# INSTALLATION RESTORATION PROGRAM RECORDS SEARCH

## For George Air Force Base, California

CH2M HILL



Prepared for

AIR FORCE ENGINEERING AND SERVICES CENTER
DIRECTORATE OF ENVIRONMENTAL PLANNING
TYNDALL AIR FORCE BASE, FLORIDA 32403

June 1982

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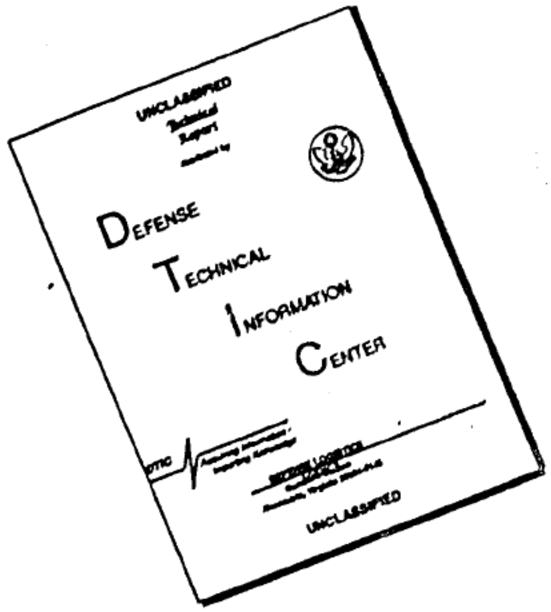


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INSTALLATION RESTORATION
PROGRAM RECORDS SEARCH

For

GEORGE AIR FORCE BASE, CALIFORNIA



Prepared for

AIR FORCE ENGINEERING AND SERVICES CENTER
DIRECTORATE OF ENVIRONMENTAL PLANNING
TYNDALL AIR FORCE BASE, FLORIDA 32403

By

CH2M HILL
Gainesville, Florida

June
~~January~~ 1982

Contract No. F08637 80 G0010 0009



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# ACRONYMS, ABBREVIATIONS, AND SYMBOLS

## ACRONYMS, ABBREVIATIONS, AND SYMBOLS

| | |
|---|---|
| AC | Acre |
| AFB | Air Force Base |
| AFESC | Air Force Engineering and Services Center |
| AFR | Air Force Range |
| AGE | Aerospace Ground Equipment |
| AGGR | Air to Ground Gunnery Range |
| AMU | Aircraft Maintenance Unit |
| AVGAS | Aviation Gasoline |
| BLM | Bureau of Land Management |
| CE | Civil Engineering |
| DLA | Defense Logistics Agency |
| DOD | Department of Defense |
| DPDO | Defense Property Disposal Office |
| EOD | Explosive Ordnance Disposal |
| EPA | Environmental Protection Agency |
| °F | Degrees Fahrenheit |
| ft | Foot (feet) |
| gpm | Gallons per minute |
| gpd/ft$^2$ | Gallons per day per square foot |
| Max. | Maximum |
| MBAS | Methylene blue active substances |
| MEK | Methyl ethyl ketone |
| Min. | Minimum |
| MOGAS | Motor gasoline |
| NPDES | National Pollutant Discharge Elimination System |
| NDI | Non-Destructive Inspection |
| No. | Number |
| OEHL | Occupational and Environmental Health Laboratory |
| PCBs | Polychlorinated biphenyls |
| PD-680 | Safety solvent |
| POL | Petroleum, oil, and lubricants |
| RCRA | Resource Conservation and Recovery Act |

| | |
|---|---|
| **STP** | **Sewage treatment plant** |
| **TAC** | **Tactical Air Command** |
| **TCE** | **Trichloroethylene** |
| **TEL** | **Tetraethyl lead** |
| **USAF** | **United States Air Force** |
| **USGS** | **United States Geological Survey** |

# EXECUTIVE SUMMARY

# EXECUTIVE SUMMARY

## A. INTRODUCTION

1. CH2M HILL was retained by the Air Force Engineering and Services Center (AFESC) on 10 August 1981 to conduct the George Air Force Base (AFB) Records Search under Contract No. F08637 80 G0010 0009 using funding provided by the Tactical Air Command (TAC).

2. Department of Defense policy was directed by Defense Environmental Quality Program Policy Memorandum 80-6 dated 24 June 1980 and implemented by Air Force message dated 2 December 1980 as a positive action to ensure compliance of military installations with the Resource Conservation and Recovery Act (RCRA) and implementing regulations. The purpose of DOD policy is to control the migration of hazardous material contaminants from DOD installations.

3. To implement the DOD policy, a three-phase Installation Restoration Program has been directed. Phase I, the Records Search, is the identification of potential problems. Phase II is the quantification of the problem and determination of corrective measures that may be required. The third phase is to contain, correct, and/or mitigate identified or potential environmental hazards that may result in hazardous contaminant migration from the installation.

4. The George AFB Records Search included a detailed review of pertinent installation records, contacts with 23 outside agencies for documents relevant to the Records Search effort, and an on-site base visit conducted by CH2M HILL during the week of September 21 through September 25, 1981. An in-briefing was held with the 831st Air Division Commander to discuss the purpose of the site visit. An out-briefing was held with the 831st Combat Support Group Commander to present the preliminary findings. Activities conducted during the on-site base visit included a detailed search of installation records, interviews with 36 past and present base employees, and ground and aerial tours of the installation. Installation facilities included in the Records Search Program were:

   1. Cuddeback Lake Air Force Range (AFR)
   2. Leach Lake AFR
   3. Red Mountain Light Annex
   4. Lake Isabella Recreational Area
   5. George AFB Outermarker
   6. Off-base Water Supply Wells
   7. George AFB Railroad Spur

5. Potentially contaminated sites were rated using a modification of the hazard rating system developed by JRB Associates, Inc. The system was modified by the Air Force, CH2M HILL, and Engineering Science. The methodology used to identify the potentially contaminated sites included a review of base industrial activities, past waste management practices, and field investigations. If no hazardous waste

contamination seemed likely at a particular site, it was deleted from further consideration. At those sites where contamination was likely, a decision was made on whether the contaminants could migrate beyond the base boundaries. If so, the site was numerically rated and prioritized.

6. Should the Records Search indicate that the potential exists for migration of hazardous contaminants beyond the installation boundaries, Phase II field work would be conducted to confirm the presence of the specific migrating contaminants and to determine the extent of migration. Restoration or containment of the hazardous waste disposal sites would comprise Phase III of the Installation Restoration Program.

## B. FINDINGS

1. No direct evidence was found to indicate that migration of hazardous contaminants beyond George AFB property exists.

2. Information obtained through interviews with 36 past and present base personnel and field observation indicates that potentially hazardous wastes have been disposed of on George AFB property in the past.

3. Industrial activity at George AFB consists primarily of routine aircraft and vehicle maintenance. Generation of large quantities of hazardous wastes has

not occurred in comparison to bases having significant aircraft rework and maintenance missions; therefore, associated contamination problems are considered to be relatively small.

C. CONCLUSIONS

1. The potential for off-site migration of hazardous wastes is low because of the relatively low groundwater levels, extremely low precipitation, high potential evaporation, and the absence of major surface waters. The soils are permeable, but the depth to ground water or bedrock should allow a high degree of contaminant attenuation in the soil.

4. Table V-1 presents a listing of the rated sites and their overall scores. In some areas the sites are close together and possible additive effects may result from combined contaminant migration. As a result, three general areas have been identified as having the highest potential for pollutant migration and are presented in order of priority:

   a. Industrial Outfall and Pipeline, (Site No. S-20)

   b. Northeast Disposal Area - STP percolation ponds (S-21), the most recent base landfill (L-13), the abandoned fire training area (S-6), the sludge drying beds (S-25), the original base landfill (L-12), the street sweeping disposal area (L-11) and the three unverified acid, oil, paint, and pesticide burial sites (B-9, B-8, B-10).

c. Southeast Disposal Area - major base landfill (L-1), the TEL disposal site (L-2), the munitions disposal site (M-2), and the radioactive/toxic chemical disposal site (L-3).

The remaining sites are not considered to present a significant migration hazard. Heavy surface runoff and the resulting erosion could cause the transport of potentially hazardous debris beyond the base boundaries, but the contamination would be insignificant because of the small quantities involved.

## D. RECOMMENDATIONS

1. A limited monitoring program is suggested to substantiate the absence of contamination and contaminant migration. Significant health hazards have not been identified and no urgent need for the monitoring program exists, i.e., the priority for monitoring at George is considered moderate.

2. Table 1 presents a summary of recommended groundwater monitoring sites, parameters to be measured, and rationale. Specifically, monitoring is suggested for the industrial drain (S-20), the northeast disposal area (S-21, L-13, S-6, S-25, L-12, L-11, B-9, B-8, B-10), and the southeast disposal area (L-1, L-2, M-2, L-3) as identified in the conclusions. Approximate monitoring well locations are shown in Figure 1.

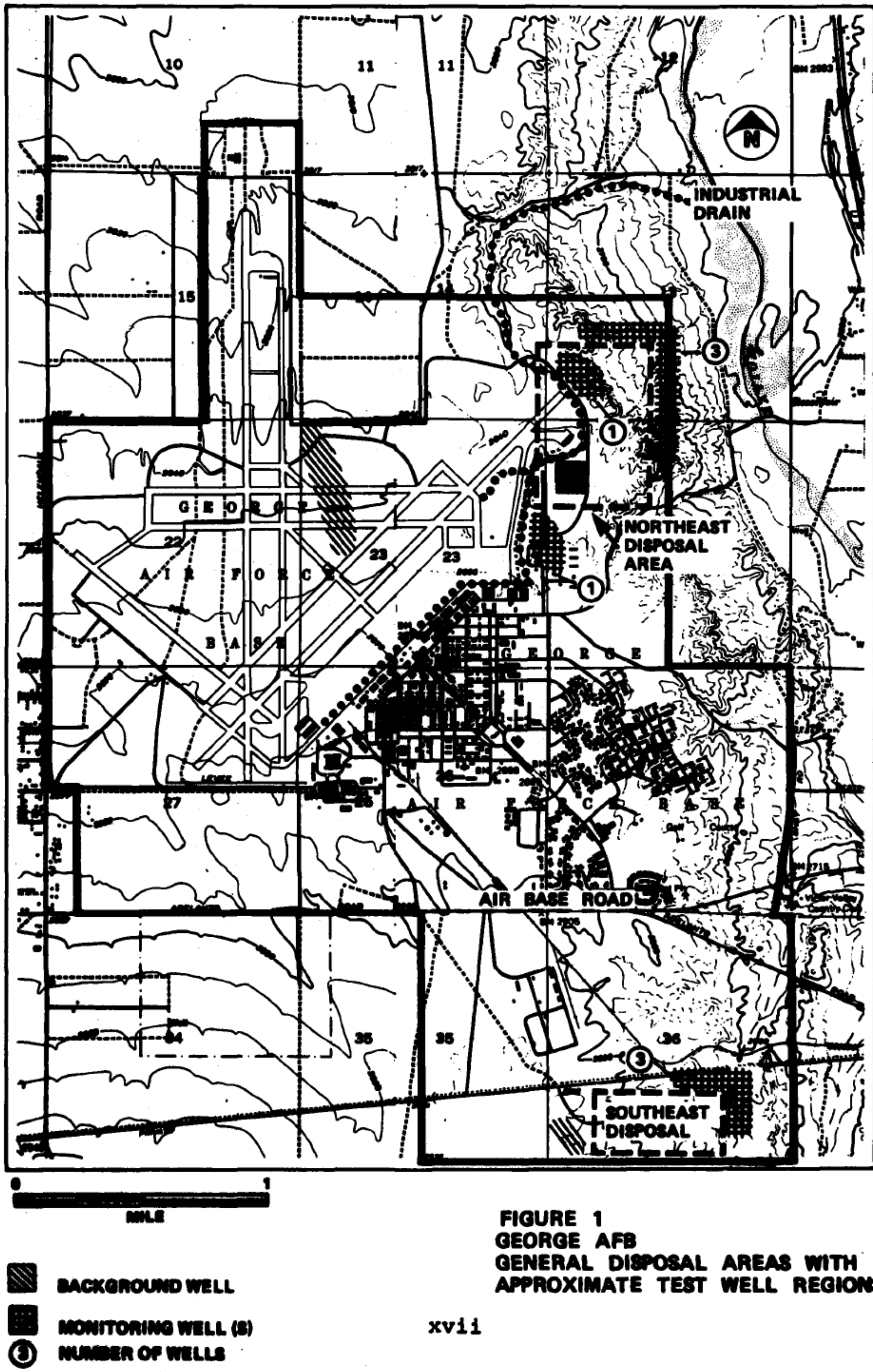


FIGURE 1
GEORGE AFB
GENERAL DISPOSAL AREAS WITH
APPROXIMATE TEST WELL REGIONS

**Table 1**
**SUGGESTED ANALYSES**

| Site | Sample Type | Parameters | Rationale |
|---|---|---|---|
| All monitoring wells (industrial outfall, and pipeline northeast disposal area, southeast disposal area) | Ground Water | Volatile organic compounds (MEK, TCE) | Organic solvents used on base |
| | | Phenols | Phenolic cleaner used in past |
| | | Gross contaminants (TOC, COD, oil and grease, specific conductance) | Indicators of nonspecific gross contamination |
| | | Heavy metals (Cr, Pb, Cd, Ag) | Potential sources identified |
| Northeast disposal area monitoring wells only | Ground Water | Pesticides (DDT, chlordane) | Identified as pesticide disposal area |
| Industrial drain gully only | Soil | Heavy metals (Cr, Pb, Cd, Ag | Potential sources identified |
| | | Organic chromatograph "fingerprint" | Potential organic contamination |

3. For the industrial drain, two monitoring wells should be installed down-gradient from the drain as indicated, and a background water quality monitoring well should be located up-gradient from the existing fire training area. The wells should be approximately 100 feet deep. Samples from these three wells plus the existing STP percolation pond monitoring well should be analyzed for volatile organic compounds, phenols, gross contaminants, and suspected heavy metals (see Table 1).

4. Exfiltration tests should be conducted to verify that the upper section of the industrial drain line is indeed perforated and to determine the exfiltration rate. If the tests indicate that significant exfiltration occurs or has occurred in the past, a limited ground-water monitoring program similar to that suggested in paragraph 3 should be considered. The wells should be located as to isolate the perforated industrial drainline, i.e., up-gradient and down-gradient of the perforated section.

5. To evaluate potential migration problems due to erosion in the industrial drain gully, two background and five gully soil samples, composited from at least three 1-foot-deep samples each, should be analyzed. The gully samples should be collected in the sections preceding the retention dam (two samples), at the dam itself (two samples), and just before the base boundary (one sample). The analytical procedure would include a standard EPA extraction procedure for heavy metals analysis and an organic extraction "fingerprint." The fingerprint analysis is conducted by comparing the

coincidence and magnitude of the peaks on a gas chromatograph output plot for the background and gully samples. Should organic contamination be indicated, additional analyses would be required to identify the specific organic compounds.

6. To evaluate the potential migration from the northeast disposal area more fully, three additional monitoring wells, approximately 100 feet deep, are recommended along the perimeter of the entire area. Essentially the same analyses as described in paragraph 3 would be required, plus pesticide analyses (DDT, chlordane).

7. One background well and three monitoring wells, approximately 100 feet deep, are recommended for the southeast disposal area. The monitoring wells should be located along the northeast perimeter of the sites inside the base boundary. The wells should be analyzed for the same parameters as the industrial drain.

8. A magnetometer survey should be conducted to verify and locate the reported burial site of 127 barrels of acetone in the southeast disposal area (particularly Site L-1). The radioactive/toxic chemical area (L-3) should also be examined at this time for verification of chemical barrel disposal.

9. The jet fuel line near facility 708 should be pressure tested to ascertain whether significant fuel leakage may be occurring. Efforts should be made to isolate possibly damaged pipe sections during the testing. Unless extremely large leaks are

detected, the likelihood of ground-water contamination is low.

10. Specific details of the limited Phase II program outlined above should be finalized during the initial stages of Phase II. It is not the intent of Phase I to assess the depth or exact location of any ground-water monitoring wells. In the event that contaminants are detected during visual inspection of the test pit or in the water samples collected from any of the wells, a more extensive field survey program should be implemented to determine the extent of the contaminant migration. The Phase II contractor should be responsible for evaluating the results of the program outlined above and for recommending additional monitoring, as appropriate.

# I. INTRODUCTION

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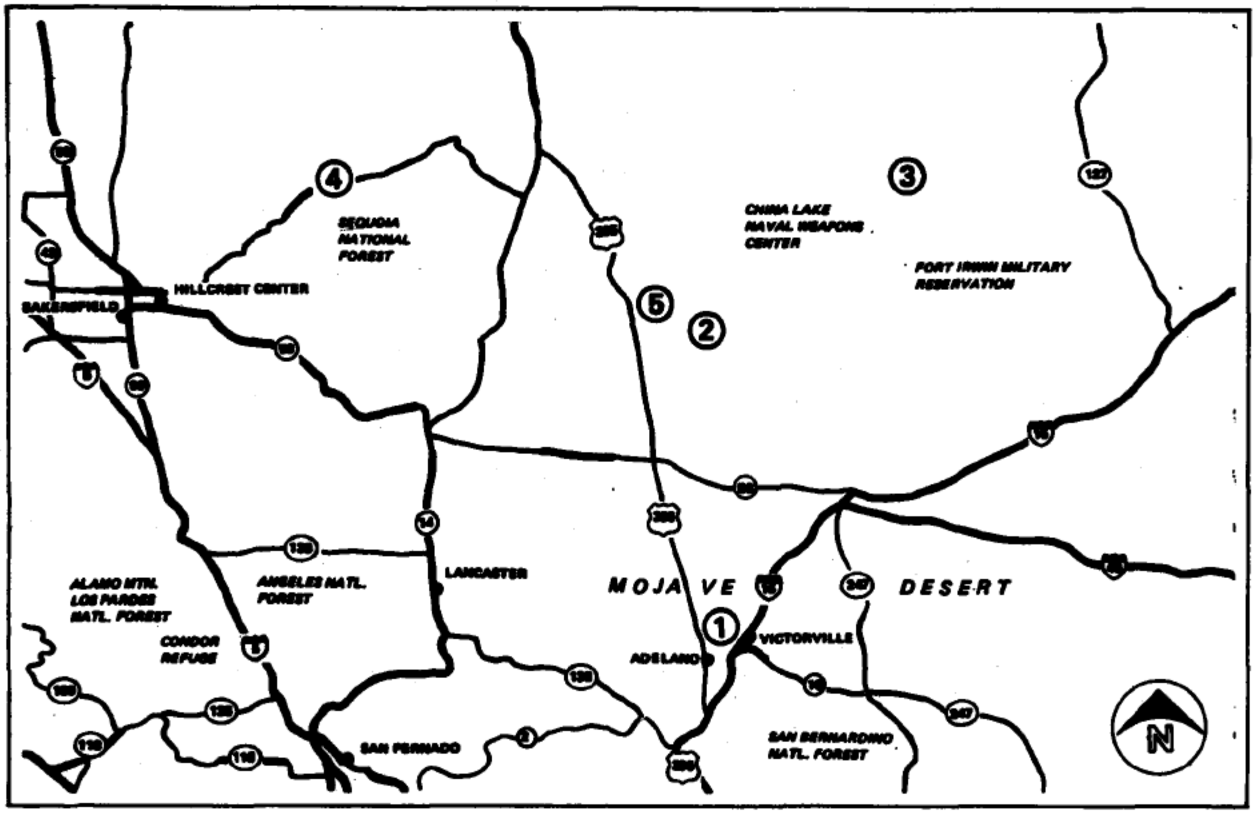
## A. BACKGROUND

The primary legislation governing the management and disposal of solid waste is the Resource Conservation and Recovery Act (RCRA) of 1976. Regulations and implementing instructions for the Act are continuing to be developed by EPA. Under RCRA Section 3012 (Public Law 96-482, 21 October 1981) each state is required to inventory all past and present hazardous waste disposal sites. Section 6003 of RCRA requires Federal agencies to assist EPA and make available all requested information on past disposal practices. It is the intent of the Department of Defense (DOD) to comply fully in these as well as other requirements of RCRA. Simultaneous to the passage of RCRA, the DOD devised a comprehensive Installation Restoration Program (IRP). The purpose of the IRP is to identify, report, and correct environmental deficiencies from past disposal practices that could result in ground-water contamination and probable migration of contaminants beyond DOD installation boundaries. In response to RCRA and in anticipation of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, the DOD issued Defense Environmental Quality Program Policy Memorandum 80-6 (DEQPPM 80-6) on 24 June 1980 which directed the implementation of the IRP program.

To conduct the Installation Restoration Program Records Search for George AFB, the AFESC retained CH2M HILL on 10 August 1981 under Contract No. F08637-80-G0010-0009 using funding provided by the Tactical Air Command (TAC). The installations included in the Records Search are George AFB and several offsite facilities which are supported by George AFB (Figures 2 and 3) as follows:




0 10 20 30 40

MILES

1 GEORGE AIR FORCE BASE
2 CUDDEBACK RANGE
3 LEACH LAKE RANGE
4 LAKE ISABELLA RECREATION AREA
5 RED MOUNTAIN LIGHT ANNEX

FIGURE 2
GEORGE AFB PROPERTIES
LOCATION MAP

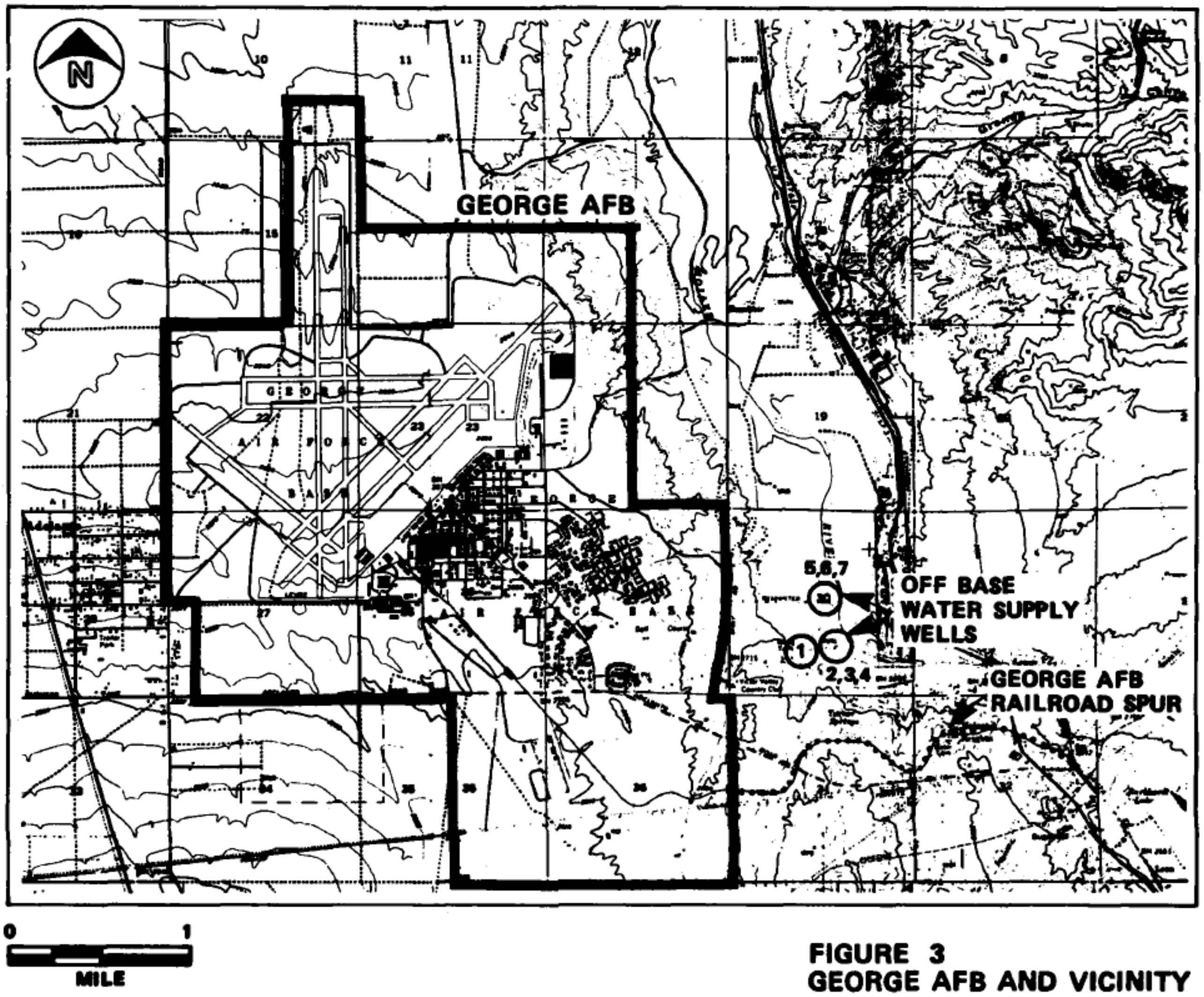



**FIGURE 3**
**GEORGE AFB AND VICINITY**

1. Cuddeback Lake Air Force Range (AFR)

2. Leach Lake AFR

3. Red Mountain Light Annex

4. Lake Isabella Recreation Area

5. George AFB Outermarker

6. Off-base Water Supply Wells

7. George AFB Railroad Spur

The Records Search comprises Phase I of the Department of Defense (DOD) Installation Restoration Program and is intended to review installation records to identify possible hazardous waste contaminated sites and potential problems that may result in contaminant migration from the installation. Phase II is the quantification of the problem and determination of corrective measures that may be required. The third phase is to contain, correct, and/or mitigate identified potential environmental hazards.

B. AUTHORITY

Identification of hazardous waste disposal sites at military installations was directed by Defense Environmental Quality Program Policy Memorandum 80-6 (DEQPPM 80-6) dated 24 June 1980 and implemented by Air Force message dated 2 December 1980 as a positive action to ensure compliance of military installations with the Resource Conservation and Recovery Act (RCRA) and implementing regulations.

## C. PURPOSE OF THE RECORDS SEARCH

DOD policy is to control the migration of hazardous material contaminants from DOD installations and to abate contaminant migration that may have an adverse impact on public health or the environment. This potential was evaluated at George AFB by reviewing the existing information and conducting a detailed analysis of installation records. Pertinent information involves the history of operations, the geological and hydrogeological conditions which may contribute to the migration of contaminants off the installation, and the ecological settings which indicate sensitive habitats or evidence of environmental stress resulting from contaminants.

## D. SCOPE

The records search consisted of a pre-performance meeting, a preliminary coordination meeting, an onsite base visit, a review and analysis of the information obtained, and preparation of this report.

The pre-performance meeting was held at Tyndall AFB on 4 August 1981. Attendees at this meeting included representatives of AFESC, USAF OEHL, Tactical Air Command (TAC), George AFB, and CH2M HILL. The purpose of the pre-performance meeting was to provide detailed project instructions for the records search, to provide clarification and technical guidance by AFESC, and to define the responsibilities of all parties participating in the Tyndall AFB records search.

CH2M HILL representatives conducted a preliminary visit to George AFB on 11 September 1981 to become familiar with the installation and to effect coordination for the records search team onsite base visit.

The on-site base visit was conducted by CH2M HILL from 21 September through 25 September 1981. An inbriefing was held with the 831st Air Division Commander to discuss the purpose of the site visit. An outbriefing was held with the 831st Combat Support Group Commander to present the preliminary findings. Activities performed during the on-site base visit included a detailed search of installation records, ground and aerial tours of the installation, and interviews with 36 former and present base personnel. The following individuals comprised the CH2M HILL Records Search Team:

1. Mr. Michael Kemp, Project Manager (M.S., Civil and Environmental Engineering, 1978)

2. Mr. Steven Hoffman, Project Senior Consultant (B.S., Civil Engineering, 1971)

3. Mr. Donald Mahin, Hydrogeologist (M.S., Hydrology, 1978)

4. Ms. Jane Dykzeul, Ecologist (B.A., Biology, 1976)

Resumes of these key team members are included in Appendix A.

Twenty-three outside agencies (refer to Appendix B for listing) were contacted for documents relevant to the records search effort.

Key individuals from the Air Force who participated in the George AFB Records Search included the following:

1. Mr. Bernard Lindenberg, AFESC, Program Manager, Phase I.

2. Mr. Myron Anderson, AFESC, Assistant Program Manager, Phase I.

3. Mr. Gil Burnet, TAC, Command Representative

4. Mr. Dave Dorn, George AFB, Environmental Coordinator

5. Capt. James Montgomery, George AFB, Chief, Bioenvironmental Engineering.

6. Major Gary Fishburn, USAF OEHL, Program Manager, Phase II.

E. METHODOLOGY

The methodology used in the George AFB Records Search is shown graphically in Figure 4. First, a review of past and present industrial operations was conducted at the base. Information was obtained from available records such as shop files and real property files, as well as interviews with past and present employees from the various operating areas of the base.

The next step in the activity review process was to determine the past management practices regarding the use, storage, treatment, and disposal of hazardous materials from the various industrial operations on the base. Included in this part of the activities review was the identification of all past landfill sites and burial sites, as well as any other possible sources of contamination such as major PCB or solvent spills or fuel-saturated areas resulting from large fuel spills or leaks.

A general ground tour and helicopter overflights of the identified sites was made by the Records Search Team to gather site-specific information including (1) evidence of environmental stress, (2) the presence of nearby drainage ditches or surface-water bodies, and (3) visual inspection of these water bodies for any obvious signs of contamination or leachate migration.

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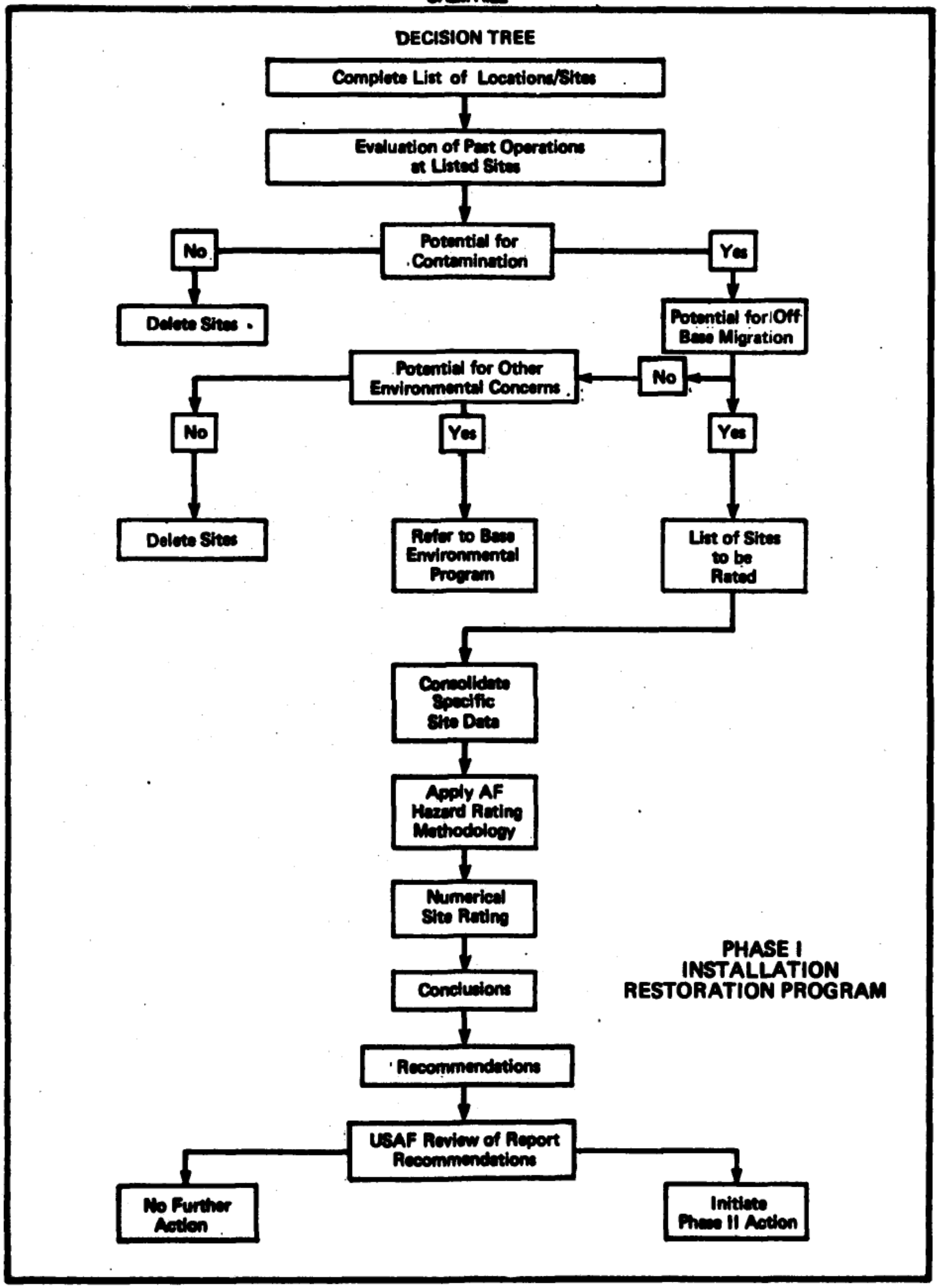


**FIGURE 4**
**RECORDS SEARCH METHODOLOGY**

A decision was then made, based on all of the above information, whether a potential exists for hazardous material contamination in any of the identified sites. If not, the site was deleted from further consideration. If minor operations and maintenance deficiencies were noted during the investigations, the condition was reported to the Base Environmental Coordinator for remedial action.

For those sites where a potential for contamination was identified, a determination of the potential for migration of the contamination beyond the installation boundaries was made by considering site-specific soil and groundwater conditions. If there was potential for on-base contaminant migration or other environmental concerns, the site was referred to the base environmental monitoring program for further action. If no further environmental concerns were identified, the site was deleted from consideration. If the potential for off-base contaminant migration was considered significant, then the site was rated and prioritized using the site rating methodology described in Appendix H.

The site rating indicates the relative potential for contaminant migration at each site. For those sites showing a high potential, recommendations were made to quantify the potential contaminant migration problem under Phase II of the Installation Restoration Program. For those sites showing a medium potential, a limited Phase II program may be desirable to confirm that a contaminant migration problem does not exist. For those sites showing a low potential, no Phase II work would be recommended.

## II. INSTALLATION DESCRIPTION

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### A. LOCATION

George Air Force Base is located in the Mojave Desert region of south-central California. The Town of Adelanto borders the west side of the base, and the City of Victorville lies approximately 6 miles southeast of the base. The Mojave River flows near the eastern and northeastern base boundaries.

In addition to the 5,347 acres of land contained within the base boundaries, George AFB is responsible for the following off-base property:

1. Cuddeback Lake AFR
2. Leach Lake AFR
3. Red Mountain Light Annex
4. Lake Isabella Recreational Area
5. George AFB Outermarker
6. Off-base Water Supply Wells
7. George AFB Railroad Spur

The locations of these properties were shown in Figures 2 and 3. Site photographs are presented following the reference listing.

### B. ORGANIZATION AND MISSION

Construction of George AFB began in 1941. The base was known as Victorville Army Airfield and operated as an advanced flying school until 1945. Following World War II, flying operations ceased and the base was placed on inactive status from 1948 to 1950. In 1950, the base was renamed George AFB and jet fighter training began. The Tactical Air Command

(TAC) took control of the base in 1951 and maintenance of jet fighter pilot proficiency has comprised the major base mission since. A more detailed description of the base history is included in Appendix C.

George AFB is the host of the 831st Air Division. The primary mission of the Division is to execute tactical fighter operations and to provide training for aircrew and maintenance personnel. A variety of tenant units are also located at George AFB and detailed in Appendix C.

# III. ENVIRONMENTAL SETTING

# III. ENVIRONMENTAL SETTING

## A. METEOROLOGY

George AFB is located in the Mojave Desert. The climate is arid with long hot summers and short cool winters. The mean relative humidity ranges from 27 percent in July to 55 percent in January. Annual potential evaporation averages 83 inches.

Mean annual precipitation at the base is 3.0 inches with approximately 60 percent of the total occurring from November through March. Maximum daily rainfall has been as high as 2.9 inches. Mean annual snowfall for the area is 3.0 inches. The annual mean temperature is 62 degrees. Daily extreme temperatures are 9 degrees F and 111 degrees F. Winds are normally light to moderate with the velocity exceeding 10 knots only 16 percent of the year.

Refer to Table III-1 for a summary of meteorological conditions at George AFB and the surrounding area.

## B. GEOLOGY

George Air Force Base is located in the Mojave Desert of southern California, a wedge-shaped portion of the Basin and Range physiographic province. The Sierra Nevada Mountain Range forms the north and west boundaries of the Mojave Desert. The east-west traverse ranges of the San Gabriel and San Bernardino Mountains form the southern boundary, with the California-Nevada state line forming the approximate eastern boundary of the Mojave Desert.

The Mojave Desert in the vicinity of George Air Force Base is a relatively level plain with a gentle downward slope to the north. Alluvial fans extending from the mountains have

**Table III-1**
**METEOROLOGY SUMMARY**
**(DET 12, 25 Weather Squadron, George AFB)**

| | January | February | March | April | May | June | July | August | September | October | November | December | Annual Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Temperature** | | | | | | | | | | | | | |
| Mean Maximum (°F) | 56 | 60 | 64 | 71 | 79 | 89 | 97 | 95 | 89 | 78 | 65 | 57 | 75 |
| Mean (°F) | 45 | 48 | 52 | 58 | 66 | 74 | 82 | 81 | 75 | 64 | 53 | 46 | 62 |
| Mean Minimum (°F) | 34 | 36 | 40 | 44 | 51 | 59 | 67 | 66 | 60 | 50 | 40 | 34 | 48 |
| No. Days Maximum ≥80° | * | * | 1 | 6 | 17 | 26 | 30 | 30 | 27 | 14 | 1 | * | 152 |
| No. Days Maximum ≥65° | 5 | 9 | 15 | 22 | 28 | 30 | 31 | 31 | 30 | 28 | 16 | 6 | 251 |
| No. Days Minimum ≥65° | 0 | 0 | 0 | 0 | 1 | 7 | 21 | 18 | 8 | * | 0 | 0 | 55 |
| No. Days Minimum ≤32° | 14 | 8 | 5 | * | 0 | 0 | 0 | 0 | 0 | * | 4 | 13 | 44 |
| Extreme Maximum | 80 | 80 | 86 | 95 | 100 | 111 | 110 | 108 | 107 | 98 | 85 | 86 | |
| Extreme Minimum | 9 | 18 | 18 | 29 | 35 | 41 | 50 | 49 | 38 | 28 | 10 | 14 | |
| **Precipitation** | | | | | | | | | | | | | |
| Highest Total (in.) | 2.8 | 4.2 | 1.9 | 1.2 | .9 | .2 | .7 | 1.4 | 3.3 | 1.5 | 1.8 | 3.9 | |
| Mean Total (in.) | .8 | .8 | .6 | .2 | .1 | * | .1 | .2 | .2 | .2 | .4 | .6 | 4.2 |
| Lowest Total (in.) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Most in 1 Day (in.) | 1.7 | 1.9 | 1.1 | .4 | .8 | .2 | .7 | 1.8 | 2.9 | 1.2 | 1.6 | 1.5 | |
| No. Days With Precip. | 4 | 4 | 3 | 2 | 1 | * | 1 | 1 | 1 | 1 | 2 | 3 | 23 |
| No. Thunderstorm Days | * | * | * | 0 | * | * | 1 | 2 | 1 | * | 0 | * | 5 |
| **Snowfall** | | | | | | | | | | | | | |
| Highest Total (in. | 17.0 | 2.4 | 3.4 | 1.2 | .3 | 0 | 0 | 0 | 0 | * | 9.2 | 7.8 | |
| Mean Total (in.) | 1.6 | .1 | .3 | .1 | * | 0 | 0 | 0 | 0 | * | .3 | .6 | 3.0 |
| Most in 1 Day (in.) | 15.6 | 2.0 | 2.3 | 1.2 | .3 | 0 | 0 | 0 | 0 | * | 8.8 | 5.8 | |
| No. Days With Snow | 1 | * | * | * | * | 0 | 0 | 0 | 0 | * | * | * | 1 |
| **Relative Humidity** | | | | | | | | | | | | | |
| Mean High (%) | 64 | 63 | 63 | 59 | 55 | 46 | 39 | 45 | 49 | 46 | 51 | 57 | 55 |
| Mean (%) | 55 | 51 | 50 | 43 | 38 | 31 | 27 | 32 | 35 | 35 | 41 | 46 | 40 |
| Mean Low (%) | 41 | 35 | 34 | 26 | 22 | 17 | 17 | 19 | 21 | 22 | 28 | 33 | 27 |
| **Wind** | | | | | | | | | | | | | |
| Prime Directions | S | S | S/W | W/S | S/W | S/W | S | S | S | S | S | S | S |
| Mean Speed (knots) | 5.0 | 5.9 | 7.5 | 7.5 | 7.2 | 6.8 | 5.8 | 5.6 | 5.0 | 4.9 | 5.0 | 4.6 | 5.9 |
| Winds >10 Knots (%) | 11.5 | 16.3 | 25.5 | 25.1 | 31.4 | 20.6 | 15.4 | 13.8 | 10.7 | 10.1 | 11.7 | 9.0 | 15.9 |
| Winds >21 Knots (%) | .9 | 2.0 | 3.2 | 2.7 | 1.5 | 1.4 | .2 | .4 | .3 | .7 | .5 | 1.0 | 1.2 |
| Peak Speed (knots) | 54 | 52 | 62 | 52 | 46 | 46 | 50 | 50 | 39 | 54 | 51 | 56 | |

*Less than 1/2 day; .01 inch rainfall or .1 inch snowfall.

coalesced and partially form this surface. Playa deposits, stream deposits, and erosion have modified the alluvial fans to form the present land surface.

Geologic units in the region can be classified as water-bearing or non-water-bearing. The non-water-bearing rocks are generally those igneous and metamorphic rocks that form the mountain and hill areas surrounding George Air Force Base. These formations also underlie the water-bearing sediments in the area. The water-bearing formations are unconsolidated to semiconsolidated alluvial deposits of continental origin and Quaternary age, composed of materials ranging in size from coarse sands and gravels to silts and clays.

