# DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO

30 NOV 1992

ENTERED

RECEIVED
HAZARDOUS WASTE
PROGRAM
DEC 1992

27 FW CC
100 S DL Ingram Blvd Suite 200
Cannon AFB NM 88103-5217

Ms Barbara Hoditschek, Manager
RCRA Permit Program
State of New Mexico Environmental Department
Hazardous & Radioactive Materials Bureau
P.O. Box 26110
Santa Fe, NM 87502

Re: Melrose AF Range Permit No. NM~~X~~572124456

Dear Ms Hoditschek

In response to your letter dated 30 Oct 92 concerning Melrose Air Force Range, we are submitting the enclosed report to expedite your technical review of the Melrose Air Force Range Part B permit. We have included an estimated completion date (ECD) for the items which will be provided to you in detail.

We are anxious to work with your staff to provide all required information to complete the Part B Permit timely.

If you have any questions concerning this matter, please contact Mr. Jim Richards at 784-4639 or Ms. Vera Wood at 784-2739.

Sincerely

RICHARD N. GODDARD
Brigadier General, USAF
Commander

11 Atch
1. Letter
2. Melrose AF Range Boundaries
3. Figure 1.2-6 Melrose Range Operation
4. Irrigation well location outside impact area
5. Water well location and listed owner
6. Water Systems Map
7. Leasee
8. Melrose AFR boundaries/restricted area
9. Olton Loam subsoil structure at OB/OD
10. Colored Map of 100 Year Flood Plan as requested

cc: HQ ACC/CEVCM

*Global Power for America*

CANNON AIR FORCE BASE REPORT ON:
Preliminary Technical Review
Request for Information
And Comments for Discussion
FOR MELROSE AF RANGE

1. Facility:

a. Explain who owns the property on which the Melrose Air Force Range is situated:

RESPONSE: The US Air Force owns the property on which the Melrose AF Range is situated. An Environmental Impact Statement was completed on 17 October 1989 by Science Applications International Corporation and reflects that the Melrose Air Force Range expanded from 22,120 acres to 77,120 acres in 1986. This acreage consist of 71,992 acres located in Roosevelt County, New Mexico and 5198 acres located in Curry County, New Mexico. Of the 55,000 acres that were added to the range, 16,040 acres were owned by the state of New Mexico, 48 acres were owned by the Bureau of Land Management, and the remaining 38,912 acres were privately owned.

When the 55,000 acres were added to the Melrose Range, 27,760 acres were purchased outright (23,280 acres privately owned and 4480 acres state owned). Adding the expansion acreage to the original range acreage (22,120) brings the total acreage owned by the US. Air Force to 49,880 acres. The 15,680 acres (15,632 acres privately owned, 48 acres publicly owned) were given a restrictive easement, which means that the US. Air Force purchased minimal rights with the intent of limiting use of the property to cattle grazing or gas /oil exploration or extraction. In addition, structures are limited to 100 Ft in height and to minimal building for cattle grazing, farming, and mineral exploration/extraction activities. The 11,560 acres leased from the state are subleased for grazing wherever possible (Atch 1, Figure 3.3.5-1 Melrose Bombing Range Boundaries with defined areas for easement and lease restrictions and Atch 1a., Figure 1.2-6. Melrose Range Operations Area).

Most of the land that is in the restrictive easement or the lease land is used for agricultural purpose, primarily cattle grazing. Some crop growing is also accomplished on the range, primarily in the northern section of the Range. In the Bombing Range, the Air Force wants to convert croplands to grasslands for cattle grazing over the next five years. The Air Force is currently working with the state of New Mexico in a land swap for state owned lands in the Bombing Range. Attachment 1 also gives a breakdown of agricultural activities in the expansion area before expansion to the Range. There is a range support facility near the center of the Bombing Range that houses a fire station, maintenance area, TV camera station for monitoring ordnance practices, and other support facilities. Land surrounding the Range is used for similar agricultural purposes.

b. Provide the location for the Centralized Munitions Depot noted in the Part B application. Explain what is meant by large items that are sent to this depot:

RESPONSE: In Section C of the Permit Application, C.1, second paragraph, second sentence "Larger items, however, are sent to centralized munitions depots for treatment" can be deleted. Larger item as defined by our munitions experts is anything larger than the items we defined as net wet explosive in our Part B application. Large munitions (e.g., a Mark 84 Bomb) will be taken to Luke AFB, AZ, Nellis AFB, NV, or Hill AFB, UT, who have the capabilities to support a greater net explosive weight than Melrose Air Force Range (Melrose AFR), New Mexico.

c. Describe the history of open burning and open detonation activity at the Melrose AFR. Include locations of historic sites that are no longer active:

RESPONSE: The Explosive Ordnance Flight personnel will research historical data to determine how far back we can go to provide this information. DOD historical records are generally retained for a three year period and destroyed if the records are not required to be forwarded to a record holding area for longer periods. Estimated Completion Date (ECD): 18 DEC 92.

d. Show on the Melrose AFR map, locations of all wells up to the distance away from the OB/OD unit that includes the potable water well some 1,200 feet north. Provide all known information about the geology, water quality and water quantity.

