground tank, the potential for migration of any contamination to surface water is very low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics influence the potential for migration to air. The ground surface at PRL T-45 is unpaved which would allow volatile contaminants that may be present in soils to migrate to air. However, contamination at PRL T-45 has not been confirmed, and any leaks from the underground tank would be below ground surface; therefore, the potential for migration of contaminants to air at the PRL T-45 is thought to be low.

5.0 EVALUATION OF PREVIOUS CONTRACTORS' RECOMMENDATIONS

In 1987, EG&G Idaho recommended that the tank at Potential Release Location (PRL) T-45 be removed (EG&G Idaho, 1987, Appendix H). EG&G Idaho also recommended that following the removal of the tank, grab soil samples be collected from the excavated area to determine the presence of contaminants and the need for further excavation of the contaminated soil. EG&G Idaho did not specify what analyses should be performed on the samples collected. Radian agrees that the tank should be removed and soil samples collected from the soil beneath and surrounding the tank.

CONCLUSIONS AND RECOMMENDATIONS

Limited information was available for the preparation of this Preliminary Assessment of the abandoned oil-water separator tank at Potential Release Location (PRL) T-45. Civil Engineering drawings of the tank or personnel familiar with the operation of the tank could not be found. The physical dimension of the tank, piping connected to the tank, and the current contents of the tank provide the only information on the historical use of the tank.

In 1987, EG&G Idaho, Inc., investigated the underground tank and determined that it is an oil-water separator with an estimated volume of 2,000 gallons. Piping observed during the EG&G Idaho and Radian investigations indicates that the tank historically discharged water to Magpie Creek. The source and method of transport of materials to the tank have not been determined; however, it appears that the tank may be connected to Building 711 via an open concrete drainage canal.

In 1987, EG&G Idaho described the contents of the tank as "waste oil/water" (EG&G Idaho, 1987, Appendix H). EG&G Idaho collected and analyzed samples from the tank contents; compounds detected were oil and grease, 1 volatile organic compound (VOC), and 11 semivolatile organic compounds.

Although the structural integrity of the tank at PRL T-45 has not been determined, Radian recommends that the abandoned tank and associated piping at PRL T-45 be removed to eliminate it as a potential source of contamination to the soils of PRL T-45. Sediments from the adjacent drainage ditch (i.e. Magpie Creek) will be sampled and analyzed during the investigation of Operable Unit C as a separate site. The following actions should be performed during the removal of the tank and piping to determine the extent of any soil contamination at PRL T-45:

- Soil samples should be collected from the excavated area around the tank and along the course of pipes found connected to the tank; all soil samples collected should be analyzed for volatile and semi-volatile organic compounds, fuel hydrocarbons, and metals; and
- The results of the soil samples should be used to determine the extent of any soil contamination at PRL T-45 and the need for further excavation or sampling of contaminated soil at PRL T-45.

7.0

REFERENCES

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Whiting, P., personal communication, 1989. Personal communication with Paul Whiting, McClellan Air Force Base, 11 April 1989.



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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL T-46
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY:

**Radian Corporation
10395 Old Placerville Road
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1.0 INTRODUCTION

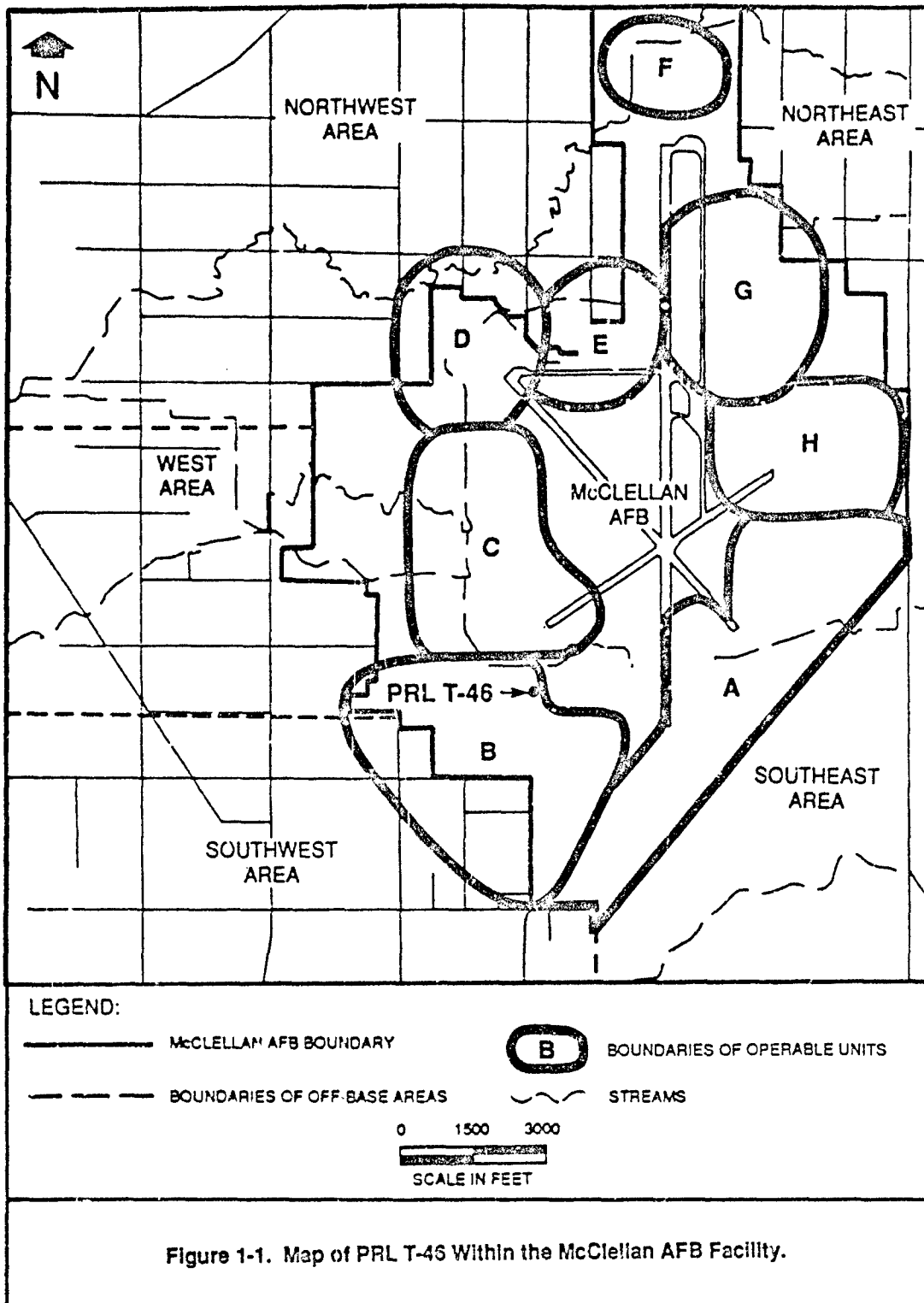
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) T-46 at McClellan Air Force Base (AFB), California. Potential Release Location T-46 is the location of an abandoned concrete oil-water separator tank. The location of PRL T-46 is shown on Figure 1-1. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
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- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document which includes environmental setting, land use, hydrogeologic conditions, facility history and a discussion of potential receptors.

This Preliminary Assessment document includes the following.

- Information sources used in the preparation of this document;
- Location description, including historical activities;
- Potential hazards;
- An evaluation of previous contractors' recommendations; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

The area now designated as Potential Release Location (PRL) T-46 is one of nine additional sites identified by McClellan Air Force Base (AFB) Office of Environmental Management (EM). Original documentation has not been found; however, a list of uninvestigated sites identified by EM was presented in a McLaren Environmental Engineering, Inc., "Response to Comments" document (McLaren, 1986). In that document, site T-46 is described as the abandoned oil-water separator located south of Building 764.

In 1987, EG&G Idaho, Inc., investigated the underground storage tanks at McClellan AFB to assist in the permitting of all in-service tanks and the closure of out-of-service tanks. As part of this investigation, the location and contents of the abandoned underground oil-water separator at PRL T-46 were determined. EG&G Idaho developed a plan and estimated the cost for removing the PRL T-46 tank (EG&G Idaho, Inc., 1987, Appendix H).

2.2 Personnel Interviews

Interviews were conducted by Radian with McClellan AFB employees who are familiar with the operations performed in the buildings connected to the separator at PRL T-46. However, no personnel with any knowledge of the historical operations of the separator could be located.

2.3 Location Visit

Radian personnel visited PRL T-46 on 5 May 1989 for the purpose of investigating the current conditions and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. The year, scale, and source of each aerial photograph

reviewed for this Preliminary Assessment are listed in Table 2-1. The historical information provided by the aerial photographs is limited because the separator at PRL T-46 is underground.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering Files were reviewed for historical information during the preparation of this Preliminary Assessment. Drawings dated 1968, 1970, and 1972 were found in the Civil Engineering Files; these drawings identify the location of the separator at PRL T-46 and the underground pipelines connected to the separator (McClellan AFB, 1968, 1970, 1972). A 1962 aerial photograph of the location was found in the History Office Files (McClellan AFB, 1962). No site-specific information was found in the Bioenvironmental Engineering Files.

TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL T-46

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1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) T-46 (shown in Figure 3-1) is located in Operable Unit (OU) B of McClellan Air Force Base (AFB). Potential Release Location T-46 is the location of an abandoned concrete oil-water separator tank. Potential Release Location T-48 and PRL T-8 are located west of PRL T-46 and are discussed in separate Preliminary Assessments. A map showing PRL T-46 and the surrounding area is presented in Figure 3-2.

3.1 Location Delineation

Although the McClellan AFB Office of Environmental Management (EM) identified PRL T-46 as an additional potential source area, EM did not delineate the location boundaries. The underground storage tank investigation by EG&G Idaho, Inc., provided the first detailed description of the oil-water separator at PRL T-46. As part of its investigation, EG&G Idaho determined the location, dimensions, and contents of the oil-water separator. Radian personnel visited the location on 5 May 1989 to confirm the location of the separator. The boundaries of PRL T-46 include the oil-water separator and the immediate surroundings shown in Figure 3-2.