Deeper sediments are generally more consolidated than those near the surface, with the exception of soils and former soils that have formed caliche layers. Caliche develops as a non-uniform layer of cemented soil with the thickness and permeability varying as a function of the site conditions during its formation. The caliche underlying George AFB is not continuous and erosion may affect the extent and thickness of the caliche layers. Where present, the caliche layers may form a partial barrier to infiltration through the soil. Figure 5 is a generalized stratigraphic column of the water-bearing units in the George Air Force Base region.

Of the water-bearing units in the area, the river deposits and younger alluvium have the highest relative permeability. The older alluvium and older alluvial fan deposits tend to have a lower permeability and are partially consolidated. The transmissivity of the river deposits and younger alluvium is relatively high and on the order of 100,000 gallons per day per foot (gpd/ft). The other water-bearing aquifers in the vicinity of George Air Force Base have transmissivities

| SYSTEM | SERIES | GEOLOGIC FORMATION | LITHOLOGY | MAXIMUM THICKNESS (FEET) |
|---|---|---|---|---|
| QUATERNARY | RECENT | RIVER DEPOSITS | Qro | 90± |
| | | PLAYA DEPOSITS | Qp | 25± |
| | | DUNE SAND | Qds | 35± |
| | | YOUNGER ALLUVIUM | Qal | 100± |
| | | YOUNGER FAN DEPOSITS | Qyf | 75± |
| | PLEISTOCENE | OLD LAKE & LAKESHORE DEPOSITS | Qol | 75± |
| | | OLDER ALLUVIUM | Qoa | 1000± |
| | | OLDER FAN DEPOSITS | Qof | 1000± |
| | | LANDSLIDE BRECCIA | Qls | 100± |
| | | SHOEMAKER GRAVEL | Qs | 300± |
| | | HAROLD FORMATION | Qh | 1300± |

LEGEND

GRAVEL

SAND

SILTY OR SANDY CLAY OR CLAY

CONGLOMERATE

BRECCIA

UNCONFORMITY

**FIGURE 5**
**GENERALIZED STRATIGRAPHIC COLUMN OF WATER-BEARING SEQUENCE, MOJAVE RIVER AREA**

(California Dept. of Water Resources, Bulletin 84, 1967) on the order of 25,000 gpd/ft. Consequently, the river deposits and younger alluvium generally yield higher quantities of water to wells. The river deposits form a strip along the river ranging in width from 1/4 to 1-1/2 miles wide.

The non-water-bearing rocks are generally located away from George Air Force Base or below the range of most wells in the vicinity.

## C. HYDROLOGY

The Mojave River, located east of the base, forms the major drainage in the vicinity of George Air Force Base and plays a major role in the surface-water and groundwater hydrology. Average flows in the Mojave River at Victorville are approximately 75 cubic feet per second (cfs) with a peak discharge measured at 70,600 cfs on 2 March 1939. The minimum flow at Victorville was measured at 3.4 cfs on 25 July 1975. Along its course, the Mojave River may flow above ground intermittently. The coarse river sediments permit low flows beneath the riverbed. At high flows, the river becomes continuous throughout its length.

Surface drainage patterns at George Air Force Base are shown in Figure 6. In general, runoff from the western portion of the base is directed to the northeast and eventually flows into the Mojave River far north of the base. Runoff from the flightline, industrial, and office areas (the northeast and central portions of the base) is directed to the north and east and ultimately reaches the Mojave River during infrequent periods of high rainfall. Runoff from the residential areas and the eastern and southern portions of the base flows to the east and eventually into the Mojave River.

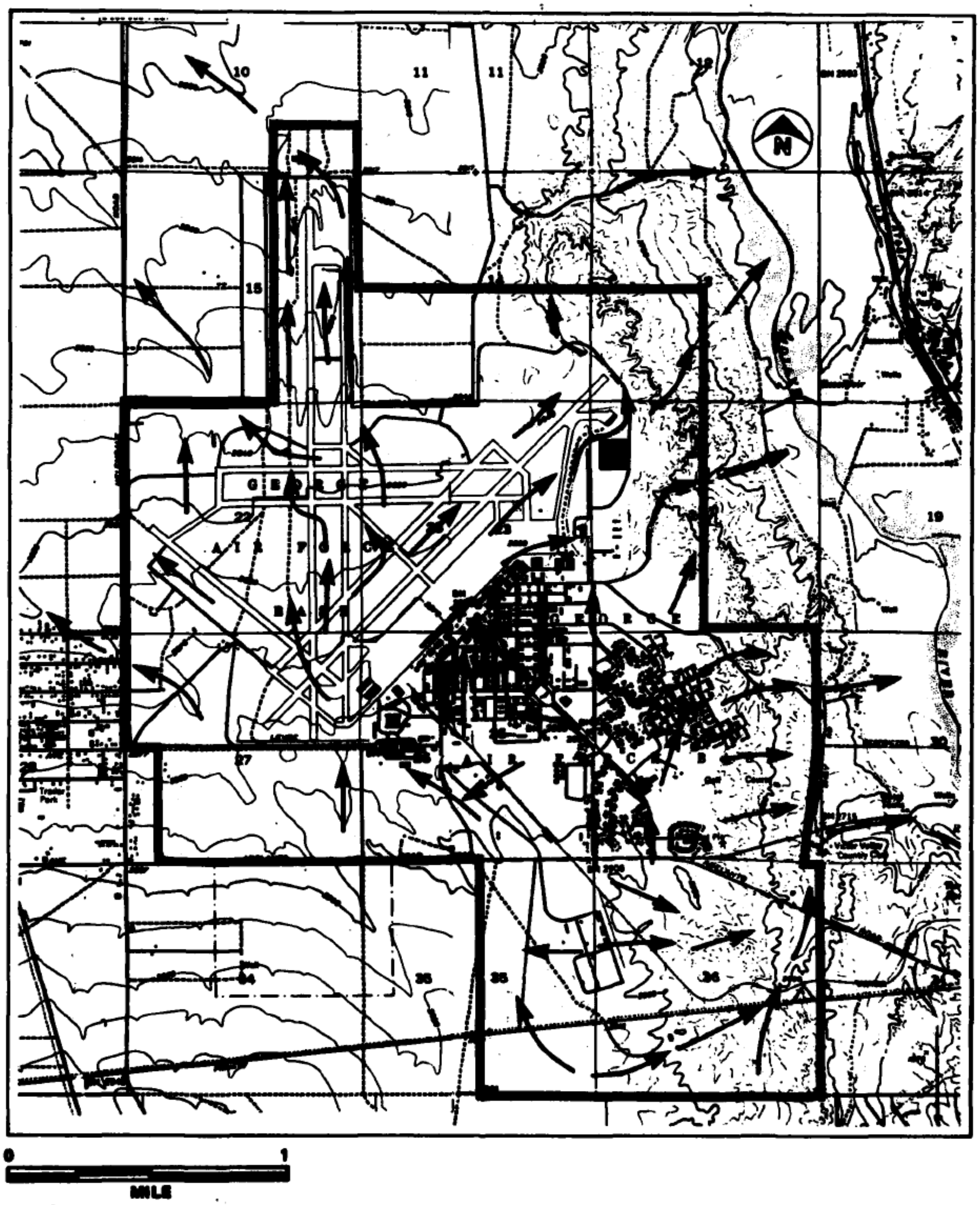


FIGURE 6
SURFACE DRAINAGE MAP
GEORGE AFB

In the vicinity of the flightline, office, and residential areas, the drainage system consists of storm drains gutters, culverts, and some ditches. The remainder of the base stormwater system consists primarily of drainage ditches and isolated culverts.

Ground water flows from its major recharge area along the San Bernardino Mountains to the north and east and discharges into the Mojave River near Victorville. Irrigation in the nonmountainous areas contributes to the groundwater recharge. Well water withdrawal may alter the groundwater flow direction locally, and in some cases induce discharge from the Mojave River. Ground water beneath George AFB flows to the northeast and discharges to the Mojave River.

The potential for ground water recharge from precipitation near George AFB is low because of the low precipitation and a high potential evaporation. Most of the ground water recharge occurs along the San Gabriel and San Bernardino Mountains to the south of George Air Force Base and from losses in river flow. Ground water velocity in the vicinity of George Air Force Base is estimated to be on the order of 500 feet per year to the northeast, based upon a modification of Darcy's Law as shown in Appendix M.

The location of the potentiometric surface is generally 100 feet or more below the land surface at George Air Force Base. Along the eastern edge of the base the potentiometric surface moves closer to the ground surface and eventually meets the ground surface at or near the Mojave River. Figure 7 is a map of the potentiometric surface in the spring of 1964. Irrigation and groundwater recharge may have caused the potentiometric surface to rise in some areas since 1964.

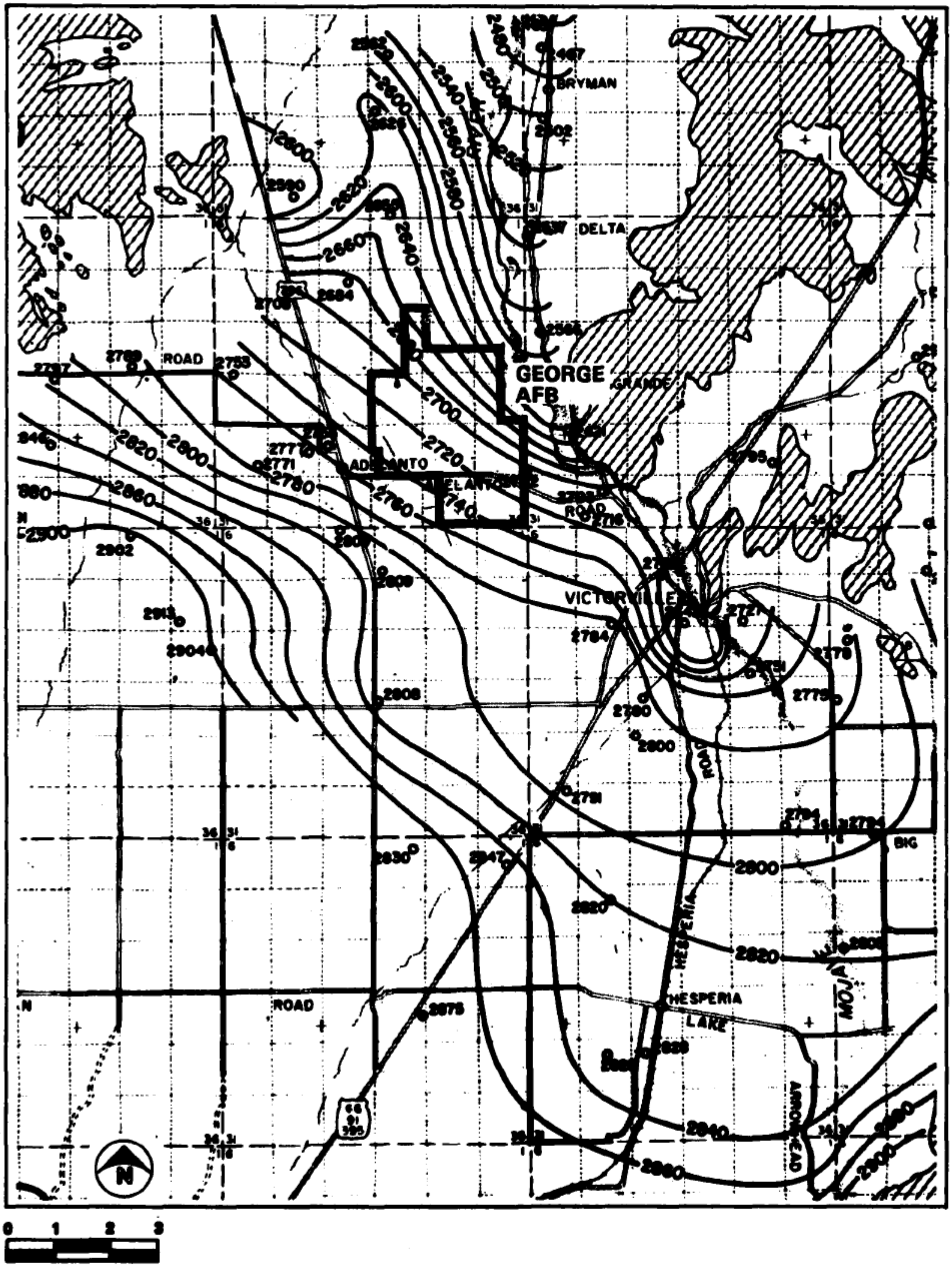



**FIGURE 7**
**POTENTIOMETRIC SURFACE, 1984, GEORGE AFB AND VICINITY**
**(California Dept. of Water Resources, Bulletin 84, 1987)**

Construction excavation on the base has encountered caliche at various depths. Test borings to depths up to 25 feet have detected caliche, but ground water has not been encountered. The log of the monitoring well adjacent to the wastewater ponds indicates ground water in a sand layer located approximately 150 feet below ground level with a static water level at about 110 feet below ground level.

Surface and ground water quality are generally good in the area. Storm flows of the Mojave River are primarily calcium bicarbonate water with less than 400 parts per million of dissolved solids. Ground water in the vicinity of George Air Force Base has a total dissolved solids concentration of approximately 200 to 400 parts per million, with better water quality found in the deeper wells. Representative groundwater data for the off-base water supply wells are presented in Table III-2.

Flash floods can occur in the area, causing significant amounts of localized erosion and transport of surface debris. Site evidence suggests recent erosion with channel depths of up to 4 feet. This erosion generally occurs in the undeveloped portions of the base.

## D. ENVIRONMENTALLY SENSITIVE CONDITIONS

### 1. Habitat

Native plant and animal communities on base reflect the dry climatic conditions of an upland desert region. Along the eastern border of the base near the Mojave River small groves of cottonwoods and willows are found in several areas, indicating the presence of near-surface water.

**Table III-2**
**GEORGE AFB GROUND-WATER DATA**
**(September 1978)**

| | Well Number[1] | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Composite |
| Arsenic (mg/l) | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 |
| Barium (mg/l) | <.03 | <.03 | <.03 | <.03 | <.03 | <.03 | <.03 | <.03 |
| Cadmium (mg/l) | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 |
| Chromium (mg/l) | <.003 | <.003 | <.003 | <.003 | <.003 | <.003 | <.003 | <.003 |
| Lead (mg/l) | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 |
| Mercury (mg/l) | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 | <.001 |
| Selenium (mg/l) | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 |
| Silver (mg/l) | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 |
| Fluoride (mg/l) | .58 | .51 | .61 | .55 | .38 | .57 | .43 | .52 |
| Nitrate (mg/l) | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Calcium (mg/l) | 21 | 30 | 28 | 33 | 34 | 33 | 39 | 31 |
| Magnesium (mg/l) | 3.2 | 8.4 | 7.6 | 9.6 | 9.0 | 8.8 | 9.6 | 8.5 |
| Sodium (mg/l) | 40 | 48 | 57 | 54 | 48 | 52 | 50 | 49 |
| Potassium (mg/l) | 1.6 | 3.5 | 2.1 | 5.6 | 4.3 | 5.4 | 5.8 | 3.9 |
| Manganese (mg/l) | <.01 | 0.02 | <.01 | <.01 | .10 | .08 | <.01 | .03 |
| Hydroxide (mg/l) | nil | nil | nil | nil | nil | nil | nil | nil |
| Carbonate (mg/l) | nil | nil | nil | nil | nil | nil | nil | nil |
| Bicarbonate (mg/l) | 146 | 166 | 166 | 205 | 176 | 195 | 205 | 174 |
| Chloride (mg/l) | 21 | 40 | 25 | 37 | 38 | 40 | 39 | 39 |
| Sulfate (mg/l) | 19 | 44 | 69 | 43 | 49 | 39 | 39 | 44 |
| Copper (mg/l) | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 |
| Iron (mg/l) | <.01 | <.01 | <.01 | .13 | <.01 | .16 | <.01 | 0.04 |
| Zinc (mg/l) | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 |
| MBAS (mg/l) | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 | <.005 |
| Total Alkalinity $CaCO_3$ (mg/l) | 120 | 136 | 136 | 168 | 144 | 160 | 168 | 142 |
| Total Hardness $CaCO_3$ (mg/l) | 60 | 100 | 94 | 130 | 111 | 110 | 130 | 103 |
| Total Dissolved Solids (mg/l) | 193 | 271 | 283 | 308 | 289 | 290 | 315 | 277 |
| pH (std. units) | 8.17 | 7.7 | 7.21 | 7.67 | 7.46 | 7.85 | 7.67 | 771 |
| Specific Conductance (u mho/cm) | 350 | 490 | 500 | 540 | 500 | 510 | 550 | 497 |

[1]Well No. Key:

| No. | Air Force Identification | State Well No. |
|---|---|---|
| 1 | 073 PG 200 | 6N/4W-30 F01 S |
| 2 | 073 PG 201 | 6N/4W-30 X01 S |
| 3 | 073 PG 202 | 6N/4W-30 K01 S |
| 4 | 073 PG 203 | 6N/4W-30 K02 S |
| 5 | 073 PG 204 | 6N/4W-30 G01 S |
| 6 | 073 PG 205 | 6N/4W-30 G02 S |
| 7 | 073 PG 206 | 6N/4W-30 G03 S |

Creosote bush scrub is the predominant vegetational community in the undeveloped areas on base (approximately 2,500 acres). Common plants in this community include creosote bush, burroweed, ricegrass, mormon tea, and cheese bush (Appendix J). The introduced species russian thistle or tumbleweed is often found growing in disturbed areas. Several species of cactus occur in the area but in small numbers. Among those found are jumping cholla, pencil cactus, and beavertail cactus.

Plants indicative of the joshua tree woodland community are also found on base. This community, including such plants as the joshua tree, California juniper, boxthorn, and bladdersage, is normally found on well-drained mesas and slopes 2,500 to 4,000 feet in elevation or higher. Small springs or aquifers along the eastern border of the base support isolated patches of riparian vegetation. Cottonwoods and willows are the largest of the plant species in these areas. Cattails can be found in the understory of the wettest of these regions. Large creosote bushes were found in several of the eastern drainages supporting riparian habitats. Willows, cattails, sedges, and rushes were also noted around the STP percolation ponds.

Wildlife in the vicinity of George AFB includes both desert and riparian species. Predominant desert species include black-tail jackrabbit, Audubon cottontail, antelope ground squirrel, and others (Appendix J). Mallards, ruddy ducks, and coots were observed at the STP percolation ponds.

## 2. Threatened and Endangered Species

Federally listed threatened or endangered wildlife species have not been identified on George AFB. The Mojave ground squirrel Citellus mohavensis (California state-designated rare) is noted to occur in this area as well as the desert tortoise Gopherus agassizi, (Bureau of Land Management (BLM)-designated sensitive). Several candidate floral species are reported in the general vicinity. Table J-3 in Appendix J lists the sensitive, rare, and endangered species possibly occurring in the vicinity of the base and their designation.

### 3. Environmental Stress

Desert ecosystems are considered sensitive ecosystems. Plant cover is necessarily sparse and not easily established. Stabilized soils around the base of many plants, such as the creosote bush, provide areas where desert fauna can construct burrows. When a desert surface is disturbed, the vegetation and animal burrows are destroyed and soils are no longer stabilized. It takes many years before such an area is re-established with native biota.

During the on-site investigation, landfill and grading areas on base could be clearly discerned. In disturbed areas, vegetation was almost completely lacking or very spotty, or there was an establishment of russian thistle. The relative lack of vegetation in these areas limited animal life as well. Fewer burrows and tracks were noted in disturbed areas.

Desert ecosystems, though sensitive to disturbance, have relatively stable soil conditions because of a low ground-water table and the dry climatic conditions. While native systems are disrupted in the immediate vicinity of a landfill, further impacts from properly buried materials are unlikely.

Cursory on-site investigation and review of available information on George AFB revealed no significant environmental

**stress caused by landfill disposal of hazardous wastes through surface erosion, surface runoff, or ground-water pathways. Application of treated effluent from the base wastewater treatment plant to the golf course has caused no apparent biological stress. Reported past application of sewage sludge and waste fuel to the perimeter road and to other areas on base also has not caused apparent biological stress. Environmental degradation associated with the use of herbicides and other pesticides was not evident.**

## IV. FINDINGS

# IV. FINDINGS

## A. ACTIVITY REVIEW

### 1. General

Major activities at George AFB contributing to the generation of potentially hazardous wastes include vehicle maintenance, ground support equipment maintenance, aircraft maintenance, and aircraft corrosion control. Other waste-generating activities include munitions disposal, pest control, and laboratory operations including photo development, non-destructive inspection (NDI), and fuels analysis.

### 2. Industrial Operations

A master listing of industrial operations and related activities identified during the Records Search is presented in Appendix Table D-1. The list is summarized in Table IV-1. Typical maintenance solvents and paint strippers used at the base include trichloroethane, trichloroethylene (TCE), methyl ethyl ketone (MEK), toluene, PD-680 (see Appendix L), and a phenolic-based carbon remover. Use of trichloroethylene was halted in the late 1970's. Wastes generated by the maintenance operations include spent solvent and waste oils, fuels, and greases removed from the equipment. Wastes generated by corrosion control activities include paint chips, waste paint, spent solvents, and spent strippers. Aircraft washrack activities result in the discharge of alkaline soaps, detergents, and small amounts of PD-680. Vehicle and aircraft washing produces the greatest volume of industrial waste discharge of any of the base activities.

**Table IV-1**
**INDUSTRIAL OPERATIONS SUMMARY**

| Operation or Shop | Waste Material |
|---|---|
| Base Exchange Garage | Oils, Grease, Solvents, Cleaners |
| Vehicle Car Wash | Detergents, Wax |
| Auto Hobby Shop | Cleaners, Solvents, Oils, Paints |
| Vehicle Maintenance | Cleaners, Acids, Oils, Solvents |
| AGE Maintenance | Cleaners, Acids, Oils, Solvents, Fuel |
| Vehicle Wash Rack | Detergents, Wax |
| Engine Test Cell | Waste Oil, Fuel, Solvents |
| Corrosion Control | Paints, Strippers, Solvents |
| Pneudralics Shop | Cleaners, Degreasers, Oils, Solvents |
| Fuel Cell Maintenance | Fuels, Solvents |
| Jet Engine Shop | Detergents, Degreasers, Fuels |
| Aircraft Wash Racks | Detergents, Fuels, Oils Solvents |
| Fuels Lab | Fuels, Acids, Solvents |
| Repair and Reclamation Shop | Detergents, Solvents |
| Nonpowered AGE Shop | Solvents, Paints, Oils |
| Equipment Maintenance | Cleaners, Oils, Paints, Strippers |
| Pavements and Grounds | Solvents, Adhesives, Fertilizer |
| Entomology Shop | Pesticides, Herbicides |
| Photo Labs | Developer, Acids, Process Chemicals |
| Mobile Photo Lab | Developer, Acids |

**Table IV-1**
**INDUSTRIAL OPERATIONS SUMMARY**
**(Continued)**

| Operation or Shop | Waste Material |
|---|---|
| Paint Shop | Paints, Solvents |
| Machine Shop | Oil, Lubricants, Degreasers |
| NDI Lab | Kerosine, Penetrants, X-ray Film |
| Propulsion Lab | Oils, Solvents |
| Wheel and Tire Shop | Degreasers, Solvents, Detergents |
| Hydraulics Shop | Solvents, Cleaners, Hydraulic Fluid |
| Battery Shop, Tool Room | Acids, Grease, Solvents |
| Hospital | Medical Wastes, Chemicals |
| X-ray Lab | Developer, Fixer |
| Refuel Vehicle Maintenance | Oils, Lubricants, Solvents |
| Alert Support | Solvents, Oils, Fuel |

### 3. Fuels Storage and Maintenance

Tanks currently used for fuels storage are listed in Table E-1, Appendix E. Abandoned fuels storage tanks are included in Table F-1, Appendix F. Disposition of the abandoned tanks is described in the table.

A variety of jet aircraft have been stationed at George AFB since the early 1950's. Major storage facilities have been provided for JP-4 fuel. Prior to 1950 and during the early 1950's piston-driven aircraft were located at George and an aqua-injection AVGAS system was used for leaded fuel storage and distribution. Reportedly, an 8-inch or 10-inch leaded fuel pipeline paralleling the north side of the operational apron was abandoned in place. Leaded fuel storage tanks for both MOGAS and AVGAS, abandoned or in use, are listed in the appropriate appendixes (E and F).

Disposal areas for fuels residues and tank cleaning bottoms are discussed in Section B of this chapter. Because of the low corrosion potential of the soils surrounding George AFB, tank and pipeline leakage has generally been minimal. Fuel inventories have indicated some leakage in the fuel line near facility No. 708, but the quantity has not been verified. An identified leak at 708 is discussed in Section B as are the few major spills encountered. Minor jet fuel and gasoline spills have occurred in many fuel storage and distribution areas. Current practice allows the draining of tanks on the ground to remove water but the volume of fuel loss associated with this practice is extremely small. A pollution control project is being instituted to reduce the fuel spillage even more.

## 4. PCB Disposal

PCB's are not considered to be a significant contamination problem because of the relatively small volumes involved and the low potential for migration to the ground water. Past practice has been to store unserviceable transformers for later salvage off base. Minor leaks have occurred when transformers have failed or were stored in the salvage yard. During the 1940's and early 1950's, as many as 10 PCB-laden transformers were reported to have been disposed in on-base landfills.

## 5. Pesticide Usage

Herbicides and other pesticides are applied on base for weed and pest control. Presently used chemicals inclue baygon, diazinon, malathion, dalapon, prometone, simazine, and 2, 4-D. The use of DDT was discontinued in 1962.

All pesticide operations are currently handled by the Entomology shop. Herbicides are applied to land adjacent to the runways and to vacant lots on base. Other pesticides are used in the base shops and buildings when necessary. Rodents at the golf course are baited with either warfarin or diphacione.

Herbicides and other pesticides were stored in the old incinerator building near the sewage treatment plant until 1968 and then in a Quonset hut near Civil Engineering until the present facility was completed (Building 673). Operations have not resulted in excessive amounts of pesticides requiring disposal, although a large quantity of DDT was reportedly buried east of the present sewage percolation ponds. Small amounts of excess pesticides and wastewater were normally dumped on the ground, but a concrete evaporation pit has been recently installed for this purpose. Rinsed empty cans and bags are disposed of in dumpsters.

Herbicide and other pesticide usage on base is summarized in appendix Table K-1.

6. Wastewater Collection and Treatment

Wastes collected in the industrial/storm drain include discharge from the aircraft wash racks, wing fuel tank cleaning rinse, and water from the oil/water separator at the engine test cell located northeast of the apron. Past discharge to the industrial drain has included waste POL, fuels, solvents, paint strippers, and other miscellaneous flight line wastes.

The industrial/storm drain lies along both sides of the operational apron. Wastes collected in the south sewer pass through an often malfunctioning oil/water separator before combining with the north sewer for ultimate discharge to a drainage gulley leading to the Mojave River. Storm drainage plans indicate that the south industrial sewer is perforated for at least two-thirds of its length. Current plans call for connecting industrial waste sources currently discharging to the storm system to the sanitary sewage system by 1983.

Sanitary wastes and wastes from most of the base shops and laboratories are collected in the sanitary sewage system. Oil/water separators are provided in several areas for oil recovery prior to discharge to the sanitary sewer. Known oil/water separators are listed in Appendix G.

Typical industrial wastes collected in the sanitary sewer include miscellaneous paints and solvents, photo lab wastes, oils, cleaners, and degreasers from the various shops and maintenance activities. Incorporation of a solvent and oil recovery program in the early 1970's has reduced the industrial discharge rate.

Secondary treatment of the wastes is accomplished at the STP using trickling filters. Prior to 1977, secondary sludge was deposited in sludge drying beds and occasionally used for fertilizer on base or reportedly landfilled in an area adjacent to the industrial drain discharge gully. Recovered sludge has been disposed of off-site since 1977. No data were available on the chemical characteristics of the sewage sludge.

Secondary effluent is discharged to a series of oxidation ponds for ultimate evaporation/percolation or golf course irrigation. The base sanitary sewage system was connected to the Victor Valley Wastewater Reclamation Authority regional wastewater treatment system on 1 December 1981. On-base treatment is no longer provided. Potable water irrigation is anticipated for the golf course.

## 7. Other Activities

No evidence was found concerning the use or manufacture of biological agents. A disposal site for low-level radioactive wastes was discovered and is discussed in Section B. The exact contents could not be identified but are thought to be limited to vacuum tubes.

Three sites were identified for munitions disposal following inactivation by burning. The sites are currently inactive. Inert starter cartridges are disposed of on-base as described in Section B.

## 8. Summary of Waste Disposal Practices

Prior to 1976, essentially all of the solid wastes generated were disposed of on base property. Since then, the wastes have been hauled off-site. Waste POL fuels and solvents have historically been disposed of by burning either in the fill areas or for fire training. Currently, waste oils not used for fire training are salvaged in drums for off-site reclamation. The practice of waste POL salvage was initiated on a large scale at George Air Force Base during the mid-1970's and has become increasingly effective.

Very little, if any, off-site migration of hazardous wastes is anticipated because of the relatively small quantities of hazardous wastes generated, the limited pathways available for migration, and the character of the wastes generated.

## B. DISPOSAL SITES IDENTIFICATION AND RATING

Interviews with 36 past and present base personnel resulted in the identification of 51 disposal sites at George AFB. The sites included 2 current and 14 former landfills, 13 inactive miscellaneous solid waste burial or dump areas, and 25 liquid disposal or spill areas. These sites are shown on Figures 8, 9, 10, and 11. Approximate dates of major disposal site usage are shown in Figure 12. Potentially contaminated sites were rated using a modification of the system for rating the hazard potential of waste disposal facilities that was developed by JRB Associates, Inc., of McLean, Virginia, for the U.S. Environmental Protection Agency. This system was modified by the Air Force, CH2M HILL, and Engineering-Science for specific application to the Air Force Installation Restoration Program.