RESPONSE: The potable water well is not 1,200 feet north of the OB/OD unit; but located approximately one mile from the maintenance compound and north of Tower one (1). The potable water well is the only one that services Melrose AFR maintenance compound and fire station. The well is approximately 185 feet deep and pumps approximately 11.2 gallons of water per minute (gpm). The well accommodates a 25,000 gallon fiberglass holding tank located approximately 100 feet south of the maintenance area. The fiberglass holding tank accommodates the maintenance area and the fire department pumping station for emergency situations. The Water Plant personnel at Cannon maintain records for this well and it is internally tracked as well number ten (10).

There is no permanent surface water on the range. The Llano Estacado (30,000 square miles) encompasses the agricultural community in Eastern New Mexico and West Texas and is the largest uninterrupted area of semi-arid climate in North America. The Ogallala Formation, an underground aquifer, supplies water for irrigation in this area. Most authorities consider the Ogallala Formation and the Portales Valley Fill, which underlies the Melrose Range, as a single hydrologic unit. The two underground basins that are a part of the Ogallala Aquifer extending into the boundaries of the proposed Melrose Range expansion (outside the current Impact Area) are the Fort Sumner Basin and the Portales Basin. A representative of the New Mexico State Engineer's Office indicates these are the only designated or declared aquifer basins extending into the proposed expanded range. (Declared basins are designated by the State Engineer for the purpose of insuring orderly development of the water resources.) A portion of the Fort Sumner Basin comprises approximately four square miles and the Portales Basin approximately 30 square miles of the proposed expansion. Reference Atch 2, Figure seven (7) extracted from the State Engineer's vested water rights map showing the location of 36 irrigation and livestock wells licensed by the State Engineer. Enclosed for your reference is a list location and owners of known water wells (Appendix C, Water Wells as extracted from the 1985 Environmental Impact Analysis Process and is listed as Atch 4 for your review).

The natural recharge to the aquifer system is insignificant in relation to the total draw down in the region. In 1968 the State Engineer estimated that annual withdrawal was five times greater than recharge. The Portales area showed a decline of as much as 50 feet between 1932 and 1960. The New Mexico State Engineer Basic Data Report, "Ground Water Levels in New Mexico, 1976" by J.D. Hudson, and supplier by the US Geological Service, Water Resources Division, Albuquerque, indicates that the average annual drop in the ground water table in the five years proceeding 1977 was approximately 2.50 feet.

Attachment 2 (Irrigation Well Locations/Figure 7 Ogallala Aquifer Basins) shows the location of 36 irrigation and livestock wells licensed by the State Engineer. There is no requirement for a license for wells located outside declared basins. Wells within a declared basin must be licensed and drilled by a state licensed driller. If water rights are not licensed available for land purchased in a declared basin, a well may be drilled by a licensed driller, but annual capacities are restricted to 3 acre feet of water to supply one (1) house, trees, and grass and garden on one (1) acre of land. During the preparation of the Draft Environmental Impact Statement (DEIS) and through the public comment process a total of 47 wells of various sizes and location has been identified within the proposed expanded range; two have unknown owners.

Attachment five (5) reflects the Water Systems outside the Melrose AFR Impact Area.

Attachment six (6) reflects the Leased lands outside the Melrose AFR Impact Area

Attachment seven (7) reflects the restricted area and the Air Force boundaries.

e. Confirm that the water well intended for fighting any fires at the Melrose AFR is the same as the potable water well some 1,200 feet north of the OB/OD. If it is not the same, delineate the location of each on the Melrose Air Force Range.

RESPONSE: This item is explained above, reference Atch. three (3) and five (5) showing the location of the potable water well. The location of the well is north of tower one (1), not some 1,200 feet north of the OB/OD site.

f. Describe how waste explosives are identified and collected from the AFR once they are considered waste explosives.

RESPONSE: This item will be fully addressed when the Explosive Ordnance personnel complete the exercise on base. ECD 18 DEC 92.

g. Itemize all waste explosives, dates and quantities that have been burnt or detonated at the unit since 1980 when the unit fell under RCRA requirements.

RESPONSE: DOD records are generally not retained longer than three years unless the records are specifically given a disposition to forward to a Records Holding Area. We will provide as much data from records available to answer the above request. ECD 18 DEC 92.