3.2 Historical Activities

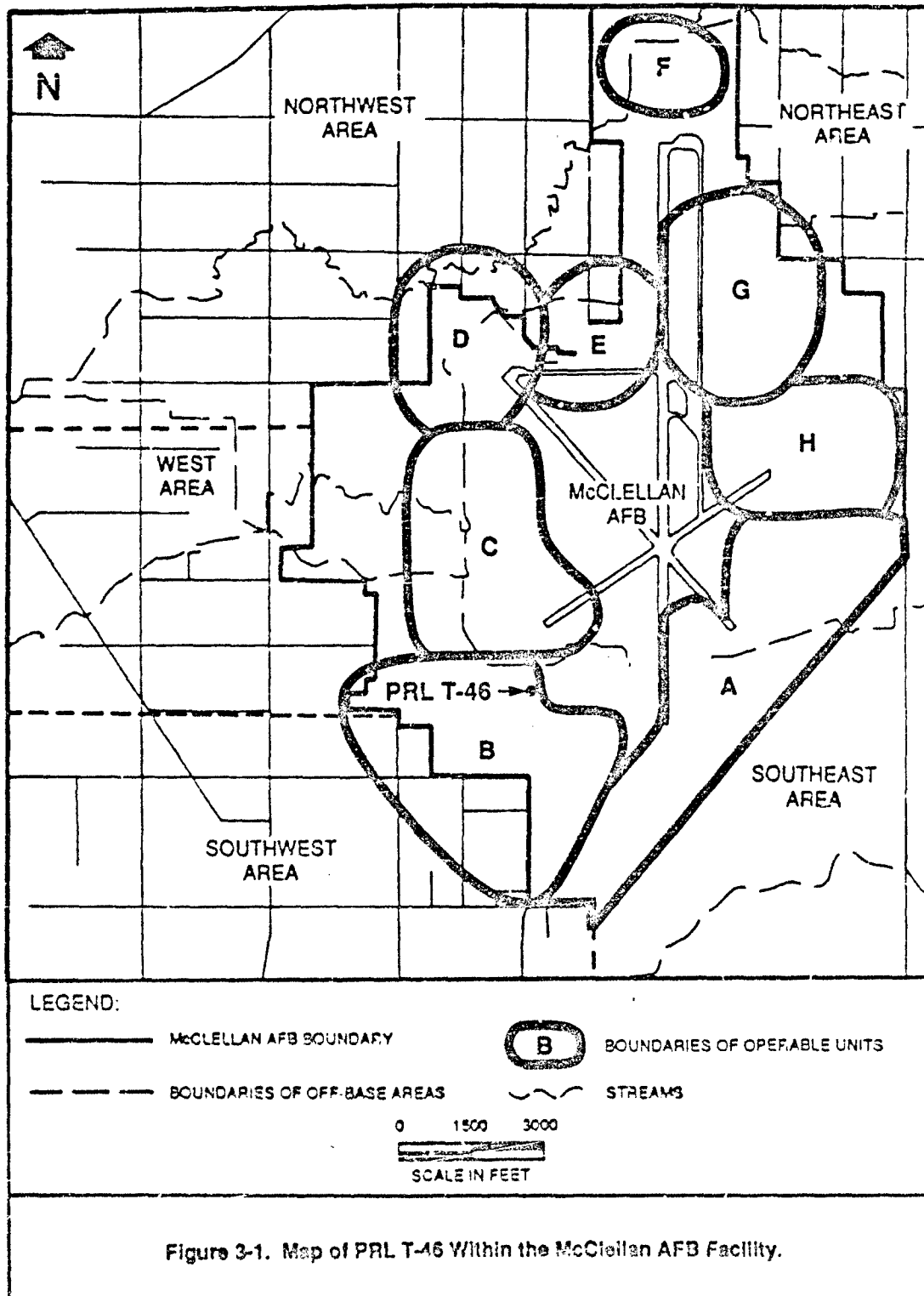
The following subsections describe the dates of operation and the physical design of the separator. In addition, the results of the sampling and analysis of tank contents are presented.

Dates of Operation

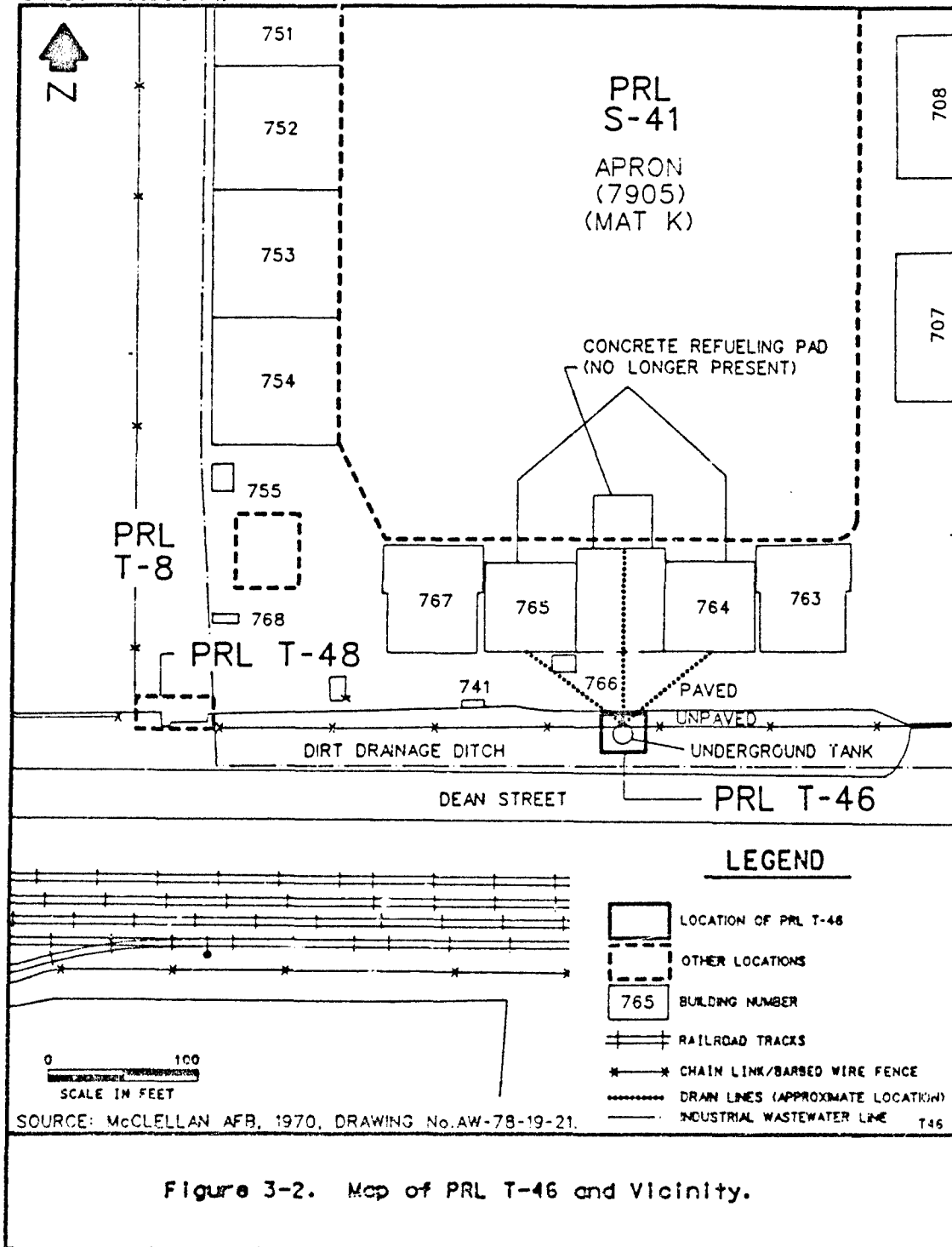
No information was available during the preparation of this Preliminary Assessment to determine when the oil-water separator was installed or when it was removed from service. However, the oil-water separator was installed before 1968 because it is labeled "Sump and Pump, Existing" in a 1968 Civil Engineering Drawing (McClellan AFB, 1968).

Physical Description

The oil-water separator at PRL T-46 is an underground concrete chamber with an estimated volume of 2,000 gallons. The separator consists of two tanks, one



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enclosed within the other. The inner tank has a radius of 18 inches; the outer tank has a radius of 34 inches (EG&G Idaho, Inc., 1987, Appendix I).

Because personnel with knowledge of the historical operation of the separator could not be located, the piping leading to the separator provides the only indication of the historical use of the tank. A 1970 Civil Engineering drawing indicates that "drain lines" connect the separator at PRL T-46 to Buildings 764 and 765 and to the "Refueling Slab" on the south side of Mat K (see Figure 3-2) (McClellan AFB, 1970). Buildings 764 and 765 were constructed in 1962 and were used for the refueling and repairing of aircraft (McClellan AFB, 1962; Whiting, personal communication, 1989). Two jet aircraft fuels (JP-4 and JP-5) and 10/10 oil were commonly used in these buildings and may have been conveyed to the separator at PRL T-46 along with other waste oils and fuels. The disposal method for the wastes that collected in the separator is unknown. However, the Industrial Wastewater Line (IWL) is located immediately south of PRL T-46 and may have received water or wastes from the separator.

Sampling and Analysis of Tank Contents

In 1986, EG&G Idaho collected and analyzed three samples from the tanks at PRL T-46. Their sampling methodology was not documented. The samples were analyzed for the following parameters:

- Volatile Organic Compounds, using United States Environmental Protection Agency (U.S. EPA) Methods 601 and 602;
- Semivolatile Organic Compounds, using U.S. EPA Method 625;
- Pesticides, using U.S. EPA Method 608; and
- Metals, using U.S. EPA Method 6010.

The following compounds were detected:

- Acenaphthene;
- Benzene;
- bis(2-Ethylhexyl)phthalate;
- 4-Chloroaniline;

- Dichloromethane;
- 2,4-Dimethylphenol;
- Fluorene;
- Heptachlor epoxide;
- 2-Methyl-4,6-dinitrophenol;
- 2-Methylnaphthalene;
- Naphthalene;
- 2-Nitrophenol;
- Toluene; and
- Xylene.

Fifteen different metals were also detected in the sample. Quantified analytical results are not presented in this report; the composition and detected concentrations in the sample are only indicative of what the tanks contained at the time of sampling and may not be representative of wastes historically contained in the separator. Quantified analytical results for these samples are available in the EG&G Idaho report (EG&G Idaho, Inc., 1987, Appendix H).

3.3 Current Activities

Radian personnel visited PRL T-46 on 5 May 1989 to determine the current conditions and activities at the location. The oil-water separator is not in use. An 8-inch concrete portion of the separator is visible above ground surface. McClellan AFB Environmental Engineering is planning to remove the tank at PRL T-46 in the near future (Hamilton, personal communication, 1989). After the tank is removed, soil samples from beneath the tank are to be collected and analyzed to determine if contamination is present in the soil.

An abandoned concrete pad is located approximately 10 feet southeast of the separator. The ground immediately surrounding the separator is unpaved, although the ground approximately two feet north of the separator is paved. The paved and unpaved areas of PRL T-46 and vicinity are shown in Figure 3-2.