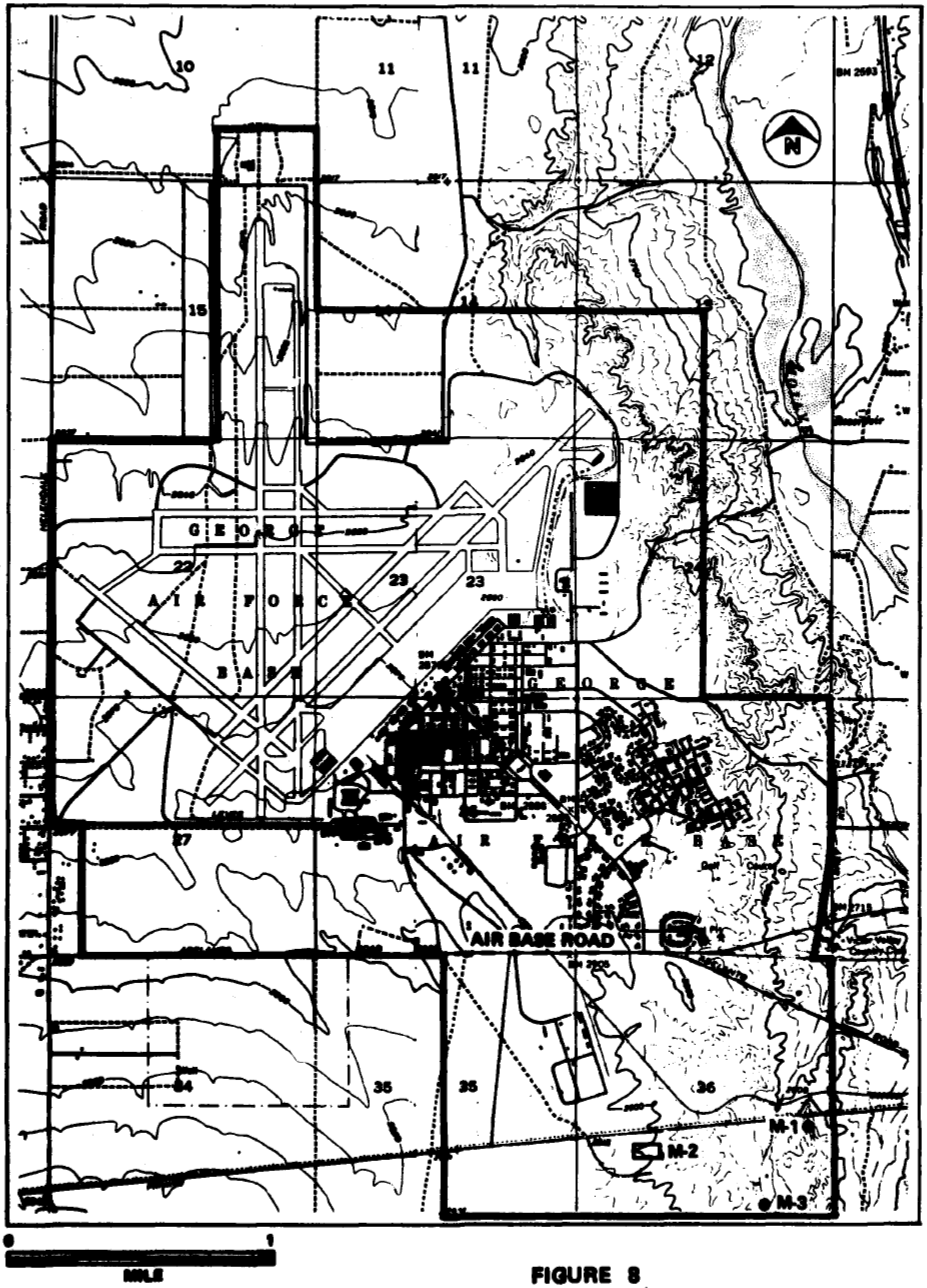



**FIGURE 8**
**GEORGE AFB MUNITION DISPOSAL SITES**
**M-1 THROUGH M-3**

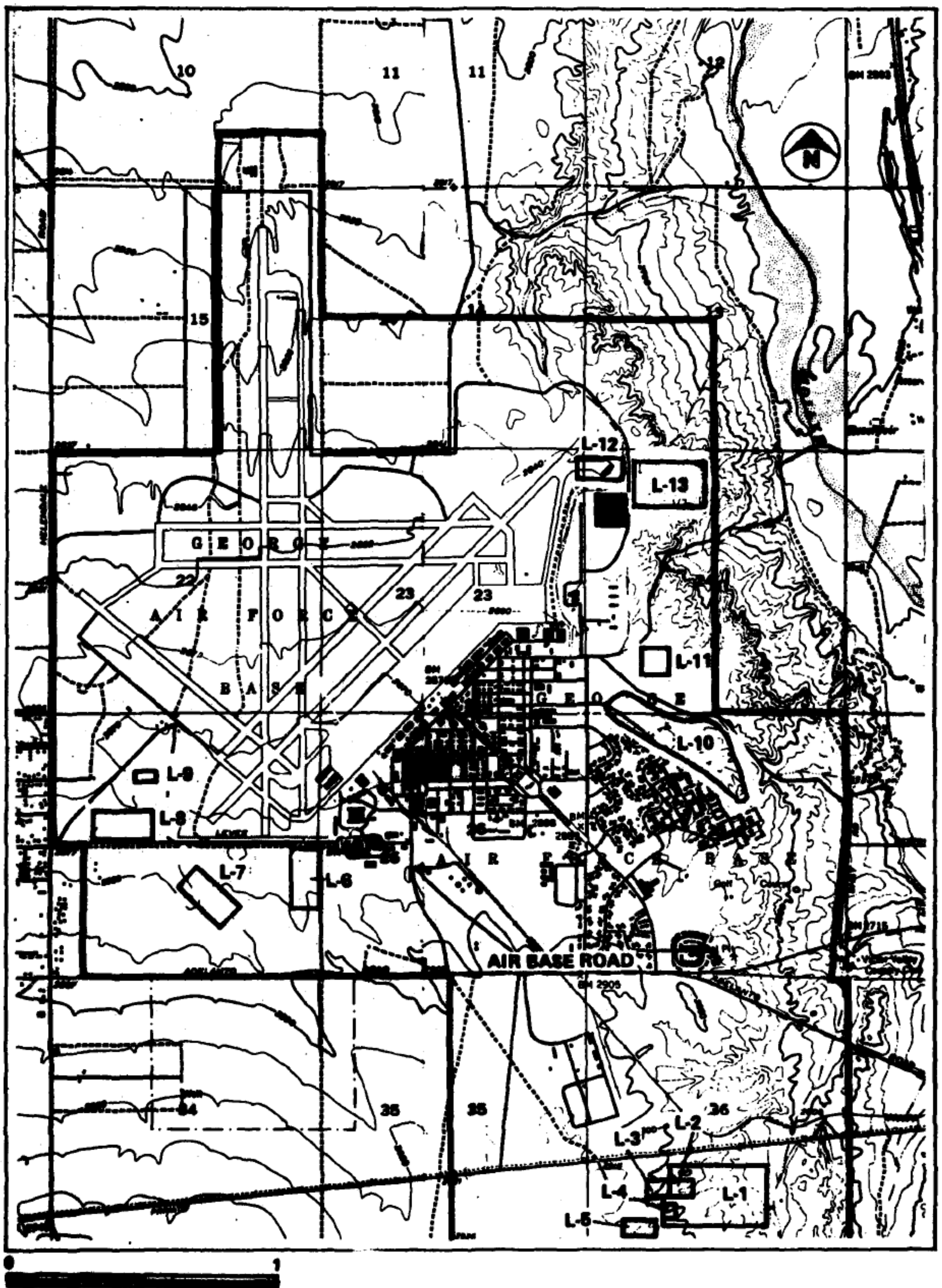



FIGURE 9
GEORGE AFB LANDFILL DISPOSAL SITES
L-1 THROUGH L-13

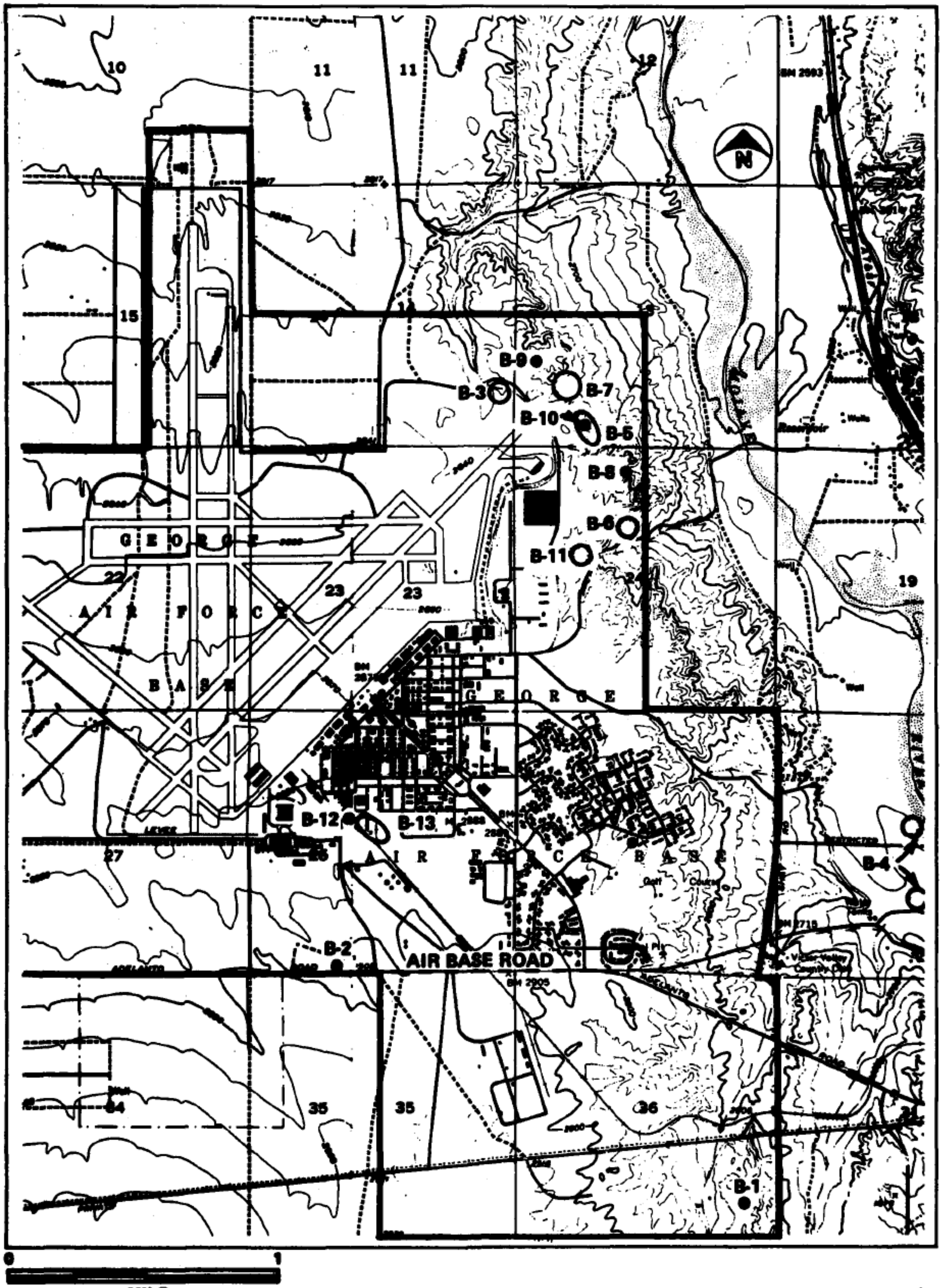



FIGURE 10
GEORGE AFB OTHER DUMP
OR BURIAL SITES
B-1 THROUGH B-13

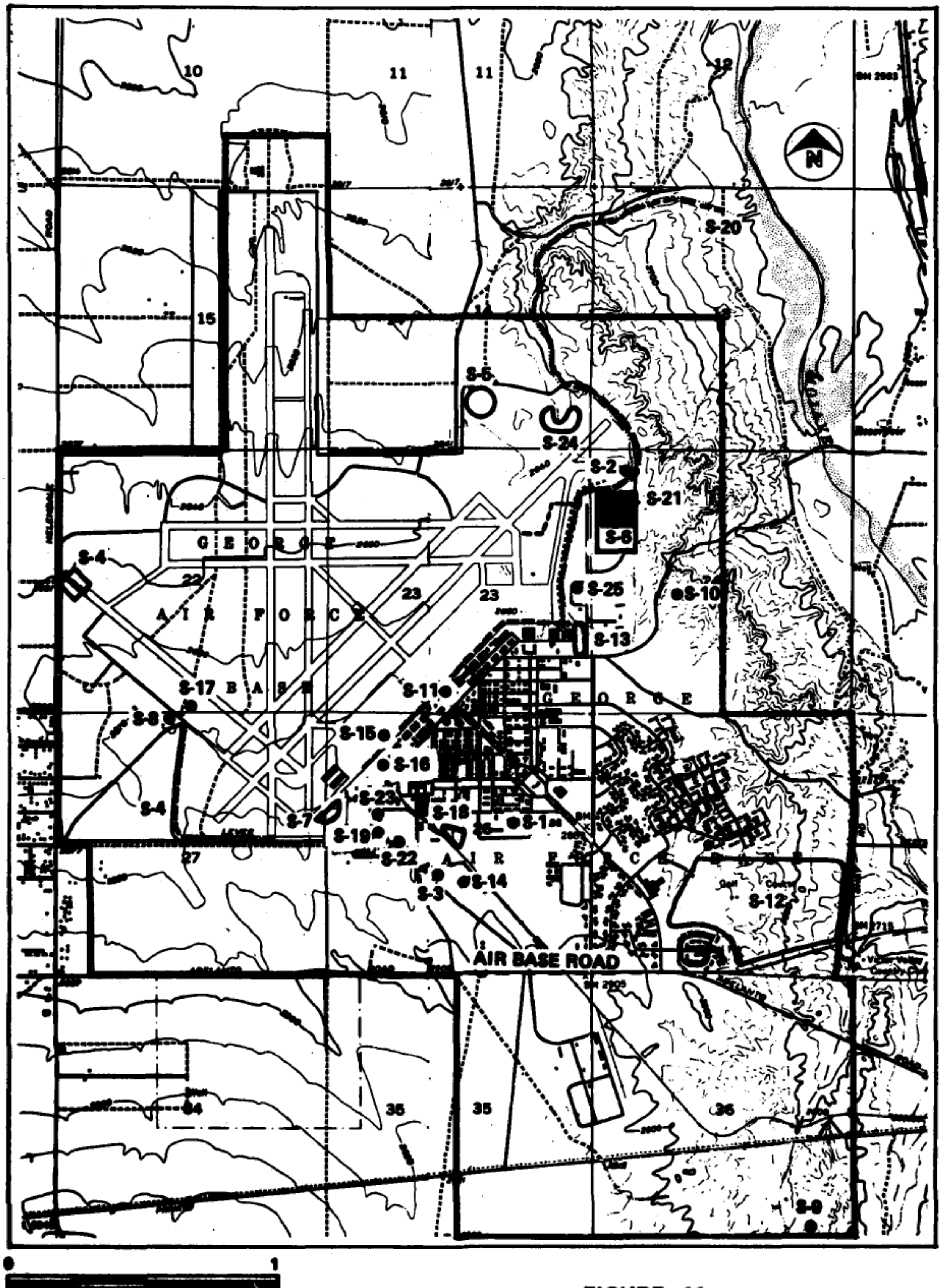



FIGURE 11
GEORGE AFB LIQUID DISPOSAL OR SPILL AREAS
S-1 THROUGH S-25

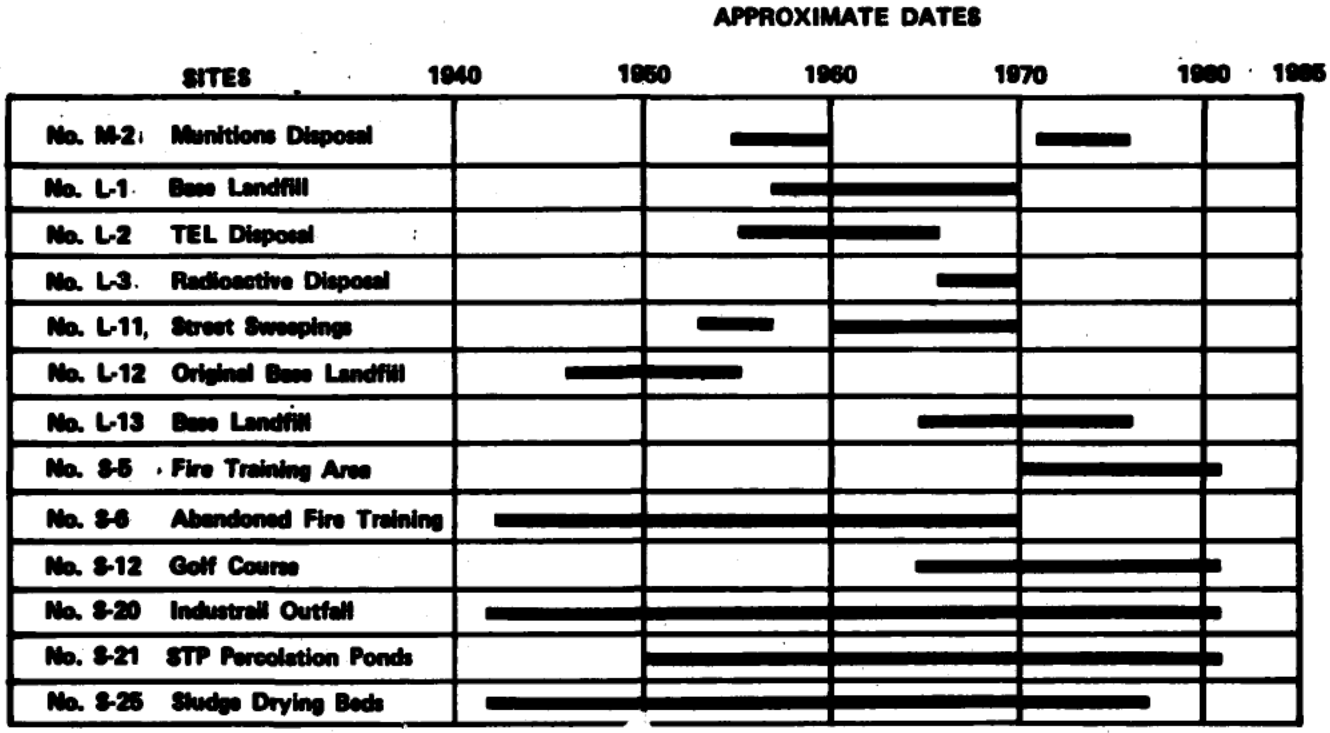



FIGURE 12
GEORGE AFB HISTORICAL SUMMARY OF ACTIVITIES AT MAJOR DISPOSAL SITES

The Air Force site rating system consists of 26 rating factors that are divided into 4 categories, i.e., receptors, pathways, waste characteristics, and waste management practices, which are used to evaluate the principal targets of contamination, the mechanisms for migration, the hazards posed by the contaminants, and the facility's design and operation, respectively. Relative scores from each category are combined to give an overall score using appropriate weighting factors. A more detailed description of this hazard methodology is included in Appendix H.

The following is a brief description of each site identified during the Records Search at George AFB and the rationale used for deleting or rating each site. Table IV-2 presents a summary of the Decision Tree steps used in determining whether each site required numerical rating.

1. <u>Munitions Disposal Sites</u>

Three on-base munitions residue burial sites were identified during the site visit. All three sites were located in the vicinity of the base landfill area south of Air Base Road.

- Site No. M-1 - located east of the existing grenade range near the abandoned small arms range. Identifiable residue found at the site included 20-mm cartridges and grenade debris. A concrete-lined burn pit filled with paint cans is located near the burial area. An unverified TNT and nitroglycerine burial site may be located near the burn pit. The site was reportedly closed in 1966 or 1967. The munitions disposed of could be hazardous if not completely inactivated but, because of low precipitation, high potential evaporation, and

# Table IV-2
## DISPOSAL SITE RATING SUMMARY

| Site | Waste Type | Potential Hazards Contamination | Potential Hazards Migration | Numerical Rating |
|---|---|---|---|---|
| **Munitions** | | | | |
| M-1 | Small Arms Residue | Yes | No | No |
| M-2 | Small Arms Residue/Oil | Yes | Yes | Yes |
| M-3 | Small Arms Residue/Bombs | Yes | No | No |
| **Landfills** | | | | |
| L-1 | Industrial/Domestic | Yes | Yes | Yes |
| L-2 | Fuel Tank Sludge | Yes | Yes | Yes |
| L-3 | Radioactive/Toxic | Yes | Yes | Yes |
| L-4 | Starter Cartridges | Yes | No | No |
| L-5 | Paper | No | N.A. | No |
| L-6 | Debris/Possible Asbestos | Yes | No | No |
| L-7 | Construction Debris | No | N.A. | No |
| L-8 | Construction Debris | No | N.A. | No |
| L-9 | Domestic | No | N.A. | No |
| L-10 | Debris/Domestic | No | N.A. | No |
| L-11 | Debris/Domestic/Industrial | Yes | Yes | Yes |
| L-12 | Industrial/Domestic | Yes | Yes | Yes |
| L-13 | Industrial/Domestic | Yes | Yes | Yes |
| **Other Dumps** | | | | |
| B-1 | Chemical Toilet Residue | No | N.A. | No |
| B-2 | Paint | Yes | Yes | Yes |
| B-3 | Debris/Industrial | No | N.A. | No |
| B-4 | Debris/Industrial | No | N.A. | No |
| B-5 | Rubble | No | N.A. | No |
| B-6 | Rubble/Domestic | No | N.A. | No |
| B-7 | Construction Debris | No | N.A. | No |
| B-8 | Pesticides/Paint | Yes | Yes | Yes |
| B-9 | Acids/Oils | Yes | Yes | Yes |
| B-10 | Pesticides/Oils | Yes | Yes | Yes |
| B-11 | Aircraft | No | N.A. | No |
| B-12 | Aircraft Parts | Yes | No | No |
| B-13 | Possible Munitions | Yes | No | No |
| **Liquid Disposal or Spills** | | | | |
| S-1 | POL | Yes | Yes | Yes |
| S-2 | Sanitary | No | N.A. | No |
| S-3 | POL | Yes | Yes | Yes |
| S-4 | Jet Fuel | Yes | Yes | Yes |

| Site | Waste Type | Potential Hazards Contamination | Potential Hazards Migration | Numerical Evaluation |
|---|---|---|---|---|
| S-5 | POL | Yes | Yes | Yes |
| S-6 | POL | Yes | Yes | Yes |
| S-7 | Jet Fuel | Yes | Yes | Yes |
| S-8 | Jet Fuel | Yes | No | No |
| S-9 | Creosote | Yes | No | No |
| S-10 | Jet Fuel | Yes | No | No |
| S-11 | Jet Fuel | Yes | No | No |
| S-12 | STP Effluent | Yes | Yes | Yes |
| S-13 | Jet Fuel | Yes | No | No |
| S-14 | Jet Fuel | Yes | No | No |
| S-15 | Jet Fuel | Yes | No | No |
| S-16 | Leaded Gas | Yes | No | No |
| S-17 | Jet Fuel | Yes | No | No |
| S-18 | Solvents/Oils | Yes | No | No |
| S-19 | Transformer Oils | Yes | No | No |
| S-20 | Industrial | Yes | Yes | Yes |
| S-21 | Sanitary/Industrial | Yes | Yes | Yes |
| S-22 | POL | Yes | Yes | Yes |
| S-23 | Jet Fuel | Yes | Yes | Yes |
| S-24 | Sanitary/Industrial Sludge | Yes | No | No |
| S-25 | Sanitary/Industrial Sludge | Yes | Yes | Yes |

the low ground water level, the potential for contaminant migration is extremely low. No numerical rating is required for this site.

- Site No. M-2 - located north of the tetraethyl lead (TEL) disposal site south of Air Base Road. The site is reportedly a 75-yard-long, 20-yard-wide, 10-foot-deep trench used in the late 1950's for small arms munitions residue disposal. Auto hobby shop waste oils may have been buried there from 1972 to 1976. The characteristics of the wastes may be hazardous and because of the possible disposal of waste oils at this site, some potential for hazardous waste migration exists. Numerical rating is warranted for this site.

- Site No. M-3 - located south of the abandoned small arms range. A small 50-foot-square area was used for burial of burned practice bombs and small arms cartridges. Reported operational dates are conflicting, but it appears that the site may have been used until the early 1970's. The munitions disposed of could be hazardous if not completely inactivated, but because of low precipitation, high potential evaporation, and the low ground water level, the potential for contaminant migration is extremely low. No numerical rating is required.

Practice bombing was reported at a variety of sites during the early 1940's. None of the sites were on the main base and most of the property has since been excessed.

## 2. Landfills

The landfills identified at George AFB include general landfills (municipal and industrial waste) and rubble or debris disposal areas. Chemical disposal areas were identified near or within some of the landfill sites.

- Site No. L-1 - located south of Air Base Road and adjacent to the abandoned small arms range. The site was reportedly in operation as the major base landfill from approximately 1957 until 1970. Evidence of lube oil, paint, lacquer, naphthalene, PD-680, trichloroethylene, cleaning compound, hydraulic fluid, firefighting foams, batteries, oil spill absorbent, and general refuse disposal was found. An unverified report stated that 127 barrels of acetone (volume unknown) were buried in the southeast corner of fill. Waste oil and fuel were used for burning throughout the life of the landfill. A wide variety of potentially hazardous wastes were disposed of in this site and contaminant migration is possible due to surface erosion and because of the liquids disposed of in the landfill; numerical rating is warranted for this site.

- Site No. L-2 - located within the west boundary of Site No. 1. The TEL disposal site was used for tank bottoms from leaded gasoline and JP-4 fuel storage tanks. The site was reportedly in operation from 1955 until 1966. A 200-foot-long, 15-foot-wide, 20-foot-deep trench may have been excavated in 1966 for JP-4 tank sludge disposal. Leaded gasoline sludge was disposed of following inactivation of the aviation gas aqua-system and cleaning of the leaded gas storage tanks. Lead concentrations as high as 450 ug/l were detected in samples collected during a 1980 test boring program. The potentially hazardous characteristics of the wastes disposed of and the potential for migration due to the disposal of liquids create the need for numerical rating of this site.

- Site No. L-3 - located directly west of Site No. 2. This site was identified on base maps as a disposal site for low-level radioactive wastes although this use could not be verified. The site may have been used for the disposal of vacuum tubes. Surface level radioactivity levels measured in 1980 were not above normal background levels. Unidentified toxic chemicals were reportedly disposed of also. The site was established in 1965 and presumably closed by 1970. The potentially hazardous characteristics of the wastes disposed of and the potential for migration due to the possible disposal of liquids create the need for numerical rating of this site.

- Site No. L-4 - located south of Site No. 3. This site was used for disposal of jet engine starter cartridges for the past 2 years. The site is currently active. The nature of the wastes could be hazardous if not properly inactivated, but because of the low precipitation, high potential evaporation and low ground water level, no potential for contaminant migration exists and the site does not require numerical rating.

- Site No. L-5 - located southwest of Site No. 1. This was a Privacy Act landfill used for paper disposal only with no burning. The site was operated from approximately 1972 through 1979. The characteristics of these wastes are not hazardous and numerical rating is not required for this site.

- Site No. L-6 - located south of the perimeter road, northwest of the existing skeet range. This site was primarily used for wooden timbers and other debris disposal. The site may have been used for barracks demoliton and, if so, would contain waste asbestos and fiberglass. The operational dates are unknown. The nature of the wastes could be hazardous, but because of the low precipitation, high potential evaporation and low ground water level, no potential for contaminant migration exists and the site requires no numerical rating.

- Site No. L-7 - located south of the perimeter road in line with southwest end of runway 21. The site was reported to be a borrow pit that was refilled with construction debris (pavement, rock). The site was possibly a ranch in the 1930's. The use dates are unknown. The characteristics of these wastes are not hazardous and numerical rating of this site is not required.

- Site No. L-8 - located west of the perimeter road and the southwest end of runway 21. Concrete, asphalt, other rubble were buried here in the mid-1960's. The site may have been used for disposal (unverified) of aircraft parts and trash during the early 1940's. The characteristics of these wastes are not hazardous and numerical rating of this site is not required.

- Site No. L-9 - located east of Building 806, north of Site No. 8. Evidence of miscellaneous trash disposal was found at this site. Operational dates for the site are unknown. The characteristics of these wastes are not considered hazardous and numerical rating of this site is not required.

- Site No. L-10 - located under the northern and eastern portions of the residential area. This site was used for construction debris and rubble disposal since 1944. Reportedly, some trash dumping and burning occurred during early 1950's. Before housing construction was completed in 1970, some debris may have been removed. The site was closed in approximately 1965. The characteristics of these wastes are not considered hazardous and numerical rating of this site is not required.

- Site No. L-11 - located north of residential area. The site is currently used for street sweeping disposal. Possible trash and rubble disposal occurred during the 1960's and early 1970's. The site was reportedly used for disposal of all base wastes from approximately 1953 until 1957 and would contain wastes similar to those of Site No. 1. The wastes may have been burned using waste oils in the mid 1950's. The potentially hazardous characteristics of the wastes disposed of and the potential for migration due to the disposal of liquids create the need for numerical rating of this site.

- Site No. L-12 - located under Building 761 (alert hangar) and apron. This site was used for disposal of nonsalvageable materials such as tools, POL, jeeps, scooters, and war supplies following the temporary base closure in 1946. Prior to 1950 all base trash was incinerated with the ash being disposed of in this area. Miscellaneous dumping and burning reportedly occurred until mid-1950's. The potentially hazardous characteristics of the wastes disposed of at this site and the potential for migration due to the disposal of liquids create the need for numerical rating of this site.

- Site No. L-13 - located east of alert barn. Following closure of Site No. 1, all base wastes were disposed of at this site. No burning was allowed and a cover was placed nightly. Fuel residue disposal was minimized but the remaining wastes are similar to those of Site No. 1. The site was in operation from 1970 to 1976. Reportedly, some materials were disposed of in this site during the mid-1960's. The potentially hazardous characteristics of the wastes disposed of and the potential for migration due to the disposal of liquids create the need for numerical rating of this site.

### 3. Other Dump or Burial Sites

In addition to the landfills listed in the preceding section several miscellaneous dump or burial areas were reported. Use dates for most of these sites are unknown.

- Site No. B-1 - located southeast of the abandoned small arms range. Chemical toilet waste sludge disposal was reported. The characteristics of these wastes are not considered hazardous and numerical rating of this site is not required.

- Site No. B-2 - located east of the existing skeet range and adjacent to Air Base Road. The burial of 400 gallons of leaded paint during 1952 was reported. The potentially hazardous characteristics of the wastes disposed of and the potential for migration due to the disposal of liquids create the need for numerical rating of this site.

- Site No. B-3 - located along the industrial drain discharge gully. Miscellaneous debris including small, empty cans and construction rubble were used for riprap at this site. The characteristics of these wastes are not considered hazardous and numerical rating of this site is not required.

- Site No. B-4 - located at the off-base water supply wells (Nos. 5, 6 and 7). Miscellaneous debris including small, empty cans and construction rubble were used for riprap at this site. The characteristics of these wastes are not considered hazardous and numerical rating of this site is not required.

- Site No. B-5 - located northeast of alert barn and north of landfill site No. 13. This site was a small rubble disposal area. The characteristics of these wastes are not hazardous and numerical rating of this site is not required.

- Site No. B-6 - located east of STP percolation ponds and adjacent to the base boundary. Miscellaneous domestic trash and rubble were disposed of in this small area. The characteristics of these wastes are not considered hazardous and numerical rating of this site is not required.

- Site No. B-7 - located northeast of northeast end of runway 03. This site was a small construction demolition disposal area. The characteristics of these wastes are not hazardous and numerical rating of this site is not required.

- Site No. B-8 - located east of alert hangar and southeast of Site No. 5. An unverified report of DDT, copper sulfate, and leaded paint disposal in this site was made. This site may be under the base landfill L-13. The potentially hazardous characteristics of the wastes disposed of and the potential for migration due to the disposal of liquids create the need for numerical rating of this site.

- Site No. B-9 - located north of northeast end of runway 03. An unverified report of hydrochloric acid, sulfuric acid, oil, fuel and unidentified drum burial in this site was made. The quantity is unknown. The potentially hazardous characteristics of the wastes disposed of and the potential for migration due to the disposal of liquids create the need for numerical rating of this site.

- Site No. B-10 - located northeast of northeast end of runway 03. An unverified report of pesticide and oil drum burial in this site was made. The potentially hazardous characteristics of the wastes disposed of and the potential for migration due to the disposal of liquids create the need for numerical rating of this site.

- Site No. B-11 - located southeast of STP percolation ponds. This was a burial site for an F-111 aircraft. The characteristics of this waste are not considered hazardous and numerical rating of this site is not required.

- Site No. B-12 - located northwest of Building 540. This was a burial site for miscellaneous aircraft parts. This site may be within the boundaries of the old salvage yard. The nature of the wastes could be hazardous, but because of the low precipitation, high potential evaporation, and low ground water level, no potential for contaminant migration exists and numerical rating of the site is not required.

- Site No. B-13 - located east of Building 539. This site has served as the salvage yard since 1950 with the original boundaries extending approximately to Building 540. Possible munitions disposal was reported. The nature of the wastes could be hazardous, but because of the low precipitation, high potential evaporation, and low ground water level, no potential for contaminant migration exists and numerical rating of the site is not required.

Residue from approximately 10 aircraft crashes is reportedly buried on base property. Also, an earthern embankment on the abandoned runway was used in the 1950's to mid-1960's for gun sight alignment and "firing-in." The sand was reportedly changed once during this period and possibly hauled off base or to the on-site landfill. These sites are not considered to be significant sources of contamination and contaminant migration pathways are negligible.

4. Liquid Disposal or Spill Areas

Several areas were identified where liquids were disposed of by leaching, dumping, or dumping and burning. Reported liquid spills are also included in the following listing.

- Site No. S-1 - located near Building 589. This site was a leach field for waste POL from truck maintenance. The potentially hazardous characteristics of the liquid wastes and the possible migration of these liquids, create the need for numerical rating of this site.

- Site No. S-2 - located near alert hangar. This site was a leach field for sanitary wastes and minor aircraft maintenance. An older system was abandoned but essentially the same area has been used since the early 1940's for the disposal of pri-marily sanitary wastes. The characteristics of the liquid wastes discharged are not considered hazardous and numerical rating of the site is not required.

- Site No. S-3 - located near Buildings 552 and 551. This site was a leach field for waste POL from vehicle maintenance and fuels lab. The potentially hazardous characteristics of the liquid wastes and the possible migration of these liquids create the need for numerical rating of this site.

- Site No. S-4 - located on the perimeter road especially near the engine test cells and also off the northwest end of the abandoned runway. This site was used for waste jet fuel surface disposal from 1,000-gallon bowsers. Twice-daily application rates were reported for 1965 and 1966. The potentially hazardous characteristics of the liquid wastes and the possible migration of these liquids, create the need for numerical rating of the site.

- Site No. S-5 - located at the existing fire training area. Waste oils and fuels have been used to start fires at this site for training since 1970. The potentially hazardous characteristics of the liquid wastes and the possible migration of these liquids, create the need for numerical rating of the site.

- Site No. S-6 - located south of the STP percolation ponds. This site is the abandoned fire training area with waste oils and fuels used to start fires from the early 1940's to 1970. The area may extend under the existing ponds and is currently used as the DPDO storage yard with reported oil, asphalt, and dust pallative spills. The potentially hazardous characteristics of the liquid wastes and the possible migration of these liquids create the need for numerical rating of this site.

- Site No. S-7 - located south of Building 685 and adjacent to apron. This area serves as the wing tip fuel tank drainage area. Major dumping occurred from 1950 until 1977 with minor drainage occurring currently. The upper soil layer has been removed in the past. The potentially hazardous characteristics of the liquid wastes and the possible migration of these liquids create the need for numerical rating of this site.

- Site No. S-8 - located near engine test cell 799. Periodic jet fuel spills have occurred at this site during testing. The wastes discharged at this site are potentially hazardous, but the suspected quantity is relatively insignificant and contamination is not anticipated. Numerical rating of this site is not required.

- Site No. S-9 - located near munitions disposal area south of abandoned small arms range. Possible spills from a creosoting operation prior to 1960 were reported for this site. The wastes discharged at this site are potentially hazardous, but the suspected quantity is relatively insignificant and contamination is not anticipated. Numerical rating of this site is not required.

- Site No. S-10 - located east of the missile maintenance area. A jet fuel spill of an unknown quantity was reported at this site. The wastes discharged at this site are potentially hazardous, but because of the high evaporation rate, the suspected quantity is relatively insignificant. No contamination is anticipated and numerical rating of this site is not required.

- Site No. S-11 - located near Building 708. A jet fuel pipeline leak of an unknown quantity occurred at a low point drain in 1980. The wastes discharged at this site are potentially hazardous, but the suspected quantity discharged during this incident is relatively insignificant and no contamination is anticipated. Numerical rating of this site is not required. The reported leak may be indicative of deteriorating piping or faulty construction. Continuing fuel losses have been reported as discussed in the activity review section. The high evaporation rate minimizes the potential of contamination but continued discharge could become a problem.

- Site No. S-12 - located at golf course. Effluent from the STP percolation ponds has been used to irrigate the golf course since 1965. Several industrial operations (refer to Appendix D) discharge wastes to the sanitary sewer system. The dilution ratio is high and the wastewater undergoes secondary treatment before discharging to the ponds. The characteristics of the liquid wastes are still potentially hazardous. The golf course is located near the residential area and the off-base water supply wells and migration is possible. Numerical rating of this site is required.

- Site No. S-13 - located near intersection of Phantom Street and Desert Street. This site was the accumulation point for jet fuel discharged from 5,000-gallon fuel truck in 1980. The wastes discharged at this site are potentially hazardous, but because of the high evaporation rate the suspected quantity is relatively insignificant. Possibly contaminated soils were removed from the site. Numerical rating of this site is not required.

- Site No. S-14 - located near POL bulk fuel storage area at Building 549. A potential 36,000-gallon jet fuel pipeline leak in 1969 was reported at a low point drain. The fuel did not saturate the soil to the surface and the actual quantity lost was probably less than 1,000 gallons. The wastes discharged at this site are potentially hazardous, but the suspected quantity is relatively insignificant and no contamination is anticipated. Numerical rating of this site is not required.

- Site No. S-15 - located at southwest end of operational apron. Small leaks caused by faulty construction have been detected in the piping at 2 of the 3 jet fuel hydrants in pit No. 1 within the past 2 years. The wastes discharged at this site are potentially hazardous but the suspected quantity is relatively insignificant and no contamination is anticipated. Numerical rating of this site is not required.

- Site No. S-16 - located near Building 690. Miscellaneous leaded gasoline spills at the aqua-system prior to the mid-1950's were reported. The wastes discharged at this site are potentially hazardous but the suspected quantity is relatively insignificant and no contamination is anticipated. Numerical rating of this site is not required.

- Site No. S-17 - located near engine test cell No. 819. A jet fuel spill of 8,000 gallons occurred here in early 1950's. The wastes discharged at this site are potentially hazardous, but because of the high evaporation rate and the length of time since the spill occurred no effects of contamination are expected to remain. Numerical evaluation of this site is not required.

- Site No. S-18 - located at salvage yard. Miscellaneous small spills of solvents, waste oils, and other liquids stored at salvage yard were reported. The wastes discharged at this site are potentially hazardous, but the suspected quantity is relatively insignificant and no contamination is anticipated. Numerical rating of this site is not required.

- Site No. S-19 - located near Building 560. This site is a temporary storage area for unservicable transformers. Subsequent minor leakage of transformer oils has occurred. The wastes discharged at this site are potentially hazardous, but the suspected quantity is relatively insignificant and no contamination is anticipated. Numerical evaluation of this site is not required.

- Site No. S-20 - located in the northeast corner of the base. This site is the industrial/stormwater outfall gully and contains waste oils, fuels, solvents, and paint strippers. This drainage has been used since early 1940's. A portion of the pipeline preceding the outfall is perforated and bedded in sand and gravel. During the mid 1940's, STP percolation ponds were located in the portion of the gully near the existing ponds. A small dam near the alert hangar intercepts low flows for percolation/evaporation. The potentially hazardous characteristics of the liquid wastes and the possible migration of these liquids create the need for numerical rating of this site.

- Site No. S-21 - located south of alert hangar. This site consists of the STP percolation ponds that have been used since early the 1950's for treatment of primarily sanitary wastes. Waste oils and solvents from several industrial shops (refer to Appendix D) are regularly collected in the sanitary system. The abandoned fire training area may extend into the pond area. The dilution ratio is high and the wastes undergo secondary treatment before discharge to the ponds. The characteristics of the wastes are still potentially hazardous and the possibility of contamination due to migration through the fire training area exists. Numerical rating of this site is required.

- Site No. S-22 - located adjacent to Building 555. A 30-foot-deep, 4-foot-diameter brick-lined drain pit or drywell is used for disposal of waste POL from equipment maintenance. The drain is currently in operation and the construction date is unknown. The potentially hazardous characteristics of the liquid wastes and the possible migration of these liquids create the need for numerical rating of this site.

- Site No. S-23 - located adjacent to Building 559. This site is an abandoned drain pit or drywell that was used for jet fuel disposal during an unknown period. The potentially hazardous characteristics of the liquid wastes and the possible migration of these liquids create the need for numerical rating of this site.

- Site No. S-24 - located along industrial discharge gully north of the runway. Past disposal of sewage sludge was reported. No evidence of disposal was observed, and the possibility of contamination is considered low. Numerical rating of this site is not required.

- Site No. S-25 - located adjacent to the STP. This site consists of the sludge drying beds used for sanitary and industrial primary sludges resulting from residential and shop discharge to the sanitary sewage system. The beds have not been used since the mid-1970's. A large majority of the sludge resulted from residential discharge, but the presence of potentially hazardous industrial wastes and the possible migration of these contaminants create the need for numerical rating of this site.

In addition to the readily identifiable sites listed, miscellaneous shop wastes including TCE were dumped at various locations on base for grass control; rinse water for pesticide containers was disposed of at various locations; sewage sludge was used as fertilizer in various locations and spread on the perimeter road; a small amount of transformer oil was discharged at various transformer malfunction sites (less than 10 total); and miscellaneous spills may have occurred at storage areas near all of the outlying revetments. These unidentifiable sites are not believed to be potential sources for contamination because of the relatively small quantities invovled.

## 5. Site Rating

Site rating using the modified hazard potential rating system, was conducted on those sites considered to have the potential for hazardous waste migration. A complete listing of disposal sites is presented in Table IV-2. Sites determined to require numerical rating are so indicated.

The numerical system consists of 26 rating factors that are divided into 4 categories: receptors, pathways, waste characteristics, and waste management practices which are used to evaluate the principal targets of contamination, the mechanisms for migration, the hazards posed by the contaminants, and the facility's design and operation, respectively. Relative scores from each category are combined to give an overall score using appropriate weighting factors. A more detailed description of this hazard rating methodology is included in Appendix H.

Numerical results for each rated site are presented in Table IV-3. Copies of the rating forms for each site are included in Appendix I. Ratings for the Cuddeback Range sites are also presented. The sites are described in Section VII.

Table IV-3
SUMMARY OF RESULTS OF SITE ASSESSMENTS[a]

| Site | Site Description (Weighting Factor): | Subscores (Percent of Maximum Possible Score in Each Category) Receptors 0.22 | Pathways 0.30 | Waste Characteristic 0.24 | Waste Management Practices 0.24 | Overall Score (Weighted Average) |
|---|---|---|---|---|---|---|
| Munitions | | | | | | |
| M-2 | Munitions Disposal | 22 | 16 | 60 | 57 | 38 |
| Landfills | | | | | | |
| L-1 | Base Landfill | 33 | 18 | 80 | 72 | 50 |
| L-2 | TEL Disposal Site | 22 | 19 | 80 | 62 | 45 |
| L-3 | Radioactive Disposal | 22 | 14 | 60 | 53 | 36 |
| L-11 | Street Sweeping Disposal | 30 | 18 | 70 | 46 | 40 |
| L-12 | Original Base Landfill | 27 | 12 | 70 | 64 | 42 |
| L-13 | Base Landfill | 27 | 22 | 80 | 71 | 49 |
| Burial Site | | | | | | |
| B-2 | Paint Drum Burial | 31 | 12 | 50 | 57 | 36 |
| B-8 | Pesticide and Paint Burial | 24 | 16 | 50 | 57 | 36 |
| B-9 | Acid and Oil Burial | 24 | 16 | 50 | 61 | 37 |
| B-10 | Pesticide and Oil Burial | 24 | 16 | 50 | 57 | 36 |
| Liquids Disposal or Spills | | | | | | |
| S-1 | POL Leach Field | 33 | 12 | 50 | 48 | 34 |
| S-3 | POL Leach Field | 33 | 12 | 50 | 48 | 34 |
| S-4 | Fuel and Oil Disposal | 20 | 14 | 80 | 65 | 44 |
| S-5 | Fire Training Area | 31 | 19 | 80 | 65 | 47 |
| S-6 | Abandoned Fire Training | 27 | 21 | 80 | 65 | 47 |
| S-7 | Tip Tank Drainage Area | 33 | 17 | 80 | 57 | 45 |
| S-12 | Golf Course | 61 | 16 | 50 | 62 | 45 |
| S-20 | Industrial Outfall and Pipeline | 37 | 34 | 100 | 74 | 60 |
| S-21 | STP Percolation Ponds | 27 | 30 | 60 | 74 | 47 |
| S-22 | French Drain | 33 | 14 | 80 | 48 | 42 |
| S-23 | French Drain | 33 | 14 | 70 | 48 | 40 |
| S-25 | Sludge Drying Beds | 27 | 16 | 60 | 73 | 43 |
| Other Sites | | | | | | |
| C-1 | Cuddeback Range Landfill | 36 | 16 | 60 | 64 | 42 |
| C-6 | Cuddeback Burial Site | 36 | 16 | 60 | 59 | 41 |

[a]Basis of rating is a modification of the system developed by JRB Associates, Inc., of McLean, Virginia; the system was modified by the Air Force, CH2M HILL, and Engineering-Science for application to Air Force Installation Restoration Program Records Search.

## V. CONCLUSIONS

## V. CONCLUSIONS

A. No direct evidence was found to indicate that migration of hazardous contaminants beyond George AFB property exists.

B. Information obtained through interviews with 36 past and present base personnel and field observation indicates that potentially hazardous wastes have been disposed of on George AFB property in the past.

C. Industrial activity at George AFB consists primarily of routine aircraft and vehicle maintenance. Generation of large quantities of hazardous wastes has not occurred in comparision to bases having significant aircraft rework and maintenance missions; therefore, associated contamination problems are considered to be relatively small.

D. The potential for off-site migration of hazardous wastes is low because of the relatively low groundwater levels, extremely low precipitation, high potential evaporation and the absence of major surface waters. The soils are permeable, but the depth to groundwater or bedrock should allow a high degree of contaminant attenuation in the soil.

E. Table V-1 presents a priority listing of the rated sites and their overall scores. In some areas, the sites are close together and possible additive effects may result from combined contaminant migration. As a result, three general areas have been identified as having the highest potential for pollutant migration and are presented in order of priority:

**Table V-1**
**PRIORITY LISTING OF DISPOSAL SITES**

| Site No. | Description | Overall Score |
|---|---|---|
| S-20 | Industrial Outfall and Pipeline | 60 |
| L-1 | Base Landfill | 50 |
| L-13 | Base Landfill | 49 |
| S-6 | Abandoned Fire Training Area | 47 |
| S-5 | Fire Training Area | 47 |
| S-21 | STP Percolation Ponds | 47 |
| S-7 | Tip Tank Drainage Area | 45 |
| L-2 | TEL Disposal Site | 45 |
| S-12 | Golf Course | 45 |
| S-4 | Fuel and Oil Disposal | 44 |
| S-25 | Sludge Drying Beds | 43 |
| L-12 | Original Base Landfill | 42 |
| S-22 | French Drain | 42 |
| C-1 | Cuddeback Landfill | 42 |
| C-6 | Cuddeback Burial Site | 41 |
| S-23 | French Drain | 40 |
| L-11 | Street Sweeping Disposal | 40 |
| M-2 | Munitions Disposal | 38 |
| B-9 | Acid and Oil Burial | 37 |
| B-2 | Paint Drum Burial | 36 |
| B-8 | Pesticide and Paint Burial | 36 |
| B-10 | Pesticide and Oil Burial | 36 |
| L-3 | Radioactive/Toxic Disposal | 36 |
| S-1 | POL Leach Field | 34 |
| S-3 | POL Leach Field | 34 |

1. Industrial Outfall and Pipeline (Site No. S-20)

The industrial drain collects fuels, waste POL, solvents and other miscellaneous wastes from the flightline area and discharges into a gully leading to the Mojave River. Near the river, the gully bottom approaches the groundwater level. Oil saturated soils were observed in the gully and a perforated pipeline along the apron allows subsurface discharge of the wastes.

2. Northeast Disposal Area

The northeast disposal area includes the STP percolation ponds (S-21), the most recent base landfill (L-13), the abandoned fire training area (S-6), the sludge drying beds (S-25), the original base landfill (L-12), the street sweeping disposal area (L-11) and the three unverified acid, oil, paint, and pesticide burial sites (B-9, B-8, B-10).

Chemical oxygen demand (COD) analyses on samples taken from a monitoring well adjacent to the STP percolation ponds indicate some influence by the wastewater on the groundwater quality. Percolate from the ponds may pass through the abandoned fire training area. Additive effects from the proximity of several sites containing potentially hazardous liquid and solid wastes are of major concern and although the sites were individually rated, possible contaminant migration from the entire area should be considered.

3. <u>Southeast Disposal Area</u>

The southeast disposal area consists of a major base landfill (L-1), the TEL disposal site (L-2), the munitions disposal site (M-2), and the radioactive/toxic chemical disposal site (L-3). Because of the proximity of these sites, the wide variety of industrial and general solid and liquid wastes that were disposed of, and the possibility of significant overlapping of the disposal areas, potential contaminant migration from the entire area should be considered.

The remaining sites are not considered to present a significant migration hazard. Heavy surface runoff and the resulting erosion could cause the transport of potentially hazardous debris beyond the base boundaries, but the contamination would be insignificant because of the small quantities involved.

# VI. RECOMMENDATIONS

## VI. RECOMMENDATIONS

A. A limited monitoring program is suggested to substantiate the absence of contamination and contaminant migration. Significant health hazards have not been identified and no urgent need for the monitoring program exists, i.e., the priority for monitoring at George is considered moderate.

B. Table 1 in the Executive Summary presented a summary of recommended groundwater monitoring sites, parameters to be measured, and rationale. Specifically, monitoring is suggested for the industrial drain (S-20), the northeast disposal area (S-21, L-13, S-6, S-25, L-12, L-1, B-9, B-8, B-10), and the southeast disposal area (L-1, L-2, M-2, L-3) as identified in the conclusions. Approximate monitoring well locations are shown in Figure 1 of the Executive Summary.

C. For the industrial drain, two monitoring wells should be installed down-gradient from the drain along the base perimeter, and a background water quality monitoring well should be located up-gradient from the existing fire training area. The wells should be approximately 100 feet deep. Samples from these three wells plus the existing STP percolation pond monitoring well should be analyzed for volatile organic compounds (including TCE and MEK), phenols, gross contaminants (TOC, COD, oil and grease, pH, specific conductance), and suspected heavy metals (chromium, lead, cadmium, and silver). Installation of these down-gradient wells along the base perimeter will also assist in verifying possible contaminant migration from the northeast disposal area.

D. Exfiltration tests should be conducted to verify that the initial section of the industrial drain line is indeed perforated and to determine the exfiltration rate. If the tests indicate that significant exfiltration occurs or has occurred in the past, a limited groundwater monitoring program similar to that suggested in paragraph C should be considered. The wells should be located as to isolate the perforated industrial drain line, i.e., up-gradient and down-gradient of the perforated section.

E. To evaluate potential migration problems due to erosion in the industrial drain gully, two background and five gully soil samples, composited from at least three 1-foot-deep samples each, should be analyzed. The gully samples should be collected in the sections preceding the retention dam (two samples), at the dam itself (two samples), and just before the base boundary (one sample). The analytical procedure would include a standard EPA extraction procedure for heavy metals analysis and an organic extraction "fingerprint." Extractants for the organic "fingerprint" are made by adding 50 grams of soil to methylene chloride for a total volume of 100 millimeters. The fingerprint analysis is conducted by comparing the coincidence and magnitude of the peaks on a gas chromatograph output plot for the background and gully samples. Should organic contamination be indicated, additional analyses would be required to identify the specific organic compounds.

F. To evaluate the potential migration from the northeast disposal area more fully, three additional monitoring wells approximately 100 feet deep are recommended along the perimeter of the entire area coordinated with the location of the industrial drain monitoring wells.

Essentially the same analyses as described in paragraph C would be required, plus pesticide analyses (DDT, chlordane).

G. One background well and three monitoring wells approximately 100 feet deep are recommended for the southeast disposal area. The monitoring wells should be located along the northeast perimeter of the sites near the base boundary. The wells should be analyzed for the same parameters as the industrial drain.

H. A magnetometer survey should be conducted to verify and locate the reported burial site of 127 barrels of acetone in the southeast disposal area and particularly in Site L-1. The radioactive/toxic chemical area (L-3) should also be examined at this time for verification of chemical barrel disposal.

I. The jet fuel line near facility 708 should be pressure tested to ascertain whether significant fuel leakage may be occurring. Efforts should be made to isolate possibly damaged pipe sections during the testing. Unless extremely large leaks are detected, the likelihood of groundwater contamination is low.

J. Specific details of the limited Phase II program outlined above should be finalized during the initial stages of Phase II. It is not the intent of Phase I to assess the depth or exact location or depth of any groundwater monitoring wells. In the event that contaminants are detected during visual inspection of the test pit or in the water samples collected from any of the wells, a more extensive field survey program should be implemented to determine the extent of the contaminant migration. The Phase II Contractor should be responsible for evaluating the results of the program outlined above and for recommending additional monitoring, as appropriate.

# VII. CUDDEBACK LAKE AIR FORCE RANGE

# VII. CUDDEBACK LAKE AIR FORCE RANGE

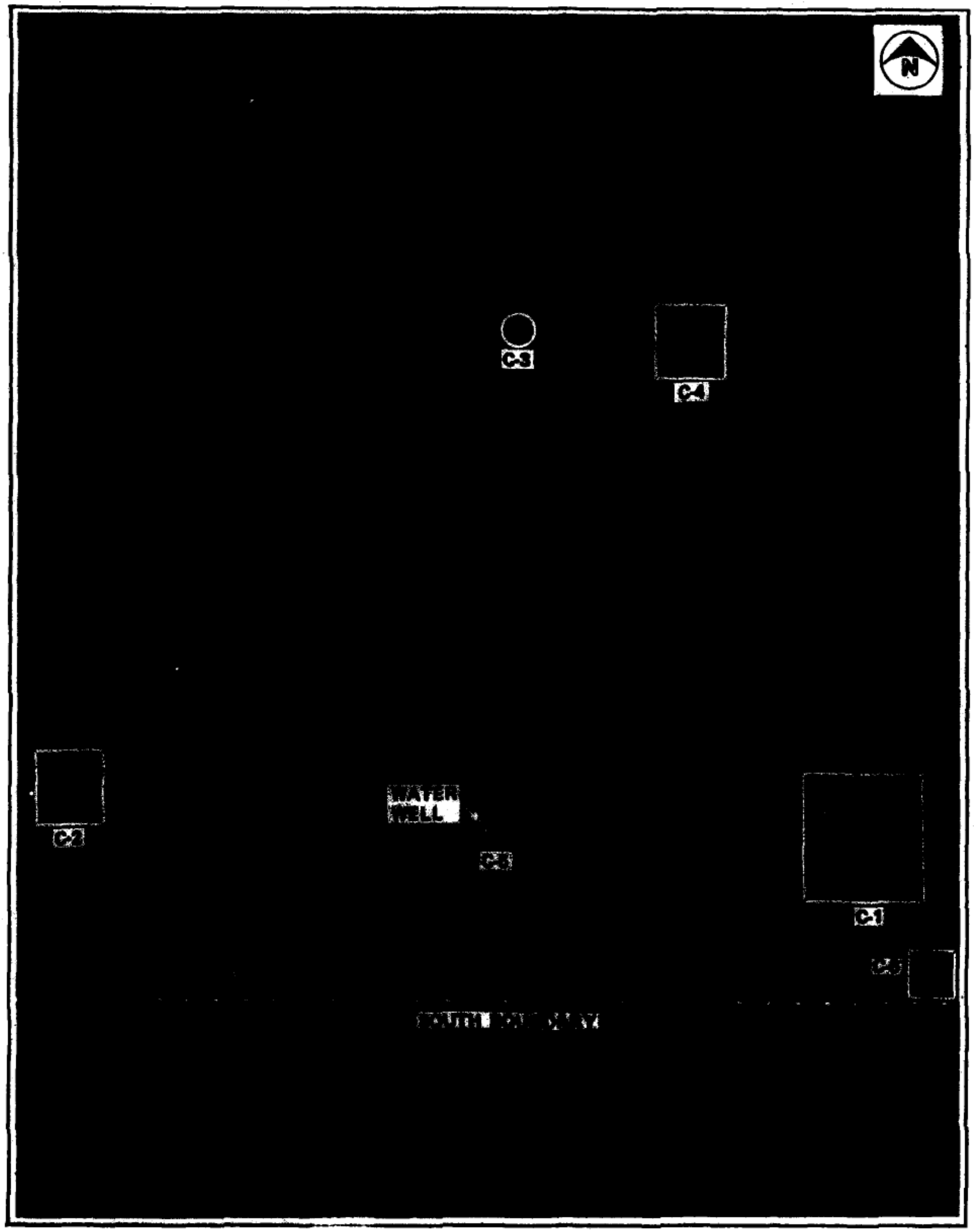
## A. DESCRIPTION OF RANGE

Cuddeback Air Force Range is located adjacent to the eastern edge of Cuddeback Lake, a dry lake basin. The range is approximately 50 miles north of George AFB and occupies 7,564 acres. The facility, established in the 1940's as a World War II artillery range, currently is used for bombing practice. Ordnance disposal is a significant activity at Cuddeback. Surrounding lands are, for the most part, undeveloped. A vehicle maintenance shop is located at Cuddeback along with related diesel and gasoline storage facilities. Potable water is provided by a well located near the shop/residential facility. Storage of bombing targets is also provided at Cuddeback. Figure 13 shows the portion of the range where activities are concentrated. The remainder of the range extends approximately four miles to the north but has had little or no use by the Air Force.

## B. ENVIRONMENTAL SETTING

### 1. Geology and Hydrology

Cuddeback Lake, located in the Mojave Desert, is a dry playa and is the lowest portion of a basin with interior drainage. Mountains to the north of the valley consist of volcanic rock. These mountains include Red Mountain and Almond Mountain. The western and southern edges of the valley are composed of granitic rock. Extensive alluvial fans have developed along the valley margins and extend to the playa.

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**Note: East and West boundaries just beyond edge of photograph.**

**FIGURE 13**
**CUDDEBACK LAKE RANGE**
**WASTE DISPOSAL SITES**
**C-1 THROUGH C-8**

Water well records in the area indicate water levels in the range of less than 30 feet to more than 200 feet beneath the ground surface, depending upon topography and location within the valley. The ground-water level beneath the playa is approximately 50 feet below the ground surface, effectively minimizing the potential for ground-water discharge to the playa surface. The water table is relatively flat at an approximate altitude of 2,510 feet above sea level (Kunkel, 1956). Ground-water flow is minimal due to the flat gradient.

Water quality is variable within the valley with a range in total dissolved solids from less than 400 milligrams per liter to more than 4,000 milligrams per liter. The well at the Cuddeback Range facility was sampled in 1980 and found to have a total dissolved solids concentration of 1,562 milligrams per liter. Detailed water quality analyses are reported in Table VII-1.

2. <u>Environmentally Sensitive Conditions</u>

The vegetational community at Cuddeback Range is the same as the predominant community at George AFB, i.e., creosote bush scrub. The western border of the range approaches a transitional vegetation zone as the salt content increases towards the dry lake bed. Mojave saltbush increases and replaces creosote bush around the lake. The lake bed itself supports very little vegetation. The lake lies within the area designated to have Western Mojave Desert Mojave Saltbush Assemblage.

# Table VII-1

## CUDDEBACK RANGE WELL WATER QUALITY

## AUGUST 1980

| Parameter | Concentration (mg/l) |
|---|---|
| Chloride | 128 |
| Hardness as $CaCO_3$ | 849 |
| Total Dissolved Solids | 1,562 |
| Sulfate | 31 |
| Surfactants | <.1 |
| Nitrate | 1.9 |
| Arsenic | <.01 |
| Barium | <1.0 |
| Cadmium | <.01 |
| Chromium | <.05 |
| Lead | .07 |
| Mercury | <.002 |
| Selenium | <.01 |
| Silver | <.01 |
| Copper | <.02 |
| Iron | 1.57 |
| Zinc | <.05 |
| Calcium | 273 |
| Magnesium | 40 |
| Sodium | 22 |

Animal life in this vicinity consists of the same species noted to occur at George AFB including coyote, bobcat, fox, jackrabbit, ground squirrel, and various rodents and reptile species. The range personnel collect Mojave green rattlesnakes for research purposes. These animal species are likely to occur in greater abundance at the range because of the relatively undeveloped condition of the surrounding lands.

Although no detailed investigations have been conducted on the range, the Mojave ground squirrel (Citellus mohavensis), which the California State Department of Fish and Game designated rare, and the desert tortoise (Gopherus agassizi), which the BLM has designated sensitive, are suspected to exist there.

No widespread environmental stress caused by handling of hazardous substances at Cuddeback Range was found in a cursory investigation of the range. Only a relatively small portion of the range is developed. Localized areas of environmental disturbance include the landfill sites, munition burn pits, materials storage area, and test bombing ranges. These areas have been established for a number of years and do not appear to have widespread effects on biota of the range.

## C. FINDINGS

Six distinct fill or disturbance sites were noted at Cuddeback Range in addition to the currently established bombing and gunnery target areas. These sites are described below.

- C-1 - presently used disposal site located east of Tower No. 2. Small quantities of waste oil, solvent, paint, and pesticide containers, petroleum products from vehicle maintenance, and spent munitions are buried at this site. It was established in approximately 1954. The wide variety of potentially hazardous wastes disposed of in this site, the potential for migration due to the liquids disposed of, and the down-gradient location of the water supply well create the need for numerical rating of this site.

- C-2 - temporary munitions residue storage site located west of the range facility building near Tower No. 1. Reportedly, some burial of miscellaneous wastes may have occurred. The nature of the buried wastes could be hazardous, but the quantity is small and no potential for contaminant migration exists because of the low precipitation and high evaporation rates. The site does not require numerical rating.

- C-3 - series of three burn pits north of the range runway, used by EOD for ordnance inactivation. Current operations include disposing of spent munitions at site C-1; however, there is some indication this area may have been used for burial as well. The nature of the wastes could be hazardous, but no potential for contaminant migration exists because of the low precipitation and high evaporation rates. The site does not require numerical rating.

- C-4 - bare areas just east of site C-3. These sites may be old TAC targets or disposal sites. The characteristics of the wastes that may have been buried are not considered hazardous and numerical rating is not required.

- C-5 - located south of maintenance facility. Some leakage from a 300-gallon MOGAS tank has occurred prior to repairs made in 1980. Minor diesel spills also occur in the area. The wastes discharged at this site are potentially hazardous, but the suspected quantity is relatively insignificant. Numerical rating of this site is not required.

- C-6 - inactive disposal site located south of Site No. 1. Presumably, small quantities of wastes similar to those disposed of in Site No. 1 were also buried in this site during a period that could not be identified. The wide variety of potentially hazardous wastes disposed of in this site, the potential for migration due to the liquids disposed of, and the down-gradient location of the water supply well create the need for numerical rating of this site.

The approach corridor for the bomb sites is marked at night by burning waste fuels in flare pots and has received some spilled fuels. Several disturbed areas in the southern half of the range indicate possible burial sites. Additionally, some practice munitions and miscellaneous trash items were noted scattered in areas not regularly policed. Disturbances and target debris were not observed in the northern half of the range. The facility sanitary system is a septic tank and leach field draining westward towards Cuddeback Lake. No significant contaminant migration pathways or receptors exist for any of these sites and numerical rating is not required.

## D. CONCLUSIONS

Desert ecosystems, though sensitive to disturbance, have relatively stable soil conditions because of the dry climate.

Movement of toxic substances by water in this type of system is likely to occur only if ground water is present or during flash flooding if wastes are not buried properly.

Although some spills have been noted, and vehicle maintenance activities at Cuddeback are significant, hazardous waste migration at Cuddeback Lake is not likely because of the low precipitation, high evapotranspiration, low ground-water level, and site remoteness.

Using the previously described decision tree methodology, two sites were identified at Cuddeback as having the potential for hazardous waste migration. This potential was primarily due to the combined disposal of possibly hazardous wastes with liquid wastes. The site scoring is included in Table IV-2.

## E. RECOMMENDATIONS

Additional hazardous waste monitoring is not considered necessary at Cuddeback Lake because of the relatively small quantities of wastes involved and the lack of migration pathways and receptors.

# VIII. LEACH LAKE RANGE

# VIII. LEACH LAKE RANGE

## A. DESCRIPTION OF RANGE

The Leach Lake site is located in the northern section of the U.S. Army's National Training Center at Fort Irwin. The site is approximately 80 miles northeast of George AFB and 40 miles northeast of Cuddeback Range. The range covers 61,442 acres and is used for general bombing practice and war game activities. Date of establishment for this range is unknown. Ordnance disposal is the only significant waste management practice at Leach Lake. Figure 14 shows the portion of the range associated with waste disposal activities. The entire site ranges 7 miles to the east and 3 miles to the west of the area shown.

## B. ENVIRONMENTAL SETTING

### 1. Geology and Hydrology

The Leach Lake site is located in an elongated valley running east to west along the Leach Lake Fault, an eastern extension of the Garlock Fault. Leach Lake is a playa within the valley between the Granite Mountains to the south and Quail and Owls Head Mountains to the north. Numerous springs are present along the edge of the Granite Mountains.

No published information is available on the ground-water conditions at Leach Lake. Field observations indicate that the ground-water table is approximately at the elevation of the playa surface, which is 1,925 feet above sea level. The water table gradient is probably very slight and in a direction

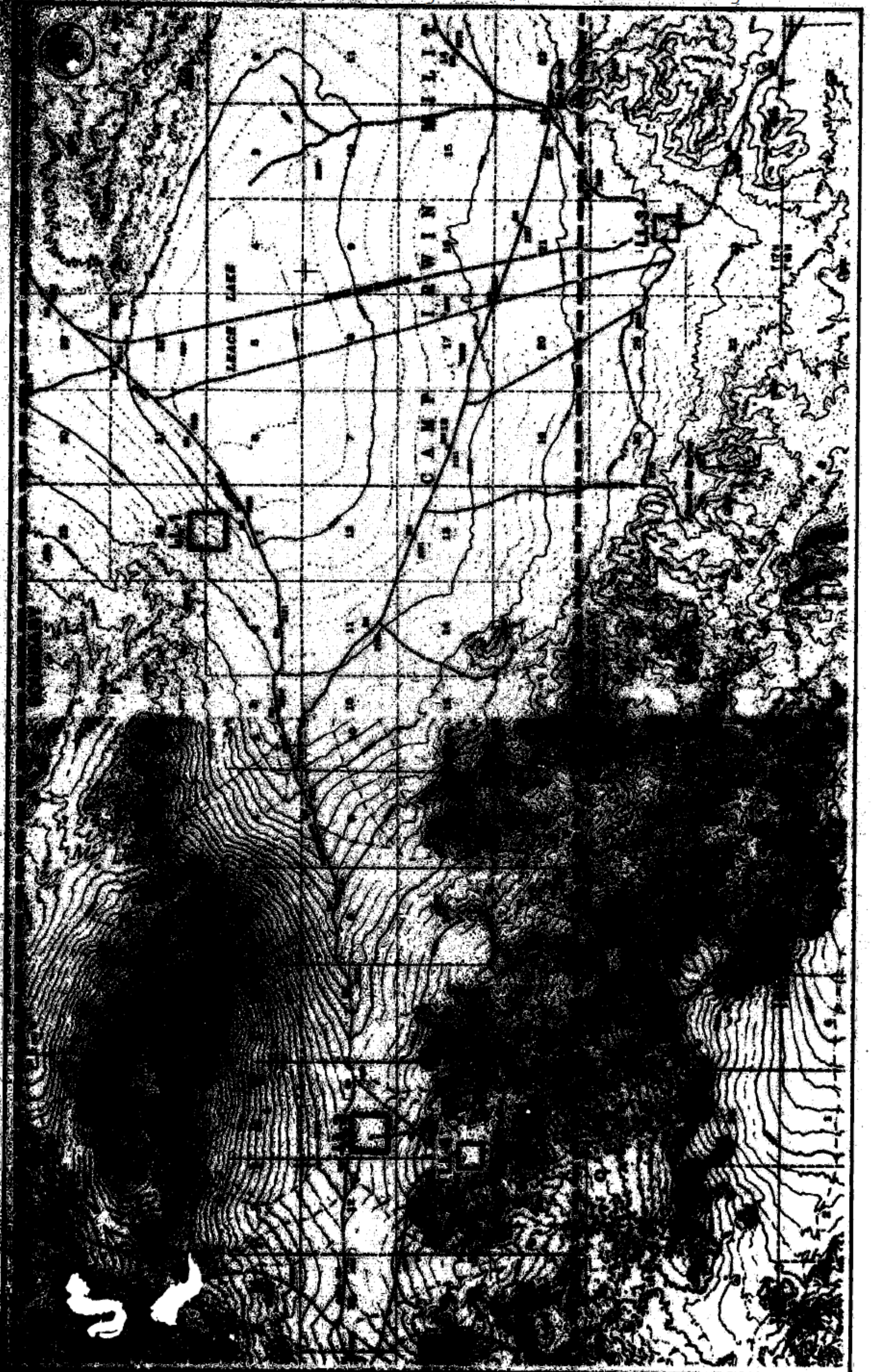

FIGURE 14
LEACH LAKE RANGE
WASTE DISPOSAL SITES
LL-1 THROUGH LL-4

towards Leach Lake from the surrounding mountains. Leach Lake Valley is an area of interior drainage to Leach Lake, with the lake receiving the surface runoff from the area.

Sediments within Leach Lake Valley appear to be alluvial fan deposits from the surrounding mountains. Those deposits originating in the Granite Mountains tend to be coarse grained at the ground surface and may have high permeability. The alluvial fan deposits on the north side of the valley deposited from fans out of Owls Head and Quail Mountains tend to be more fine grained and probably of lower permeability.

## 2. Environmentally Sensitive Conditions

The vegetation in Leach Lake Valley is similar to that found at George AFB and Cuddeback Range, i.e., creosote bush scrub. Ground-water conditions at the lake itself have resulted in a different vegetational community in the lake bed. This community type is known as alkali sink and its major components are grease wood, saltbush, inkweed, and pickleweed (Appendix J).

Animal species are likely similar to those at George AFB and Cuddeback. Wild burro and desert bighorn sheep can possibly be found in the mountains to the east of the valley.

No widespread environmental stress caused by the handling of hazardous substances at Leach Lake was found in a cursory investigation of the range. While only a small portion of the valley has been cleared of vegetation for roads, disposal sites, and camps, evidence of explosive ordnances and vehicle tracks can be seen throughout the valley. Bare areas showed evidence of being old targets rather than disposal areas.

## C. FINDINGS

Two major landfill areas and two other disturbance areas were identified at Leach Lake Range that involve disposal operations:

- LL-1. - current ordnance disposal site located northwest of the lake. This RCRA interim status site was relatively clean of miscellaneous debris and appears to be operated properly. Two active and two closed fill trenches were observed during the field visit. The nature of the wastes could be hazardous, but no potential for contaminant migration exists because of the low precipitation and high evaporation rates. The site does not require numerical rating.

- LL-2 - located west of LL-1. This RCRA interim status site is apparently not used as often as Site No. 1 and has rusted vehicular debris alongside an open trench. Unmarked closed trenches are probably contained in the site. The nature of the wastes could be hazardous, but no potential for contaminant migration exists because of the low precipitation and high evaporation rates. The site does not require numerical rating.

- LL-3 and LL-4 - general refuse disposal areas for two range personnel camps located along the southern slopes of the valley. Miscellaneous trash was noted on the surface of both disposal areas. The characteristics of these wastes are not considered hazardous and numerical rating is not required.

Target and explosive ordnance debris were noted to occur throughout the valley. There was evidence of removal of crashes from crash sites.

## D. CONCLUSIONS

The potential of hazardous waste migration at Leach Lake is extremely low because of a number of factors including low precipitation, high evapotranspiration, low groundwater level in all areas except those approaching the lake, low groundwater velocities, and the remoteness of the area. The quantity and characteristics of the wastes disposed of do not facilitate transport. No sites were considered to warrant numerical rating.

## E. RECOMMENDATIONS

Additional hazardous waste monitoring is not considered necessary at Leach Lake.

## IX. OTHER OFF-BASE FACILITIES

## IX. OTHER OFF-BASE FACILITIES

Five other off-base facilities were analyzed in addition to Cuddeback and Leach Lake Ranges (refer to Figures 2 and 3). These include:

1. Red Mountain Light Annex
2. Lake Isabella Recreational Area
3. George AFB Outermarker
4. Off-base Water Supply Wells
5. George AFB Railroad Spur

Red Mountain Light Annex is atop Red Mountain, northwest of Cuddeback Range. The records search did not indicate the use or disposal of any hazardous materials at this site.

Lake Isabella Recreational Area is located in the Sierra Nevada Range north of the Sequoia National Forest. This area is a designated recreational facility for Air Force personnel consisting of a campground and sanitary facilities including a camper sewage disposal facility. The records search did not indicate the use of or disposal of any hazardous materials at this site.

The George AFB Outermarker is a designated area north of the main runway at George AFB. Records do not indicate that an outermarker station was ever established at this site.

Because of their proximity to the base, waste disposal at the water well sites was discussed in Section IV (Site B-4).

The railroad spur is an unused line running from the railroad into George AFB along its southern border. This railroad was once used for supply transport and maintained by Air Force personnel until 1959. Supplies are now transported by truck and this spur is no longer used or maintained. The records search did not indicate any spill ever occurring along this spur.

An ingrant/outgrant listing was reviewed to identify other off-base sites where potentially hazardous wastes may have been disposed of. No other sites were discovered.

## Conclusions

Hazardous wastes were not associated with any of the other off-base sites in quantities sufficient to cause a migration problem or warrant numerical rating.

## Recommendations

Additional hazardous waste monitoring is not considered necessary at any of the other off-base sites.

## REFERENCES

## REFERENCES

1. George Air Force Base, 1979, Pest Management Program, 35 CES Regulation 86-2, December 1.

2. George Air Force Base, 1979, Operation and Maintenance of Water Plant; 35 CFS operating instruction 85-15, November 26.

3. George Air Force Base, 1981, Disposal of Unserviceable/ Serviceable Excess Munitions at Cuddeback AGGR, Maintenance Operating Instruction 136-28, March 30.

4. George Air Force Base, 1980, Annual Review of Pest Control, February 19.

5. George Air Force Base, 1978, Water Wells Analysis, September.

6. George Air Force Base, 1981 Environmental Health Services, Files Maintenance and Disposition Plan (File Review).

7. George Air Force Base, 1981, Environmental Planning and Programming. August 6, Files Maintenance and Disposition Plan (File Review).

8. George Air Force Base, 1981, Corrosivity Characteristics in Base Drinking Water, August 3.

9. George Air Force Base, 1981, California Regional Water Quality Control Board, July 20.

10. George Air Force Base, Recovery of Waste Petroleum Products.

11. George Air Force Base, 1980-1981, Land Management Plan, September to August.

12. Hanscom Air Force Base, 1974, Environmental Assessment Certificate, December 3.

13. George Air Force Base, 1981, Tactical Air Command Ingrant/Outgrant Report, June 30.

14. Dorn, D., 1981, Submittal of RCRA Hazardous Waste Permit Application, September 4, Part A.

15. Dorn, D., 1981, Environmental Coordinator, personal notes.

16. George Air Force Base, 1977, Environmental Narrative, February 7, Tab A-1, 137 pp.

17. George Air Force Base, 1980, Archeological/Historical Inventory of George AFB. December 12, Final Report, 84 pp.

18. George Air Force Base, 1980, U.S. Environmental Protection Agency, November 19, Permit Contact, Permit Branch.

19. Department of Public Health, Bureau of Sanitary Engineering. 1971, Victorville Groundwater Study, October 26, pp.

20. California Regional Water Quality Control Board, 1981, Water Quality Control Plan Update, Mojave River. 30 pp.

21. California State Water Resources Control Board, 1975, Water Quality Control Plan Report, South Lahontan Basin 6B.

22. George Air Force Base, 1980, George Resource/Economic Impact Statement, Fiscal Year, 50 pp.

23. George Air Force Base, 1979, Air Installation Compatible Use Zone, June, Study.

24. George Air Force Base, 1979, Air Installations Compatible Use Zone, June, Study, Executive Summary.

25. U.S. Army Engineer District, Corps of Engineers, 1980, Draft Report on Industrial Wastewater Survey of George AFB, January 23, AE Section, File No. 1072.

26. George Air Force Base, 1981, Oil and Hazardous Substances Pollution Contingency Plan.

27. George Air Force Base, 1975, Study of Sewage Treatment Facilities, June, prepared for Sacramento District Corps of Engineers.

28. George Air Force Base, 1976, Draft Feasibility Report Sewage Treatment Facilities, November, Toups Corporation, 168 pp.

29. George Air Force Base, 1976, Draft Environmental Impact Assessment Sewage Treatment Facilities, November, Toups Corporation, 108 pp.

30. Jaeger, E. C., 1967, The North American Deserts, Stanford University Press, Stanford, California, 308 pp.

31. ——————. 1972, Desert Wildlife, Stanford University Press, Stanford, California, 308 pp, A.

32. ——————. 1972, Desert Wild Flowers, Stanford University Press, Stanford, California, 322 pp, A.

33. Munz, P. A., 1972, California Desert Wild Flowers, University of California Press, Berkeley, California, 122 pp.

34. ——————. 1973, A California Flora and Supplement, University of California Press, Berkeley and Los Angeles.

35. California Department of Fish and Game, 1978, The Crossroads, A Report on California Endangered and Rare Fish and Wildlife, Sacramento, California, 103 pp.

36. Stebbins, R. C., 1972, Amphibians and Reptiles of California, University of California Press, Berkeley, California, 152 pp.

37. U.S. Fish and Wildlife Service, 1980, Endangered and Threatened Wildlife and Plants, Review of Plants, Federal Regulation V45, N242, December 15.

38. U.S. Fish and Wildlife Service, 1980, The List of Endangered and Threatened Species and Correction of Technical Errors in Final Rules, May 20, Federal Regulation V45, N99, 50 CFR.

39. California Department of Fish and Game, 1978, Fish and Wildlife Species in California, Designated Endangered or Rare by the California Fish and Game Commission, Sacramento, California, 4 pp.

40. ——————. 1979, List of Designated Endangered or Rare Plants, Sacramento, California, 7 pp.

41. Burt, W. H., and R. P. Grossenherder, 1964, The Petersons, Field Guide to the Mammals, Houghton Mifflin Company, Boston, 284 pp.

42. U.S. Department of the Interior, Bureau of Land Management, 1980, The California Desert Conservation Area Plan, Desert District, Riverside, California.

43. Department of Water Resources, 1981, Alternative Water Supply Plans for the Mojave Water Agency, 61 pp.

44. Hardt, W. F., 1969, Mojave River Basin Ground-Water Recharge With Particular Reference to California Floods of January and February 1969, U.S. Geological Survey, Open File Report 7208-07, 13 pp.

45. Report of Groundwater Monitoring Well Construction at George Air Force Base, California, 1977. Toups Corporation, 5 pp.

46. Mojave River Ground Water Basins Investigation, 1967. California Department of Water Resources, Bulletin No. 84, 151 pp.

47. Kunkel, Fred, 1956. Data on Water Wells in Cuddeback, Superior, and Harper Valleys, San Bernardino County, California. U.S. Geological Survey, Open File Report.

48. Ruchlewicz, P. A., 1978. Preliminary Evaluation of Local Water Supplies in the Mojave Water Agency Area. Department of Water Resources, Sacramento, California, 46 p.

49. Armed Services Press, 1980. George AFB Directory.

PHOTOGRAPHS

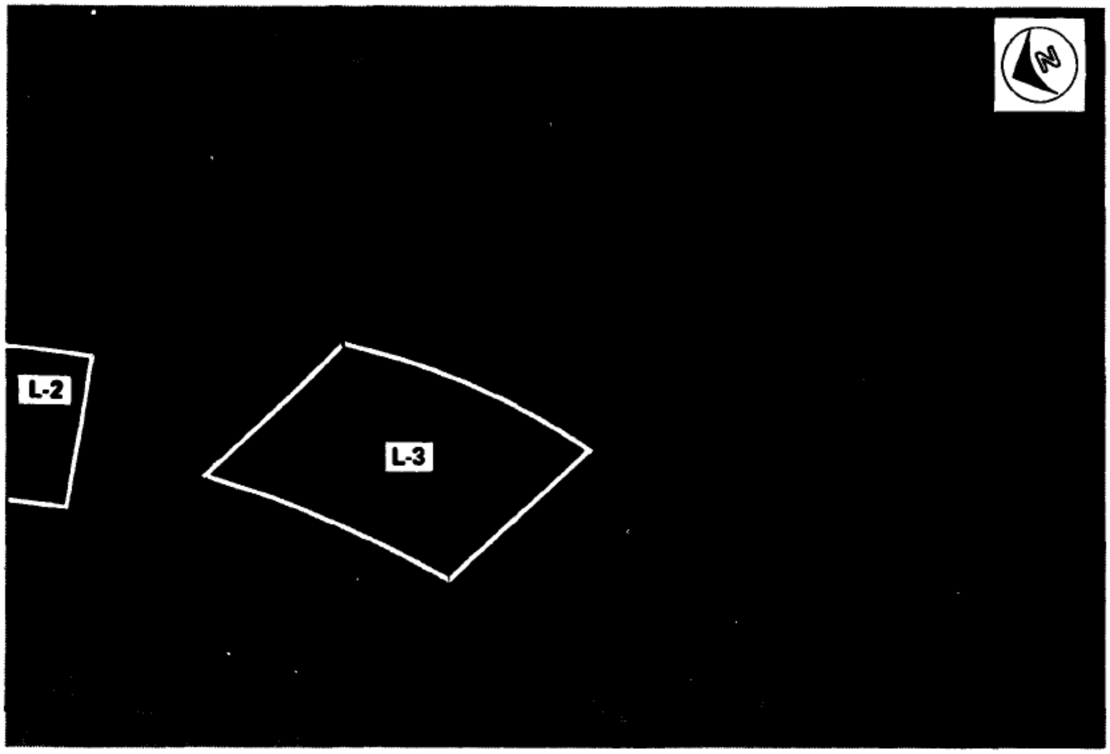


PHOTO 1: SOUTH LANDFILL AREA TEL (L-2) AND RADIOACTIVE (L-3) WASTE DISPOSAL SITES

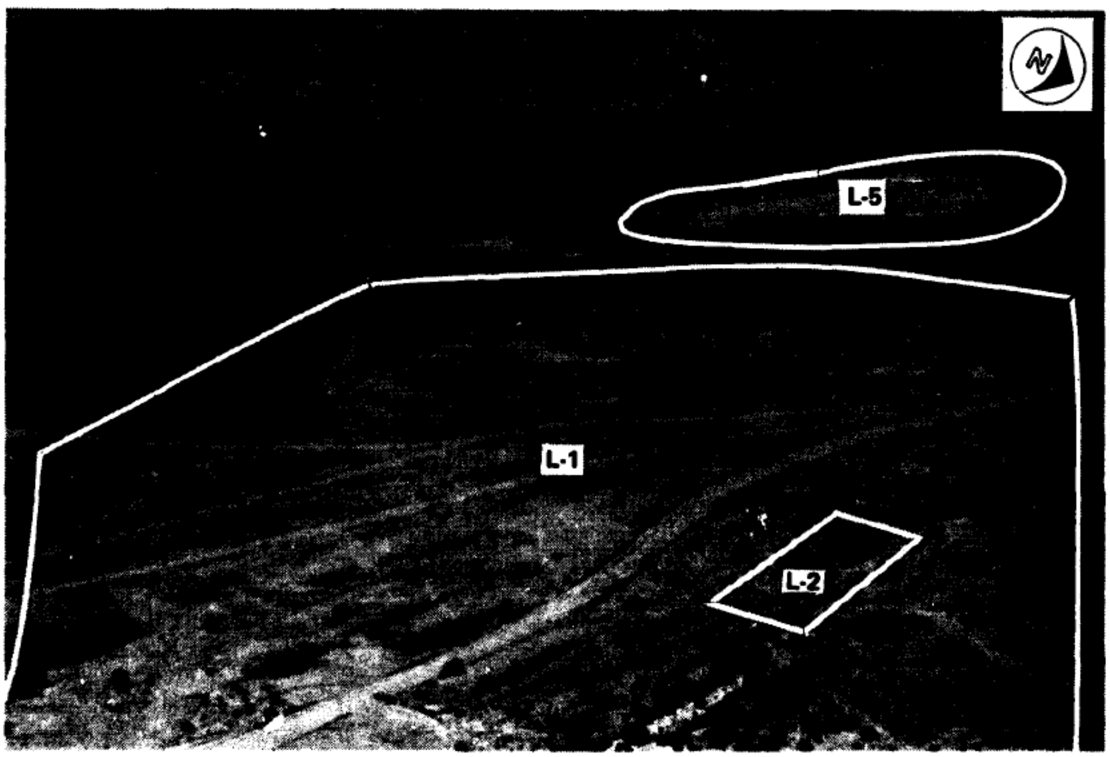


PHOTO 2: SOUTH LANDFILL AREA (L-1), PRIVACY ACT LANDFILL (L-5), AND TEL DISPOSAL SITE (L-2)

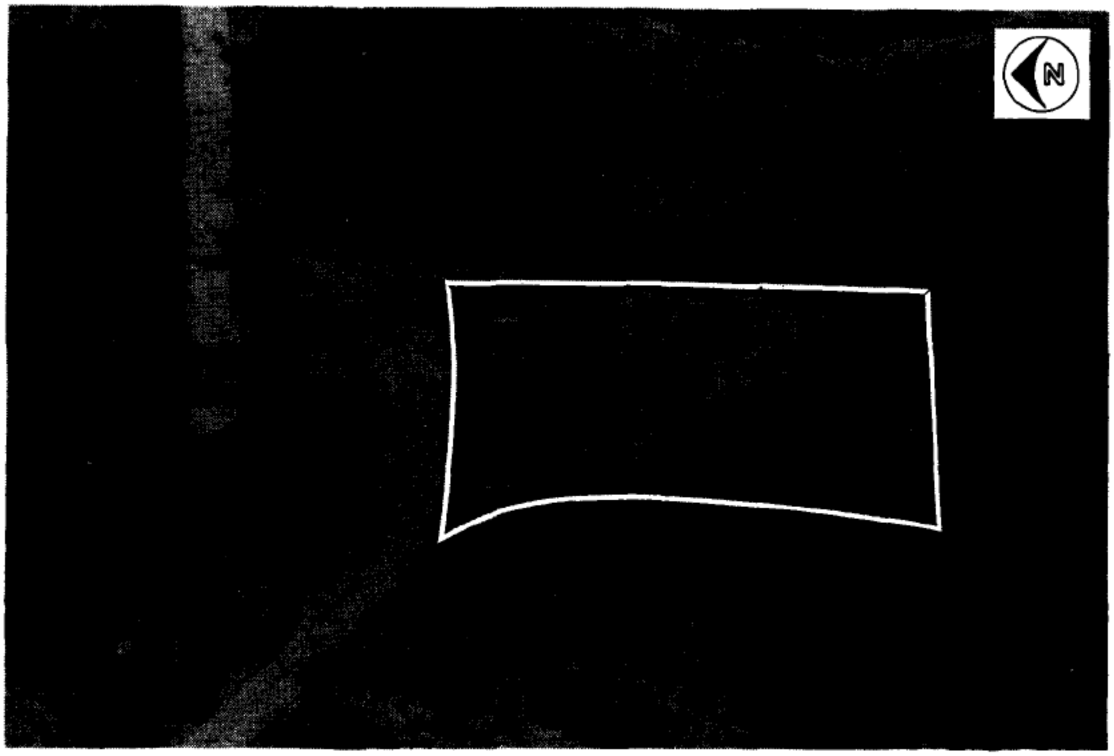

PHOTO 3: SOUTH LANDFILL MUNITIONS DISPOSAL AREA M-1

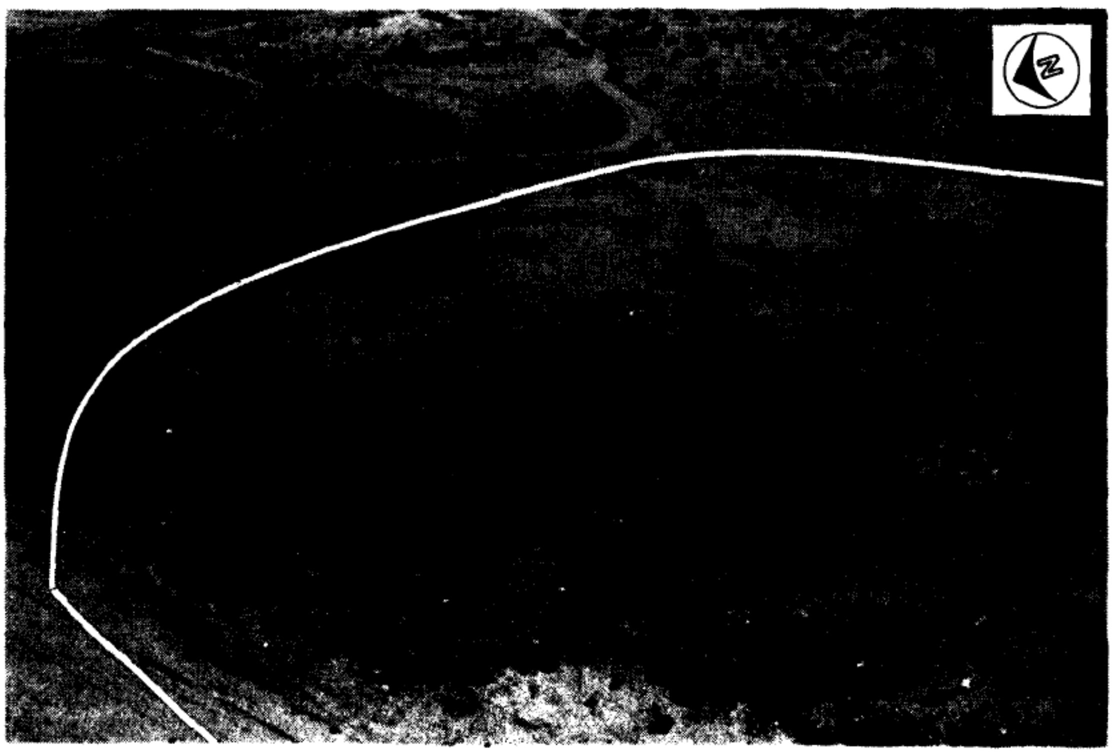

PHOTO 4: SOUTH LANDFILL AREA (L-1) MISCELLANEOUS WASTES

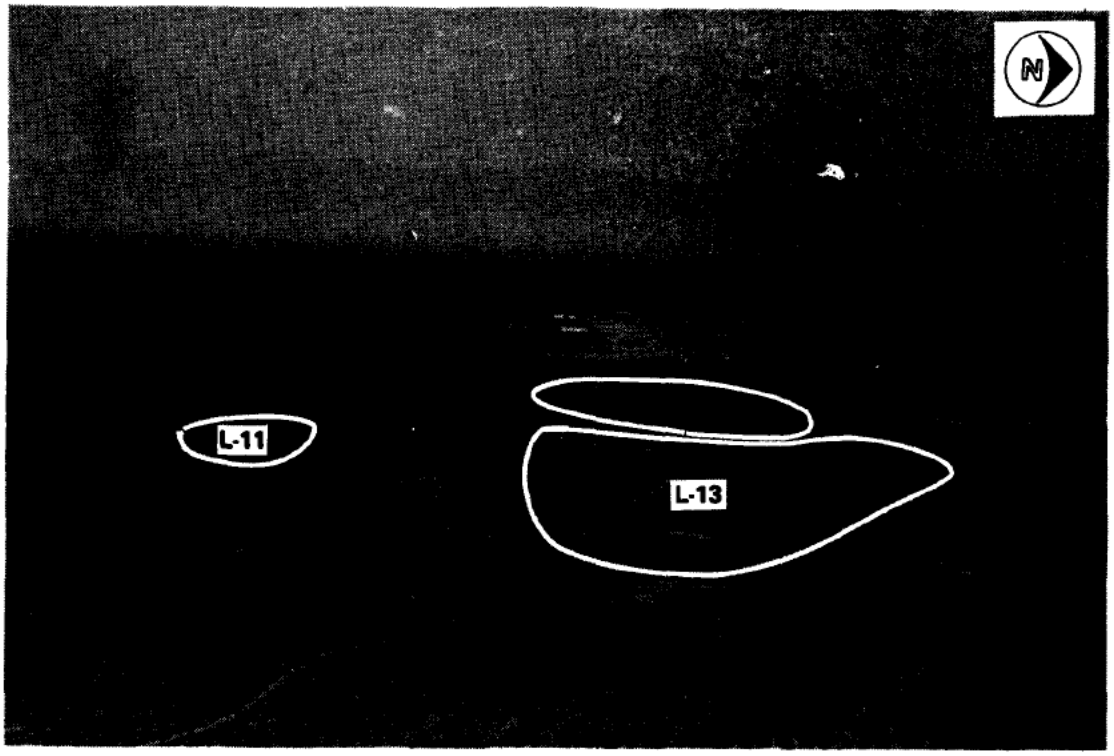


PHOTO 5: PRIMARY DISPOSAL SITES NE OF BASE

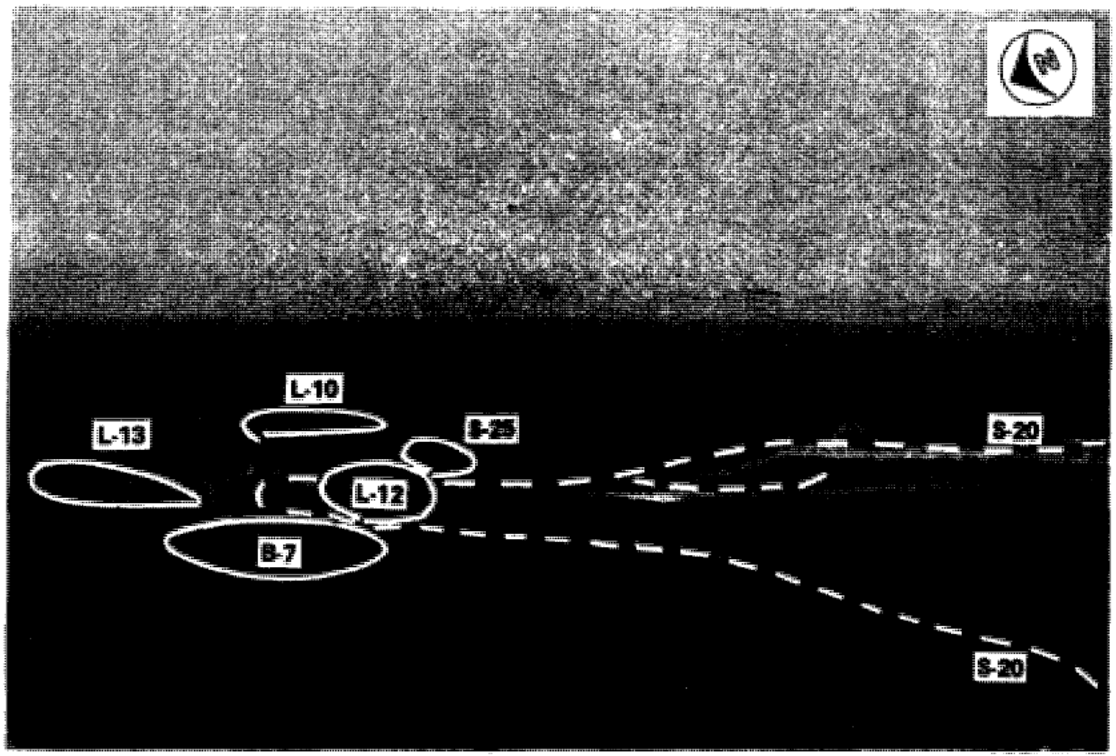


PHOTO 6: PRIMARY DISPOSAL SITES NE OF BASE

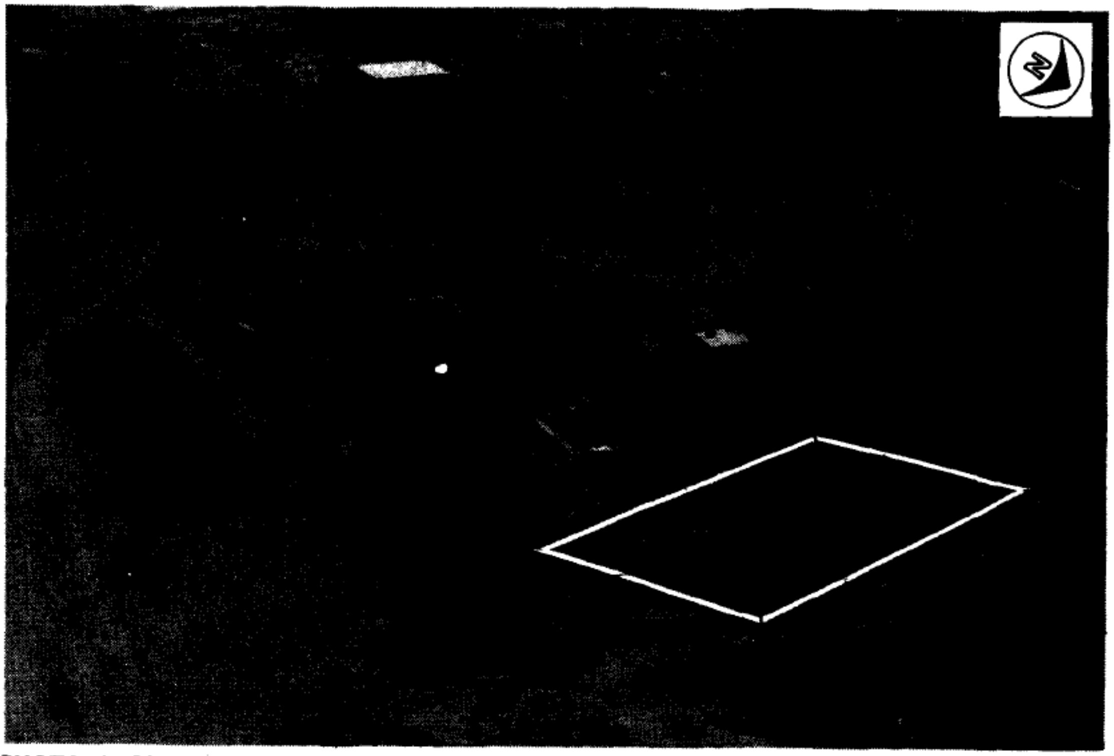

PHOTO 7: GEORGE AFB WWTP AND SLUDGE DRYING BEDS (S-25)