The ground surface at PRL T-46 slopes toward an unlined drainage ditch located approximately 20 feet south of the separator (see Figure 3-2). The ditch drains westward along Dean Street toward storm drains located on the west side of Mat K (McClellan AFB, 1979, Drawing No. S-MBE-S-5155).

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL T-46.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL T-46.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) T-46.

4.1 Potential Contaminants of Concern

The potential contaminants of concern at PRL T-46 are the volatile organic compounds (VOCs), semivolatile organic compounds, and metals that may have been constituents of the contents of the storage tank at the location. Soil samples have not been collected at the locations. However, a sample of the tank contents was collected and analyzed, and fourteen organic compounds and fifteen metals were detected in the sample.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action to contaminants present at PRL T-46. The potential for fire and explosion is unknown because the soil gas at the location has not been characterized.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. The ground surface immediately surrounding the tank at PRL T-46 is unpaved; however, because the potential contaminant source is below ground surface, the potential for dermal contact with or particulate release from potentially contaminated soils is minimal. In addition, exposure risk from potentially contaminated soil may be present to workers involved in any future construction or excavation activities at this location.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL T-46 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the percolation rate of the soil, and contaminant characteristics.

The amount of infiltration is primarily related to surface characteristics of the area and permeability of the soil. The ground surface at PRL T-46 is unpaved, allowing infiltration of surface water; however, the surface is sloped away from the tank, and so, would tend to minimize infiltration.

The percolation rate of contaminants depends on soil permeability, structure, stratification, and characteristics of contaminants. Although permeability data on the soil at PRL T-46 are not available, basewide boring information shows that soils range from clay loams to sandy loams and that relatively impermeable layers are not continuous or effective barriers to percolation. Therefore, any contaminants that may have entered the soil from a potentially leaking tank could possibly percolate to groundwater.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration of dissolved contaminants to surface water. Because the only source of potential contamination at PRL T-46 is from an underground tank, the potential for migration of any contamination to surface water is very low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. The ground surface at PRL T-46 is unpaved which would allow volatile contaminants that may be present in soils to migrate to air. However, contamination at PRL T-46 has not been confirmed, and any leaks from the underground tank would be below ground surface; therefore, the potential for migration of contaminants to air at the PRL T-46 is believed to be low.

5.0 EVALUATION OF PREVIOUS CONTRACTORS' RECOMMENDATIONS

In 1987, EG&G Idaho, Inc., recommended that the tanks at Potential Release Location (PRL) T-46 be removed (EG&G Idaho, 1987, Appendix H). EG&G Idaho also recommended that, following the removal of the tanks, grab soil samples be collected from the excavated area to determine the presence of contaminants and the need for further excavation and removal of the contaminated soil. EG&G Idaho did not specify what analyses should be performed on the samples collected.

Radian agrees that the tank should be removed and soil samples collected from the soil beneath and surrounding the tanks. In addition, the piping connected to the tanks should be removed and soil samples should be collected along these pipes. All soil samples collected should be analyzed for volatile and semivolatile organic compounds, and metals. The results of the analyses will determine the presence and concentration of any soil contamination and the need for further excavation or sampling of contaminated soil at PRL T-46.

6.0

CONCLUSIONS AND RECOMMENDATIONS

Potential Release Location (PRL) T-46 is the location of an abandoned oil-water separator. Civil Engineering drawings reveal that the separator was installed by 1968. It is unknown when the separator was removed from service. Underground pipes connected the separator to Buildings 764 and 765 and to the refueling area on the south end of Mat K. Jet aircraft fuels and oil were commonly used in these buildings and may have been transported to the tank. The disposal method for the wastes that collected in the tank is unknown.

EG&G Idaho collected and analyzed samples of the tank contents in 1987. Fourteen different organic compounds were detected. Although the structural integrity of the tank at PRL T-46 has not been determined, Radian recommends that the abandoned tank and associated piping at PRL T-46 be removed to eliminate it as a potential source of contamination. The following actions should be performed during the removal of the tank and piping to determine the extent of any soil contamination at PRL T-46:

- Soil samples should be collected from the excavated area around the tank and along the course of pipes found connected to the tank. All soil samples collected should be analyzed for volatile and semi-volatile organic compounds and metals.
- The results of the soil samples should be used to determine the extent of any soil contamination at PRL T-46 and the need for further excavation or sampling of contaminated soil at PRL T-46.

7.0

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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL T-48
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

PREPARED BY

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**USAF CONTRACT NO. F33615-87-D-4023, DELIVERY ORDER NO. 0012
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1.0 INTRODUCTION

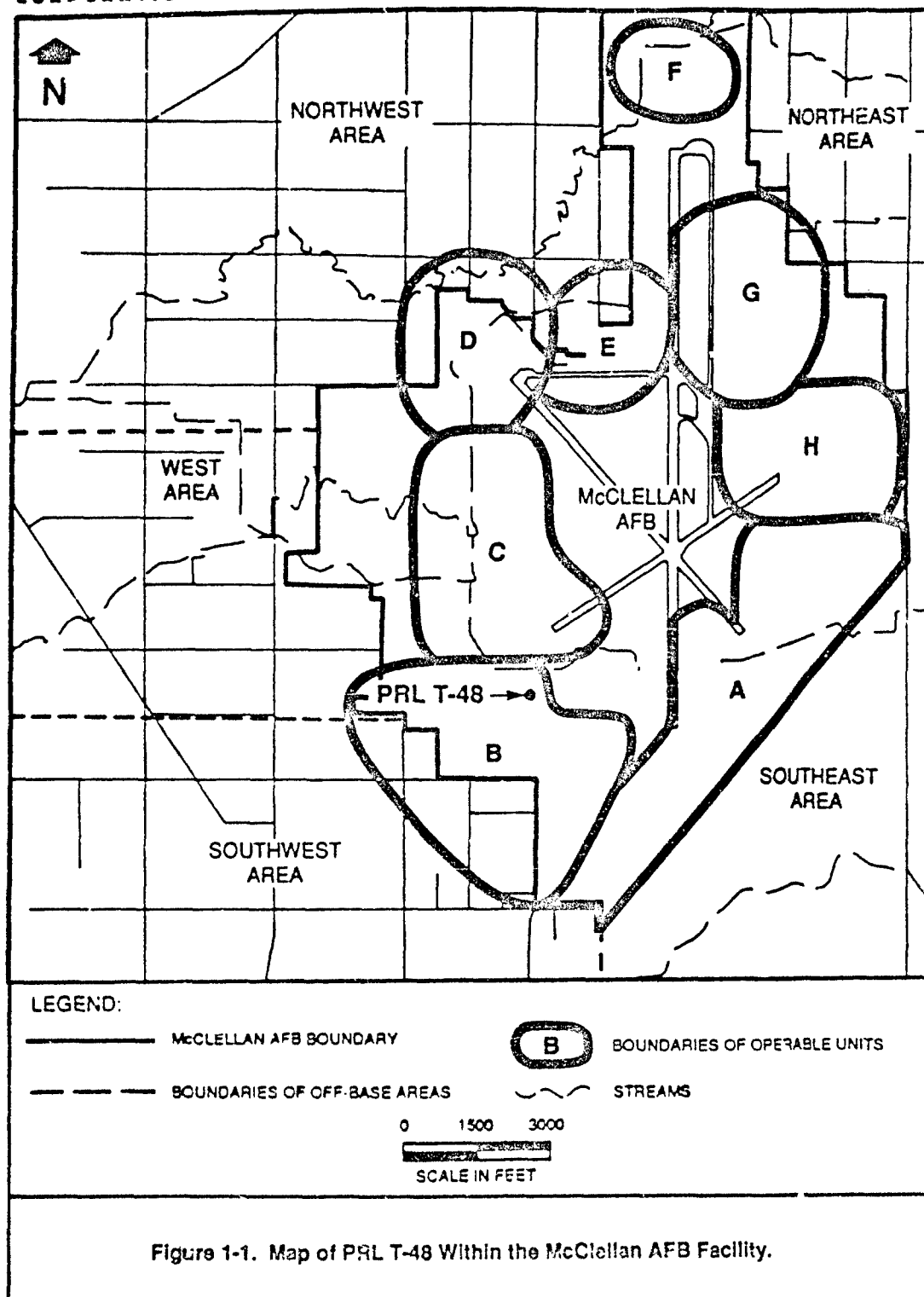
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) T-48 at McClellan Air Force Base (AFB), California. Potential Release Location T-48 is the location of a former oil-water separator and a current fuel-water separator. The location of PRL T-48 is shown on Figure 1-1. The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document including environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources used to prepare the document;
- Location description, including historical activities;
- Potential hazards;
- An evaluation of previous contractor's recommendations; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1987, EG&G Idaho, Inc., conducted a literature search and engineering study to determine the best available technology appropriate for preventing and detecting leaks from the underground sumps and separators at McClellan Air Force Base (AFB) (EG&G Idaho, Inc., 1987). The fuel-water separator at Potential Release Location (PRL) T-48 was included in this investigation.

2.2 Personnel Interviews

Interviews with McClellan AFB personnel with knowledge of the operation of the fuel-water separator at PRL T-48 were conducted on 9 May 1989 and 15 May 1989. Documentation for these interviews is in the PRL T-48 Location File.

2.3 Location Visit

Radian personnel visited PRL T-48 on 5 May 1989 for the purpose of investigating the current conditions and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and evidence of contamination. The year, scale, and source of each aerial photograph reviewed for this Preliminary Assessment are listed in Table 2-1. Interpretation of aerial photographs is included in Section 3, Location Description.

2.5 Review of Base Files

McClellan AFB Civil and Bioenvironmental Engineering Files were reviewed for historical information during the preparation of this Preliminary Assessment. Three 1968 civil engineering drawings of the oil-water separator at PRL T-48 were found in the Civil Engineering files (McClellan AFB, 1968, Drawing No.

**TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
 REVIEWED FOR PRL T-48**

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

AW-78-19-21). A 1988 drawing identifying the location of the Industrial Wastewater Line in the vicinity of PRL T-48 was also found in the Civil Engineering files (McClellan AFB, 1988, No. G-13). No site specific information was found in Bioenvironmental Engineering files. A 1962 aerial photograph of the location was found in the History Office Files (McClellan AFB, 1962).