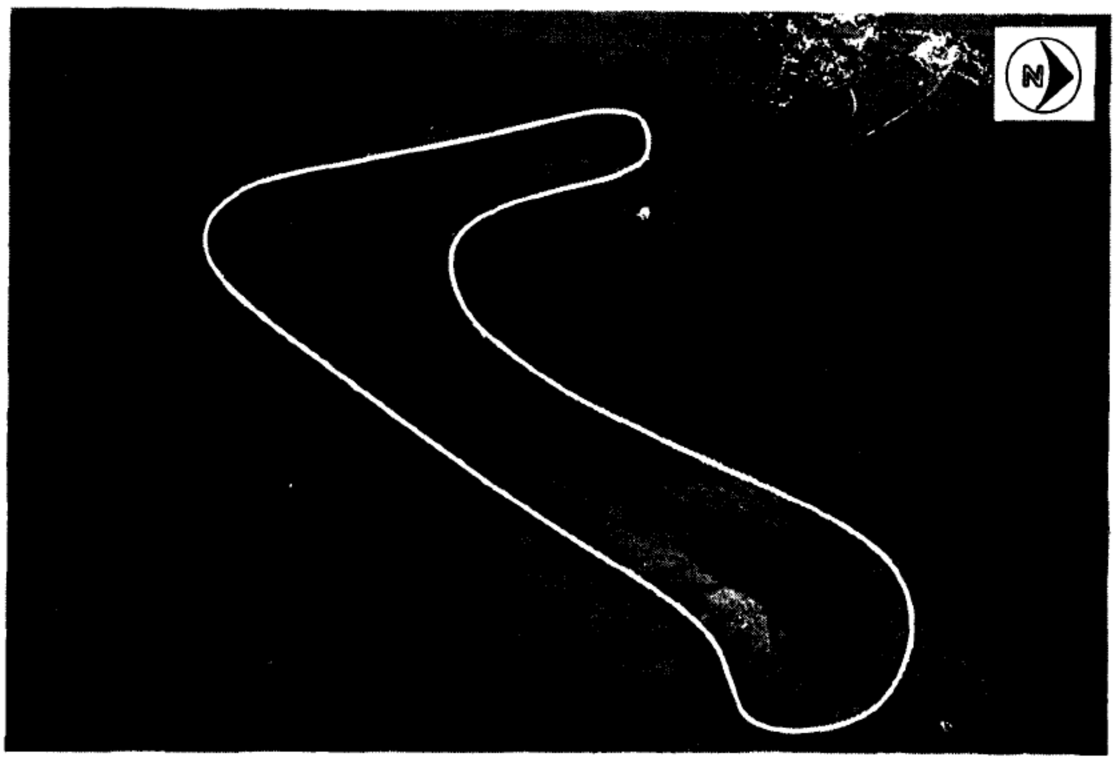

PHOTO 8: INDUSTRIAL DRAIN DITCH IN RUNWAY AREA (SOUTH PORTION OF S-20)

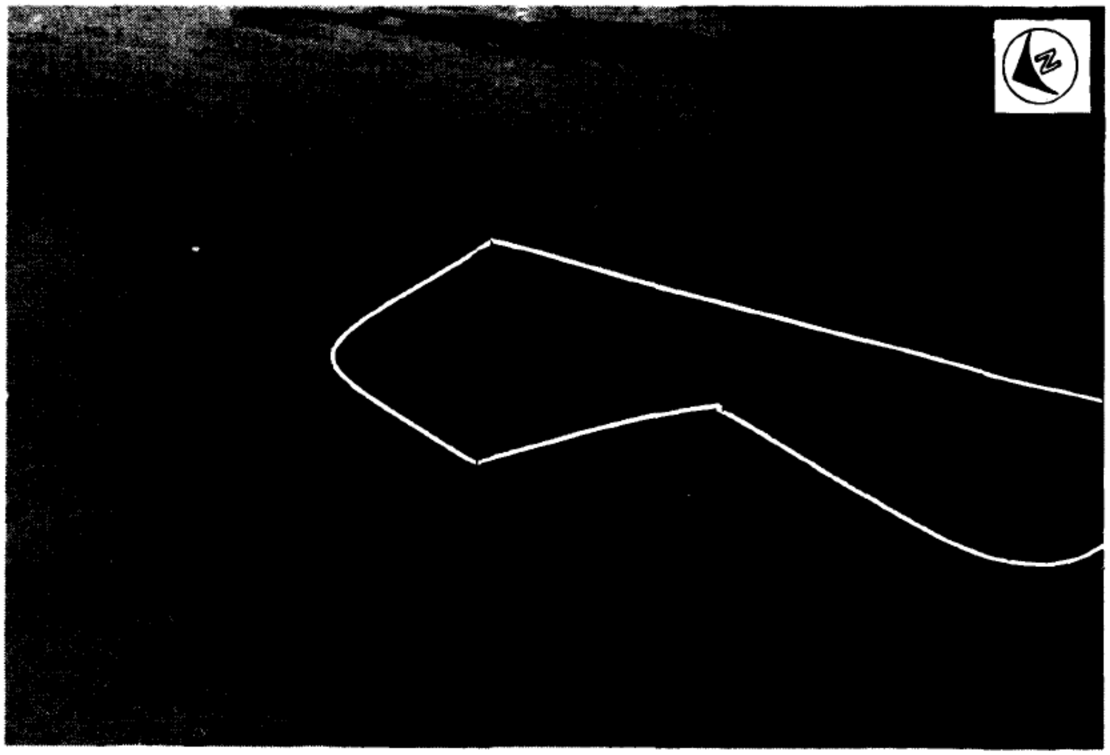

PHOTO 9: LEACH LAKE RANGE ORDNANCE DISPOSAL AREA LL-1

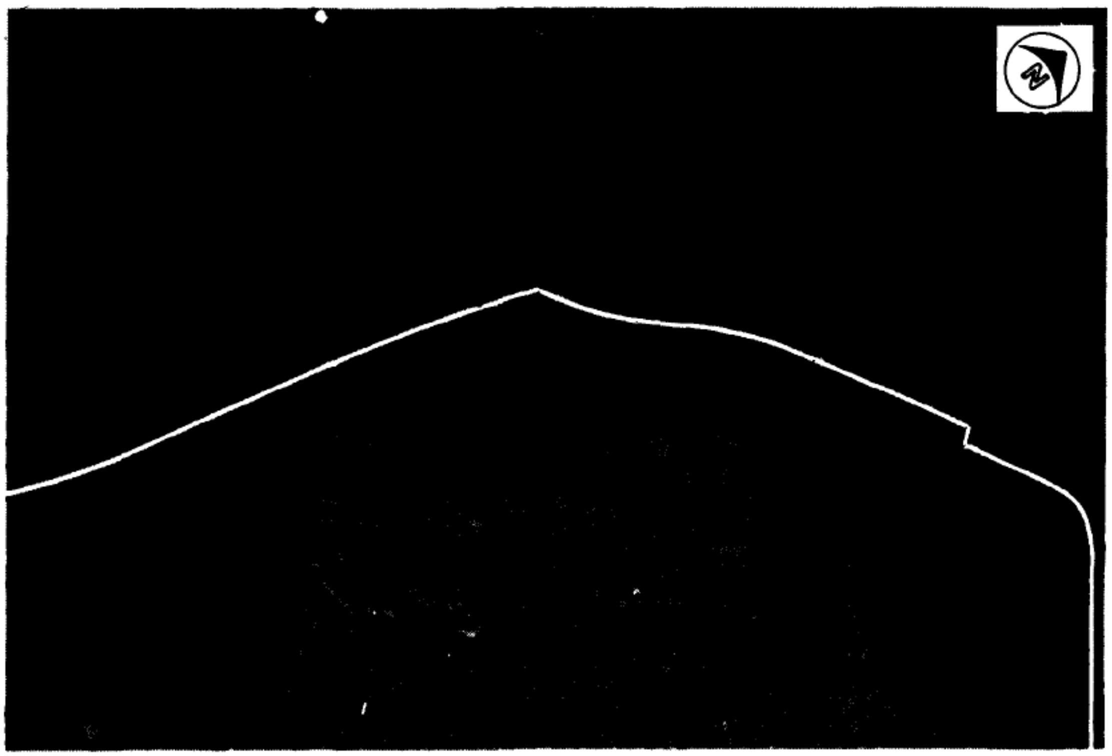

PHOTO 10: LEACH LAKE RANGE ORDNANCE DISPOSAL AREA LL-2

**Appendix A**

**RESUMES OF KEY TEAM MEMBERS**

## ■ MICHAEL C. KEMP

### Education

M.S., Civil and Environmental Engineering, Utah State University, 1978
B.S., Civil Engineering (environmental emphasis), Tennessee Technological University, 1976

### Experience

Since joining CH2M HILL in June of 1978, Mr. Kemp has participated in a variety of projects. His major project experience includes:

- On-site inspection, operations and maintenance manual preparation, and construction services for the expansion of a potato processing wastewater treatment plant in Quincy, Washington.
- Preparation of operating and closure plans for RCRA hazardous waste disposal requirements for Gulf Oil Company, Port Arthur, Texas.
- Preliminary study of sanitary landfill leachate treatment alternatives for Portland Metro.
- Feasibility of land application of pulp mill wastewaters for Australia Pulp Manufacturers, Melbourne
- Review of sampling, analysis, and treatability alternatives used in the EPA Aluminum Forming Development Document for the Aluminum Manufacturers Association.
- Miscellaneous coal fines dewatering facility design and hydraulic analyses for the Washington Irrigation and Development Company.
- Miscellaneous facility design and preparation of the operations and maintenance manual for the ITT Rayonier pulp mill wastewater treatment plant in Port Angeles, Washington.

Before joining CH2M HILL Mr. Kemp served 2 years as a laboratory research assistant at the Utah Water Research Laboratory where he conducted a wide variety of chemical and biological water quality analyses and operated a pilot scale overland flow tertiary treatment system. Mr. Kemp's other experience includes 6 months as a surveyor with the National Park Service and 1 year as an engineering assistant in a construction administration office of the Atomic Energy Commission.

### Technical Certification

Engineer-In-Training, Tennessee
Class II Wastewater Treatment Plant Operator, Washington

**MICHAEL C. KEMP**

**Membership in Organizations**

American Society of Civil Engineers
Chi Epsilon
Pacific Northwest Water Pollution Control Association
Water Pollution Control Federation

**Publications**

Kemp, M.C., D.S. Filip, and D.B. George, 1978. Evaluation and Comparison of Overland Flow and Slow Rate Systems to Upgrade Secondary Wastewater Lagoon Effluent, Utah Water Research Laboratory, Logan, 70 pages.

Hansen, R.D., M.F. Torpy, M.C. Kemp, and D. Mills, 1980. Graduate Training in Water Track Environmental Engineering: Results of a Survey of Employers. Water Resources Bulletin, Vol. 16, No. 5, pp 862-865.

## STEVEN R. HOFFMAN

### Education

B.S., Civil Engineering, South Dakota School of Mines and Technology, 1971

### Experience

Mr. Hoffman is a civil and sanitary engineer who is currently serving as a project manager and project technical consultant on a variety of solid and hazardous waste management projects for CH2M HILL. Examples of his project experience are:

- Project technical consultant on various aspects of municipal, industrial, and hazardous solid waste collection and disposal. Projects include collection system analysis; waste characterization and reduction; municipal solid waste landfill site selection, design, and gas recovery; and landfill disposal of hazardous and industrial sludges throughout the U.S.A.
- Project manager for a hazardous waste disposal study for an ARCO oil refinery in Washington, including waste extraction analysis, groundwater and unsaturate zone monitoring, and waste migration analysis.
- Project manager for assistance with compliance to RCRA regulations for a Gulf Oil refinery in Texas, including waste characterization, preparation of interim status plans, implementation of monitoring programs, and assistance in permit preparation.
- Assistant project manager for hazardous materials disposal site record searches for two U.S. Air Force bases to assess potential for waste migration from present and past practices and to recommend followup actions.
- Assistant project manager responsible for sanitary landfill design and preparation of operations plan and contract bid documents for a municipal solid waste landfill in Portland, Oregon.
- Project manager in developing a disposal system for and analyzing the impacts of a new land disposal technique for an industrial/hazardous sludge containing a high concentration of heavy metals, for the Monsanto Corporation, Seattle, Washington.
- Project manager for ITT Rayonier pulp and paper mill sludge disposal landfills in Grays Harbor and Clallam Counties, Washington, including site feasibility studies, final designs, and operational plans.

**STEVEN R. HOFFMAN**

- Assistant project manager for a resource recovery feasibility study and solid waste management plan for Snohomish County, Washington. The project includes alternative technology analysis, economic feasibility analysis, marketing studies, and management strategies.

- Project engineer for the Solid Waste Management Study for King County, Washington. Mr. Hoffman's responsibilities included assessing the environmental impacts of solid waste handling facilities and performing conceptual designs and costing for transfer stations, shredding and baling facilities, ocean disposal, resource recovery process systems, rail haul facilities, energy recovery systems, and sanitary landfills.

- Project manager for developing a solid waste management plan for Trinity County, California, with major emphasis on transfer, transport, sanitary landfill, and management options.

- Project manager and project engineer on a variety of water resources projects including flood studies, urban drainage and water quality studies, and environmental impact studies.

- Project engineer for developing a preliminary design for a solid waste transfer and refuse-derived fuel processing facility for the Metropolitan Service District, Portland, Oregon.

- Project engineer for preliminary and final design of a shredfill processing facility for Cowlitz County, Washington, which consisted of shredding, magnetic separation, leachate collection, treatment, and disposal.

- Project engineer for a pyrolysis and energy recovery feasibility study and a phased sanitary landfill design for Grays Harbor County, Washington. The design included a rural collection/transfer system to transport wastes to the landfill site.

Prior to joining CH2M HILL, Mr. Hoffman was a pollution control engineer with the Environmental Protection Agency where he conducted site investigations and wrote pollution control standards for South Dakota.

**Professional Registration**

Washington

**Membership in Organizations**

American Society of Civil Engineers

## DONALD A. MAHIN
Ground-Water Hydrologist

**Education**

M.S., Hydrology, University of Nevada, Reno, 1978
B.A., Geology, California State University, Fresno, 1976

**Experience**

Mr. Mahin's responsibilities with the CH2M HILL Water Resources Discipline include all aspects of ground-water resource evaluation, protection, and modeling; water well design; and water quality studies.

Typical projects on which Mr. Mahin has worked include the following:

- The design, testing, and evaluation of high capacity wells for the Redding Municipal Airport and the City of Turlock, California, and for the Priest Rapids Fish Hatchery, Washington
- Design and evaluation of tracer experiments to determine ground-water velocities and aquifer properties for projects in the areas of wastewater disposal, hazardous waste control, and mining
- Evaluation of the potential water quality impacts of existing and proposed sanitary landfill sites in California, Oregon, Washington, and Nevada
- Design of monitoring well fields, recommendation of cleanup procedures, and cost estimation for several hazardous chemical spills
- Analyses of ground-water quality impacts of the proposed use of treated effluent for irrigation in the San Joaquin Valley and the Livermore Valley, California, and for wetlands enhancement in the Carson River Valley of Nevada
- Ground-water investigation of agricultural drainage feasibility and water supply potential, Pyramid Lake Indian Reservation, Wadsworth, Nevada
- Design of open excavation and tunnel dewatering systems and evaluation of their impacts on ground-water levels

His experience prior to joining CH2M HILL includes:

- As a ground-water hydrologist with Hydro-Search, Inc., Mr. Mahin was involved in water supply development, mine dewatering, geothermal exploration, and computer modeling of surface- and ground-water hydraulics and chemistry.

**DONALD A. MAHIN**

- With the Water Resources Center of the Desert Research Institute, Reno, Nevada, Mr. Mahin investigated water availability in arid basins, developed a hydrologic tracer model of a complex limestone aquifer, modeled surface-water hydraulics, and investigated ground- and surface-water quality.

**Professional Registration**

Professional Geologist, Indiana

**Technical Certification**

Engineer-in-Training, Nevada

**Membership in Organizations**

American Association for the Advancement of Science
American Association of Petroleum Geologists
American Water Resources Association
National Water Well Association

**Publications**

Analysis of Ground-Water Flow in the Edwards Limestone Aquifer, San Antonio Area, Texas. M.S. Thesis, University of Nevada, Reno, 1978.

**Presentations**

A Tritium-Calibrated Discrete-State Compartment Model of the Edwards Limestone Aquifer. The Ninth Annual Rocky Mountain Ground Water Conference, Reno, 1979.

Sodium Bromide as a Tracer in Ground-Water Hydrology, a Case Study. The Tenth Annual Rocky Mountain Ground Water Conference, Laramie, 1981 (with J. H. Randall).

**JANE E. DYKZEUL**
**Biologist**

**Education**

B.A., Biology (emphasis in Marine Biology), San Francisco State University, 1976

**Experience**

Ms. Dykzeul is a general biologist in the environmental sciences department of CH2M HILL. Her primary experience is in freshwater and marine biology and ecology, and in water quality sampling and analysis. She has participated in the assessment of the ecological impacts of many industrial and municipal developments.

Ms. Dykzeul's experience includes the following:

- Washington State Department of Ecology. Field data collection, laboratory water quality analysis, sanitary surveying, and report preparation for the bacteriological study of Willapa Bay
- Pacific Gas Transmission, San Francisco, California. Information search, analysis, and report preparation as aquatic biology task leader in the selection of a natural gas pipeline corridor route in Wyoming, Utah, Nevada, and California
- Grant County Public Utility District, Grant County, Washington. Literature survey and review of environmental effects of proposed additional generating units
- Idaho Power Company, Boise, Idaho. Public agencies survey and literature search for information concerning existing terrestrial and aquatic systems for a proposed hydroelectric facility on the North Fork Payette River
- Ventura Regional County Sanitation District, Oxnard, California. Field data collection, laboratory analysis, and report preparation for application for waiver of secondary sewage treatment requirements
- Yakima-Tieton Irrigation District, Yakima, Washington. Fishery analysis for the proposed irrigation system rehabilitation project
- City and County of San Francisco, California. Literature search, field data collection, and laboratory anlaysis for the Southwestern Ocean Outfall Project

## JANE E. DYKZEUL

- Metropolitan Service District, Portland, Oregon. Feasibility study regarding potential bird hazard to nearby air traffic due to placement of a sanitary landfill in Aurora, Oregon
- City of Tigard, Oregon. Urban stream assessment relative to potential improvements in stormwater drainage systems.

Before joining CH2M HILL, Ms. Dykzeul worked for the University of Southern California's Catalina Marine Science Center, where she designed and directed field studies and prepared the final report for a reconnaissance survey of the west end of Catalina Island for the California State Water Quality Control Board. She also was involved in sampling program design and collection and analysis of water, sediment, and biological samples for the City of Avalon's sewage outfall monitoring program. Previously, Ms. Dykzeul was with the California Department of Fish and Game, where she analyzed intertidal data for the Diablo Canyon Nuclear Power Plant baseline study.

### Membership in Professional Societies

American Fisheries Society
American Institute of Biological Sciences
Western Society of Naturalists

### Publications

"Reconnaissance Survey–Santa Catalina Island; Area of Special Biological Significance–Subarea 1." State of California Department of Fish and Game. May 1978. 130 pp. Report to California State Water Quality Control Board.

**Appendix B**

**OUTSIDE AGENCY CONTACT LIST**

## Appendix B
## OUTSIDE AGENCY CONTACT LIST

1. California Regional Water Quality Control Board, South Lahontan Region, Ted Saari, 714/245-6583.

2. California Department of Water Resources, Jack Coe, 213/620-4108.

3. Environmental Protection Agency, Region IX, Laura Tom 415/556-8047; Bill Wilson, 1407; Kathleen Shimman, 7450; Susan Jackson, 9868.

4. California Department of Health Services, San Bernardino Office, Bill Gedney, Chet Anderson, Mark Bartson, 714/383-4328; Sacramento, Harvey Collins, 916/322-2337, Mark White 916/323-6043.

5. Mojave Water Agency, Bob Richey, 714/245-7717.

6. Victorville Planning Department, John Hnatek, 714/245-3411.

7. California Solid Waste Management Board, Guenther Moskat, 916/322-1387.

8. California Water Quality Control Board, Lahontan Region, Bob Dodds, 714/245-6585.

9. U.S. Fish and Wildlife Service, Dave Purinton, 916/484-4748.

10. U.S. Department of Agriculture, Soil Conservation Service, Harlan McIntyre, 714/242-2906.

11. California Department of Fish and Game, Long Beach, 213/590-5177; Victorville, Bob Vernoy, 714/245-7028; Blair Csuti, 916/322-2493.

12. Victor Valley College, Tom Irwin, 714/245-4271.

13. San Bernardino County Environmental Health Services, Jack Baker, 714/383-1433.

14. BLM, Tim Williams, 714/787-1655.

15. California Native Plant Society, Rick York, 916/322-2493; Alice Howard, 415/642-2465.

16. San Bernardino County Planning Department, Jim De Agluilera, Fred Hinshaw, 714/383-1445.

17. Los Angeles County Health Services, David Wong, 213/620-2143.

18. San Bernardino County Health Department, Richard Hornby, 714/383-1440; Wes Gibb, 714/383-3498.

19. U.S. Army Corps of Engineers, Ed Ketchum, 916/440-2182; Earl Stokes, 916/440-2103.

20. U.S. Navy, San Bruno, Gil Reyes, 415/877-7453.

21. USGS Laguna Niguel, Bill Hardt, 714/831-4232.

22. USGS San Bernardino, Jim Bowers, 714/383-5617.

23. U.S. Department of Interior, Fish and Wildlife Sevice, Office of Endangered Species, Dave Harlow, 916/440-2791.

**Appendix C**

**INSTALLATION HISTORY**

## Appendix C
## INSTALLATION HISTORY

**BASE HISTORY**

George AFB, formerly known as Victorville Army Airfield, is located on 5,347 acres of land in the Mojave Desert region near Victorville, California. It was proposed as an advanced flying school on a site originally comprised of approximately 2,200 acres of land. Construction of the facility began in 1941 and was completed in 1943. The Los Angeles District of the U.S. Engineer Department (Corps of Engineers) and the Third District Regional Office, San Bernardino, designed and supervised its construction. The base was operated until 1948 when it was placed on inactive status.

In 1950 the base was renamed in honor of Brig. General Harold H. George, a World War I fighter ace who was killed in an aircraft crash at Darwin, Australia. Since the mid-1950's its facilities have been continuously improved and upgraded resulting in a mixture of new permanent structures and improved World War II-type wooden buildings.

Advanced twin-engine pilot training started in 1942 before construction was complete. The advanced twin-engine pilot school used AT-6s, AT-9s and AT-17 aircraft, while the bombardier school trained in AT-11s and BT-13s.

Before the twin-engine pilot school was transferred to Lubbock Field, Texas, in April 1943, more than 1,000 pilots had graduated here.

Victorville then added an advanced glider pilot school when two squadrons of the 63rd Troop Carrier Group arrived from

Stuttgart, Arkansas. The glider pilots trained in the CG-4A. Glider training also moved to Lubbock Field after graduating 764 pilots.

During 1943, such aircraft as the C-47, C-53, C-60A, L-3B, L-3C, L4A, PT-15, and CG-4A operated here before transferring out, leaving only the bombardier training aircraft, AT-11s and BT-15s.

In March 1944, the base began training Bell P-39 Air Cobra pilots. A total of 1,887 P-39 pilots graduated here before the school was moved to Luke Field, Arizona, in October 1944. The WW II years also saw B-25 and B-24 training at George.

When WW II ended, George was no longer needed as a training base. Consequently on October 12, 1945, all flying operations ceased, and the base was placed on standby status. The base was assigned to the Air Technical Service Command on November 1, 1945, and the mission was to store surplus B-29s, AT-7s, and AT-11s. The first of 734 B-29s arrived on October 18.

By May 1947, George's jurisdiction passed to the Sacramento Air Material Area (and later to the San Bernardino AMA). By October 14, 1948, the last of the stored aircraft had been flown away. During this storage period, George welcomed the birth of the U.S. Air Force.

In July 1950 (just after being renamed George AFB) the F-86-equipped 1st Fighter Interceptor Wing moved to the high desert base. Several wings staged through George to train in the F-86 prior to deploying to Korea.

Tactical Air Command took over the base on November 15, 1951, with the 131st and 146th Fighter Bomber Wings flying F-51 Mustangs. The 1st Fighter Interceptor Wing moved to Norton AFB, leaving the 94th Fighter Interceptor Squadron at George to fly the F-86 in the air defense role.

Both wings at George began trading in their F-51s for T-33s in late 1952, but by January 1953, the 479th Fighter Bomber Wing absorbed the 131st FBW mission and became the host unit. The new wing began receiving new F-86F Sabres and by late 1953, the latest F-86H model.

The 479th became the first TAC wing to become operational in the new supersonic F-100 Super Sabre in September 1954. Four years later, in July 1958, the F-104 Starfighter was added to its inventory. The following year, 1959, the F100D-equipped 31st Tactical Fighter Wing was activated at George. That wing was reassigned to Homestead AFB, Florida, in May 1962.

While the 479th continued to train pilots to fly the F-100 and F-104, yet another wing was activated at George, this time to train combat readiness in the new F-4C Phantom tactical fighter. Activated as the 32nd TFW, the 8th left for Ubon AB, Thailand, in December 1956, after achieving combat ready status.

During the same part of the early 1960's, the F-105D Thunderchief-equipped 355th TFW was activated at the base. The wing was transferred to McConnel AFB, Kansas, in July 1964.

The 479th TFW got its first F-4C Phantoms in November 1964, and it became an all-Phantom wing in June 1967 when the last of the F-104s left George. Also during the early 1960s, ADCOM's 329th Fighter Interceptor Squadron flying F-106 Delta Darts was based at George.

On October 1, 1971, the 35th TFW designation was transferred from Phan Rang AB, Vietnam, to replace the 479th TFW, which was inactivated. The mission continued to be one of training pilots to fly the F-4, but in 1973, the wing gained the F-105G Wild Weasel mission upon its transfer from McConnel AFB, Kansas.

Then in the spring of 1975, George AFB became the "Home of the Wild Weasels," as F-105G and F-4C WW training transferred to George from the Fighter Weapons School at Nellis AFB, Nevada. In April 1978, George AFB started receiving its first F-4G Wild Weasel aircraft and phased out the F-4C Wild Weasels in September of that year along with the rest of the base's F-4Cs. Now, there are three Wild Weasel Squadrons flying F-4G aircraft, the 39 TFTS, the 563 TFS, and the newest, 561st TFS, which is still receiving its F-4Gs.

In addition, there are two F-4E squadrons, the 20th TFTS, which trains German aircrews, and the 21st TFTS, which trains U.S. aircrews, thus giving George AFB one of the largest missions in Tactical Air Command with more than 120 tactical fighter aircraft assigned.

## Missions

George AFB is the host of the 831st Air Division. The primary mission of the Division is to execute tactical fighter operations and to provide training for aircrew and maintenance personnel. The 35 Tactical Fighter Wing, a major component of the Division, consists of the following squadrons:

- 20th Tactical Fighter Training Squadron - provides flight and academic training to German Air Force crews

- **21st Tactical Fighter Training Squadron - provides combat training for F-4E aircrews**

- **39th Tactical Fighter Training Squadron - provides flight and academic training for F-4G aircrews and electronic warfare officers**

- **561st Tactical Fighter Squadron - provides combat training for F-4E aircrews**

- **562nd Tactical Fighter Squadron - active F-105 combat squadron**

- **563rd Fighter Squadron - active F4-G combat squadron**

- **35th Tactial Training Squadron - provides academic instruction for the Wing**

- **3rd German Air Force Training Squadron - assists in the welfare of German Armed Forces personnel**

- **Detachment 1, 84th Fighter Interceptor Squadron - active F-106 interceptor squadron**

**Mission Support**

**Mission support is provided by the following units:**

- **Resource Management**
- **Comptroller**
- **Contracting**
- **35th Combat Support Group**
- **35th Equipment Maintenance Squadron**
- **335th Aerospace Generation Squadron**
- **35th Component Repair Squadron**
- **35th Aerospace Generation Squadron**

- 35th Supply Squadron
- 35th Civil Engineering Squadron
- 35th Security Police Squadron
- 35th Services Squadron
- 35th Transportation Squadron
- Field Training Detachment 516
- 2067th Communications Squadron
- Detachment 12, 25th Weather Squadron
- Detachment 5, 4,400 Management Engineering Squadron
- Air Force Audit Agency

Reference: George AFB, Armed Services Press, 1981.

# Appendix D

## INDUSTRIAL FACILITIES

## Table D-1
## MASTER LIST OF INDUSTRIAL OPERATIONS

| Operation or Shop | Present Location (Bldg. No./Date) | Past Location (Bldg. No./Date) | Waste Material | Estimated Liquid Waste Quantity (gal/yr) | Treatment/Storage/Disposal Methodology[1,2] |
|---|---|---|---|---|---|
| Base Exchange Garage | 12/1966 | | Oils, Grease, Solvents, Cleaners | 3,000 | Sanitary Sewer[2] |
| Vehicle Car Wash | 14/1965 | | Detergents, Wax | — | Sanitary Sewer |
| Auto Hobby Shop | 18/1965 | 744/Pre-1965 | Cleaners, Solvents, Oils, Paints | 3,000 | Sanitary Sewer w/Oil Recovery |
| Vehicle Maintenance | 555/1965 | 520/Pre-1965 | Cleaners, Acids, Oils, Solvents | | Sanitary Sewer w/Oil Recovery |
| AGE Maintenance | 559,589,682/1965, 1943,1965 | | Cleaners, Acids, Oils, Solvents, Fuel | 559-4,000<br>589-<br>682-7,000 | Sanitary Sewer w/Oil Recovery |
| Vehicle Wash Rack | 563/1965 | | Detergents, Wax | 2,000,000 | Sanitary Sewer |
| Engine Test Cell | 568,799,832/1971, 1955,1971 | | Waste Oil, Fuel, Solvents | 568-6,000<br>799-2,000<br>832- | 568-Sanitary Sewer/Oil Recovery<br>799-Off-Site/Oil Recovery<br>832-Industrial Drain/Oil Recovery |
| Corrosion Control | 652/1977 | 693/Pre-1977 | Paints, Strippers, Solvents | 120,000 | Sanitary Sewer |
| Pneudralics Shop | 676/1956 | | Cleaners, Degreasers, Oils, Solvents | 900 | Industrial Drain[2] |
| Fuel Cell Maintenance | 685/1964 | | Fuels, Solvents | 3,000 | Sanitary Sewer w/Oil Recovery |
| Jet Engine Shop | 686/1959 | | Detergents, Degreasers, Fuels | 7,000 | Sanitary Sewer |
| Aircraft Wash Racks | 706,696,743,681 693,765/1942,1972, 1942,1942,--,-- | | Detergents, Fuels, Oils, Solvents | 7,000 | Industrial Drain |
| Fuels Lab | 551/1966 | | Fuels, Acids, Solvents | 100 | Septic System |
| Repair and Reclamation Shop | Salvage Yard/-- | 626/--- | Detergents, Solvents | | Sanitary Sewer |
| Nonpowered AGE Shop | 695/1969 | | Solvents, Paints, Oils | 300 | Industrial Drain |
| Equipment Maintenance | 768/1961 | | Cleaners, Oils, Paints, Strippers | 250 | Industrial Drain |

Table D-1
MASTER LIST OF INDUSTRIAL OPERATIONS
(continued)

| Site Name | Present Location (Bldg. No./Date) | Past Location (Bldg. No./Date) | Waste Material | Estimated Liquid Waste Quantity (gal/yr) | Treatment/Storage/Disposal Methodology[1,2] |
|---|---|---|---|---|---|
| Pavements and Grounds | 663,1138,599/ —, 1971,— | 670/— | Solvents, Adhesives, Fertilizer | | |
| Entomology Shop | 673/1966 | 674/1965,1966 670/1956-1965 WWTP/Pre-1956 789/ | Pesticides, Herbicides 789-Pesticide Storage | | Sanitary Sewer |
| Photo Labs | 350,107,15,196/ 1965,1942,1967, 1942 | Near 32/— | Developer, Acids, Process Chemicals | 250 | Sanitary Sewer w/Silver Recovery |
| Mobile Photo Lab | | Near 350/— | Developer, Acids | | |
| Paint Shop | 731/1942 | | Paints, Solvents | | Sanitary Sewer |
| Machine Shop | — | 694/— | Oil, Lubricants, Degreasers | | |
| NDI Lab | 970/1970 | 682/1968-1970 | Kerosine, Penetrants, X-ray Film | 400 | Salvage |
| Propulsion Lab | — | | Oils, Solvents | 2,000 | |
| Wheel and Tire Shop | 676/1956 | | Degreasers, Solvents, Detergents | 1,600 | Industrial Drain, Salvage |
| Hydraulics Shop | — | | Solvents, Cleaners, Hydraulic Fluid | 200 | |
| Battery Shop, Tool Room | 683/1960 | | Acids, Grease, Solvents | 1,500 | Industrial Drain, Salvage |
| Hospital | 1155/1963 | | Medical Wastes, Chemicals | 8,000 | Sanitary Sewer, Incinerator |
| X-ray Lab | 564/1971 | | Developer, Fixer | 300 | |
| Refuel Vehicle Maintenance | 552/1964 | | Oils, Lubricants, Solvents | | Sanitary Sewer |
| Alert Support | 761/1953 | | Solvents, Oils, Fuel | 100 | Septic System, Salvage |

[1] Essentially all solid wastes are presently transported off base. Solid wastes were landfilled on-base prior to 1976.

[2] Both the sanitary sewer and industrial drains are assumed to have been installed since 1941.

**Appendix E**

**FUEL STORAGE TANKS**

Table E-1
FUEL STORAGE TANKS

| Facility | Fuel | Capacity-Each (gal.) |
|---|---|---|
| 547 | JP-4 | 420,000 |
| 548 | JP-4 | 209,000 |
| 556 | JP-4 | 668,000 |
| 557 | JP-4 | 419,000 |
| 554 | JP-4 | 630,000 |
| 708 | JP-4 | six 50,000 |
| | | two 5,000 |
| Pit 5 | JP-4 | 5,000 |
| Pit 6 | JP-4 | 5,000 |
| 806 | JP-4 | 1,000 |
| 559 | JP-4 | two 2,000 |
| 762 | JP-4 | two 1,250 |
| 660 | Contaminated JP-4 | 12,000 |
| 12 | Mogas | two 10,000 |
| 550 | Mogas | two 10,000 |
| 559 | Mogas | 2,000 |
| 660 | Mogas | two 12,000 |
| 667 | Mogas | 1,250 |
| 711 | Mogas | 1,000 |
| 723 | Mogas | 1,250 |
| 12 | Diesel | 2,000 |
| 550 | Diesel | 2,000 |
| 660 | Diesel | 12,000 |
| 711 | Diesel | one 2,000 |
| | | two 1,000 |
| 723 | Diesel | 1,250 |
| 785 | Diesel | 1,100 |
| 806 | Diesel | 1,000 |

# Appendix F

## ABANDONED TANKS

**Table F-1**
**ABANDONED TANKS**

| Facility | Liquid | Number/Capacity-Each (gal.) |
|---|---|---|
| Fuel Hydrant Pit 1 | Leaded gas | 1/- |
| Fuel Hydrant Pit 6 | Leaded gas | 1/- |
| 164 | Fuel oil | 1/- |
| 555 | Leaded gas, waste oil | 1/3,000[2] |
| 662 | Leaded gas | 1/- |
| 690 | Leaded gas | 5/50,000[3] |
| 690 | Leaded gas | 10/25,000[1] |
| 731 | Fuel oil | 1/-1,250 |
| 744 | Fuel oil | 1/- |
| 711 (Cuddeback) | Leaded gas | 1/1,000 |

[1] Sand filled.

[2] Reportedly used for waste oil recovery since 1956.

[3] One tank used for waste oil recovery currently; four tanks contain caustic water for "pickling."

# Appendix G

## OIL/WATER SEPARATORS

**Table G-1**
**OIL/WATER SEPARATORS**

| Facility No. | Description | Capacity-Each (gal) | Year Installed |
|---|---|---|---|
| **Base** | | | |
| 568 | Engine Test Cell | 1,000 | 1971 |
| 682 | AGE Maintenance | 1,300 | --- |
| 685 | Fuel Cell Maintenance | 1,300 | --- |
| 55775 | South Industrial Drain | 1,300 | 1970 |
| 18 | Auto Hobby Shop | 2,245 | 1975 |
| 652 | Corrosion Control | 4/1,500 | 1977 |
| 555 | Vehicle Maintenance | 2/400,8/1,000 | 1956 |
| 832 | Engine Test Cell | 2/1,200 | --- |
| 708 | Hydraulic Pump House | 350 | 1953 |
| 761 | Alert Hanger | 55 | --- |
| 552 | Refuel Vehicle Repair | 500 | 1965 |
| 683 | TAC Fighter Hanger | 4,500 | 1960 |
| 706 | Aircraft Wash Rack | 1,600 | --- |
| 559 | AGE shop | 250 | 1966 |
| 722 | Squadron operations | 4,500 | --- |
| 686 | Engine shop | 300 | 1959 |
| 12 | Service station | 1,250 | --- |
| **Cuddeback** | | | |
| 711 | Vehicle Maintenance | 2/2,000,1/1,000 | 1957 |

# Appendix H

## SITE HAZARD RATING METHODOLOGY

**HQ AIR FORCE ENGINEERING AND SERVICES CENTER**
**AND**
**USAF OCCUPATIONAL AND ENVIRONMENTAL HEALTH LABORATORY**

# SITE RATING METHODOLOGY

# FOR

# PHASE I
# INSTALLATION RESTORATION PROGRAM

**July 1981**

# SITE RATING METHODOLOGY
# FOR
# PHASE I INSTALLATION RESTORATION PROGRAM

1. This site rating methodology for Phase I of the Installation Restoration Program (IRP) has been jointly developed by $CH_2M$ Hill and Engineering-Science based on experience in performing Record Searches at several Air Force installations. This standard site rating system should be used for all Air Force IRP Records Search efforts to assist in Air Force prioritization and commitment of resources for Phase II survey actions.

2. The basis for the rating system is the document developed by JRB Associates, Inc. for the EPA Hazardous Waste Enforcement office. The JRB system was modified to accurately address specific Air Force installation conditions and to provide meaningful comparison of landfills and contaminated areas other than landfills.

3. Questions pertaining to use of the Air Force Site Rating Methodology should be addressed to either Mr. Lindenberg, AFESC/DEVP, AUTOVON 970-6189 (Commercial (904) 283-6189) or Major Fishburn, AF OEHL/EC, AUTOVON 240-3305 (Commercial (512) 536-3305).

Note: Both $CH_2M$ Hill and Engineering-Science are Engineering Support contractors for the US Air Force.

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site ____________________

Location ____________________

Owner/Operator ____________________

Comments ____________________

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | | 4 | | |
| Distance to Nearest Drinking Water Well | | 15 | | |
| Distance to Reservation Boundary | | 6 | | |
| Land Use/Zoning | | 3 | | |
| Critical Environments | | 12 | | |
| Water Quality of Nearby Surface Water Body | | 6 | | |

Number of Assumed Values = ____ Out of 6 | SUBTOTALS ______ ______
Percentage of Assumed Values = ____% | SUBSCORE ______
Number of Missing Values = ____ Out of 6 | (Factor Score Divided by Maximum Score and Multiplied by 100)
Percentage of Missing Values = ____%

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | | 10 | | |
| Level of Water Contamination | | 15 | | |
| Type of Contamination, Soil/Biota | | 5 | | |
| Distance to Nearest Surface Water | | 4 | | |
| Depth to Groundwater | | 7 | | |
| Net Precipitation | | 6 | | |
| Soil Permeability | | 6 | | |
| Bedrock Permeability | | 4 | | |
| Depth to Bedrock | | 4 | | |
| Surface Erosion | | 4 | | |

Number of Assumed Values = ____ Out of 10 | SUBTOTALS ______ ______
Percentage of Assumed Values = ____% | SUBSCORE ______
Number of Missing Values = ____ Out of 10 | (Factor Score Divided by Maximum Score and Multiplied by 100)
Percentage of Missing Values = ____%

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgmental rating from 30 to 100 points based on the following guidelines:

**Points**

| | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE ______

Reason for Assigned Hazardous Rating:

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | | 7 | | |
| Hazardous Waste Quantity | | 7 | | |
| Total Waste Quantity | | 4 | | |
| Waste Incompatibility | | 3 | | |
| Absence of Liners or Confining Beds | | 6 | | |
| Use of Leachate Collection System | | 6 | | |
| Use of Gas Collection Systems | | 2 | | |
| Site Closure | | 8 | | |
| Subsurface Flows | | 7 | | |

Number of Assumed Values = ____ Out of 9

Percentage of Assumed Values = ____%

Number of Missing and Non-Applicable Values = ____ Out of 9

Percentage of Missing and Non-Applicable Values = ____%

SUBTOTALS ______ ______

SUBSCORE ______

(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = ____ Out of 25

Overall Percentage of Assumed Values = ____%

OVERALL SCORE ______

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

## RATING FACTOR SYSTEM GUIDELINES

### RECEPTORS

| Rating Factors | Rating Scale Levels: 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| Population within 1,000 Feet | 0 | 1 to 25 | 26 to 100 | Greater than 100 |
| Distance to Nearest Drinking Water Well | Greater than 3 miles | 1 to 3 miles | 3,001 feet to 1 mile | 0 to 3,000 feet |
| Distance to Reservation Boundary | Greater than 2 miles | 1 to 2 miles | 1,001 feet to 1 mile | 0 to 1,000 feet |
| Land Use/Zoning | Completely remote (zoning not applicable) | Agricultural | Commercial or industrial | Residential |
| Critical Environments | Not a critical environment | Pristine natural areas | Wetlands; flood plains, and preserved areas; presence of economically important natural resources | Major habitat of an endangered or threatened species; presence of recharge area |
| Water Quality Designation of Nearest Surface-Water Body | Agricultural or industrial use | Recreation, propagation and management of fish and wildlife | Shellfish propagation and harvesting | Potable water supplies |

### PATHWAYS

| Rating Factors | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| Evidence of Water Contamination | No contamination | Indirect evidence | Positive proof from direct observation | Positive proof from laboratory analyses |
| Level of Water Contamination | No contamination | Low levels, trace levels, or levels less than maximum contaminant level (MCL) or EPA drinking water standards | Moderate levels or levels near MCL or EPA drinking water standards | High levels greater than MCL or EPA drinking water standards |
| Type of Contamination Soil/Biota | No contamination | Suspected contamination | Moderate contamination | Severe contamination |
| Distance to Nearest Surface Water | Greater than 1 mile | 2,001 feet to 1 mile | 501 feet to 2,000 feet | 0 to 500 feet |
| Depth to Ground Water | Greater than 500 feet | 51 to 500 feet | 11 to 50 feet | 0 to 10 feet |
| Net Precipitation | Less than −10 inches | −10 to +5 inches | +5 to +20 inches | Greater than +20 inches |
| Soil Permeability | Greater than 50% clay ($<10^{-6}$ cm/s) | 30% to 50% clay ($10^{-4}$ to $10^{-6}$ cm/s) | 15% to 30% clay ($10^{-2}$ to $10^{-4}$ cm/s) | 0% to 15% clay ($>10^{-2}$ cm/s) |
| Bedrock Permeability | Impermeable ($<10^{-6}$ cm/s) | Relatively impermeable ($10^{-4}$ to $10^{-6}$ cm/s) | Relatively impermeable ($10^{-2}$ to $10^{-4}$ cm/s) | Very permeable ($>10^{-2}$ cm/s) |
| Depth to Bedrock | Greater than 60 feet | 31 to 60 feet | 11 to 30 feet | 0 to 10 feet |
| Surface Erosion | None | Slight | Moderate | Severe |

## WASTE CHARACTERISTICS

Judgemental hazardous rating from 30 to 100 points based on the following guidelines:

| Points | Condition |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantities of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

## WASTE MANAGEMENT PRACTICES

| Rating Factors | Rating Scale Levels 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | Accurate records, no unauthorized dumping | Accurate records, no barriers | Incomplete records, no barriers | No records, no barriers |
| Hazardous Waste Quantity | <1 ton | 1 to 5 tons | 5 to 20 tons | >20 tons |
| Total Waste Quantity | 0 to 10 acre feet | 11 to 100 acre feet | 101 to 250 acre feet | Greater than 250 acre feet |
| Waste Incompatibility | No incompatible wastes are present | Present, but does not pose a hazard | Present and may pose a future hazard | Present and posing an immediate hazard |
| Absence of Liners or Confining Strata | Liner and confining strata | Liner or confining strata | Low quality liner or low permeability strata | No liner, no confining strata |
| Use of Leachate Collection Systems | Adequate collection and treatment | Inadequate collection or treatment | Inadequate collection and treatment | No collection or treatment |
| Use of Gas Collection Systems | Adequate collection and treatment | Collection and controlled flaring | Venting or inadequate treatment | No collection or treatment |
| Site Closure | Impermeable cover | Low permeability cover | Permeable cover | Abandoned site, no cover |
| Subsurface Flows | Bottom of landfill greater than 5 feet above high ground-water level | Bottom of landfill occasionally submerged | Bottom of fill frequently submerged | Bottom of fill located below mean ground-water level |

**JRB RATING SYSTEM INTRODUCTION AND METHODOLOGY**

**Source:** "Methodology for Rating the Hazard Potential of Waste Disposal Sites," JRB Associates, Inc., December 15, 1980.

**Note:** The following material includes Chapters 1 and 2 of the JRB report. The reader is referred to the above source for the complete report.

# CHAPTER 1.0 INTRODUCTION

As part of EPA's nationwide waste management program, land disposal facilities containing hazardous wastes will be investigated and evaluated. Remedial action plans will be formulated for those sites presenting a significant hazard. Because resources for this task are limited, the initial focus of the work must be on the most hazardous sites. Under the auspices of EPA's Office of Enforcement, JRB Associates has devised a methodology for selecting sites for investigation based on their high potential for environmental impact.

This methodology has several advantages over other rating systems:

- It is easy to use
- It does not require users to have an extensive technical background
- It uses readily available information
- It does not require complex chemical or hydrological analyses
- It does not require users to visit the facilities in question
- It allows sites to be rated even if some data needs cannot be met.

The system consists of 31 rating factors that are divided into 4 categories: receptors; pathways; waste characteristics; and waste management practices. Factors in the receptors category determine the prime targets of environmental contamination. Factors in the pathways category assess mecha nisms for contaminant migration. Factors in the waste characteristics category examine the types of hazards posed by contaminants in the site. Factors in the waste management practices category evaluate the quality of the facility's design and operation. Each rating factor has an associated four-level scale. Because all of these factors are not of equal importance, each also has been assigned a weighing factor, called a multiplier. Raters must simply decide which level of the rating factor's scale is most appropriate for a given site and multiply the numeric value of that level by the corresponding multiplier. The sum of the products for the 31 factors divided by the maximum possible score and multiplied by 100 is the site's rating. The ratings are on a scale of 0 to 100 and can be interpreted in relative or absolute terms.

Users can assign additional points when the rating factors do not adequately address all of the problems of a site. However, only a limited number of additional points can be assigned. This arrangement helps to ensure that a site's rating is both complete and objective.

The methodology has been designed primarily for landfills, surface impoundments, and other types of land-based storage and disposal facilities. Incinerators and waste treatment facilities, however, are beyond scope with the exception of the solid wastes produced by them.

Site ratings should be performed as part of an overall investigation procedure. Prior to a site visit, ratings can be based on published materials, public and private records, and contacts with knowledgable parties. The results of this type of rating can be used to determine which sites present the greatest potential hazard and should be visited first. A final rating can be obtained with information obtained from a visit to a site. This rating can be used as a tool to help determine how limited resources should be spent for additional sampling, which may be required to fill data gaps, and for preparing remedial action plans and/or enforcement cases for sites that represent particularly severe hazards.

The methodology's validity has been tested at sites across the country. This testing includes comparing ratings completed for the same facilities both by different raters, and before and after site visits. Officials of New Jersey's Department of Environmental Protection agreed that the ratings on 30 sites in their state were good reflections of the true hazard potential of those sites. These results show that the methodology is an exceptionally useful and efficient tool for classifying and ranking the hazard potential of land disposal facilities.

The methodology is discussed in more detail in the following four chapters. Chapter 2 describes the six basic components of the methodology. Chapter 3 identifies sources of information for the system and describes how to resolve data gaps. Chapter 4 presents the step-by-step procedure for rating sites, and Chapter 5 discusses how site ratings can be used. The three appendices provide guidance for rating sites. Finally, the glossary located at the end of this document defines all terms related to the methodology.

# CHAPTER 2.0 DESCRIPTION OF THE METHODOLOGY

The site rating methodology has been developed in terms of six elements. These are:

- Factor categories
- Rating factors
- Rating scales
- Multipliers
- Additional points
- Hazard potential scores.

These elements are described below.

## 2.1 FACTOR CATEGORIES

In assessing the environmental impacts of any hazardous waste disposal site, four considerations must be addressed. These are:

- Receptors
- Pathways
- Waste characteristics
- Waste management practices.

Receptors refer to the biota (human and non-human) which are potentially affected by the materials released from a waste disposal site. Within this category, special attention is given to human populations and critical environments. Pathways refer to aspects of the routes by which hazardous materials can escape from a given site. The focus of this cateory is on the ease of migration of water soluble pollutants and on contamination due to the site. Waste characteristics refer to the types of hazards posed by materials in the facility in terms of both their health-related effects and their environmental mobility. Waste management practices refer to the design characteristics and management practices of a given disposal site as they relate to the site's environmental impact. In particular, this category examines measures that are being taken to minimize exposure to hazardous wastes.

The prime importance of the factor categories is in partitioning the rating factors into manageable groups so that site ratings can be more easily and completely interpreted. This topic is discussed in greater detail in Chapter 5.

## 2.2 RATING FACTORS

The initial rating of a waste disposal facility is based on a set of 31 rating factors. Each of these has been assigned to one of the four factor categories. The receptors catgegory has five rating factors:

- "Residential population within 1,000 feet" and "Distance to the nearest off-site building" measure the potential for human exposure to the site
- "Distance to the nearest drinking-water well" measures the potential for human ingestion of contaminants should underlying aquifers be polluted
- "Land use/zoning" evaluates the current and anticipated uses of the surrounding area
- "Critical environments" assesses the potential for adversely affecting important biological resources and fragile natural settings.

The pathways category contains nine rating factors concerned with the potential migration and attenuation of contaminants. The primary focus is on waterborne pollutants, since they can affect the greatest number of people.

- "Distance to the nearest surface water" and "Depth to groundwater" measure the availability of pollutant migration routes
- "Soil permeability," "bedrock permeability," and "depth to bedrock" measure the potential for contaminant attenuation and ease of migration

- "Net precipitation" uses annual precipitation and evapotranspiration to estimate the amount of leachate a site produces
- "Evidence of contamination," "type of contamination," and "level of contamination" evaluate pollution currently apparent at the site.

The waste characteristics category contains rating factors which examine the waste's environmental mobility and the adverse effects it can cause.

- "Solubility," "volatility," and "physical state" measure the extent to which mobile wastes can leave the site
- "Toxicity," "radioactivity," and "persistence" assess the site's potential to cause health-related injuries
- "Ignitability," "reactivity," and "corrosiveness" evaluate the possibility of fire, explosion, or similar emergencies.

The waste management practices factor category evaluates site design and operation. This category includes eight rating factors:

- "Use of leachate collection systems," "use of gas collection systems," and "use of liners" examine features of site design for containing contamination
- "Site security" assesses the measures taken to limit site access
- "Total waste quantity" and "hazardous waste quantity" measure the quantity of waste in the site, and thus, the potential magnitude of resulting contamination
- "Waste incompatibility" evaluates the potential for incompatible wastes to combine and pose a hazard
- "Use of containers" assesses the adequacy of using containers to isolate wastes.

These factors have been selected because they are relevant to an evaluation of any land-based disposal facility. The definition and purpose of each rating factor appear in Appendix A.

## 2.3 RATING SCALES

For each of the factors, a four-level rating scale has been developed which provides factor-specific levels ranging from "0" (indicating no potential hazard) to "3" (indicating a high potential hazard). The rating factors and their corresponding rating scales for each of the factor categories are listed in Table 1. These scales have been defined so that the rating factors typically can be evaluated on the basis of readily available information from published materials, public and private records, contacts with knowledgeable parties, or site visits. Raters compare the information collected for a site with the limits set in the scales, and see which level of each scale most closely fits the information. The numeric value of that level is the factor rating for that factor. This process is described in more detail in Chapter 4. Additional guidance for assessing the rating scales appears in Appendix A.

## 2.4 MULTIPLIERS

The rating factors do not all assess the same magnitude of potential environmental impact. Consequently, a numerical value called a multiplier has been assigned to each factor in accordance with the relative magnitude of impact that it does assess. These values are multiplied, hence the term multiplier, by the appropriate factor ratings (see Section 2.3) to result in factor scores for each of the rating factors. The 31 multipliers appear as the third column from the right on the methodology's two-page Rating Form (see Figure 3).

## 2.5 ADDITIONAL POINTS

Special features of a facility's location, design, or operation are frequently encountered that cannot be handled satisfactorily by rating factors alone. These features might present hazards that are unusually serious, unique to the site, or not assessable by rating scales. For example, an extremely high population density near a site should be considered even more hazardous than the rating factor for "population within 1,000 feet" indicates.

Power lines running through sites containing explosive or flammable wastes, though not generally typical of waste disposal sites, should be considered a potential hazard. Finally, the function of the nearest off-site building might indicate a serious threat of human exposure exists, even though types of functions cannot be quantitatively evaluated by rating scales the way distance can be. In such cases, raters should assign a greater hazard potential score to a site than it might otherwise receive by using the additional points system. To guide raters as to the types of situations that might warrant additional points, several examples have been identified for each of the factor categories. These are:

**RECEPTORS**

- Use of site by local residents
- Neighboring land use
- Neighboring transportation routes, drinking water supplies, and important natural resources.

**PATHWAYS**

- Extreme runoff and erosion problems
- Slope instability
- Flooding
- Seismic activity.

**WASTE CHARACTERISTICS**

- Carcinogenicity, mutagenicity, and teratogenicity
- Infectiousness
- Low biodegradability
- High-level radioactivity.

**WASTE MANAGEMENT PRACTICES**

- Excessively large waste quantities
- Open burning of wastes
- Site abandonment
- Unsafe disposal practices
- Inadequate cover
- Inadequate safety precautions
- Inadequate recordkeeping.

Table 1

**RATING FACTORS AND SCALES FOR EACH OF THE FOUR FACTOR CATEGORIES**

| RATING FACTORS | RATING SCALE LEVELS 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| **WASTE CHARACTERISTICS** | | | | |
| TOXICITY | SAX'S LEVEL 0 OR NFPA'S LEVEL 0 | SAX'S LEVEL 1 OR NFPA'S LEVEL 1 | SAX'S LEVEL 2 OR NFPA'S LEVEL 2 | SAX'S LEVEL 3 OR NFPA'S LEVELS 3 OR 4 |
| RADIOACTIVITY | AT OR BELOW BACK-GROUND LEVELS | 1 TO 3 TIMES BACK-GROUND LEVELS | 3 TO 5 TIMES BACK-GROUND LEVELS | OVER 5 TIMES BACK-GROUND LEVELS |
| PERSISTENCE | EASILY BIODEGRAD-ABLE COMPOUNDS | STRAIGHT CHAIN HYDROCARBONS | SUBSTITUTED AND OTHER RING COM-POUNDS | METALS, POLYCYCLIC COMPOUNDS, AND HALOGENATED HYDROCARBONS |
| IGNITABILITY | FLASH POINT GREATER THAN 200° OR NFPA'S LEVEL 0 | FLASH POINT OF 140°F. to 200°F. OR NFPA'S LEVEL 1 | FLASH POINT OF 80°F. TO 140°F. OR NFPA'S LEVEL 2 | FLASH POINT LESS THAN 80°F. OR NFPA'S LEVELS 3 OR 4 |
| REACTIVITY | NFPA'S LEVEL 0 | NFPA'S LEVEL 1 | NFPA'S LEVEL 2 | NFPA'S LEVELS 3 OR 4 |
| CORROSIVENESS | pH OF 6 TO 9 | pH OF 5 TO 6 OR 9 TO 10 | pH OF 3 TO 5 OR 10 TO 12 | pH OF 1 TO 3 OR 12 TO 14 |
| SOLUBILITY | INSOLUBLE | SLIGHTLY SOLUBLE | SOLUBLE | VERY SOLUBLE |
| VOLATILITY | VAPOR PRESSURE LESS THAN 0.1 mm Hg | VAPOR PRESSURE OF 0.1 TO 25 mm Hg | VAPOR PRESSURE OF 78 TO 25 mm Hg | VAPOR PRESSURE GREATER THAN 78 mm Hg |
| PHYSICAL STATE | SOLID | SLUDGE | LIQUID | GAS |
| **WASTE MANAGEMENT PRACTICES** | | | | |
| SITE SECURITY | SECURE FENCE WITH LOCK | SECURITY GUARD BUT NO FENCE | REMOTE LOCATION OR BREACHABLE FENCE | NO BARRIERS |
| HAZARDOUS WASTE QUANTITY | 0 TO 250 TONS | 251 TO 1,000 TONS | 1,001 TO 2000 TONS | GREATER THAN 2,000 TONS |
| TOTAL WASTE QUANTITY | 0 TO 10 ACRE FEET | 11 TO 100 ACRE FEET | 101 TO 250 ACRE FEET | GREATER THAN 250 ACRE FEET |
| WASTE INCOMPATIBILITY | NO INCOMPATIBLE WASTES ARE PRESENT | PRESENT, BUT DOES NOT POSE A HAZARD | PRESENT AND MAY POSE A FUTURE HAZARD | PRESENT AND POSING AN IMMEDIATE HAZARD |
| USE OF LINERS | CLAY OR OTHER LINER RESISTENT TO ORGANIC COMPOUNDS | SYNTHETIC OR CON CRETE LINER | ASPHALT-BASE LINER | NO LINER USED |
| USE OF LEACHATE COLLECTION SYSTEMS | ADEQUATE COLLEC-TION AND TREATMENT | INADEQUATE COLLEC TION OR TREATMENT | INADEQUATE COLLEC TION AND TREATMENT | NO COLLECTION OR TREATMENT |
| USE OF GAS COLLECTION SYSTEMS | ADEQUATE COLLEC TION AND TREATMENT | COLLECTION AND CONTROLLED FLARING | VENTING OR INADE-QUATE TREATMENT | NO COLLECTION OR TREATMENT |
| USE AND CONDITION OF CONTAINERS | CONTAINERS ARE USED AND APPEAR TO BE IN GOOD CONDITION | CONTAINERS ARE USED BUT A FEW ARE LEAKING | CONTAINERS ARE USED BUT MANY ARE LEAKING | NO CONTAINERS ARE USED |

Table 1. Rating Factors and Scales for Each of the Four Factor Categories (Continued)

| RATING FACTORS | RATING SCALE LEVELS 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| POPULATION WITHIN 1,000 FEET | 0 | 1 TO 25 | 26 TO 100 | GREATER THAN 100 |
| DISTANCE TO NEAREST DRINKING-WATER WELL | GREATER THAN 3 MILES | 1 TO 3 MILES | 3,001 FEET TO 1 MILE | 0 TO 3,000 FEET |
| DISTANCE TO NEAREST OFF-SITE BUILDING | GREATER THAN 2 MILES | 1 TO 2 MILES | 1,001 FEET TO 1 MILE | 0 TO 1,000 FEET |
| LAND USE/ZONING | COMPLETELY REMOTE (ZONING NOT APPLICABLE) | AGRICULTURAL | COMMERCIAL OR INDUSTRIAL | RESIDENTIAL |
| CRITICAL ENVIRONMENTS | NOT A CRITICAL ENVIRONMENT | PRISTINE NATURAL AREAS | WETLANDS, FLOODPLAINS, AND PRESERVED AREAS | MAJOR HABITAT OF AN ENDANGERED OR THREATENED SPECIES |
| **PATHWAYS** | | | | |
| EVIDENCE OF CONTAMINATION | NO CONTAMINATION | INDIRECT EVIDENCE | POSITIVE PROOF FROM DIRECT OBSERVATION | POSITIVE PROOF FROM LABORATORY ANALYSES |
| LEVEL OF CONTAMINATION | NO CONTAMINATION | LOW LEVELS, TRACE LEVELS, OR UNKNOWN LEVELS | MODERATE LEVELS OR LEVELS THAT CANNOT BE SENSED DURING A SITE VISIT BUT WHICH CAN BE CONFIRMED BY A LABORATORY ANALYSIS | HIGH LEVELS OR LEVELS THAT CAN BE SENSED EASILY BY INVESTIGATORS DURING A SITE VISIT |
| TYPE OF CONTAMINATION | NO CONTAMINATION | SOIL CONTAMINATION ONLY | BIOTA CONTAMINATION | AIR, WATER, OR FOODSTUFF CONTAMINATION |
| DISTANCE TO NEAREST SURFACE WATER | GREATER THAN 5 MILES | 1 TO 5 MILES | 1,001 FEET TO 1 MILE | 0 TO 1,000 FEET |
| DEPTH TO GROUNDWATER | GREATER THAN 100 FEET | 51 TO 100 FEET | 21 TO 50 FEET | 0 TO 20 FEET |
| NET PRECIPITATION | LESS THAN -10 INCHES | -10 TO +5 INCHES | +5 TO +20 INCHES | GREATER THAN +20 INCHES |
| SOIL PERMEABILITY | GREATER THAN 50% CLAY | 30% TO 50% CLAY | 15% TO 30% CLAY | 0 TO 15% CLAY |
| BEDROCK PERMEABILITY | IMPERMEABLE | RELATIVELY IMPERMEABLE | RELATIVELY PERMEABLE | VERY PERMEABLE |
| DEPTH TO BEDROCK | GREATER THAN 60 FEET | 31 TO 60 FEET | 11 TO 30 FEET | 0 TO 10 FEET |

While this list is by no means exhaustive, and other examples may be encountered by raters using the methodology, it does include the more commonly occurring situations. Appendix B provides guidance on the number of additional points that should be assigned for these situations.

In order to maintain the objectivity of the rating methodology while allowing the assignment of additional points, the following limits are placed on the number of additional points that may be assigned in each factor category:

- Receptors 50 points
- Pathways 25 points
- Waste characteristics 20 points
- Waste management practices 30 points.

The number of additional points allowed in each factor category is a function of the total available rating factor points and the relative importance of the category.

The actual procedure for assigning additional points is outlined in Chapter 4.

## 2.6 HAZARD POTENTIAL SCORES

The result of a site rating is a set of five hazard potential scores. These scores are:

- Overall score
- Receptors subscore
- Pathways subscore
- Waste characteristics subscore
- Waste management practices subscore.

The overall score is based on all the rating factors and additional points that are used to rate a site. Each subscore is based on those rating factors and additional points in that factor category which are used to rate a site. All of these scores are normalized so that they are on a scale of 0 to 100. The normalization procedure is described in Chapter 4. Associated with every hazard potential score is a percentage of missing and assumed data. These percentages flag scores that are based on large amounts of missing data and, generally, measure the reliability of the scores. Chapter 5 describes how to interpret these scores.

# Appendix I

## SITE ASSESSMENT AND RATING FORMS

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site M-2 Munitions Disposal

Location North of TEL Site

Owner/Operator George AFB

Comments Auto Hobby Shop waste POL & munitions

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 0 | 3 | 0 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 31 | 138 |
| | | SUBSCORE | | 22 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ___ Out of 6
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |
| | | SUBTOTALS | 31 | 195 |
| | | SUBSCORE | | 16 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 60

Reason for Assigned Hazardous Rating:
migration potential due to oil content

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 3 | 7 | 21 | 21 |
| Hazardous Waste Quantity Assume | 1 | 7 | 7 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | 3 | 2 | 6 | 6 |
| Site Closure | 2 | 8 | 16 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |

Number of Assumed Values = 1 Out of 9
Percentage of Assumed Values = 11 %
Number of Missing and Non-Applicable Values = ____ Out of 9
Percentage of Missing and Non-Applicaibe Values = ____ %

SUBTOTALS 86 150
SUBSCORE 57
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 1 Out of 25
Overall Percentage of Assumed Values = 4 %

OVERALL SCORE 38
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site L-1 Base Landfill
Location South of Airbase Road
Owner/Operator George AFB
Comments Major disposal site

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 2 | 15 | 30 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 0 | 3 | 0 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____ %
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____ %

SUBTOTALS 46 138
SUBSCORE 33
(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 1 | 5 | 5 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____ %
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____ %

SUBTOTALS 36 195
SUBSCORE 18
(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 80

Reason for Assigned Hazardous Rating:
long term landfill for all base wastes

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 3 | 7 | 21 | 21 |
| Total Waste Quantity | 3 | 4 | 12 | 12 |
| Waste Incompatibility Assume | 1 | 3 | 3 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | 3 | 2 | 6 | 6 |
| Site Closure | 2 | 8 | 16 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |
| | | SUBTOTALS | 108 | 150 |
| | | SUBSCORE | | 72 |

Number of Assumed Values = 2 Out of 9
Percentage of Assumed Values = 22%
Number of Missing and Non-Applicable Values = ____ Out of 9
Percentage of Missing and Non-Applicalbe Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 2 Out of 25
Overall Percentage of Assumed Values = 4%

* OVERALL SCORE 50

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site L-2 TEL Disposal Site
Location West of landfill L-1
Owner/Operator George AFB
Comments Tank Bottoms

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 0 | 3 | 0 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

SUBTOTALS 31 138
SUBSCORE 22
(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 2 | 5 | 10 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 1 | 4 | 4 | 12 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

SUBTOTALS 37 195
SUBSCORE 19
(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 80

Reason for Assigned Hazardous Rating:
Several tank cleaning episodes - Avgas & JP-4

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 3 | 7 | 21 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | 3 | 2 | 6 | 6 |
| Site Closure | 2 | 8 | 16 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |
| | | SUBTOTALS | 93 | 150 |
| | | SUBSCORE | | 62 |

Number of Assumed Values = 1 Out of 9
Percentage of Assumed Values = 11 %
Number of Missing and Non-Applicable Values = ___ Out of 9
Percentage of Missing and Non-Applicable Values = ___ %

(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 1 Out of 25
Overall Percentage of Assumed Values = 4 %

OVERALL SCORE 45

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site L-3 Radioactive Disposal Site.
Location West of TEL Site
Owner/Operator George AFB
Comments Possible Toxics Disposal

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 0 | 3 | 0 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 31 | 138 |
| | | SUBSCORE | | 22 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 1 | 4 | 4 | 12 |
| | | SUBTOTALS | 27 | 195 |
| | | SUBSCORE | | 14 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 60

Reason for Assigned Hazardous Rating:
No major generators of radioactive wastes

WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 1 | 7 | 7 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | 3 | 2 | 6 | 6 |
| Site Closure | 2 | 8 | 16 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |

Number of Assumed Values = 1 Out of 9 — SUBTOTALS 79 150

Percentage of Assumed Values = 11% — SUBSCORE 53

Number of Missing and Non-Applicable Values = ___ Out of 9 — (Factor Score Divided by Maximum Score and Multiplied by 100)

Percentage of Missing and Non-Applicalbe Values = ___%

Overall Number of Assumed Values = 1 Out of 25

Overall Percentage of Assumed Values = 4%

OVERALL SCORE 36

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site L-11 Street Sweeping Disposal.
Location North of residential area
Owner/Operator George AFB
Comments Possible general base wastes

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 2 | 4 | 8 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| Number of Assumed Values = ___ Out of 6 | | SUBTOTALS | 41 | 138 |
| Percentage of Assumed Values = ___% | | SUBSCORE | | 30 |
| Number of Missing Values = ___ Out of 6 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ___% | | | | |

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 1 | 4 | 4 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |
| Number of Assumed Values = ___ Out of 10 | | SUBTOTALS | 35 | 195 |
| Percentage of Assumed Values = ___% | | SUBSCORE | | 18 |
| Number of Missing Values = ___ Out of 10 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ___% | | | | |

WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

**Points**

| | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 70

Reason for Assigned Hazardous Rating:
possible total base wastes before sweepings

WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 2 | 7 | 14 | 21 |
| Total Waste Quantity | 1 | 4 | 4 | 12 |
| Waste Incompatibility Assume | 1 | 3 | 3 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | 0 | 6 | 0 | 18 |
| Use of Gas Collection Systems | 0 | 2 | 0 | 6 |
| Site Closure | 2 | 8 | 16 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |

Number of Assumed Values = 2 Out of 9 — SUBTOTALS 69 150

Percentage of Assumed Values = 22% — SUBSCORE 46

Number of Missing and Non-Applicable Values = ___ Out of 9 — (Factor Score Divided by Maximum Score and Multiplied by 100)

Percentage of Missing and Non-Applicalbe Values = ___%

Overall Number of Assumed Values = 2 Out of 25

Overall Percentage of Assumed Values = 4%

OVERALL SCORE 40

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site L-12 Original Base Landfill

Location Alert hanger site

Owner/Operator George AFB

Comments General Base Wastes

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 37 | 138 |
| | | SUBSCORE | | 27 |

Number of Assumed Values = ____ Out of 6

Percentage of Assumed Values = ____%

Number of Missing Values = ____ Out of 6

Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |
| | | SUBTOTALS | 23 | 195 |
| | | SUBSCORE | | 12 |

Number of Assumed Values = ____ Out of 10

Percentage of Assumed Values = ____%

Number of Missing Values = ____ Out of 10

Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wasted |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 70

Reason for Assigned Hazardous Rating:
Possibility of waste oils & solvents from entire base

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | | 3 | 7 | 21 | 21 |
| Hazardous Waste Quantity | Assume | 2 | 7 | 14 | 21 |
| Total Waste Quantity | Assume | 2 | 4 | 8 | 12 |
| Waste Incompatibility | Assume | 1 | 3 | 3 | 9 |
| Absence of Liners or Confining Beds | | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | | 3 | 2 | 6 | 6 |
| Site Closure | | 1 | 8 | 8 | 24 |
| Subsurface Flows | | 0 | 7 | 0 | 21 |

Number of Assumed Values = 3 Out of 9
Percentage of Assumed Values = 33%
Number of Missing and Non-Applicable Values = ____ Out of 9
Percentage of Missing and Non-Applicalbe Values = ____%

SUBTOTALS 96 150
SUBSCORE 64
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 3 Out of 25
Overall Percentage of Assumed Values = 12%

OVERALL SCORE 42
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site: L-13 Base Landfill
Location: East of alert hangar
Owner/Operator: George AFB
Comments: Most recent landfill

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 3 | 6 | 18 | 18 |
| Land Use/Zoning | 0 | 3 | 0 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 37 | 138 |
| | | SUBSCORE | | 27 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

SUBSCORE (Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 1 | 4 | 4 | 12 |
| Depth to Groundwater | 2 | 7 | 14 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |
| | | SUBTOTALS | 42 | 195 |
| | | SUBSCORE | | 22 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

SUBSCORE (Factor Score Divided by Maximum Score and Multiplied by 100)

WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 80

Reason for Assigned Hazardous Rating:
All base wastes disposed of - solvents, oils, etc

WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 2 | 7 | 14 | 21 |
| Total Waste Quantity Assume | 2 | 4 | 8 | 12 |
| Waste Incompatibility Assume | 1 | 3 | 3 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | 3 | 2 | 6 | 6 |
| Site Closure | 2 | 8 | 16 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |

Number of Assumed Values = 3 Out of 9
Percentage of Assumed Values = 33%
Number of Missing and Non-Applicable Values = ____ Out of 9
Percentage of Missing and Non-Applicalbe Values = ____%

SUBTOTALS 107 150
SUBSCORE 71
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 3 Out of 25
Overall Percentage of Assumed Values = 12%

* OVERALL SCORE 49

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site: O-2 Point Down Burial
Location: East of Skeet Range
Owner/Operator: George AFB
Comments: Reported by off-base source

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| RECEPTORS | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 3 | 6 | 18 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

SUBTOTALS: 43 / 138
SUBSCORE: 31
(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| PATHWAYS | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

SUBTOTALS: 23 / 195
SUBSCORE: 12
(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

**Points**

| | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 50

Reason for Assigned Hazardous Rating:
Small volume, unverified

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 3 | 7 | 21 | 21 |
| Hazardous Waste Quantity - Assume | 1 | 7 | 7 | 21 |
| Total Waste Quantity - Assume | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | 3 | 2 | 6 | 6 |
| Site Closure | 2 | 8 | 16 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |
| | | SUBTOTALS | 86 | 150 |
| | | SUBSCORE | | 57 |

Number of Assumed Values = 2 Out of 9
Percentage of Assumed Values = 22%
Number of Missing and Non-Applicable Values = ___ Out of 9
Percentage of Missing and Non-Applicalbe Values = ___%

(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 2 Out of 25
Overall Percentage of Assumed Values = 8%

OVERALL SCORE 36

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site B-8 Pesticide and Paint Burial
Location East of Alert Hanger
Owner/Operator George AFB
Comments Unverified Report

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 0 | 4 | 0 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 33 | 138 |
| | | SUBSCORE | | 24 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 1 | 4 | 4 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 1 | 4 | 4 | 12 |
| | | SUBTOTALS | 31 | 195 |
| | | SUBSCORE | | 16 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 50

Reason for Assigned Hazardous Rating:
small volume, unverified

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | | 3 | 7 | 21 | 21 |
| Hazardous Waste Quantity | Assume | 1 | 7 | 7 | 21 |
| Total Waste Quantity | Assume | 0 | 4 | 0 | 12 |
| Waste Incompatibility | Assume | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | | 3 | 2 | 6 | 6 |
| Site Closure | | 2 | 8 | 16 | 24 |
| Subsurface Flows | | 0 | 7 | 0 | 21 |

Number of Assumed Values = 3 Out of 9

Percentage of Assumed Values = 33%

Number of Missing and Non-Applicable Values = ____ Out of 9

Percentage of Missing and Non-Applicalbe Values = ____%

SUBTOTALS 86 150

SUBSCORE 61

(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 3 Out of 25

Overall Percentage of Assumed Values = 12%

OVERALL SCORE 36

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site B-9 Acid & Oil Burial
Location North of NE runway end
Owner/Operator George AFB
Comments Unverified Report

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 0 | 4 | 0 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

SUBTOTALS 33 138
SUBSCORE 24
(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 1 | 4 | 4 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 1 | 4 | 4 | 12 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

SUBTOTALS 31 195
SUBSCORE 16
(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantities of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 50

Reason for Assigned Hazardous Rating:
Small volume, unverified

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | | 3 | 7 | 21 | 21 |
| Hazardous Waste Quantity | Assume | 1 | 7 | 7 | 21 |
| Total Waste Quantity | Assume | 0 | 4 | 0 | 12 |
| Waste Incompatibility | Assume | 2 | 3 | 6 | 9 |
| Absence of Liners or Confining Beds | | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | | 3 | 2 | 6 | 6 |
| Site Closure | | 2 | 8 | 16 | 24 |
| Subsurface Flows | | 0 | 7 | 0 | 21 |

Number of Assumed Values = 3 Out of 9
Percentage of Assumed Values = 33%
Number of Missing and Non-Applicable Values = ____ Out of 9
Percentage of Missing and Non-Applicable Values = ____%

SUBTOTALS 92 150
SUBSCORE 61
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 3 Out of 25
Overall Percentage of Assumed Values = 12%

OVERALL SCORE 37
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site: B-10 Pesticide & Oil Burial
Location: Northeast of NE runway end
Owner/Operator: George AFB
Comments: Unverified Report

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 0 | 4 | 0 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 33 | 138 |
| | | SUBSCORE | | 24 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |
| | | SUBTOTALS | 31 | 195 |
| | | SUBSCORE | | 16 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 50

Reason for Assigned Hazardous Rating:
Small volume, unverified

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 3 | 7 | 21 | 21 |
| Hazardous Waste Quantity . Assume | 1 | 7 | 7 | 21 |
| Total Waste Quantity - Assume | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | | 6 | 18 | 18 |
| Use of Gas Collection Systems | | 2 | 6 | 6 |
| Site Closure | 2 | 8 | 16 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |

Number of Assumed Values = 2 Out of 9 — SUBTOTALS 86 150

Percentage of Assumed Values = 22% — SUBSCORE 57

Number of Missing and Non-Applicable Values = ___ Out of 9 — (Factor Score Divided by Maximum Score and Multiplied by 100)

Percentage of Missing and Non-Applicable Values = ___%

Overall Number of Assumed Values = 2 Out of 25

Overall Percentage of Assumed Values = 8%

OVERALL SCORE 36

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-1 POL Leach Field

Location Bldg 589

Owner/Operator George AFB

Comments

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 3 | 4 | 12 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| Number of Assumed Values = ____ Out of 6 | | SUBTOTALS | 45 | 138 |
| Percentage of Assumed Values = ____% | | SUBSCORE | | 33 |
| Number of Missing Values = ____ Out of 6 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ____% | | | | |

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |
| Number of Assumed Values = ____ Out of 10 | | SUBTOTALS | 23 | 195 |
| Percentage of Assumed Values = ____% | | SUBSCORE | | 12 |
| Number of Missing Values = ____ Out of 10 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ____% | | | | |

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

**Points**

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 50

Reason for Assigned Hazardous Rating:
Small volume waste POL
unverified use

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 1 | 7 | 7 | 21 |
| Total Waste Quantity Assume | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | NA | 6 | – | – |
| Use of Gas Collection Systems | NA | 2 | – | – |
| Site Closure | NA | 8 | – | – |
| Subsurface Flows | NA | 7 | – | – |

Number of Assumed Values = 2 Out of 9
Percentage of Assumed Values = 22%
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing and Non-Applicable Values = 44%

SUBTOTALS 39 81
SUBSCORE 48
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 2 Out of 23
Overall Percentage of Assumed Values = 4%

OVERALL SCORE 34
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-3 POL Leach Field

Location Bldg 552

Owner/Operator George AFB

Comments

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 3 | 4 | 12 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 45 | 138 |
| | | SUBSCORE | | 33 |

Number of Assumed Values = ____ Out of 6

Percentage of Assumed Values = ____%

Number of Missing Values = ____ Out of 6

Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |
| | | SUBTOTALS | 23 | 195 |
| | | SUBSCORE | | 12 |

Number of Assumed Values = ____ Out of 10

Percentage of Assumed Values = ____%

Number of Missing Values = ____ Out of 10

Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

**Points**

| | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 50

Reason for Assigned Hazardous Rating:
Waste POL leach field - also solvents but volume small
unverified use

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity . Assume | 1 | 7 | 7 | 21 |
| Total Waste Quantity Assume | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | NA | 6 | — | — |
| Use of Gas Collection Systems | NA | 2 | — | — |
| Site Closure | NA | 8 | — | — |
| Subsurface Flows | NA | 7 | — | — |

Number of Assumed Values = 2 Out of 9
Percentage of Assumed Values = 22%
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing and Non-Applicalbe Values = 44%

SUBTOTALS 39 81
SUBSCORE 48
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 2 Out of 25
Overall Percentage of Assumed Values = 8%

OVERALL SCORE 34
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-4 Fuel & Oil Disposal
Location Perimeter Road
Owner/Operator George AFB
Comments Reportedly heavy dumping

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 0 | 15 | 0 | 45 |
| Distance to Reservation Boundary | 3 | 6 | 18 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 28 | 138 |
| | | SUBSCORE | | 20 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 1 | 5 | 5 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |
| | | SUBTOTALS | 28 | 195 |
| | | SUBSCORE | | 14 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 80

Reason for Assigned Hazardous Rating:
heavy POL + Fuel dumping at times

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 3 | 7 | 21 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | NA | 6 | — | — |
| Use of Gas Collection Systems | NA | 2 | — | — |
| Site Closure | NA | 8 | — | — |
| Subsurface Flows | NA | 7 | — | — |

Number of Assumed Values = 1 Out of 9
Percentage of Assumed Values = 11 %
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing and Non-Applicalbe Values = 44

SUBTOTALS 53 91
SUBSCORE 65
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 1 Out of 25
Overall Percentage of Assumed Values = 4 %

OVERALL SCORE 44
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-5 Fire Training Area
Location North of runways
Owner/Operator George AFB
Comments

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 3 | 6 | 18 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 43 | 138 |
| | | SUBSCORE | | 31 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 2 | 5 | 10 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 1 | 4 | 4 | 12 |
| | | SUBTOTALS | 37 | 195 |
| | | SUBSCORE | | 19 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 80

Reason for Assigned Hazardous Rating:
Waste POL Disposal & burning - large quantities

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity . Assume | 3 | 7 | 21 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | NA | 6 | — | — |
| Use of Gas Collection Systems | NA | 2 | — | — |
| Site Closure | NA | 8 | — | — |
| Subsurface Flows | NA | 7 | — | — |

Number of Assumed Values = 1 Out of 9
Percentage of Assumed Values = 11%
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing and Non-Applicalbe Values = 44%