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) T-48 (shown in Figure 3-1) is situated in Operable Unit (OU) B of McClellan Air Force Base (AFB). An underground oil-water separator was formerly operated at PRL T-48; currently, an aboveground fuel-water separator is operating at PRL T-48. The fuel-water separator processes wastes produced in the hangars located on the southern and western perimeter of Mat K. Potential Release Location T-8 is located to the north of PRL T-48, and PRL T-46 to the east; these PRLs are discussed in separate Preliminary Assessments. A map showing PRL T-48 and the surrounding area is presented in Figure 3-2.

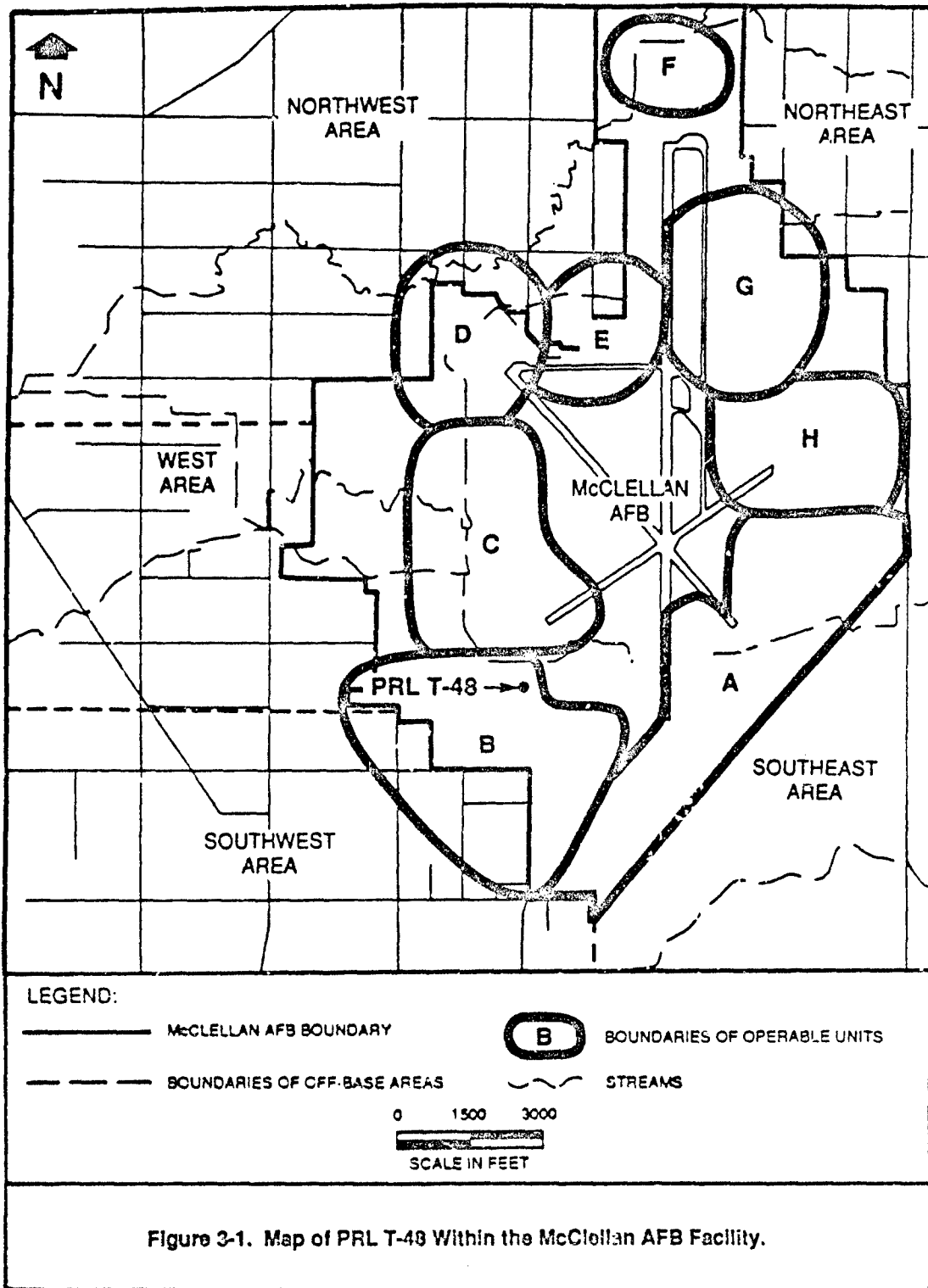
3.1 Location Delineation

The area subsequently designated as PRL T-48 is one of nine additional locations identified by McClellan AFB Directorate of Environmental Management (EM). Original documentation for the identification of PRL T-48 has not been found; however, the location is included within a list of uninvestigated sites identified by EM in a 1986 McLaren document (McLaren, 1986). In this document, PRL T-48 was identified as an oil-water separator, but the location boundaries were not delineated.

An oil-water separator southwest of Mat K is shown on a 1968 Civil Engineering drawing (McClellan AFB, 1968). Radian visited the area southwest of Mat K to determine the location boundaries for PRL T-48. The underground oil-water separator is no longer operating at PRL T-48. Apparently, this oil-water separator has been converted to serve as holding tanks for the aboveground fuel-water separator. Radian delineated the boundaries of PRL T-48 shown in Figure 3-2 to enclose the fuel-water separator, the two underground tanks connected to the separator, and the area immediately surrounding the tanks.

3.2 Historical Activities

Aerial photographs reveal that the area of PRL T-48 remained undeveloped grassland until 1953 when it was cleared of vegetation. In 1957, unidentified containers were stored on the site, and airplanes were parked on Mat K, which had been constructed immediately to the north (USDA, 1957). In a 1962 aerial photograph,



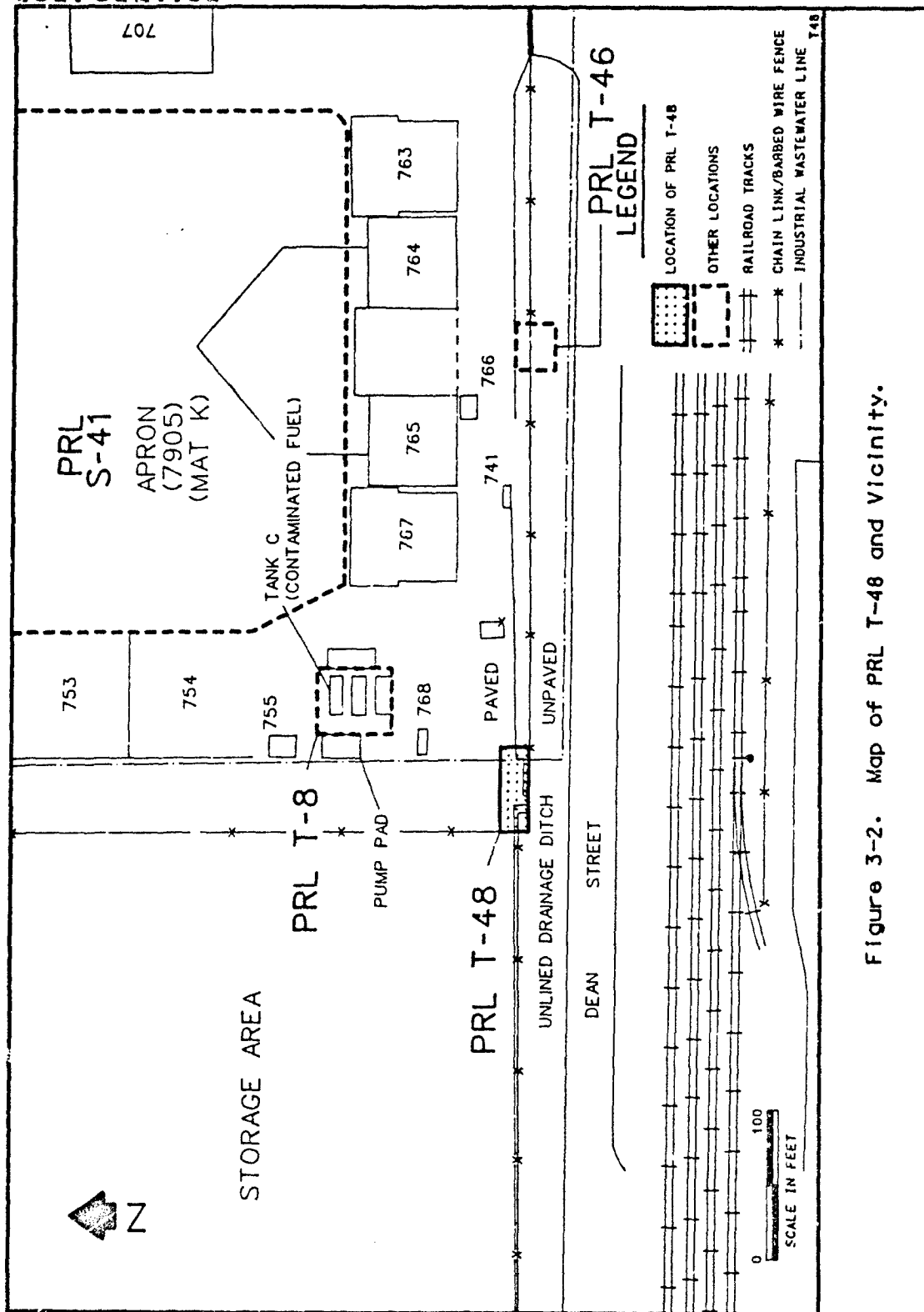


Figure 3-2. Map of PRL T-48 and Vicinity.

the ground surface of PRL T-48 is discolored; the source of this discoloration could not be determined from aerial photographs (McClellan AFB, 1962 Aerial Photograph, No. 16).

Civil Engineering drawings indicate that an oil-water separator and lift station were installed at PRL T-48 in 1968 (McClellan AFB, 1968). The separator received wastes from the aircraft hangars located along the perimeter of Mat K; these hangars were used for the refueling and repair of aircraft (McClellan AFB, 1968). The type of wastes reportedly piped to the separator include JP-4 and JP-5 jet aircraft fuel and 10/10 oil (Cronan, personal communication, 1989).

The 1968 Civil Engineering drawings indicate that water from the separator was piped to the lift station approximately 20 feet west of the separator. The lift station pumped the water to storm drains to the west. The oil and fuel recovered in the separator were collected in a sump within the separator. The drawings did not indicate how the oil and fuel were removed from the sump.

Approximately 10 years later, an aboveground fuel-water separator was installed at PRL T-48 (Mejia, personal communication, 1989). Figure 3-3 is a schematic diagram of the fuel-water separator now present at PRL T-48. Radian's site visit revealed that this aboveground separator was installed between two underground tanks at PRL T-48. Physical characteristics visible from the ground surface indicate that the underground tanks may be modified versions of the original 1968 oil-water separator Figure 3-3. tank and lift station. No civil engineering drawings outlining the modifications made to the oil-water separator and lift station have been found.