SUBTOTALS 53 81
SUBSCORE 65
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 1 Out of 25
Overall Percentage of Assumed Values = 4%

OVERALL SCORE 47
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-6 Abandoned Fire Training Area

Location South of WWTP Ponds

Owner/Operator George AFB

Comments

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 37 | 138 |
| | | SUBSCORE | | 27 |

Number of Assumed Values = ____ Out of 6

Percentage of Assumed Values = ____ %

Number of Missing Values = ____ Out of 6

Percentage of Missing Values = ____ %

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 2 | 5 | 10 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |
| | | SUBTOTALS | 41 | 195 |
| | | SUBSCORE | | 21 |

Number of Assumed Values = ____ Out of 10

Percentage of Assumed Values = ____ %

Number of Missing Values = ____ Out of 10

Percentage of Missing Values = ____ %

(Factor Score Divided by Maximum Score and Multiplied by 100)

WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

Points

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 80

Reason for Assigned Hazardous Rating:
long term waste oil disposal & ~~burning~~ burning
possible other spills in storage yard

WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity - Assume | 3 | 7 | 21 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility Assume | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | N/A | 6 | — | — |
| Use of Gas Collection Systems | N/A | 2 | — | — |
| Site Closure | N/A | 8 | — | — |
| Subsurface Flows | N/A | 7 | — | — |

Number of Assumed Values = 2 Out of 9
Percentage of Assumed Values = 22%
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing And Non-Applicalbe Values = 44%

SUBTOTALS 53 81
SUBSCORE 65
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 2 Out of 25
Overall Percentage of Assumed Values = 8%

OVERALL SCORE 47
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-7 Tip Tank Drainage Area
Location South of Bldg 685
Owner/Operator George AFB
Comments JP-4 Primarily

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| RECEPTORS | | | | |
| Population Within 1,000 Feet | 3 | 4 | 12 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ___ Out of 6
Percentage of Missing Values = ____%

SUBTOTALS 45 138
SUBSCORE 33
(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| PATHWAYS | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 2 | 5 | 10 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

SUBTOTALS 33 195
SUBSCORE 17
(Factor Score Divided by Maximum Score and Multiplied by 100)

WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 80

Reason for Assigned Hazardous Rating:
Possibly large volume of JP-4 ~~...~~ drainage

WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 2 | 7 | 14 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | NA | 6 | – | – |
| Use of Gas Collection Systems | NA | 2 | – | – |
| Site Closure | NA | 8 | – | – |
| Subsurface Flows | NA | 7 | – | – |

Number of Assumed Values = 1 Out of 9
Percentage of Assumed Values = 11%
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing and Non-Applicalbe Values = 44%

SUBTOTALS 46 81
SUBSCORE 57
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 1 Out of 25
Overall Percentage of Assumed Values = 4%

OVERALL SCORE 45
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-12 Golf Course

Location East of Base

Owner/Operator George AFB

Comments WWTP Effluent Irrigation

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 3 | 4 | 12 | 12 |
| Distance to Nearest Drinking Water Well | 3 | 15 | 45 | 45 |
| Distance to Reservation Boundary | 3 | 6 | 18 | 18 |
| Land Use/Zoning | 3 | 3 | 9 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| Number of Assumed Values = ____ Out of 6 | | SUBTOTALS | 84 | 138 |
| Percentage of Assumed Values = ____% | | SUBSCORE | | 61 |
| Number of Missing Values = ____ Out of 6 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ____% | | | | |

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 2 | 4 | 8 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |
| Number of Assumed Values = ____ Out of 10 | | SUBTOTALS | 31 | 195 |
| Percentage of Assumed Values = ____% | | SUBSCORE | | 16 |
| Number of Missing Values = ____ Out of 10 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ____% | | | | |

WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

**Points**

| | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 50

Reason for Assigned Hazardous Rating:
Solvents, Oils, Chemicals discharged to sanitary sewer

WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 2 | 7 | 14 | 21 |
| Total Waste Quantity | 1 | 4 | 4 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | NA | 6 | – | – |
| Use of Gas Collection Systems | NA | 2 | – | – |
| Site Closure | NA | 8 | – | – |
| Subsurface Flows | NA | 7 | – | – |

Number of Assumed Values = 1 Out of 9
Percentage of Assumed Values = 11%
Number of Missing and Non-Applicable Values = 4 out of 9
Percentage of Missing and Non-Applicaibe Values = 44%

SUBTOTALS 50 91
SUBSCORE 62
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 1 Out of 25
Overall Percentage of Assumed Values = 4%

OVERALL SCORE 45
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-20 Industrial Outfall & Pipeline
Location Northeast of Base
Owner/Operator George AFB
Comments Perforated Pipe Sections, Gulley Discharge

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 3 | 4 | 12 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 3 | 6 | 18 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 51 | 138 |
| | | SUBSCORE | | 37 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

SUBSCORE (Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 2 | 5 | 10 | 15 |
| Distance to Nearest Surface Water | 3 | 4 | 12 | 12 |
| Depth to Groundwater | 3 | 7 | 21 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |
| | | SUBTOTALS | 67 | 195 |
| | | SUBSCORE | | 34 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

SUBSCORE (Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

**Points**

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 100

Reason for Assigned Hazardous Rating:
Solvents, oils, fuels dumped into storm drainage often

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 3 | 7 | 21 | 21 |
| Total Waste Quantity | 1 | 4 | 4 | 12 |
| Waste Incompatibility Assume | 1 | 3 | 3 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | NA | 6 | – | – |
| Use of Gas Collection Systems | N/A | 2 | – | – |
| Site Closure | NA | 8 | – | – |
| Subsurface Flows | N/A | 7 | – | – |

Number of Assumed Values = 2 Out of 9
Percentage of Assumed Values = 22%
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing and Non-Applicable Values = 44%

SUBTOTALS 60 81
SUBSCORE 74
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 2 Out of 25
Overall Percentage of Assumed Values = 8%

OVERALL SCORE 60
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-21 WWTP Percolation Ponds

Location South of Alert Hangar

Owner/Operator George AFB

Comments

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |

Number of Assumed Values = ____ Out of 6

Percentage of Assumed Values = ____%

Number of Missing Values = ____ Out of 6

Percentage of Missing Values = ____%

SUBTOTALS 37 138

SUBSCORE 27

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 2 | 10 | 20 | 30 |
| Level of Water Contamination | 1 | 15 | 15 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |

Number of Assumed Values = ____ Out of 10

Percentage of Assumed Values = ____%

Number of Missing Values = ____ Out of 10

Percentage of Missing Values = ____%

SUBTOTALS 58 195

SUBSCORE 30

(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 60

Reason for Assigned Hazardous Rating:
Miscellaneous solvents, other chemicals discharged to sanitary sewer

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 3 | 7 | 21 | 21 |
| Total Waste Quantity | 1 | 4 | 4 | 12 |
| Waste Incompatibility Assume | 1 | 3 | 3 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | NA | 6 | – | – |
| Use of Gas Collection Systems | NA | 2 | – | – |
| Site Closure | NA | 8 | – | – |
| Subsurface Flows | NA | 7 | – | – |

Number of Assumed Values = 2 Out of 9
Percentage of Assumed Values = 22%
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing and Non-Applicalbe Values = 44%

SUBTOTALS 60 81
SUBSCORE 74
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 2 Out of 25
Overall Percentage of Assumed Values = 8%

OVERALL SCORE 47
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-22 French Drain

Location Near Bldg 555

Owner/Operator George AFB

Comments Waste POL - still active

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 3 | 4 | 12 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 45 | 138 |
| | | SUBSCORE | | 33 |

Number of Assumed Values = ____ Out of 6

Percentage of Assumed Values = ____%

Number of Missing Values = ____ Out of 6

Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 1 | 5 | 5 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |
| | | SUBTOTALS | 28 | 195 |
| | | SUBSCORE | | 14 |

Number of Assumed Values = ____ Out of 10

Percentage of Assumed Values = ____%

Number of Missing Values = ____ Out of 10

Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 80

Reason for Assigned Hazardous Rating:
Primarily Waste POL, Solvents

WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 1 | 7 | 7 | 21 |
| Hazardous Waste Quantity Assume | 2 | 7 | 14 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | N/A | 6 | – | – |
| Use of Gas Collection Systems | N/A | 2 | – | – |
| Site Closure | N/A | 8 | – | – |
| Subsurface Flows | N/A | 7 | – | – |

Number of Assumed Values = 1 Out of 9
Percentage of Assumed Values = 11%
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing and Non-Applicable Values = 44%

SUBTOTALS 39 81
SUBSCORE 48
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 1 Out of 25
Overall Percentage of Assumed Values = 4%

OVERALL SCORE 42

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-23 French Drain
Location Bldg 559
Owner/Operator George AFB
Comments Jet Fuel, Waste POL

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 3 | 4 | 12 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| Number of Assumed Values = ____ Out of 6 | | SUBTOTALS | 45 | 138 |
| Percentage of Assumed Values = ____ % | | SUBSCORE | | 33 |
| Number of Missing Values = ____ Out of 6 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ____ % | | | | |
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 1 | 5 | 5 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 0 | 4 | 0 | 12 |
| Number of Assumed Values = ____ Out of 10 | | SUBTOTALS | 28 | 195 |
| Percentage of Assumed Values = ____ % | | SUBSCORE | | 14 |
| Number of Missing Values = ____ Out of 10 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ____ % | | | | |

WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

**Points**

| | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 70

Reason for Assigned Hazardous Rating:
Primarily JP-4, some waste POL

WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 1 | 7 | 7 | 21 |
| Hazardous Waste Quantity . Assume | 2 | 7 | 14 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 0 | 3 | 0 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | NA | 6 | – | – |
| Use of Gas Collection Systems | NA | 2 | – | – |
| Site Closure | NA | 8 | – | – |
| Subsurface Flows | NA | 7 | – | – |

Number of Assumed Values = 1 Out of 9
Percentage of Assumed Values = 11 %
Number of Missing and Non-Applicable Values = 4 Out of 9
Percentage of Missing and Non-Applicalbe Values = 44 %

SUBTOTALS 39 81
SUBSCORE 48
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 1 Out of 25
Overall Percentage of Assumed Values = 4 %

OVERALL SCORE 40
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site S-25 Sludge Drying Beds

Location Adjacent to WWTP

Owner/Operator George AFB

Comments Some industrial discharge to sanitary system

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 1 | 4 | 4 | 12 |
| Distance to Nearest Drinking Water Well | 1 | 15 | 15 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 2 | 3 | 6 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 37 | 138 |
| | | SUBSCORE | | 27 |

Number of Assumed Values = ____ Out of 6

Percentage of Assumed Values = ____%

Number of Missing Values = ___Out of 6

Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |
| | | SUBTOTALS | 31 | 195 |
| | | SUBSCORE | | 16 |

Number of Assumed Values = ____ Out of 10

Percentage of Assumed Values = ____%

Number of Missing Values = ____ Out of 10

Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

## WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 60

Reason for Assigned Hazardous Rating:
Solvents, oils discharged to sanitary sewer

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 0 | 7 | 21 | 21 |
| Hazardous Waste Quantity . Assume | 1 | 7 | 7 | 21 |
| Total Waste Quantity . Assume | 3 | 4 | 12 | 12 |
| Waste Incompatibility | 1 | 3 | 3 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | 3 | 2 | 6 | 6 |
| Site Closure | 3 | 8 | 24 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |

Number of Assumed Values = 2 Out of 9
Percentage of Assumed Values = 22
Number of Missing and Non-Applicable Values = ____ Out of 9
Percentage of Missing and Non-Applicable Values = ____%

SUBTOTALS 109 150
SUBSCORE 73
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 2 Out of 25
Overall Percentage of Assumed Values = 4%

OVERALL SCORE 43

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site C-1 Landfill
Location Cuddeback Range
Owner/Operator George AFB
Comments General Wastes, Munitions

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **RECEPTORS** | | | | |
| Population Within 1,000 Feet | 2 | 4 | 8 | 12 |
| Distance to Nearest Drinking Water Well | 2 | 15 | 30 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 0 | 3 | 0 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| Number of Assumed Values = ___ Out of 6 | | SUBTOTALS | 50 | 138 |
| Percentage of Assumed Values = ___% | | SUBSCORE | | 36 |
| Number of Missing Values = ___ Out of 6 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ___% | | | | |

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| **PATHWAYS** | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |
| Number of Assumed Values = ___ Out of 10 | | SUBTOTALS | 31 | 195 |
| Percentage of Assumed Values = ___% | | SUBSCORE | | 16 |
| Number of Missing Values = ___ Out of 10 | | (Factor Score Divided by Maximum Score and Multiplied by 100) | | |
| Percentage of Missing Values = ___% | | | | |

## WASTE CHARACTERISTICS

**Hazardous Rating:** Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 60

Reason for Assigned Hazardous Rating:
EOD disposal & waste POL from vehicle maintenance

## WASTE MANAGEMENT PRACTICES

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity Assume | 3 | 7 | 21 | 21 |
| Total Waste Quantity | 0 | 4 | 0 | 12 |
| Waste Incompatibility | 1 | 3 | 3 | 9 |
| Absence of Liners or Confining Beds | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | 3 | 2 | 6 | 6 |
| Site Closure | 2 | 8 | 16 | 24 |
| Subsurface Flows | 0 | 7 | 0 | 21 |

Number of Assumed Values = 1 Out of 9 — SUBTOTALS 96 150

Percentage of Assumed Values = 11 % — SUBSCORE 64

Number of Missing and Non-Applicable Values = ____ Out of 9 — (Factor Score Divided by Maximum Score and Multiplied by 100)

Percentage of Missing and Non-Applicalbe Values = ____ %

Overall Number of Assumed Values = 1 Out of 25

Overall Percentage of Assumed Values = 4 %

OVERALL SCORE 42

(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

WASTE DISPOSAL SITE AND SPILL AREA ASSESSMENT AND RATING FORM

Name of Site C-6 Miscellaneous Burial
Location Cuddeback Range
Owner/Operator George AFB
Comments Potential general wastes, munitions

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| RECEPTORS | | | | |
| Population Within 1,000 Feet | 2 | 4 | 8 | 12 |
| Distance to Nearest Drinking Water Well | 2 | 15 | 30 | 45 |
| Distance to Reservation Boundary | 2 | 6 | 12 | 18 |
| Land Use/Zoning | 0 | 3 | 0 | 9 |
| Critical Environments | 0 | 12 | 0 | 36 |
| Water Quality of Nearby Surface Water Body | 0 | 6 | 0 | 18 |
| | | SUBTOTALS | 50 | 138 |
| | | SUBSCORE | | 36 |

Number of Assumed Values = ____ Out of 6
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 6
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

| RATING FACTOR | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|
| PATHWAYS | | | | |
| Evidence of Water Contamination | 0 | 10 | 0 | 30 |
| Level of Water Contamination | 0 | 15 | 0 | 45 |
| Type of Contamination, Soil/Biota | 0 | 5 | 0 | 15 |
| Distance to Nearest Surface Water | 0 | 4 | 0 | 12 |
| Depth to Groundwater | 1 | 7 | 7 | 21 |
| Net Precipitation | 0 | 6 | 0 | 18 |
| Soil Permeability | 2 | 6 | 12 | 18 |
| Bedrock Permeability | 1 | 4 | 4 | 12 |
| Depth to Bedrock | 0 | 4 | 0 | 12 |
| Surface Erosion | 2 | 4 | 8 | 12 |
| | | SUBTOTALS | 31 | 195 |
| | | SUBSCORE | | 16 |

Number of Assumed Values = ____ Out of 10
Percentage of Assumed Values = ____%
Number of Missing Values = ____ Out of 10
Percentage of Missing Values = ____%

(Factor Score Divided by Maximum Score and Multiplied by 100)

WASTE CHARACTERISTICS

Hazardous Rating: Judgemental rating from 30 to 100 points based on the following guidelines:

| Points | |
|---|---|
| 30 | Closed domestic-type landfill, old site, no known hazardous wastes |
| 40 | Closed domestic-type landfill, recent site, no known hazardous wastes |
| 50 | Suspected small quantities of hazardous wastes |
| 60 | Known small quantities of hazardous wastes |
| 70 | Suspected moderate quantities of hazardous wastes |
| 80 | Known moderate quantites of hazardous wastes |
| 90 | Suspected large quantities of hazardous wastes |
| 100 | Known large quantities of hazardous wastes |

SUBSCORE 60

Reason for Assigned Hazardous Rating:
EOD + Waste POL

WASTE MANAGEMENT PRACTICES

| RATING FACTOR | | FACTOR RATING (0-3) | MULTIPLIER | FACTOR SCORE | MAXIMUM POSSIBLE SCORE |
|---|---|---|---|---|---|
| Record Accuracy and Ease of Access to Site | | 2 | 7 | 14 | 21 |
| Hazardous Waste Quantity | Assume | 2 | 7 | 14 | 21 |
| Total Waste Quantity | | 0 | 4 | 0 | 12 |
| Waste Incompatibility | | 1 | 3 | 3 | 9 |
| Absence of Liners or Confining Beds | | 3 | 6 | 18 | 18 |
| Use of Leachate Collection System | | 3 | 6 | 18 | 18 |
| Use of Gas Collection Systems | | 3 | 2 | 6 | 6 |
| Site Closure | | 2 | 8 | 16 | 24 |
| Subsurface Flows | | 0 | 7 | 0 | 21 |

Number of Assumed Values = 1 Out of 9
Percentage of Assumed Values = 11%
Number of Missing and Non-Applicable Values = ___ Out of 9
Percentage of Missing and Non-Applicalbe Values = ___%

SUBTOTALS 89 150
SUBSCORE 59
(Factor Score Divided by Maximum Score and Multiplied by 100)

Overall Number of Assumed Values = 1 Out of 25
Overall Percentage of Assumed Values = 4%

OVERALL SCORE 41
(Receptors Subscore X 0.22 plus
Pathways Subscore X 0.30 plus
Waste Characteristics Subscore X 0.24 plus
Waste Management Subscore X 0.24)

# Appendix J

## REGIONAL FLORA AND FAUNA

**Table J-1**
**REPRESENTATIVE VEGETATION IN THE VICINITY OF GEORGE AFB**

| Common Name | Scientific Name |
|---|---|
| **Creosote Bush Scrub and Other Xerophitic Species** | |
| Creosote bush | Larrea divaricata |
| Burroweed | Franseria dumosa |
| Goldenhead | Acamptopappus sphaerocephalus |
| Box thorn | Lycium spp. |
| Cheese bush | Hymenoclea salsola |
| Galleta grass | Hilaria rigida |
| Krameria | Krameria parvifolia |
| Mojave yucca | Yucca mojavensis |
| Rice grass | Oryzopsis hymenoides |
| Pincushion flower | Chaenactis xantiana |
| Winged fruit popcorn flower | Cryptantha pterocarpa |
| Mentzelia | Mentzelia veatchiana |
| Cotton thorn | Tetradymia spp. |
| Mojave sage | Salvia mojavensis |
| Buckwheat | Eriogonum spp. |
| Desert allysum | Lepidium fremontii |
| Saltbush | Atriplex parryi |
| Hoary saltbush | Atriplex canescens |
| Mormon tea | Ephedra nevadensis |
| Joshua tree | Yucca brevifolia |
| Barrel cactus | Echinocactus acanthodes |
| Beavertail cactus | Opuntia basilaris |
| Pencil cactus | Opuntia ramosissima |
| Jumping cholla | Opuntia bigelovii |
| Tumbleweed (introduced) | Amaranthus albus |
| Jimsonweed | Datura meteloides |
| **Riparian Species** | |
| Fremont cottonwood | Populus fremontii |
| Western sycamore | Platanus racemosa |
| Willows | Salix spp. |
| Tamarix | Tamarix pentandra |
| **Freshwater Marsh Species** | |
| Cattails | Typha spp. |
| Sedges | Carex spp. |
| Rushes | Juncus spp. |
| **Ornamental Species** | |
| Silk tree | Albizia julibrissin |
| Ash | Fraxinus velutina |
| Arizona sweet gum | Liquidambar styraciflua |
| Fruitless mulberry | Morus alba |

| Common Name | Scientific Name |
|---|---|
| London plane tree | *Platanus acerifolia* |
| Western sycamore | *Platanus racemosa* |
| White poplar | *Populus alba* |
| Black locust | *Robinia pseudoacacia* |
| Siberian elm | *Ulmus pumila* |
| Desert gum | *Eucalyptus rudis* |
| Privet | *Ligustrum* spp. |
| Persian lilac | *Syringa persica* |
| | *Viburnum burkwoodii* |
| | *Viburnum carlesii* |
| | *Viburnum opulus roseum* |
| Euonymus | *Euonymus japonica* |
| Japanese privet | *Ligustrum japonicum* |
| Heavenly bamboo | *Nandina domestica* |
| Oleander | *Nerium oleander* |
| Firethorn | *Pyracantha* spp. |
| Cypress | *Cupressus* spp. |
| Juniper | *Juniperus* spp. |
| Aleppo pine | *Pinus halepensis* |
| Chinese arborvitae | *Thuja orientalis* |
| California fan palm | *Washingtonia filifera* |
| English ivy | *Hedera helix* |
| Japanese honeysuckle | *Lonicera japonica* |
| Pampas grass | *Cortaderia selloana* |
| Ice plant | *Mesembryanthemum* spp. |
| Periwinkle | *Vinca minor* |

**Table J-2**
**WILDLIFE OCCURRING IN THE VICINITY OF GEORGE AFB**

| Common Name | Scientific Name | Desert | Riparian |
|---|---|---|---|
| **Amphibians** | | | |
| Western Toad | Bufo boreas | X | X |
| Red-spotted Toad | Bufo punctatus | X | |
| California Treefrog | Hyla californiae | | X |
| Pacific Treefrog | Hyla regilla | | X |
| Bullfrog | Rana catesbeiana | | X |
| **Reptiles** | | | |
| Desert Tortoise | Gopherus agassizi | X | |
| Banded Gecko | Coleonyx variegatus | X | |
| Collared Lizard | Crotaphytus collaris | X | |
| Zebra-tailed Lizard | Callisaurus draconoides | X | |
| Desert Spiny Lizard | Sceloporus magister | X | |
| Western Fence Lizard | Sceloporus occidentalis | X | |
| Side-blotched Lizard | Uta stansburiana | X | |
| Long-tailed Brush Lizard | Urosaurus graciosus | X | |
| Coast Horned Lizard | Phrynosoma coronatus | X | |
| Desert Horned Lizard | Phrynosoma platyrhinos | X | |
| Desert Night Lizard | Xantusia vigilis | X | |
| Western Whiptail | Cnemidophorus tigris | X | |
| Coachwhip Snake | Masticophis flagellum | X | |
| Striped Racer | Masticophis lateralis | X | |
| Western Patchnosed Snake | Salvadora hexalepis | X | |
| Glossy Snake | Arizona elegans | X | |
| Gopher Snake | Pituophis melanoleucus | X | |
| Common Kingsnake | Lampropeltis getulus | X | |
| California Lyre Snake | Trimorphodon vandenburghi | X | |
| Western Gartersnake | Thamnophis couchi | | X |
| Western Rattlesnake | Crotalus viridis | X | |
| Mojave Rattlesnake | Crotalus scutulatus | X | |
| Speckled Rattlesnake | Crotalus mitchelli | | X |
| **Birds** | | | |
| Turkey Vulture | Cathartes aura | X | |
| Red-tailed Hawk | Buteo jamaicensis | X | X |
| Red-shouldered Hawk | Buteo lineatus | | X |
| Golden Eagle | Aquila chrysaetos | X | |
| Prairie Falcon | Falco mexicanus | X | |
| Sparrow Hawk | Falco sparverius | X | X |
| Gambel's Quail | Lophortyx gambeli | X | |
| Mourning Dove | Zenaidura macroura | X | |
| Roadrunner | Geococcyx californianus | X | |
| Barn Owl | Tyto alba | | X |
| Long-eared Owl | Asio otus | | X |
| Screech Owl | Otus asio | X | X |

| Common Name | Scientific Name | Desert | Riparian |
|---|---|---|---|
| Great Horned Owl | Bubo virginianus | X | |
| Burrowing Owl | Speotyto cunicularia | X | |
| Poor-will | Phalaenoptilus nuttallii | X | |
| Lesser Nighthawk | Cordeiles acutipennis | X | |
| White-throated Swift | Aeronautes saxatilis | X | |
| Costa's Hummingbird | Calypte costae | X | |
| Anna's Hummingbird | Calypte anna | | X |
| Ladderback Woodpecker | Dendrocopos scalaris | X | X |
| Red-shafted Flicker | Colaptes cafer | | X |
| Western Kingbird | Tyrannus verticalis | X | X |
| Ash-throated Flycatcher | Myarchus cinerascens | X | X |
| Black Phoebe | Sayornis nigricans | X | |
| Say's Phoebe | Sayornis saya | X | |
| Western Flycatcher | Empidonax difficilis | X | X |
| Vermilion Flycatcher | Pyrocephalus rubinus | X | |
| Horned Lark | Eremophila alpestris | X | |
| Cliff Swallow | Petrochelidon pyrrhonota | X | |
| Scrub Jay | Aphelocoma coerulescens | X | X |
| Common Raven | Corvus corax | X | |
| Pinyon Jay | Cymnorhinus cyanocephalus | X | |
| Plain Titmouse | Parus inornatus | | X |
| Verdin | Auriparus falviceps | X | |
| Common Bushtit | Psaltriparus minimus | | X |
| Bewick's Wren | Thryomanes bewickii | | X |
| Cactus Wren | Campylorihinchus brunneicapillum | X | |
| Long-billed Marsh Wren | Telmatodytes palustris | | X |
| Rock Wren | Salpinctes obsoletus | X | |
| Mockingbird | Mimus polyglottos | X | X |
| California Thrasher | Toxostoma redivivum | X | X |
| Robin | Turdus migratorius | | X |
| Western Bluebird | Sialia mexicana | | X |
| Blue-gray Gnat-catcher | Polioptila caerulea | X | X |
| Phainopepla | Phainopepla nitens | X | |
| Logger Shrike | Lanius ludovicianus | X | |
| Gray Vireo | Vireo vicinior | | X |
| Yellow Warbler | Dendroica petechia | | X |
| Yellowthroat | Geothlipis trichas | | X |
| Western Meadowlark | Sturnella neglecta | X | |
| Red-winged Blackbird | Agelaius phoeniceus | | X |
| Brewer's Blackbird | Euphagus cyanocephalus | X | |
| Cowbird | Molothrus ater | X | X |
| Hooded Oriole | Icterus cucullatus | X | X |
| Western Tanager | Piranga ludoviciana | | X |
| Summer Tanager | Piranga rubra | | X |
| House Sparrow | Passer domesticus | X | X |
| Black-headed Grosbeak | Pheucticus melanocaphalus | | X |
| Lazuli Bunting | Passerina amoena | | X |

| Common Name | Scientific Name | Desert | Riparian |
|---|---|---|---|
| House Finch | Carpodacus mexicanus | X | X |
| American Goldfinch | Spinus tristis | | X |
| Lesser Goldfinch | Spinus psaltria | X | X |
| Lawrence's Goldfinch | Spinus lawrencei | X | |
| Rufous-sided Towhee | Pipilo erythrophthalmus | X | |
| Brown Towhee | Pipilo fuscus | X | X |
| Song Sparrow | Melospiza melodia | | X |
| Black-throated Sparrow | Amphispiza bilineata | X | |
| **Mammals** | | | |
| California Leaf-nosed Bat | Macrotus californicus | X | |
| Fringed Myotis | Myotis thysanodes | X | |
| Hairy-winged Myotis | Myotis volans | X | |
| California Myotis | Myotis californicus | X | |
| Western Pipistrel | Pipistrillus hesperus | X | |
| Big Brown Bat | Epistesicus fuscus | X | |
| Pallid Bat | Antrozous pallidus | X | |
| Audubon Cottontail | Sylvilagus auduboni | X | |
| Black-tailed Jack Rabbit | Lepus californicus | X | |
| Antelope Ground Squirrel | Ammospermophilus leucurus | X | |
| Beechey Ground Squirrel | Ammospermophilus beecheyi | X | |
| Round-tailed Ground Squirrel | Citellus tereticaudus | X | |
| Mohave Ground Squirrel | Citellus mohavensis | X | |
| Botta Pocket Gopher | Thomomys bottae | X | |
| Little Pocket Mouse | Perognathus longimembris | X | |
| Long-tailed Pocket Mouse | Perognathus formosus | X | |
| San Diego Pocket Mouse | Perognathus fallax | X | |
| Spiny Pocket Mouse | Perognathus spinatus | X | |
| Merriam Kangaroo Rat | Dipodomys merriami | X | |
| Desert Kangaroo Rat | Dipodomys deserti | X | |
| Western Harvest Mouse | Reithrodontomys megalotis | X | |
| Canyon Mouse | Peromyscus crinitus | X | |
| Cactus Mouse | Peromyscus eremicus | X | |
| Deer Mouse | Peromyscus maniculatus | X | |
| Southern Grasshopper Mouse | Onychomys torridus | X | |
| Desert Woodrat | Neotoma lepida | X | |
| California Vole | Microtus californicus | | X |
| Coyote | Canis latrans | X | |
| Kit Fox | Vulpes macrotus | X | |
| Raccoon | Procyon lotor | | X |
| Bobcat | Lynx rufus | X | |
| Mule Deer | Odocoileus hemionus | X | |

Table J-3
DESIGNATED AND CANDIDATE SENSITIVE, RARE, THREATENED OR ENDANGERED, ANIMALS AND PLANTS: MOJAVE DESERT, SAN BERNARDINO COUNTY
(VARIOUS SOURCES)

| Common Name | Scientific Name | Status[a] State | Status[a] Federal | Status[a] BLM | Habitat |
|---|---|---|---|---|---|
| Mojave chub | Gila mohavensis | | E | | Soda Lake |
| Mojave ground squirrel | Citellus mohavensis | R | | | Low desert with scattered brush |
| Desert tortoise | Gopherus agassizi | | | S | Various desert habitats |
| Summer tanager | Piranga rubra | | | S | Riparian |
| Weasel phacelia | Phacelia mustelina | | C | | 3,000' to 6,000', creosote bush shrub mountains or Death Valley area |
| Live-for-ever | Dudleya saxosa ssp saxosa* | | C | | Creosote bush shrub to pinyon juniper woodland; dry stony slopes 3,000' to 7,000' |
| Goldstone locoweed | Astragalus jaegerianus | | C | | Low granite hills 3,000' to 3,800'; Joshua tree woodland |
| | Eriophyllum mohavense | | C | | (Boni to Barstow) 2,000' to 3,000'; sandy rocky places; creosote bush scrub |
| Mojave spiny herb | Chorizanthe spinosa | | C | | 2,500' to 3,500' and Joshua tree creosote bush scrub; dry, sandy places |
| Barrel cactus | Sclerocactus polyancistrus | | C | | 2,000' to 6,000', occasional gravelly mesas and slopes, Joshua tree, creosote bush scrub |

[a]E = Endangered
T = Threatened
R = Rare
C = Candidate
S = Sensitive

**Table J-4**
**ALKALI SINK COMMUNITY REPRESENTATIVE PLANT SPECIES**

| Common Names | Scientific Names |
|---|---|
| Cattle spinach | Atriplex polycarpa |
| Quailbrush | A lentiformis |
| Brewer's saltbush | A Breweri |
| Mojave saltbush | A spinifera |
| Parry saltbush | A Parri |
| Greasewood | Sarcobatus vermiculatus |
| Pickleweed | Allenrolfea occidentalis |
| Inkweed | Suaeda torreyana var. ramosissima |

# Appendix K

# HERBICIDE AND OTHER PESTICIDE USAGE

**Table K-1**
**REPORTED HERBICIDES AND OTHER PESTICIDES USED ON GEORGE AIR FORCE BASE**

| Chemical | Usage |
|---|---|
| **Current** | |
| Simazine | Soil Sterilant; 22ac around base |
| Disodium Methanearsonate | Herbicide; - 35 ac around base |
| 2, 4-D | Herbicide; 6 ac in housing and base lawns |
| Dacthal | Herbicide; 35 ac around base |
| Monuron | Herbicide; 28 ac, taxiways |
| Prometone | Herbicide; taxiways |
| Diphacinone | Rodenticide Anticaogulent; golf course |
| Strychnine Alkaloid | Rodenticide; golf course |
| Warfarin | Rodenticide Anticoagulent; base buildings |
| p-Dichlorabenzene | Pesticide; base buildings and housing attics |
| 4-Aminopyridine | Pesticide; bait for pigeons in aircraft hangars |
| Diazinon | Insecticide; inside base building and housing units |
| Bagon | Insecticide; base buildings |
| Malathion | Insecticide; outside base housing |
| Phenoxy Benzyl | Insecticide, base building and housing |
| Carbaryl | Insecticide; trees on base |
| **Past** | |
| Chloradine (2%)/DDT (5%) | Insecticide used until 1962; usage locations unknown |

Appendix L

SPECIFICATION PD-680

09-13-17

**P-D-680**
**AMENDMENT—2**
**June 5, 1964**

**SUPERSEDING**
**Amendment—1**
**August 27, 1963**

## FEDERAL SPECIFICATION

# DRY CLEANING SOLVENT

***This amendment, which forms a part of Federal Specification P-D-680, dated March 27, 1963, was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.***

**Page 2, table I: Delete "Color, Saybolt, not greater than" and substitute "Color, Saybolt, not darker than".**

**Page 2, table I, Under distillation range: Delete "50% distilled by vol., min." and substitute "Minimum 50 percent distilled, °F.".**

**MILITARY INTERESTS:**

**Army—MU MR GL**

**Navy—Sh**

**Air Force—MAAMA**

☆ U. S. GOVERNMENT PRINTING OFFICE: 1964-341-510/A-8835

**FSC 6850**

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09-13-17

P-D-680
AMENDMENT—1
August 27, 1963

FEDERAL SPECIFICATION

# DRY CLEANING SOLVENT

*This amendment, which forms a part of Federal Specification, P-D-680, dated March 27, 1963, was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.*

Page 2, Table I: Delete "Color, Saybolt, not greater than" and substitute "Color, Saybolt, not darker than".

MILITARY INTERESTS:
Army—MU MR GL
Navy—Sh
Air Force—MAAMA

FSC 6850

☆ U.S. GOVERNMENT PRINTING OFFICE: 1963—708640/50

H

09-13-17

P-D-680
March 27, 1963

SUPERSEDING
Int. Fed. Spec. P-S-00661c(GSA-FSS)
June 12, 1962 and
Fed. Spec. P-S-661b
April 6, 1953

FEDERAL SPECIFICATION

# DRY CLEANING SOLVENT

*This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.*

## 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers two types of petroleum distillates employed for dry cleaning of textile materials, and referred to industrially as "Stoddard Solvent" and as "140° F. Solvent".

1.2 Classification.

1.2.1 *Types.* Dry-cleaning solvent shall be of the following types, as specified:

Type I.—100°F. Solvent (Stoddard Solvent).

Type II.—140°F. Solvent.

## 2. APPLICABLE SPECIFICATIONS, STANDARDS, AND OTHER PUBLICATIONS

2.1 Specifications and Standards. The following specifications and standards, of the issues in effect on date of invitation for bids, form a part of this specification:

*Federal Standards:*

Fed. Std. No. 102—Preservation, Packaging, and Packing Levels.
Fed. Std. No. 123—Marking for Domestic Shipment (Civilian Agencies).
Fed. Test Method Std. No. 791—Lubricants, Liquid Fuels, and Related Products; Methods of Testing.

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications, Standards, and Handbooks and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

(Single copies of this specification and other product specifications required by activities outside the Federal Government for bidding purposes are available without charge at the General Services Administration Regional Offices in Boston, New York, Washington, D. C., Atlanta, Chicago, Kansas City, Mo., Dallas, Denver, San Francisco, and Auburn, Wash.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications, Standards, and Handbooks from established distribution points in their agencies.)

*Military Standards:*

MIL-STD-105—Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129—Marking for Shipment and Storage.
MIL-STD-290—Packaging, Packing and Marking of Petroleum and Related Products.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

FSC 6850

**2.2 Other publications.** The following publications form a part of this specification. Unless otherwise indicated, the issues in effect on date of invitation for bids shall apply:

*American Society for Testing and Materials Publication:*

Part 7—Petroleum Products and Lubricants.

(Copies may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia 3, Pennsylvania.)

*Uniform Classification Committee Publication:*

Uniform Freight Classification Rules.

(Application for copies should be addressed to Uniform Classification Committee, 202 Union Station, Chicago 6, Illinois.)

## 3. REQUIREMENTS

**3.1 Material.** The material shall be a petroleum distillate.

**3.2 Physical and chemical properties.** The physical and chemical properties of the solvents shall conform to the requirements specified in table I.

**3.3 Workmanship.** The dry cleaning solvent shall be clear, free from suspended matter and undissolved water as determined by visual inspection.

## 4. SAMPLING, INSPECTION, AND TEST PROCEDURES

**4.1** The supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified, the supplier may utilize his own or any other inspection facilities and services acceptable to the Government. Inspection records of the examinations and tests shall be kept complete and available to the Government as specified in the contract or order. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

TABLE I. *Physical and chemical properties*

| | Type I | Type II | Test Para. |
|---|---|---|---|
| Appearance ..... | Clear, free from suspended matter, and undissolved water | | 4.4.2 |
| Color, Saybolt, not greater than ... | 21 | 21 | |
| Odor ............ | Sweet | Sweet | 4.4.3 |
| Corrosion of copper strip 212° F. for 3 hours ..... | Slight tarnish[1] | | |
| Distillation range: | | | |
| Initial boiling pt., min. .......... | 300° F. | 350° F. | |
| 50% distilled by vol., min. ....... | 350° F. | 375° F. | |
| End point, max. . | 410° F. | 415° F. | |
| Distillation residue, max. ....... | 1.5% | 1.5% | 4.4.4 |
| Acidity-reaction of residue to methyl orange ......... | Neutral | Neutral | 4.4.5 |
| Doctor test ...... | Negative | Negative | 4.4.1 |
| Flash Point, Tag Closed Cup, min. | 100° F. | 138° F. | 4.4.1 |
| Sulfuric acid absorption, max. .. | 5% | 5% | 4.4.1 |

[1] Shall correspond to classification number 1 of ASTM designation D 130.

### 4.2 Sampling.

**4.2.1** *Lot.* For purposes of sampling, a lot shall consist of solvents from one batch or tank offered for delivery at one time. If material cannot be identified by batch or tank, a lot shall consist of not more than 10,000 gallons offered for delivery at one time.

**4.2.2** *Sampling for inspection of containers.* A random sample of filled containers shall be taken by the Government inspector in accordance with Military Standard MIL-

4923

STD-105 at inspection level I and acceptable quality level — 2.5 percent defective to verify compliance with this specification in regard to fill, closure, marking, and other requirements not involving tests.

4.2.3 *Sampling for tests.* From each inspection lot (see 4.2.1), the inspector shall take two containers at random. From each of the two containers 1-quart specimens shall be taken and placed in separate, clean, dry, metal, or glass containers, and then sealed, marked, and forwarded to the testing laboratory designated by the procuring activity.

4.3 Inspection of containers. Each sample filled container shall be examined for defects of construction of the container and the closure, for evidence of leakage, and for unsatisfactory markings; each filled container shall be weighed to determine the amount of contents. Any container in the sample having one or more defects, or under required fill, shall be rejected and if the number of defective containers in any sample exceeds the acceptance number for the appropriate sampling plan of MIL-STD-105, the lot represented by the sample shall be rejected.

4.4 Test procedures

4.4.1 *Physical and chemical properties.* These determinations shall be made in accordance with the methods specified in table II.

4.4.2 *Appearance.* Examine the solvent for undissolved water, sediment and suspended matter by the use of transmitted light.

4.4.3 *Odor.* If the odor is questionable the following test shall be performed. Desized and laundered bleached cotton cloth of 3.6 to 4.0 ounces per square yard shall be used for this test. The cloth when lightly steamed shall have no odor except that of clean cotton cloth. The cloth shall be conditioned at 50 to 80 percent R.H. and 65° to 90°F. for 4 hours. A piece of the conditioned cloth approximately 12 inches square shall be placed in 100 milliliters of solvent so as to be completely submerged, and allowed to soak for 5 minutes. The cloth shall then be removed, drained, but not squeezed or extracted and hung at room temperature for 2 hours. The cloth shall then be dried in a stream of fresh air heated to 140° to 160° F. (60° to 71°C.) for 1 hour. The odor of the dried cloth when steamed over boiling water for 4 to 5 seconds, shall not differ from that of an untreated sample similarly steamed.

TABLE II. *Test procedures*

| | Applicable method in Fed. Test Method Std. No. 791 | Test method paragraph | Requirement paragraph |
|---|---|---|---|
| Appearance | — | 4.4.2 | Table I |
| Color | 101.6 | — | Table I |
| Odor | — | 4.4.3 | Table I |
| Copper Corrosion | 5325.2 | — | Table I |
| Distillation | | | |
| Distillation range | 1001.9 | | Table I |
| Distillation residue | | 4.4.4 | Table I |
| Acidity | — | 4.4.5 | Table I |
| Doctor test | 5203.2 | — | Table I |
| Flash point | 1101.5 | — | Table I |
| Sulfuric Acid Absorption | (See Note) | — | |

Note: Determine according to ASTM D484-52.

4.4.4 *Distillation residue.* Pour the distillation residue from the flask into a small cylinder graduated to 0.1 milliliter. Cool, measure and record the volume as residue.

4.4.5 *Acidity.* Make this test immediately after recording the volume of distillation residue. Transfer the cooled residue to a test tube, add three volumes of distilled water, and shake the tube thoroughly. Allow the mixture to separate and remove the aqueous layer to a clean test tube by means of a pipette. Add 1 drop of 0.1 percent aqueous solution of methyl orange. A pink or red color indicates the presence of mineral acid.



1929

## 5. PREPARATION FOR DELIVERY

For civil agency procurement, the definitions and applications of the levels of packaging and packing shall be in accordance with Fed. Std. No. 102.

### 5.1 Packaging and packing.

5.1.1 *Levels A and B.* The solvent shall be packaged and packed in accordance with MIL-STD-290 as specified for the applicable level (see 6.2).