3.3 Current Activities

Radian personnel visited PRL T-48 on 5 May 1989 to determine the current conditions and activities of the location. McClellan AFB personnel with knowledge of the workings of the aboveground fuel-water separator now in place at PRL T-48 were interviewed to determine how the separator system operates.

The fuel-water separator system currently in place at PRL T-48 consists of an aboveground steel fuel-water separator tank and the two underground tanks (see Figure 3-3). Underground pipelines connect drains in the hangars on the south and west

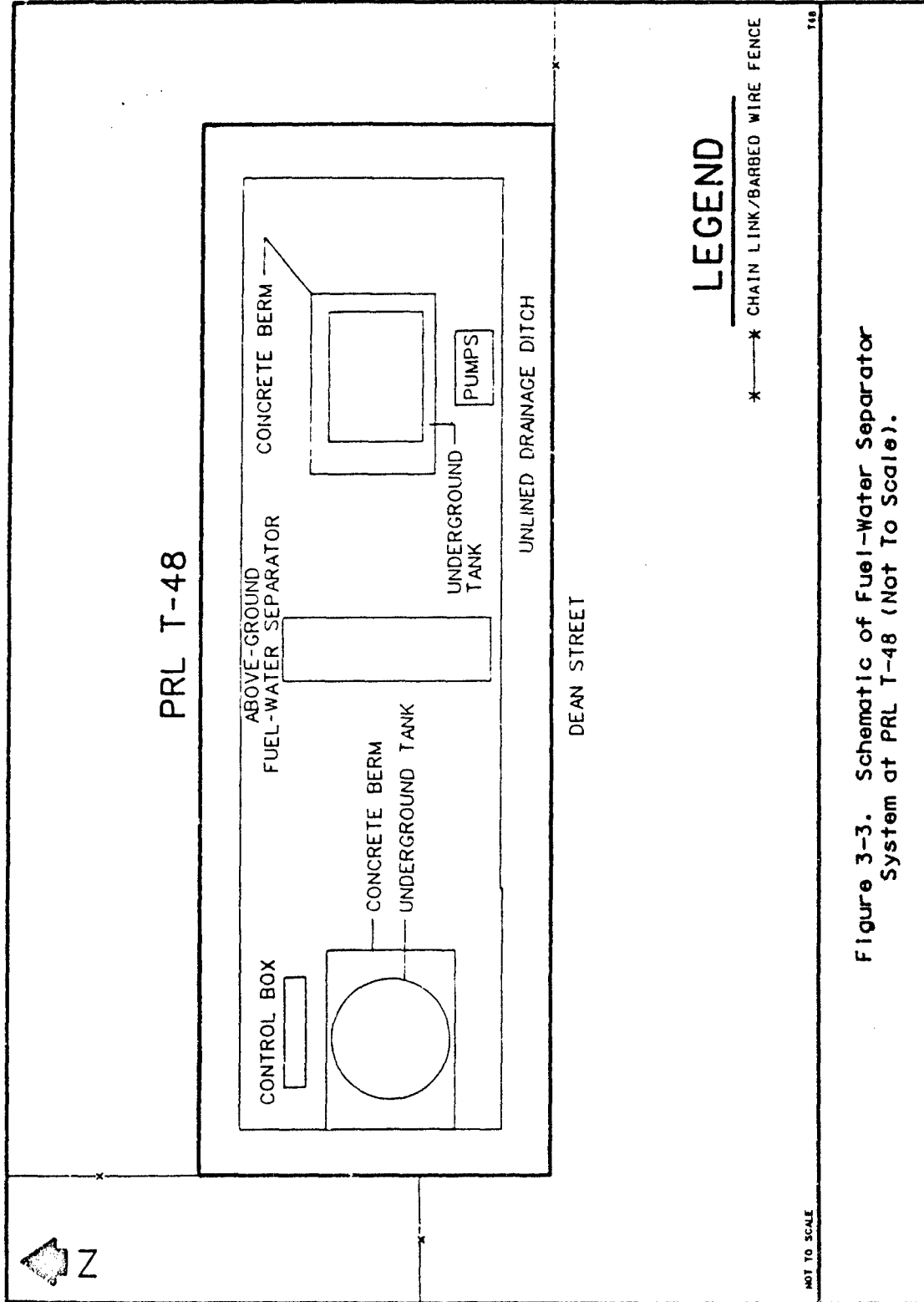


Figure 3-3. Schematic of Fuel-Water Separator System at PRL T-48 (Not To Scale).

sides of Mat K to the underground holding tanks (Mejia, personal communication, 1989). These drains collect both wastewater produced in the hangars and surface water that collects on Mat K.

The wastewater in the holding tanks is pumped from the holding tanks to the aboveground fuel-water separator (Mejia, personal communication, 1989). The oil and fuel that is recovered from the separator is transported via piping to the contaminated fuel tank (Tank C) located approximately 120 feet north of PRL T-48 (see Figure 3-2). The water recovered in the separator is sent to the Industrial Wastewater Line (IWL) located immediately south of PRL T-48 (EG&G Idaho, 1987, p. 2-5; Mejia, personal communication, 1989; McClellan AFB, 1988, Drawing No. 6-13). To prevent the separator system from overflowing, liquid wastes bypass the fuel-water separator whenever it rains heavily; on those occasions the wastes are piped directly from the holding tanks to the IWL.

An alarm system has been installed on the fuel-water separator at PRL T-48 to prevent the system from overflowing when there is an equipment failure (Cronan, personal communication, 1989). Pump failure is the most common malfunction. Any minor spills that may occur are contained with sandbags and then cleaned up. Other than the overflow alarm, no leak detection system has been installed at PRL T-48 (Mejia, personal communication, 1989).

Potential Release Location T-48 is covered by a concrete pad. Concrete berms surround the access covers for each of the underground tanks. The area immediately surrounding the concrete pad is paved. A dirt drainage ditch is located 20 feet to the south of the location and runs east-west along Dean Street.

3.4 Reported Releases

McClellan AFB personnel interviewed for this site indicated that only minor spills have occurred at PRL T-48 (Cronan, personal communication, 1989). Any spills that occurred were contained with sandbags and cleaned up.

3.5 Remedial Actions

No remedial actions are known to have occurred at PRL T-48.

4.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any on-site contamination at Potential Release Location (PRL) T-48.

4.1 Potential Contaminants of Concern

The potential contaminants of concern at PRL T-48 are the volatile organic compounds (VOCs) and semivolatile organic compounds that may have been constituents of the contents of the oil-water and fuel-water separators at the location. Soil samples have not been collected at PRL T-48.

4.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants that may be present at PRL T-48. The potential for fire and explosion is unknown because the soil gas at the location has not been characterized. The location is completely paved; therefore, the emission of any explosive gases from the soil would be reduced.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. Because the ground surface at PRL T-48 is paved, dermal contact is not likely, and the potential for dust or particulate releases from the location is very low. However, exposure risk from potentially contaminated soil may be present to workers involved in any future construction or excavation activities at this location.

4.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL T-48 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Although site-specific information is limited, it is possible to discuss general considerations of contaminant migration from this location.

4.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are the amount of infiltrating surface water, other sources of percolating water, the percolation rate of the soil, and contaminant characteristics.

The amount of infiltration at PRL T-48 is primarily related to surface characteristics of the area and permeability of the soil. The ground surface at PRL T-48 is covered with pavement, which significantly reduces the potential for water to infiltrate surface soils.

The percolation rate of contaminants depends on soil permeability, structure, stratification, and characteristics of the contaminants. Although permeability data on the soil at PRL T-48 are not available, basewide boring information shows that soils range from clay loams to sandy loams, and that relatively impermeable layers are not continuous or effective barriers to percolation. Therefore, any contaminants that may have entered the soil from leaking tanks could potentially percolate to groundwater.

The contaminants of concern at PRL T-48 are VOCs and semivolatile organic compounds. Because physical characteristics vary for each contaminant, the potential for contaminant migration to groundwater cannot presently be evaluated. However, VOCs generally are the most soluble of these contaminants and have the highest potential for dissolving in surface water and being carried with the advective flow to groundwater. Most semivolatile organic compounds do not easily dissolve in percolating water and have a tendency to remain in near-surface soils.

4.3.2 Potential for Migration to Surface Water

The primary characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location.

The same contaminant characteristics affecting migration to groundwater also affect migration of dissolved contaminants to surface water. Because PRL T-48 is covered by pavement, the potential for any contaminants that may be present in the soil to migrate to surface water is very low.

4.3.3 Potential for Migration to Air

Surface characteristics of the location and contaminant characteristics also influence the potential for migration to air. The surface at PRL T-48 is paved, which limits the ability of volatile contaminants in soils to migrate to air; therefore, the potential for migration to air is considered to be very low. However, the absence or presence of soil contamination at PRL T-48 has not been established.

5.0 EVALUATION OF PREVIOUS CONTRACTORS' RECOMMENDATIONS

In 1987, EG&G Idaho evaluated several different leak detection and leak prevention alternatives for the fuel-water separator system at Potential Release Location (PRL) T-48 (EG&G Idaho, Inc., 1987, pp. 5-9, 5-10, 6-2). EG&G Idaho concluded that all of the leak detection alternatives considered were either unreliable or impractical. In particular, EG&G Idaho concluded that precision leak testing was not feasible; they felt that the separator system could not be sealed sufficiently to permit the performance of a precision leak test. Of the leak prevention alternatives considered, EG&G Idaho recommended that the fuel-water separator system at PRL T-48 be replaced with a new separator that would meet regulatory requirements for underground containers. The rationale provided for this recommendation was "this separator does not and has not functioned properly since it was installed." A detailed rationale for this recommendation or more specific information regarding the operational failures of the separator were not provided.

Radian agrees that the underground tanks should be removed from PRL T-48. The underground tanks at PRL T-48 appear to be the original tanks installed in 1968. The age and concrete construction of the tanks increase the likelihood that the tanks leak.

To eliminate the underground tanks at PRL T-48 as a potential source of contamination, the tanks should be removed and replaced with tanks that meet the regulatory requirements for underground tanks. Following the removal of the tanks, soil samples should be collected from beneath and surrounding the tanks. In addition, the piping connected to the tanks should be removed, and soil samples should be collected along the course of these pipes. All soil samples collected should be analyzed for volatile and semivolatile organic compounds, included in United States Environmental Protection Agency (U.S. EPA) Method analyses 8240/8270, and metals. The results of the analyses will determine the presence and concentration of any soil contamination and the need for further excavation or sampling of contaminated soil at PRL T-48.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Civil Engineering drawings indicate that an oil-water separator and lift station were installed at Potential Release Location (PRL) T-48 in 1968. The oil-water separator processed wastewater produced in the aircraft hangars located along the southern and western boundary of Mat K. Water recovered in the separator was sent to the storm drainage system. It has not been determined how the oil recovered in the separator was removed from the separator.