5.1.2 *Level C.* Commercial unit and bulk containers shall be packed so as to be acceptable by common or other carriers for safe transportation to point of destination specified in shipping instruction at the lowest transportation rate.

### 5.2 Marking.

5.2.1 *Civil agencies.* In addition to any special marking required by the contract or order, marking for shipment shall be in accordance with Fed. Std. No. 123.

5.2.2 *Military agencies.* In addition to any special marking required by the contract or order, marking for shipment shall be in accordance with MIL-STD-129.

## 6. NOTES

6.1 Intended use. The product is intended for use as a dry-cleaning solvent.

6.1.1 Type I is intended for use as a comparatively safe dry-cleaning solvent.

6.1.2 Type II is intended for use in dry-cleaning plants where a solvent with a higher flash-point is desirable as an additional safety factor.

6.2 Ordering data. Procurement documents should specify the following:

(*a*) Title, number and date of this specification.

(*b*) Type of solvent required (see 1.2).

(*c*) Size of containers and level of protection required (see 5.1 and 5.2).

6.3 Purchase unit. The solvent shall be purchased by volume, the unit being a U.S. gallon of 231 cubic inches at 60°F. (15.6°C.). The volume may be determined by dividing the net weight, in pounds, by the weight per gallon.

6.4 Transportation description. Transportation descriptions and minimum weights applicable to this commodity are:

*Rail:*

Chemicals, not otherwise indexed by name.

Carload minimum weight 24,000 pounds, subject to Rule 34, Uniform Freight Classification.

*Motor:*

Chemicals, not otherwise indexed.

Truckload minimum weight 24,000 pounds, subject to Rule 115, National Motor Freight Classification.

6.5 Certification. Solvent delivered in cans, drums, or tank cars shall either be accompanied by an official gager's certificate showing the net contents of each container and also the temperature of the contents at the time of gaging or shall be subject to gaging by the Government inspector. In the absence of a statement of the temperature at the time of gaging on the official gager's certificate, or in case the barrels show evidence of loss by leakage or other shortages, the delivery shall be subject to re-inspection and re-gaging by the Government inspector.

Notice. When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication or otherwise, as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

MILITARY INTERESTS:

Army—MU MR GL

Navy—Sh

Air Force—MAAMA

U.S. GOVERNMENT PRINTING OFFICE: [illegible]

Copies of this specification may be purchased for 5 cents each.

**Appendix M**

**GROUNDWATER VELOCITY**

**Darcy's Law for the Estimation of Groundwater Velocity:**

$$V = \frac{K \times I}{n}$$

Where, V = Estimated groundwater velocity
K = Hydraulic conductivity
I = Hydraulic gradient
n = Effective porosity

**Estimate of Hydraulic Conductivity:**

$$K = T/b$$

Where, T = Transmissivity
b = Aquifer thickness

**The following assumptions are made:**

T = 25,000 gpd/ft (3,340 $ft^2$/day)
b = 100 ft

$K = T/b = \underline{250\ gpd/ft^2\ (33.4\ ft/day)}$

I = 0.01
n = 0.25

$$V = \frac{K \times I}{n} = \underline{1.34\ ft/day\ (488\ ft/year)}$$

## Appendix N
## NEW HAZARDOUS ASSESSMENT RATING METHODOLOGY

# USAF INSTALLATION RESTORATION PROGRAM
# HAZARD ASSESSMENT RATING METHODOLOGY

## BACKGROUND

The Department of Defense (DOD) has established a comprehensive program to identify, evaluate, and control problems associated with past disposal practices at DOD facilities. One of the actions required under this program is to:

> "develop and maintain a priority listing of contaminated installations and facilities for remedial action based on potential hazard to public health, welfare, and environmental impacts." (Reference: DEQPPM 81-5, 11 December 1981).

Accordingly, the United States Air Force (USAF) has sought to establish a system to set priorities for taking further actions at sites based upon information gathered during the Records Search phase of its Installation Restoration Program (IRP).

The first site rating model was developed in June 1981 at a meeting with representatives from USAF Occupational Environmental Health Laboratory (OEHL), Air Force Engineering Services Center (AFESC), Engineering-Science (ES) and $CH_2M$ Hill. The basis for this model was a system developed for EPA by JRB Associates of McLean, Virginia. The JRB model was modified to meet Air Force needs.

After using this model for 6 months at over 20 Air Force installations, certain inadequacies became apparent. Therefore, on January 26 and 27, 1982, representatives of USAF OEHL, AFESC, various major commands, Engineering Science, and $CH_2M$ Hill met to address the inadequacies. The result of the meeting was a new site rating model designed to present a better picture of the hazards posed by sites at Air Force installations. The new rating model described in this presentation is referred to as the Hazard Assessment Rating Methodology.

**PURPOSE**

The purpose of the site rating model is to provide a relative ranking of sites of suspected contamination from hazardous substances. This model will assist the Air Force in setting priorities for follow-on site investigations and confirmation work under Phase II of IRP.

This rating system is used only after it has been determined that (1) potential for contamination exists (hazardous wastes present in sufficient quantity), and (2) potential for migration exists. A site can be deleted from consideration for rating on either basis.

**DESCRIPTION OF MODEL**

Like the other hazardous waste site ranking models, the U.S. Air Force's site rating model uses a scoring system to rank sites for priority attention. However, in developing this model, the designers incorporated some special features to meet specific DOD program needs.

The model uses data readily obtained during the Record Search portion (Phase I) of the IRP. Scoring judgments and computations are easily made. In assessing the hazards at a given site, the model develops a score based on the most likely routes of contamination and the worst hazards at the site. Sites are given low scores only if there are clearly no hazards at the site. This approach meshes well with the policy for evaluating and setting restrictions on excess DOD properties.

Site scores are developed using the appropriate ranking factors according to the method presented in the flow chart (Figure 1). The site rating form is provided in Figure 2 and the rating factor guidelines are provided in Table 1.

As with the previous model, this model considers four aspects of the hazard posed by a specific site: the possible receptors of the contamination the waste and its characteristics, potential pathways for waste contaminant migration, and any efforts to contain the contaminants. Each of these categories contains a number of rating factors that are used in the overall hazard rating.

The receptors category rating is calculated by scoring each factor, multiplying by a factor weighting constant and adding the weighted scores to obtain a total category score.

The pathways category rating is based on evidence of contaminant migration or an evaluation of the highest potential (worst case) for contaminant migration along one of three pathways. If evidence of contaminant migration exists, the category is given a subscore of 80 to 100 points. For indirect evidence, 80 points are assigned and for direct evidence 100 points are assigned. If no evidence is found, the highest score among three possible routes is used. These routes are surface water migration, flooding, and ground-water migration. Evaluation of each route involves factors associated with the particular migration route. The three pathways are evaluated and the highest score among all four of the potential scores is used.

The waste characteristics category is scored in three steps. First, a point rating is assigned based on an assessment of the waste quantity and the hazard (worst case) associated with the site. The level of confidence in the information is also factored into the assessment. Next, the score is multiplied by a waste persistence factor, which acts to reduce the score if the waste is not very persistent. Finally, the score is further modified by the physical state of the waste. Liquid wastes receive the maximum score, while scores for sludges and solids are reduced.

The scores for each of the three categories are then added together and normalized to a maximum possible score of 100. Then the waste management practice category is scored. Sites at which there is no containment are not reduced in score. Scores for sites with limited containment can be reduced by 5 percent. If a site is contained and well managed, its score can be reduced by 90 percent. The final site score is calculated by applying the waste managment practices category factor to the sum of the scores for the other three categories.

FIGURE 1

# SITE RATING METHODOLOGY FLOW CHART

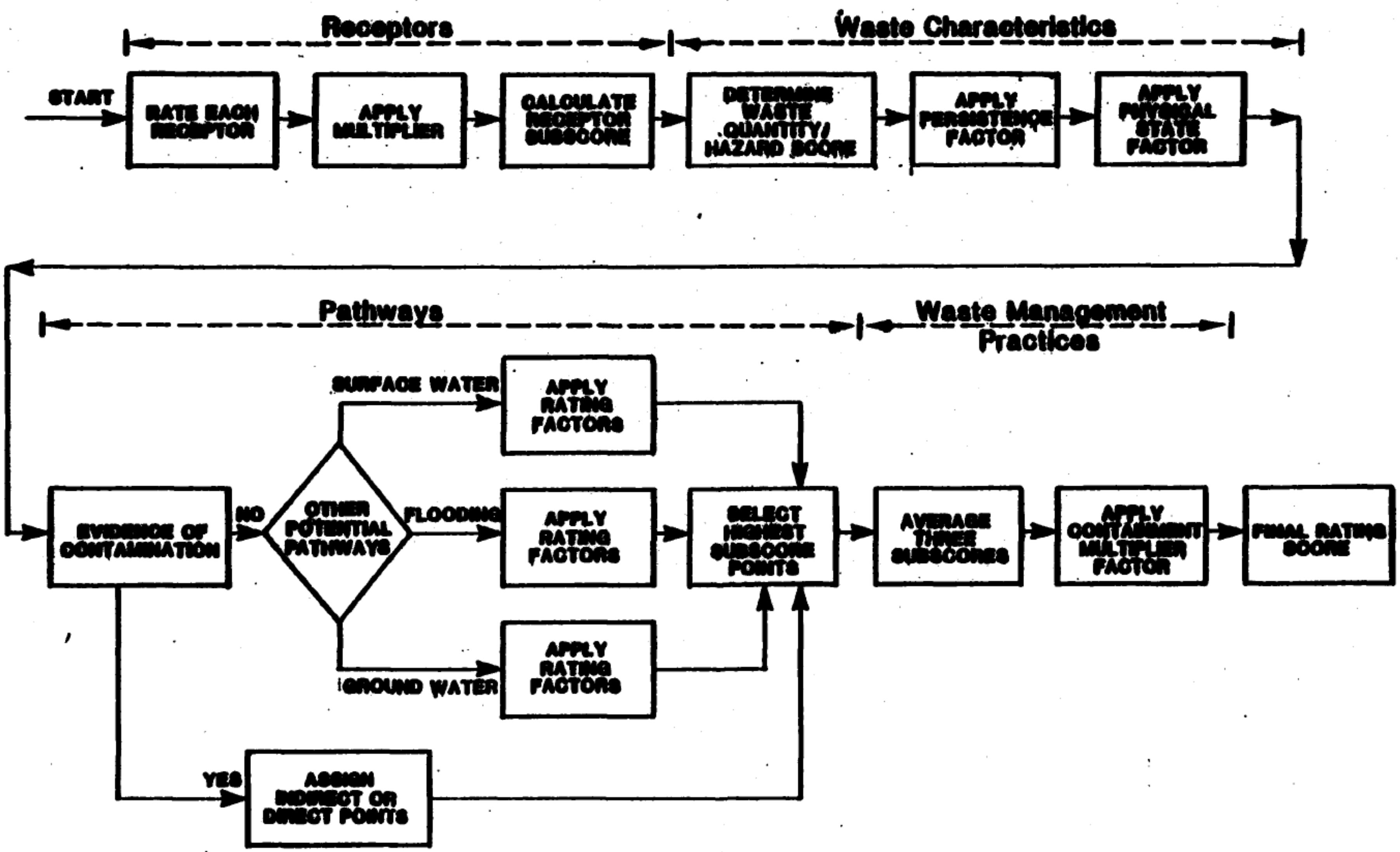

FIGURE 2

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE ______________________________

LOCATION ______________________________

DATE OF OPERATION OR OCCURRENCE ______________________________

OWNER/OPERATOR ______________________________

COMMENTS/DESCRIPTION ______________________________

SITE RATED BY ______________________________

## I. RECEPTORS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. Population within 1,000 feet of site | | 4 | | |
| B. Distance to nearest well | | 10 | | |
| C. Land use/zoning within 1 mile radius | | 3 | | |
| D. Distance to reservation boundary | | 6 | | |
| E. Critical environments within 1 mile radius of site | | 10 | | |
| F. Water quality of nearest surface water body | | 6 | | |
| G. Ground water use of uppermost aquifer | | 9 | | |
| H. Population served by surface water supply within 3 miles downstream of site | | 6 | | |
| I. Population served by ground-water supply within 3 miles of site | | 6 | | |
| | | Subtotals | ______ | ______ |

Receptors subscore (100 X factor score subtotal/maximum score subtotal) ______

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) ______
2. Confidence level (C = confirmed, S = suspected) ______
3. Hazard rating (H = high, M = medium, L = low) ______

Factor Subscore A (from 20 to 100 based on factor score matrix) ______

B. Apply persistence factor
Factor Subscore A X Persistence Factor = Subscore B

______ X ______ = ______

C. Apply physical state multiplier

Subscore B X Physical State Multiplier = Waste Characteristics Subscore

______ X ______ = ______

## III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore _____

B. Rate the migration potential for 3 potential pathways: surface water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface water migration

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| Distance to nearest surface water | | 8 | | |
| Net precipitation | | 6 | | |
| Surface erosion | | 8 | | |
| Surface permeability | | 6 | | |
| Rainfall intensity | | 8 | | |

Subtotals _____ _____

Subscore (100 X factor score subtotal/maximum score subtotal) _____

2. Flooding

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| Flooding | | 1 | | |

Subscore (100 x factor score/3) _____

3. Ground-water migration

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| Depth to ground water | | 8 | | |
| Net precipitation | | 6 | | |
| Soil permeability | | 8 | | |
| Subsurface flows | | 8 | | |
| Direct access to ground water | | 8 | | |

Subtotals _____ _____

Subscore (100 x factor score subtotal/maximum score subtotal) _____

C. Highest pathway subscore.

Enter the highest subscore value from A, B-1, B-2 or B-3 above.

Pathways Subscore _____

## IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

Receptors _____
Waste Characteristics _____
Pathways _____

Total_____ divided by 3 = _____
Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score X Waste Management Practices Factor = Final Score

_____ X _____ = _____

TABLE 1

HAZARDOUS ASSESSMENT RATING METHODOLOGY GUIDELINES

I. RECEPTORS CATEGORY

| Rating Factors | Rating Scale Levels 0 | 1 | 2 | 3 | Multiplier |
|---|---|---|---|---|---|
| A. Population within 1,000 feet (includes on-base facilities) | 0 | 1 - 25 | 26 - 100 | Greater than 100 | 4 |
| B. Distance to nearest water well | Greater than 3 miles | 1 to 3 miles | 3,001 feet to 1 mile | 0 to 3,000 feet | 10 |
| C. Distance to installation boundary | Greater than 2 miles | 1 to 2 miles | 1,001 feet to 1 mile | 0 to 1,000 feet | 3 |
| D. Land Use/Zoning (within 1 mile radius) | Completely remote (zoning not applicable) | Agricultural | Commercial or industrial | Residential | 6 |
| E. Critical environments (within 1 mile radius) | Not a critical environment | Natural areas | Pristine natural areas; minor wetlands; preserved areas; presence of economically important natural resources susceptible to contamination. | Major habitat of an endangered or threatened species; presence of recharge area; major wetlands. | 10 |
| F. Water quality/use designation of nearest surface water body | Agricultural or industrial use. | Recreation, propagation and management of fish and wildlife. | Shellfish propagation and harvesting. | Potable water supplies | 6 |
| G. Ground-Water use of uppermost aquifer | Not used, other sources readily available. | Commercial, industrial, or irrigation, very limited other water sources. | Drinking water, municipal water available. | Drinking water, no municipal water available; commercial, industrial, or irrigation, no other water source available. | 9 |
| H. Population served by surface water supplies within 3 miles downstream of site | 0 | 1 - 50 | 51 - 1,000 | Greater than 1,000 | 6 |
| I. Population served by aquifer supplies within 3 miles of site | 0 | 1 - 50 | 51 - 1,000 | Greater than 1, 000 | 6 |

# TABLE 1 (Continued)

## HAZARDOUS ASSESSMENT RATING METHODOLOGY GUIDELINES (Cont'd)

### II. WASTE CHARACTERISTICS

**A-1 Hazardous Waste Quantity**

S = Small quantity (<5 tons or 20 drums of liquid)
M = Moderate quantity (5 to 20 tons or 21 to 85 drums of liquid)
L = Large quantity (>20 tons or 85 drums of liquid)

**A-2 Confidence Level of Information**

C = Confirmed confidence level (minimum criteria below)

- Verbal reports from interviewer (at least 2) or written information from the records.
- Knowledge of types and quantities of wastes generated by shops and other areas on base.
- Based on the above, a determination of the types and quantities of waste disposed of at the site.

S = Suspected confidence level

- No verbal reports or conflicting verbal reports and no written information from the records.
- Logic based on a knowledge of the types and quantities of hazardous wastes generated at the base, and a history of past waste disposal practices indicate that these wastes were disposed of at a site.

**A-3 Hazard Rating**

| Hazard Category | Rating Scale Levels: 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| Toxicity | Sax's Level 0 | Sax's Level 1 | Sax's Level 2 | Sax's Level 3 |
| Ignitability | Flash point greater than 200°F | Flash point at 140°F to 200°F | Flash point at 80°F to 140°F | Flash point less than 80°F |
| Radioactivity | At or below background levels | 1 to 3 times background levels | 3 to 5 times background levels | Over 5 times background levels |

Use the highest individual rating based on toxicity, ignitability and radioactivity and determine the hazard rating.

| Hazard Rating | Points |
|---|---|
| High (H) | 3 |
| Medium (M) | 2 |
| Low (L) | 1 |

# TABLE 1 (Continued)

## HAZARDOUS ASSESSMENT RATING METHODOLOGY GUIDELINES (Cont'd)

### II. WASTE CHARACTERISTICS (Continued)

**Waste Characteristics Matrix**

| Point Rating | Hazardous Waste Quantity | Confidence Level of Information | Hazard Rating |
|---|---|---|---|
| 100 | L | C | H |
| 80 | L | C | M |
| | M | C | H |
| 70 | L | S | H |
| 60 | S | C | H |
| | M | C | M |
| 50 | L | S | M |
| | L | C | L |
| | M | S | H |
| | S | C | M |
| 40 | S | S | H |
| | M | S | M |
| | M | C | L |
| | L | S | L |
| 30 | S | C | L |
| | M | S | L |
| | S | S | M |
| 20 | S | S | L |

Notes:
For a site with more than one hazardous waste, the waste quantities may be added using the following rules:
Confidence Level
- o Confirmed confidence levels (C) can be added
- o Suspected confidence levels (S) can be added
- o Confirmed confidence levels cannot be added with suspected confidence levels

Waste Hazard Rating
- o Wastes with the same hazard rating can be added
- o Wastes with different hazard ratings can only be added in a downgrade mode, e.g., MCM + SCH = LCM if the total quantity is greater than 20 tons.

Example: Several wastes may be present at a site, each having an MCM designation (60 points). By adding the quantities of each waste, the designation may change to LCM (80 points). In this case, the correct point rating for the waste is 80.

**B. Persistence Multiplier for Point Rating**

| Persistence Criteria | Multiply Point Rating From Part A by the Following |
|---|---|
| Metals, polycyclic compounds, and halogenated hydrocarbons | 1.0 |
| Substituted and other ring compounds | 0.9 |
| Straight chain hydrocarbons | 0.8 |
| Easily biodegradable compounds | 0.4 |

**C. Physical State Multiplier**

| Physical State | Multiply Point Total From Parts A and B by the Following |
|---|---|
| Liquid | 1.0 |
| Sludge | 0.75 |
| Solid | 0.50 |

TABLE 1 (Continued)

HAZARDOUS ASSESSMENT RATING METHODOLOGY GUIDELINES (Cont'd)

III. PATHWAYS CATEGORY

A. Evidence of Contamination

Direct evidence is obtained from laboratory analyses of hazardous contaminants present above natural background levels in surface water, ground water, or air. Evidence should confirm that the source of contamination is the site being evaluated.

Indirect evidence might be from visual observation (i.e., leachate), vegetation stress, sludge deposits, presence of taste and odors in drinking water, or reported discharges that cannot be directly confirmed as resulting from the site, but the site is greatly suspected of being a source of contamination.

B-1 POTENTIAL FOR SURFACE WATER CONTAMINATION

| Rating Factor | Rating Scale Levels 0 | 1 | 2 | 3 | Multiplier |
|---|---|---|---|---|---|
| Distance to nearest surface water (includes drainage ditches and storm sewers) | Greater than 1 mile | 2,001 feet to 1 mile | 501 feet to 2,000 feet | 0 to 500 feet | 8 |
| Net precipitation | Less than -10 in. | -10 to + 5 in. | +5 to +20 in. | Greater than +20 in. | 6 |
| Surface erosion | None | Slight | Moderate | Severe | 8 |
| Surface permeability | 0% to 15% clay ($>10^{-2}$ cm/sec) | 15% to 30% clay ($10^{-2}$ to $10^{-4}$ cm/sec) | 30% to 50% clay ($10^{-4}$ to $10^{-6}$ cm/sec) | Greater than 50% clay ($<10^{-6}$ cm/sec) | 6 |
| Rainfall intensity based on 1 year 24-hr rainfall | <1.0 inch | 1.0-2.0 inches | 2.1-3.0 inches | >3.0 inches | 8 |

B-2 POTENTIAL FOR FLOODING

| Rating Factor | 0 | 1 | 2 | 3 | Multiplier |
|---|---|---|---|---|---|
| Floodplain | Beyond 100-year floodplain | In 25-year floodplain | In 10-year floodplain | Floods annually | 1 |

B-3 POTENTIAL FOR GROUND-WATER CONTAMINATION

| Rating Factor | 0 | 1 | 2 | 3 | Multiplier |
|---|---|---|---|---|---|
| Depth to ground water | Greater than 500 ft | 50 to 500 feet | 11 to 50 feet | 0 to 10 feet | 8 |
| Net precipitation | Less than -10 in. | -10 to +5 in. | +5 to +20 in. | Greater than +20 in. | 6 |
| Soil permeability | Greater than 50% clay ($>10^{-6}$ cm/sec) | 30% to 50% clay ($10^{-4}$ to $10^{-6}$ cm/sec) | 15% to 30% clay ($10^{-2}$ to $10^{-4}$ cm/sec) | 0% to 15% clay ($<10^{-2}$ cm/sec) | 8 |
| Subsurface flows | Bottom of site greater than 5 feet above high ground-water level | Bottom of site occasionally submerged | Bottom of site frequently submerged | Bottom of site located below mean ground-water level | 8 |
| Direct access to ground water (through faults, fractures, faulty well casings, subsidence fissures, | No evidence of risk | Low risk | Moderate risk | High risk | 8 |

# TABLE 1 (Continued)

## HAZARDOUS ASSESSMENT RATING METHODOLOGY GUIDELINES (Cont'd)

IV. WASTE MANAGEMENT PRACTICES CATEGORY

A. This category adjusts the total risk as determined from the receptors, pathways, and waste characteristics categories for waste management practices and engineering controls designed to reduce this risk. The total risk is determined by first averaging the receptors, pathways, and waste characteristics subscores.

B. WASTE MANAGEMENT PRACTICES FACTOR

The following multipliers are then applied to the total risk points (from A):

| Waste Management Practice | Multiplier |
|---|---|
| No containment | 1.0 |
| Limited containment | 0.95 |
| Fully contained and in full compliance | 0.10 |

Guidelines for fully contained:

**Landfills:**

- Clay cap or other impermeable cover
- Leachate collection system
- Liners in good condition
- Adequate monitoring wells

**Surface Impoundments:**

- Liners in good condition
- Sound dikes and adequate freeboard
- Adequate monitoring wells

**Spills:**

- Quick spill cleanup action taken
- Contaminated soil removed
- Soil and/or water samples confirm total cleanup of the spill

**Fire Protection Training Areas:**

- Concrete surface and berms
- Oil/water separator for pretreatment of runoff
- Effluent from oil/water separator to treatment plant

General Note: If data are not available or known to be complete the factor ratings under items I-A through I, III-B-1 or III-B-3, then leave blank for calculation of factor score and maximum possible score.

**Appendix O**
**NEW SITE RATING FORMS**

**Table 1**
**SUMMARY OF RESULTS OF SITE ASSESSMENTS**

| Site No. | Site Description | Subscores (% of Maximum Possible Score in Each Category) Receptors | Pathways | Waste Characteristics | Overall Score (Sum of Subscores/3) |
|---|---|---|---|---|---|
| M-2 | Munitions Disposal | 44 | 28 | 50 | 41 |
| L-1 | Base Landfill | 50 | 28 | 60 | 46 |
| L-2 | TEL Disposal Site | 44 | 28 | 60 | 44 |
| L-3 | Radioactive Disposal Site | 44 | 28 | 60 | 44 |
| L-11 | Street Sweepings Disposal | 47 | 28 | 40 | 38 |
| L-12 | Original Base Landfill | 44 | 28 | 40 | 37 |
| L-13 | Base Landfill | 48 | 35 | 60 | 48 |
| B-2 | Paint Drum Burial | 48 | 28 | 40 | 39 |
| B-8 | Pesticide and Paint Burial | 48 | 28 | 40 | 39 |
| B-9 | Acid/Oil Burial | 41 | 28 | 30 | 33 |
| B-10 | Pesticide and Oil Burial | 41 | 28 | 40 | 36 |
| S-1 | POL Leach Field | 49 | 28 | 24 | 34 |
| S-3 | POL Leach Field | 49 | 28 | 24 | 34 |
| S-4 | Fuel/Oil Disposal | 42 | 28 | 54 | 41 |
| S-5 | Fire Department Training Area | 46 | 28 | 54 | 43 |
| S-6 | Abandoned Fire Department Training Area | 44 | 28 | 54 | 42 |
| S-7 | Tip Tank Drainage Area | 49 | 28 | 48 | 42 |
| S-12 | Golf Course | 63 | 28 | 40 | 44 |
| S-20 | Industrial Outfall and Pipeline | 52 | 56 | 80 | 63 |
| S-21 | WWTP Percolation Ponds | 44 | 28 | 60 | 44 |
| S-22 | French Drain | 49 | 28 | 54 | 44 |
| S-23 | French Drain | 49 | 28 | 36 | 38 |
| S-25 | Sludge Drying Beds | 44 | 28 | 30 | 34 |
| C-1 | Landfill | 44 | 28 | 60 | 44 |
| C-6 | Miscellaneous Burial | 44 | 28 | 50 | 41 |

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: M-2, Munitions Disposal

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Munitions residue POL

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 80 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 44

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 50

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

50 x 1.0 = 50

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

50 x 1.0 = 50

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 2 | 8 | 16 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | | Subscore (100 x factor score/3) | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 44 |
| Waste Characteristics | 50 |
| Pathways | 28 |
| Total 122 divided by 3 = | 41 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

41 x 1.0 = 41

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: L-1, Base Landfill

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Industrial, domestic

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 2 | 10 | 20 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 90 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 50

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

60 x 1.0 = 60

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

60 x 1.0 = 60

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 2 | 8 | 16 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | | Subscore (100 x factor score/3) | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 50 |
| Waste Characteristics | 60 |
| Pathways | 28 |
| Total 138 divided by 3 = | 46 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

46 x 1.0 = 46

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: L-2, TEL Disposal Site

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Leaded fuel sludge

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9. | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 80 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 44

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 80

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

80 x 1.0 = 80

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

80 x .75 = 60

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 1 | 8 | 8 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 14 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 13 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | | Subscore (100 x factor score/3) | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 44 |
| Waste Characteristics | 60 |
| Pathways | 28 |
| Total 132 divided by 3 = | 44 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

44 x 1.0 = 44

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: L-3, Radioactive Disposal Site

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Possible toxics

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 80 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 44

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

60 x 1.0 = 60

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

60 x 1.0 = 60

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 1 | 8 | 8 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 14 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 13 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 44 |
| Waste Characteristics | 60 |
| Pathways | 28 |
| Total 132 divided by 3 = | 44 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

44 x 1.0 = 44

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: L-11, Street Sweepings Disposal

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Possible industrial domestic

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 2 | 4 | 8 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 84 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 47

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x 1.0 = 40

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

40 x 1.0 = 40

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 2 | 8 | 16 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 30 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | | Subscore (100 x factor score/3) | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 47 |
| Waste Characteristics | 40 |
| Pathways | 28 |
| Total 115 divided by 3 = | 38 |
| | Gross Total Sc |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

38 x 1.0 = 38

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: L-12, Original Base Landfill

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Industrial, domestic

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 80 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 44

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x 1.0 = 40

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

40 x 1.0 = 40

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | -- |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 14 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 13 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | | Subscore (100 x factor score/3) | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 44 |
| Waste Characteristics | 40 |
| Pathways | 28 |
| Total 111 divided by 3 = | 37 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

37 x 1.0 = 37

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: L-13

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Industrial, domestic fill

SITE RATED BY: Michael Kemp

I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 3 | 6 | 18 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 86 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 48

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

60 x 1.0 = 60

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

60 x 1.0 = 60

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 2 | 8 | 16 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 30 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 2 | 8 | 16 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 40 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 35 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore **35**

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 48 |
| Waste Characteristics | 60 |
| Pathways | 35 |
| Total 143 divided by 3 = | 48 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

48 x 1.0 = **48**

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: B-2, Paint Drum Burial

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: --

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 3 | 6 | 18 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 86 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 48

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x 1.0 = 40

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

40 x 1.0 = 40

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 6 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 6 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 48 |
| Waste Characteristics | 40 |
| Pathways | 28 |
| Total 116 divided by 3 = | 39 |
| | Gross Total Sc |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

39 x 1.0 = 39

## HAZARDOUS ASSESSMENT RATING FORM



**NAME OF SITE:** B-8, Pesticide and Paint Burial

**LOCATION:** George AFB, California

**DATE OF OPERATION OR OCCURRENCE:** --

**OWNER/OPERATOR:** George AFB, California

**COMMENTS/DESCRIPTION:** --

**SITE RATED BY:** Michael Kemp

### I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 0 | 4 | 0 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 86 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) **48**

### II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x 1.0 = 40

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

40 x 1.0 = **40**

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 1 | 8 | 8 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | | Subscore (100 x factor score/3) | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore **28**

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 48 |
| Waste Characteristics | 40 |
| Pathways | 28 |
| Total 116 divided by 3 = | 39 |
| | Gross Total Sc |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

39 x 1.0 = **39**

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: B-9, Acid and Oil Burial

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: --

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 0 | 4 | 0 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 2 | 3 | 6 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 73 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 41

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 30

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

30 x 1.0 = 30

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

30 x 1.0 = 30

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 1 | 8 | 8 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 41 |
| Waste Characteristics | 30 |
| Pathways | 28 |
| Total 99 divided by 3 = | 33 |

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

33 x 1.0 = 33

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: B-10, Pesticide and Oil Burial

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: --

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 0 | 4 | 0 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 2 | 3 | 6 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 73 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 41

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) H

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x 1.0 = 40

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

40 x 1.0 = 40

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 1 | 8 | 8 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 41 |
| Waste Characteristics | 40 |
| Pathways | 28 |
| Total 109 divided by 3 = | 36 |
| | Gross Total S |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

36 x 1.0 = 36

# HAZARDOUS ASSESSMENT RATING FORM



**NAME OF SITE:** S-1, POL Leach Field

**LOCATION:** George AFB, California

**DATE OF OPERATION OR OCCURRENCE:** --

**OWNER/OPERATOR:** George AFB, California

**COMMENTS/DESCRIPTION:** --

**SITE RATED BY:** Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 3 | 4 | 12 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 88 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) **49**

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 30

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

30 x .8 = 24

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

24 x 1.0 = **24**

## III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 6 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 6 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore **28**

## IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 49 |
| Waste Characteristics | 24 |
| Pathways | 28 |
| Total 101 divided by 3 = | 34 |

Gross Total Score

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

34 x 1.0 = **34**

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-3, POL Leah Field

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: --

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 3 | 4 | 12 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 88 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 49

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 30

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

30 x .8 = 24

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

24 x 1.0 = 24

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 6 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 6 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore **28**

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 49 |
| Waste Characteristics | 24 |
| Pathways | 28 |
| Total 101 divided by 3 = | 34 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

34 x 1.0 = **34**

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-4, Fuel Oil Disposal

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: --

SITE RATED BY: Michael Kemp

I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 0 | 10 | 0 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 3 | 6 | 18 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 76 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) **42**

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

60 x .9 = 54

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

60 x 1.0 = **54**



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III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 6 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 6 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore **28**

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 42 |
| Waste Characteristics | 54 |
| Pathways | 28 |
| Total 124 divided by 3 = | 41 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

41 x 1.0 = **41**

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-5, Fire Training Area

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: POL, solvents

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 3 | 6 | 18 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 86 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 46

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

60 x .9 = 54

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

54 x 1.0 = 54

## III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

**A.** If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

**B.** Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 1 | 8 | 8 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 14 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 13 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

**C.** Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

## IV. WASTE MANAGEMENT PRACTICES

**A.** Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 46 |
| Waste Characteristics | 54 |
| Pathways | 28 |
| Total 128 divided by 3 = | 43 |
| | Gross Total Score |

**B.** Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

43 x 1.0 = 43

## HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-6, Abandoned Fire Training Area

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: --

SITE RATED BY: Michael Kemp

### I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 80 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 44

### II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

60 x .9 = 54

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

54 x 1.0 = 54

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 2 | 8 | 16 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 44 |
| Waste Characteristics | 54 |
| Pathways | 28 |
| Total 126 divided by 3 = | 42 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

42 x 1.0 = 42

# HAZARDOUS ASSESSMENT RATING FORM



**NAME OF SITE:** S-7, Tip Tank Drainage Area

**LOCATION:** George AFB, California

**DATE OF OPERATION OR OCCURRENCE:** --

**OWNER/OPERATOR:** George AFB, California

**COMMENTS/DESCRIPTION:** Fuel

**SITE RATED BY:** Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 3 | 4 | 12 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 88 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 49

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

60 x .8 = 48

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

48 x 1.0 = 48

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 6 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 6 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 49 |
| Waste Characteristics | 48 |
| Pathways | 28 |
| Total 125 divided by 3 = | 42 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

42 x 1.0 = 42

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# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-12, Golf Course

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Percolation pond effluent irrigation

SITE RATED BY: Michael Kemp

I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 3 | 4 | 12 | 12 |
| B. | Distance to nearest well | 3 | 10 | 30 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 3 | 6 | 18 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 114 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 63

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x 1.0 = 40

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

40 x 1.0 = 40

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## III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 2 | 8 | 16 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore **28**

## IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 63 |
| Waste Characteristics | 40 |
| Pathways | 28 |
| Total 131 divided by 3 = | 44 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

44 x 1.0 = **44**

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-20, Industrial Outfall and Pipeline

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: --

SITE RATED BY: Michael Kemp

I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 3 | 4 | 12 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 3 | 6 | 18 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 94 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 52

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) L
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 80

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

80 x 1.0 = 80

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

80 x 1.0 = 80

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III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 3 | 8 | 24 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 2 | 8 | 16 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 46 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 43 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 3 | 8 | 24 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 1 | 8 | 8 | 24 |
| Direct access to ground water | 2 | 8 | 16 | 24 |
| | | Subtotals | 64 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 56 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore **56**

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 52 |
| Waste Characteristics | 80 |
| Pathways | 56 |
| Total 188 divided by 3 = | 63 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

63 x 1.0 = **63**

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-21, WWTP Percolation Ponds

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Sanitary, industrial

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 80 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 44

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistance factor
Factor Subscore A x Persistence Factor = Subscore B

60 x 1.0 = 60

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

60 x 1.0 = 60



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III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 6 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 6 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |
| C. Highest pathway subscore | | | | |
| Enter the highest subscore value from A, B-1, B-2, or B-3 above. | | | | |
| | | Pathways Subscore | | 28 |

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 44 |
| Waste Characteristics | 60 |
| Pathways | 28 |
| Total 132 divided by 3 = | 44 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

44 x 1.0 = 44

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-22, French Drain

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Waste POL

SITE RATED BY: Michael Kemp

I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 3 | 4 | 12 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 88 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 49

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

60 x .9 = 54

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

54 x 1.0 = 54

## III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

**A.** If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

**B.** Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

1. Surface-water migration

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 6 | 108 |

Subscore (100 x factor score subtotal/maximum score subtotal) 6

2. Flooding

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| Flooding | 0 | 1 | 0 | 100 |

*Subscore (100 x factor score/3)* 0

3. Ground-water migration

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |

Subscore (100 x factor score subtotal/maximum score subtotal) 28

**C.** Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

## IV. WASTE MANAGEMENT PRACTICES

**A.** Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 49 |
| Waste Characteristics | 54 |
| Pathways | 28 |
| Total 131 divided by 3 = | 44 |

Gross Total Score

**B.** Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

44 x 1.0 = 44

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-23, French Drain

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Jet fuel, POL

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 3 | 4 | 12 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 88 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 49

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x .9 = 36

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

36 x 1.0 = 36

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 0 | 8 | 0 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 6 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 6 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | | Subscore (100 x factor score/3) | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 49 |
| Waste Characteristics | 36 |
| Pathways | 28 |
| Total 113 divided by 3 = | 38 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

38 x 1.0 = 38

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: S-25, Sludge Drying Beds

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --'

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Sanitary, some industrial

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 1 | 4 | 4 | 12 |
| B. | Distance to nearest well | 1 | 10 | 10 | 30 |
| C. | Land use/zoning within 1 mile radius | 3 | 3 | 9 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 3 | 6 | 18 | 18 |
| | | | Subtotals | 80 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 44

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) S
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 40

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

40 x 1.0 = 40

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

40 x .75 = 30

## III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 2 | 8 | 16 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | | Subscore (100 x factor score/3) | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore **28**

## IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 44 |
| Waste Characteristics | 30 |
| Pathways | 28 |
| Total 102 divided by 3 = | 34 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

34 x 1.0 = **34**

# HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: C-1, Landfill

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Domestic, industrial, munitions

SITE RATED BY: Michael Kemp

## I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 2 | 4 | 8 | 12 |
| B. | Distance to nearest well | 2 | 10 | 20 | 30 |
| C. | Land use/zoning within 1 mile radius | 2 | 3 | 6 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 1 | 6 | 6 | 18 |
| | | | Subtotals | 79 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 44

## II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) M
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 60

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

60 x 1.0 = 60

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

60 x 1.0 = 60

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|

A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B.

Subscore 0

B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C.

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 2 | 8 | 16 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore 28

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 44 |
| Waste Characteristics | 60 |
| Pathways | 28 |
| Total 132 divided by 3 = | 44 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

44 x 1.0 = 44

HAZARDOUS ASSESSMENT RATING FORM



NAME OF SITE: C-6, Miscellaneous Burial

LOCATION: George AFB, California

DATE OF OPERATION OR OCCURRENCE: --

OWNER/OPERATOR: George AFB, California

COMMENTS/DESCRIPTION: Possible industrial, domestic, munitions

SITE RATED BY: Michael Kemp

I. RECEPTORS

| | Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|---|
| A. | Population within 1,000 feet of site | 2 | 4 | 8 | 12 |
| B. | Distance to nearest well | 2 | 10 | 20 | 30 |
| C. | Land use/zoning within 1 mile radius | 2 | 3 | 6 | 9 |
| D. | Distance to reservation boundary | 2 | 6 | 12 | 18 |
| E. | Critical environments within 1 mile radius of site | 0 | 10 | 0 | 30 |
| F. | Water quality of nearest surface-water body | 0 | 6 | 0 | 18 |
| G. | Ground-water use of uppermost aquifer | 3 | 9 | 27 | 27 |
| H. | Population served by surface-water supply within 3 miles downstream of site | 0 | 6 | 0 | 18 |
| I. | Population served by ground-water supply within 3 miles of site | 1 | 6 | 6 | 18 |
| | | | Subtotals | 79 | 180 |

Receptors subscore (100 x factor score subtotal/maximum subtotal) 44

II. WASTE CHARACTERISTICS

A. Select the factor score based on the estimated quantity, the degree of hazard, and the confidence level of the information.

1. Waste quantity (S = small, M = medium, L = large) S
2. Confidence level (C = confirmed, S = suspected) C
3. Hazard rating (H = high, M = medium, L = low) M

Factor Subscore A (from 20 to 100 based on factor score matrix) 50

B. Apply persistence factor
Factor Subscore A x Persistence Factor = Subscore B

50 x 1.0 = 50

C. Apply physical state multiplier

Subscore B x Physical State Multiplier = Waste Characteristics Subscore

50 x 1.0 = 50

III. PATHWAYS

| Rating Factor | Factor Rating (0-3) | Multiplier | Factor Score | Maximum Possible Score |
|---|---|---|---|---|
| A. If there is evidence of migration of hazardous contaminants, assign maximum factor subscore of 100 points for direct evidence or 80 points for indirect evidence. If direct evidence exists then proceed to C. If no evidence or indirect evidence exists, proceed to B. | | | | |
| | | | Subscore | 0 |
| B. Rate the migration potential for three potential pathways: surface-water migration, flooding, and ground-water migration. Select the highest rating, and proceed to C. | | | | |
| 1. Surface-water migration | | | | |
| Distance to nearest surface water | 0 | 8 | 0 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Surface erosion | 2 | 8 | 16 | 24 |
| Surface permeability | 1 | 6 | 6 | 18 |
| Rainfall intensity | 0 | 8 | 0 | 24 |
| | | Subtotals | 22 | 108 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 20 |
| 2. Flooding | 0 | 1 | 0 | 100 |
| | Subscore (100 x factor score/3) | | | 0 |
| 3. Ground-water migration | | | | |
| Depth to ground water | 1 | 8 | 8 | 24 |
| Net precipitation | 0 | 6 | 0 | 18 |
| Soil permeability | 2 | 8 | 16 | 24 |
| Subsurface flows | 0 | 8 | 0 | 24 |
| Direct access to ground water | 1 | 8 | 8 | 24 |
| | | Subtotals | 32 | 114 |
| Subscore (100 x factor score subtotal/maximum score subtotal) | | | | 28 |

C. Highest pathway subscore

Enter the highest subscore value from A, B-1, B-2, or B-3 above.

Pathways Subscore **28**

IV. WASTE MANAGEMENT PRACTICES

A. Average the three subscores for receptors, waste characteristics, and pathways.

| | |
|---|---|
| Receptors | 44 |
| Waste Characteristics | 50 |
| Pathways | 28 |
| Total 122 divided by 3 = | 41 |
| | Gross Total Score |

B. Apply factor for waste containment from waste management practices

Gross Total Score x Waste Management Practices Factor = Final Score

41 x 1.0 = **41**

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# ADMINISTRATIVE RECORD

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