Approximately 10 years later, an above-ground fuel-water separator was installed at PRL T-48. The original underground oil-water separator and lift station located at PRL T-48 appear to have been converted to holding tanks that feed the new fuel-water separator. The fuel-water separator at PRL T-48 processes wastewater produced in the hangars located on the perimeter of Mat K. The oil and fuel recovered in the separator is transported via pipes to a contaminated fuel tank to the north. The water recovered in the separator is sent to the Industrial Wastewater Line.

It has not been determined whether the separator system at PRL T-48 is leaking. The underground tanks at PRL T-48 have not been leak tested; precision leak testing the tanks is not feasible due to the physical design of the separator (EG&G Idaho, Inc., 1987, p. 5-9). However, the potential exists that the tanks are leaking due to the approximate age and the concrete construction of the tanks.

Although the structural integrity of the underground tanks at PRL T-48 have not been determined, Radian recommends that the tanks and associated piping be removed to eliminate them as potential sources of contamination. The underground tanks should be replaced with tanks that meet the regulatory requirements for underground tanks. The following actions should be performed during the removal of the tanks and piping to determine the extent of any soil contamination at PRL T-48:

- Soil samples should be collected from the excavated area around the tanks and along any pipes found connected to the tanks; all soil samples collected should be analyzed for volatile and semivolatile organic compounds and metals; and
- The results of the soil samples should be used to determine the presence and concentration of any soil contamination at PRL T-48 and the need for further excavation or sampling of contaminated soil at PRL T-48.

7.0

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**INSTALLATION RESTORATION PROGRAM (IRP)
STAGE 3**

**PRELIMINARY ASSESSMENT FOR PRL T-60
FINAL**

FOR

**McCLELLAN AFB/EM
McCLELLAN AFB, CALIFORNIA 95652-5990**

OCTOBER 1991

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1.0 INTRODUCTION

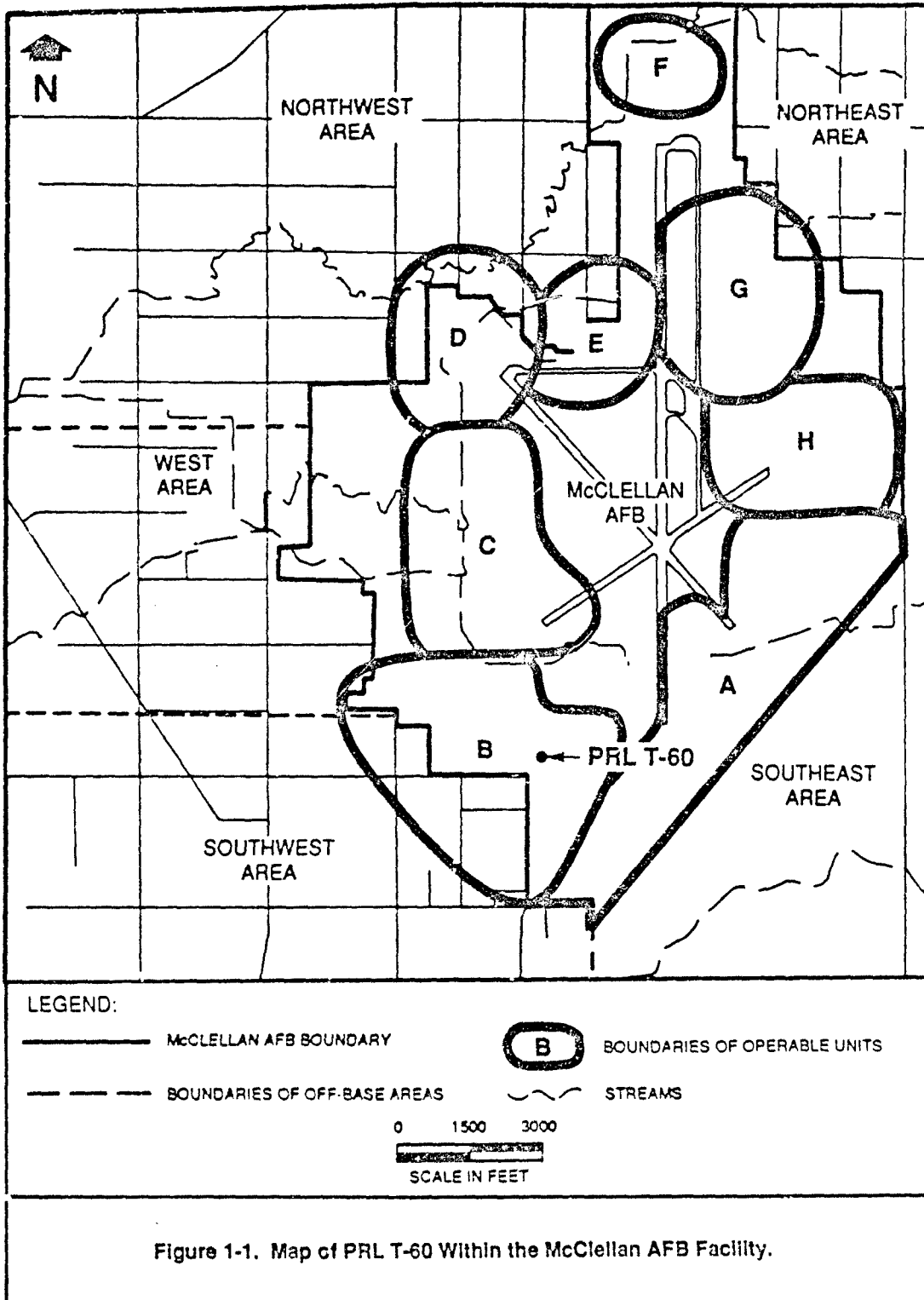
This Preliminary Assessment presents a summary of data compiled for Potential Release Location (PRL) T-60 at McClellan Air Force Base (AFB), California. Potential Release Location T-60 is an underground storage tank located in Operable Unit (OU) B (Figure 1-1). The task of compiling data for Preliminary Assessments is part of the Remedial Response process within the Air Force's Installation Restoration Program (IRP). The objective of the IRP is to assess past hazardous waste disposal and spill sites on Air Force installations and develop remedial actions consistent with the National Contingency Plan for any sites that pose a threat to human health and welfare or the environment. This site assessment work has been conducted in general accordance with guidelines set forth by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA/SARA provide guidance for conducting remedial investigations/feasibility studies at Superfund sites.

The purpose of this Preliminary Assessment is to:

- Identify any immediate response needs as required by CERCLA/SARA;
- Determine whether further action is needed at the location;
- Provide qualified data to support operable unit prioritization and grouping; and
- Provide recommendations for further investigation or remedial actions.

The scope of this Preliminary Assessment includes site-specific data regarding the following categories of information:

- Operations and waste management practices;
- Waste characteristics;
- Contaminant migration pathways; and
- Target populations and environments.



Data on all four categories are necessary to develop an understanding of the location, the possible sources and routes for release of contaminants, and the probable affected populations and environments. Site operations, waste management practices and waste characteristics, and migration pathways are discussed in this document. A separate General Information document addresses target populations and environments. Background information regarding the overall facility description of McClellan AFB is presented in the General Information document including environmental setting, land use, hydrogeologic conditions, facility history, and a discussion of potential receptors.

This Preliminary Assessment document includes the following:

- Information sources to prepare the used to prepare the document;
- Location description, including historical activities;
- Potential hazards;
- An evaluation of previous contractor's recommendations; and
- Conclusions and recommendations.

2.0 SOURCES OF INFORMATION

The following sections describe the sources of information used to develop this Preliminary Assessment.

2.1 Previous Investigations

In 1986, EG&G Idaho, Inc., prepared a final closure plan for the underground storage tank now designated as Potential Release Location (PRL) T-60. This investigation included general information about the use, location, and size of the tank, analysis of the contents of the tank, and a cost estimate for its removal (EG&G Idaho, 1987).

The location now designated as PRL T-60 was identified as a potential release area in 1988 by McClellan Air Force Base (AFB) Environmental Management during their underground storage tank investigation. Soil samples were collected and analyzed during this investigation, and the results of the analyses are discussed in Section 4 of this document (McClellan AFB, 1988a).

2.2 Personnel Interviews

A McClellan AFB Environmental Management staff member was interviewed by Radian Corporation (Radian) for information regarding past and present operations at PRL T-60 (Hamilton, 1989). Information from that interview has been included in this Preliminary Assessment. Documentation of the interview is in the PRL T-60 Location File.

2.3 Location Visit

Radian personnel visited PRL T-60 on 1 June 1989 to document current features and activities at the location.

2.4 Aerial Photographs

Historical aerial photographs were reviewed for physical features and activities (Table 2-1). Aerial photographs is discussed in more detail in Section 3, Location Description.

**TABLE 2-1. AERIAL PHOTOGRAPHS OF McCLELLAN AFB (1928 - 1988)
REVIEWED FOR PRL T-60**

Year	Source	Scale
1928	Whittier College	1" = 400'
1940	Whittier College	1" = 400'
1941	U.S. Army Corps of Engineers, Sacramento District Office	1" = 370'
1943	McClellan AFB, History Office	1" = 560'
1946	Whittier College	1" = 400'
1949	Whittier College	1" = 400'
1951	Whittier College	1" = 770'
1953	U.S. Department of Agriculture, ASCS ¹	1" = 400'
1955	U.S. Army Corps of Engineers, Sacramento District Office	1" = 1690'
1957	U.S. Department of Agriculture, ASCS	1" = 400'
1962	McClellan AFB, History Office	1" = 150'
1963	Cartwright Aerial Surveys	1" = 1667'
1965	McClellan AFB, History Office	1" = 150'
1968	Cartwright Aerial Surveys	1" = 1000'
1971	Cartwright Aerial Surveys	1" = 400'
1972	Cartwright Aerial Surveys	1" = 1000'
1974	Cartwright Aerial Surveys	1" = 1200'
1976	Cartwright Aerial Surveys	1" = 400'
1978	Cartwright Aerial Surveys	1" = 2000'
1981	Cartwright Aerial Surveys	1" = 1000'
1982	McClellan AFB	1" = 400'
1984	Cartwright Aerial Surveys	1" = 4000'
1986	Cartwright Aerial Surveys	1" = 1000'
1987	Cartwright Aerial Surveys	1" = 1000'
1988	Cartwright Aerial Surveys	1" = 400'

¹ United States Department of Agriculture, Agricultural Stabilization and Conservation Service.

2.5 Review of Base Files

McClellan AFB Civil Engineering, Bioenvironmental Engineering, and Environmental Management files were reviewed for historical information during the preparation of this Preliminary Assessment. Civil Engineering files provided information about Building 656, located approximately 20 feet east of PRL T-60, but drawings of the underground storage tank were not included (McClellan AFB, 1957, 1975). No information was found in the Bioenvironmental Engineering files for PRL T-60. Environmental Management files contained information from previous investigations and analytical data of the tank's contents (McClellan AFB, 1988a).

3.0 LOCATION DESCRIPTION

Potential Release Location (PRL) T-60 is an underground storage tank situated west of Building 656 in Operable Unit (OU) B of McClellan Air Force Base (AFB) (Figure 3-1). The location is approximately 50 feet long and 50 feet wide. A location map showing PRL T-60 and the surrounding area is presented in Figure 3-2. Other potential release locations located near PRL T-60 include PRL S-29, PRL S-34, and PRL S-5. These locations are discussed in separate Preliminary Assessments.

The following subsections discuss location delineation, historical and current activities, reported releases, and remedial actions at PRL T-60.

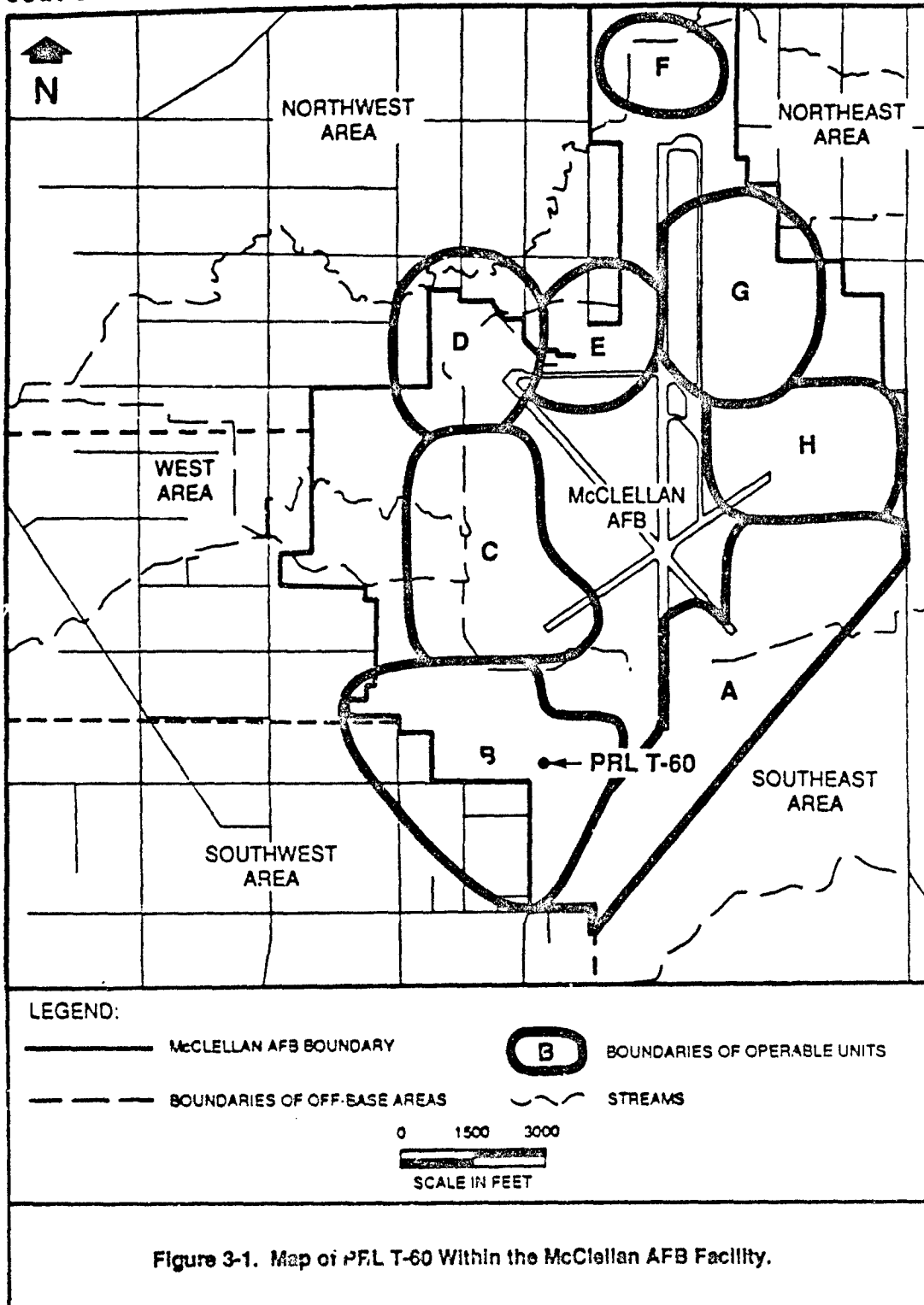
3.1 Location Delineation

The area now designated as PRL T-60 was first identified as a potential release location by McClellan AFB Environmental Management in 1988 during their underground storage tank investigation (McClellan AFB, 1988a). Potential Release Location T-60 was described as an underground storage tank northwest of Building 656. However, the final closure plan prepared for this underground storage tank in 1986 included a map of the tank and vicinity and located the tank west of Building 656 (EG&G Idaho, 1987). During a location inspection on 1 June 1989, Radian personnel located the steel cover to the underground storage tank and confirmed the location drawn in the EG&G Idaho, Inc., document. Figure 3-2 shows the correct location of PRL T-60.

3.2 Historical Activities

A review of historical aerial photographs reveals that the PRL T-60 location remained undeveloped until Building 656 was built between 1951 and 1953. The underground storage tank at PRL T-60 was used to store fuel for the boilers within Building 656 (McClellan AFB, 1988). Civil Engineering drawings of Building 656 show the fuel lines entering the building from the west, corresponding to where the tank is located (McClellan AFB, 1957 and 1975).

The EG&G Idaho, Inc., final closure plan, prepared in 1986, indicates that the concrete and steel tank contained No. 5 bunker fuel (EG&G Idaho, 1986). Bunker fuel is a viscous oil with a jelly-like consistency at room temperature. As part of



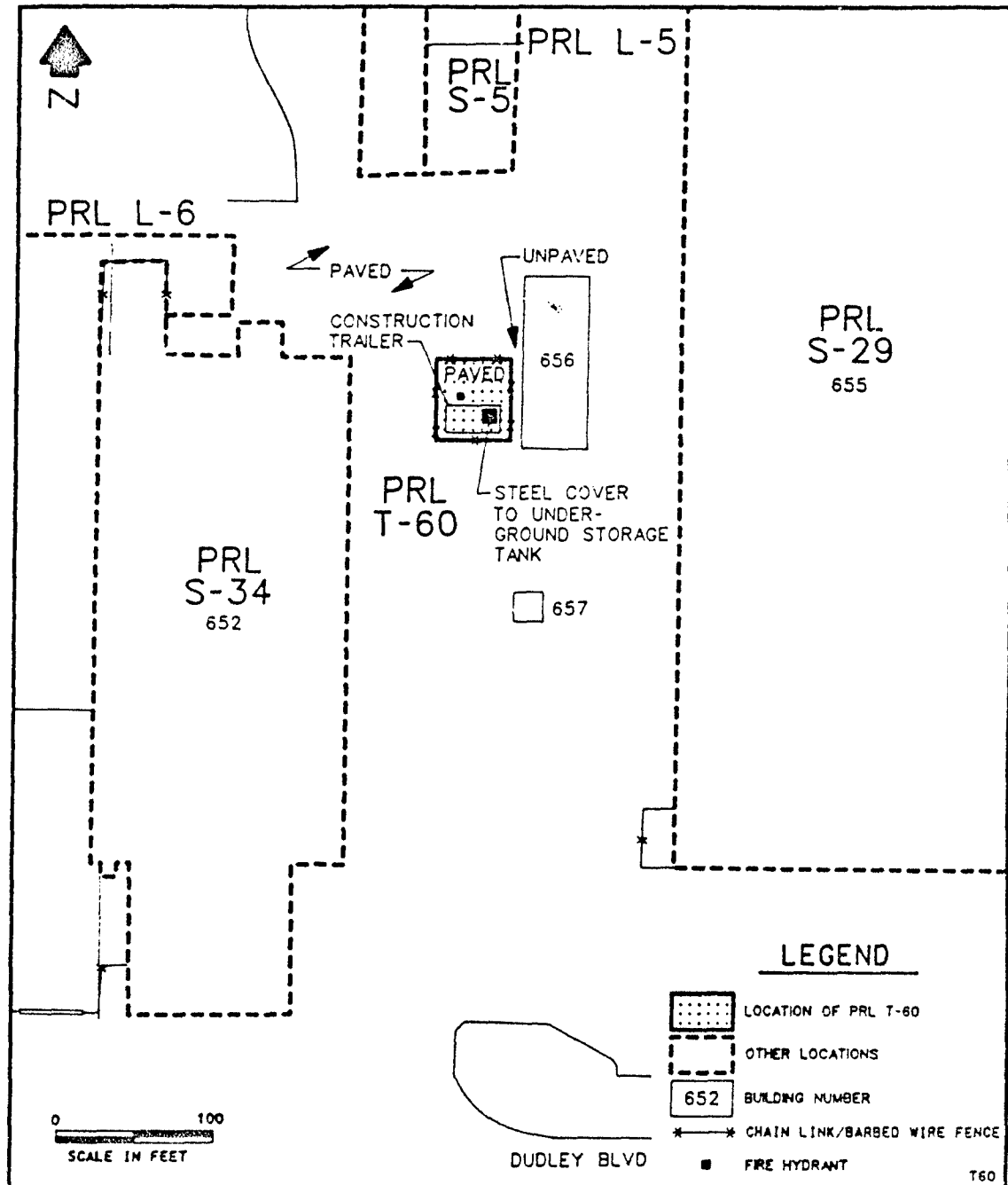


Figure 3-2. Location of PRL T-60 and Vicinity.

EG&G Idaho's investigation, the contents of the underground storage tank were sampled and analyzed. The sample was analyzed along the following parameters:

- Oil and grease, using APHA-AWWA-WPCF *Standard Methods for the Examination of Water and Wastewater*, Method 502A;
- Halogenated volatile organic compounds, using U.S. Environmental Protection Agency (EPA) Method 601;
- Aromatic volatile organic compounds, using U.S. EPA Method 602;
- Semivolatile organic compounds, using U.S. EPA Method 625;
- Organochlorine pesticides, using U.S. EPA Method 608; and
- Metals, using U.S. EPA Method 6010.

In summary, the following organic compounds were detected:

- Dichloromethane;
- Fluoranthene;
- Naphthalene; and
- Phenol.

Dichloromethane is a common laboratory contaminant and is not a likely component of fuel oil; however, analytical results for method blanks were not available and it is not known if dichloromethane was detected because of laboratory contamination or contamination of the tank contents.

In 1988, McClellan AFB Environmental Management conducted an investigation of the underground storage tank now designated as PRL T-60, because records indicated that some of the tank contents had been lost. The "Uninvestigated Potential Release" form states that the tank volume is 27,730 gallons (McClellan AFB, 1988a).

3.3 Current Activities

Potential Release Location T-60 was visited by Radian personnel on 1 June 1989 to determine the current conditions and activities at the location. A

construction trailer, associated with the construction activities at Building 656, was parked over the location of the underground storage tank. A temporary fence enclosed the concrete-paved location. The slope of the location is essentially flat with surface runoff discharging to two storm drains located north and south from the location. No contamination was observed during the Radian site visit at PRL T-60. The tank contents have been removed, and the tank is not in use at the present time (Hamilton, personal communication, 1989).

3.4 Reported Releases

Releases of specific contaminants, if any, have not been documented at PRL T-60.

3.5 Remedial Actions

No remedial activities are known to have occurred at PRL T-60.

4.0 EXTENT OF CONTAMINATION

The following sections present the results of a previous investigation in the proximity of Potential Release Location (PRL) T-60, a soil assessment conducted by McClellan Air Force Base (AFB) Environmental Management (EM). The sampling results did not include a location map of sampling sites. The only indication that these samples are associated with PRL T-60 is the sample identification numbers on the laboratory reports and chain-of-custody form (Eureka Laboratories, Inc., 1987). Although this investigation may provide soil data in the vicinity of PRL T-60, it was not intended to define the extent of contamination at this location.

4.1 Soil Results

In April of 1987, EM collected samples from the vicinity of Building 656, possibly near an underground tank. Two borings were drilled and three samples were taken from each boring at depths ranging from 21 feet to 32.5 feet below ground surface. The exact locations of the borings are unknown. Sampling procedures were not documented, but a chain-of-custody form was prepared for all samples.

4.1.1 Analytical Results

Six soil samples were collected from the borings and analyzed for aromatic volatile compounds and total petroleum hydrocarbons. Tabulated data for these analyses are not presented in this document because of the uncertainty of sample locations. Laboratory results can be found in the Location File for PRL T-60.

Aromatic Volatile Organic Compounds

Six soil samples and one duplicate sample were analyzed for aromatic volatile organic compounds using U.S. EPA Method 8020. No aromatic volatile organic compounds were detected in any of the samples.

Total Petroleum Hydrocarbons

Six samples and one duplicate sample taken from two borings were analyzed for total petroleum hydrocarbons using a modified U.S. EPA Method 8015. There was no indication of how this method was modified from the standard procedure. No petroleum hydrocarbons were detected in any of the samples.

4.1.2 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) methods used for this investigation included method blanks, reagent spike recoveries, and sample duplicates. No compounds were detected in the method blanks for either method. All spike recoveries were within method limits. Relative percent difference, a value indicating precision, could not be calculated using the duplicate analyses because no compounds were detected in the samples.

The maximum holding time between sample collection and sample analysis for Method 8020 is 14 days. Laboratory reports indicate that the samples were analyzed 21 days after collection. Volatile organic compounds are easily lost to the atmosphere, destroying the integrity of the sample and compromising the validity of the data.

4.2 Soil Gas Results

No soil gas readings were taken at PRL T-60.

4.3 Groundwater Results

This Preliminary Assessment is concerned only with site-specific data. Therefore, only groundwater quality results for downgradient wells that have detectable amounts of compounds that may be attributed to PRL T-60 are relevant. Because no compounds were detected in soil samples from the location, any contaminants in groundwater cannot be attributed to PRL T-60 at this time.

4.4 Surface Water Results

Although no surface water samples that can be specifically related to PRL T-60 have been collected for analysis, surface water at McClellan AFB is regularly monitored under two National Pollutant Discharge Elimination System (NPDES) permits. The first requires that surface water from Arcade Creek, Second Creek, and Magpie Creek be sampled monthly where it enters the base, and again where it exits; these samples are analyzed for volatile organic compounds (VOCs) and heavy metals. The second permit outlines waste discharge regulations for the base groundwater treatment plant (located in Operable Unit C of McClellan AFB), including effluent analyses of VOCs, semivolatile organic compounds, and heavy metals.

The NPDES permits establish limits on concentrations of VOCs, semivolatile organic compounds, and heavy metals in surface water discharged from McClellan AFB. Under the permit requirements, concentrations of these compounds must not exceed the established limits.

4.5 Air Monitoring Results

No air monitoring results have been specifically associated with PRL T-60.

5.0 POTENTIAL HAZARDS

The following sections discuss the potential contaminants of concern, immediate hazards, and potential for migration resulting from any contamination at Potential Release Location (PRL) T-60.

5.1 Potential Contaminants of Concern

The suspected contaminants of concern at PRL T-60 are those associated with the bunker fuel stored in the tank at the location, particularly semivolatile organic compounds and long-chain aliphatics. Long-chain aliphatics are not considered a priority pollutant; however, they could increase the concentration of any total petroleum hydrocarbons present in the soil. Analysis of the tank contents revealed the presence of one volatile organic compound (VOC) (dichloromethane) and three semivolatile organic priority pollutants (fluoranthene, naphthalene, and phenol).

Results of the field investigation performed by McClellan Air Force Base (AFB) in 1987 showed no detectable concentrations of contaminants in six samples collected from two borings. However, the boring locations and contaminant distribution are unknown, and the data are apparently qualified.

5.2 Immediate Hazards

This section describes any potential hazards including the potential for fire and explosion and the possible hazards to worker health and safety that require immediate action due to contaminants present at PRL T-60. No soil gas concentrations have been measured at PRL T-60; however, it is very unlikely that bunker fuel leaks would cause an explosion hazard.

Potential hazards to worker health and safety are limited to inhalation, ingestion, or dermal contact of any contaminated near-surface soil. The area including PRL T-60 is completely paved which reduces the potential for contact with contaminants. No other indications of hazards to worker health and safety that require immediate action were observed during the site visit.

5.3 Potential for Contaminant Migration

This section describes the potential for wastes to migrate from PRL T-60 to the groundwater, surface water, and air. The potential for contaminant migration is dependent on the characteristics of the site, and the nature of the contaminants. Site-specific information is limited; however, it is possible to discuss general considerations of contaminant migration from this location.

5.3.1 Potential for Migration to Groundwater

The most important factors that influence migration to groundwater are surface water infiltration rate, percolation rate, and contaminant characteristics.

The infiltration rate for soil is primarily determined by surface characteristics of the area and permeability of the surface soils. The surface at PRL T-60 is completely paved which reduces infiltration by intercepting rainfall before it reaches the soil. No permeability data on the surface soils at PRL T-60 are available. The infiltration rate for this location is unknown, but it is potentially very low because of the paved surface.

The percolation rate of contaminants depends on the soil permeability, structure, stratification, and characteristics of the contaminants. No information is available on soil characteristics and no contaminants have been detected at PRL T-60; therefore, the percolation rate of contaminants is unknown. However, two groups of semi-volatile organic compounds, polynuclear aromatic (PNA) compounds and aliphatics, are nearly insoluble. This indicates these compounds do not easily dissolve in percolating water and have a tendency to remain in the soils. Another group of semivolatile organic compounds, phenols, are very soluble and have a relatively high potential for dissolving in infiltrating surface water and being carried away with the flow of infiltrating water.

5.3.2 Potential for Migration to Surface Water

The primary location characteristics affecting the potential for contaminant migration to surface water are the topography and surface characteristics of the location. The same contaminant characteristics affecting migration to groundwater also affect migration to surface water. The topography at PRL T-60 is essentially flat. Surface runoff from the location enters the base storm drainage system via two catch basins located north and south from the location (McClellan AFB, 1988b). Water entering the

drainage system in this area of the base eventually flows into Arcade Creek, located approximately one-half mile from PRL T-60.

The surface at PRL T-60 is paved, which reduces the potential for surface water contacting potentially contaminated surface soils. Therefore, the potential for transport of contaminants dissolved in surface runoff is considered very low. Similarly, the potential for erosion and transport of particulate-borne contaminants from the location is also very low.

5.3.3 Potential for Migration to Air

Surface characteristics of the location, and contaminant characteristics also influence the potential for migration to air. The surface at PRL T-60 is paved which limits the ability of volatile contaminants to migrate to the air. No contaminants have been detected at PRL T-60. The potential for migration to air is unknown, but it is potentially very low because of the paved surface and because of the low volatility of the contaminants of concern.



6.0 EVALUATION OF PREVIOUS CONTRACTORS' RECOMMENDATIONS

In 1986, EG&G Idaho recommended removing the contents of the underground storage tank at Potential Release Location (PRL) T-60 and abandoning the tank in-place. The tank contents were removed and the tank is not in use at the present time.

7.0**CONCLUSIONS AND RECOMMENDATIONS**

The underground storage tank at Potential Release Location (PRL) T-60 was used as part of the boiler operations at Building 656 for approximately 33 years. The nearly 30,000-gallon tank contained No. 5 bunker fuel used in the boilers. The tank contents have been removed and the tank is currently not in use.

Sampling of the tank contents in 1986 confirmed that the contaminants of concern are semivolatile organic compounds and long-chain aliphatics associated with bunker fuel. Samples collected from two soil borings drilled by McClellan Air Force Base (AFB) in 1987 showed no detectable concentrations of aromatic VOCs or total petroleum hydrocarbons. However, information describing the locations of the borings could not be identified. Radian recommends that the person responsible for the samples collected by McClellan AFB be identified and interviewed to determine the sampling locations. If the samples were appropriately located, then it is recommended that PRL T-60 be removed from the list of potential release locations at McClellan AFB. If the sampling locations cannot be determined, then further investigations are needed to determine the presence or absence of contamination at PRL T-60. The investigations may include sampling and analyses of soil adjacent to and below the abandoned tank. Tank and associated piping removal, including soil sampling and analysis from beneath the tank after removal are addressed in a separate UST program.

8.0

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