2. Hydrology:

a. For the first aquifer immediately below the open detonation and open burn unit, describe the ground water flow direction the hydraulic gradient, the vertical position and the rate of flow. Keep in mind that the first water encountered through drilling may be present above the Ogalla Formation. If this is the case and the first water communicates with the Ogallala, specific information on the Ogalla may also need to be addressed.

RESPONSE: Environmental Management will work with the State Engineers to obtain additional information for this specific location. A hydrograph will be provided by 15 DEC 92. The Melrose AFR Environmental Impact Statement shows that permanent surface water is not present within the study area. "Permanent" lakes were present during pluvial periods of the Pleistocene, evidenced by extensive lacustrine sediments in northern portions of the study area [ Class II Survey and Testing of Cultural Resources at the Melrose Air Force Range, Curry and Roosevelt Counties, New Mexico, US. Army Corps of Engineers, Albuquerque District, 1988]. Declining water tables during the Holocene led to the dessicantion of these lakes, and today small, ephemeral lakes form in playa basins both within the valley (e.g., Section 26 and 27, T2N, R30E) and on the Ogallala surface (e.g., Section 18, T1S, R30E) after heavy rainfall.

The water table in the area is dropping rapidly as a result of ground water usage from irrigation. Pleistocene lakes undoubtedly reflected the intersection of water table and land surface, but there is no evidence of similarly high water tables during the Holocene. There are no springs in the study area, although several small springs were historically active at Little Tule Lake (SW 1/4, Section 33, T2N, R31E) and at Tule Lake (SE 1/4, Section 34, T2N, R31E). In addition, a spring in Fiddler Draw (NE 1/4 Section 13, T2N, R31E), approximately five miles east of the study area still provides water.

b. Describe site specific geology down to and including the Ogallala formation as determined from borings.

RESPONSE: See 3 g below.

3. Environmental Standards:

a. The "Identification and Characterization of Emissions and Residues from the Open Burning and Open Detonation of Munitions" are being requested from the US Army Armament, Munitions and Chemical Command for response on this item.

RESPONSE: Telephone conversation with Mr. Bret Johnson, HQ ACC CEVP, the "Identification and Characterization of Emissions and Residues from the Open Burn and Open Detonation of Munitions" do not address emissions from the OB/OD of Munitions to satisfy most EPA Regions. Region IX has defined emissions on certain munitions items and there will be testing on four types of ordnance to satisfy their requirements. Mr. Johnson further suggested permission to discuss the issue with the NMED permit section (Mr. Tom Tatkin) to obtain required information Region VI would like to address for this permit.

b. - d. Items b, c and d will be addressed through contracted service or the most timely and accurate source before or by: ECD 19 FEB 93.

e. Describe the annual cyclical pattern for precipitation in the Curry-Roosevelt counties region. Include in the discussion the frequency and persistence of temperature inversions.

RESPONSE: The general climate for this area is semiarid. The area undergoes the basic climatic trend of four seasons. The downslope warming of air from the mountains tends to modify and temper the air masses which pass over this area from the west and northwest. Winds with a northwesterly component blow downslope and enhance atmospheric ventilation. Winds with a component from the south and east blow upslope and lead to increased cloud formation and precipitation.

Average monthly temperatures range from the mid-30s in January to the upper 70s in July. Maximum daytime temperatures in the summer months can reach 90 degrees Fahrenheit or warmer. Hot days, registering 100 degrees for more, occur only occasionally in the summer months. Minimum temperatures range from the low 20s in January to the mid 60s in July. The highest recorded temperature is 106 degrees Fahrenheit and the lowest temperature on record is 11 degrees Fahrenheit.

Wind speed , frequency, and direction are important to air emission analysis. Winds in the Melrose AFR area are often gusty and can average 19 mph or greater. On the basis of a 10 year period, the prevailing surface wind direction at the AFB is from the West. These west winds occur primarily from October to May (i.e., 8 months). In the warmer months, the winds tend to be from the South. The annual mean wind speed is approximately 7 knots (8 mph). Monthly wind averages range from 5 knots (6 mph) to 9 knots (10 mph). The maximum recorded wind gust is 73 knots (84 mph).

Another variable need for air quality assessment is atmospheric mixing. The atmosphere is quite dispersive around this area. The seasonal and annual average mixing heights can vary from 400 meters in the morning to 4000 meters in the afternoon. The afternoons mixing heights are typically greater during the spring and fall seasons. The morning mixing heights are usually low, due to nighttime heat loss from the ground producing surface-based temperature inversions. After sunrise these inversions break up, and solar heating of the earth's surface causes vertical mixing in the atmosphere.

Occasional winter snows result in this area from the upslope movement of moist air from the Gulf of Mexico. Over a 36 year period, the annual snowfall amounts of 20 inches or more have been recorded

several times in this region. The record snowfall for the area is 19 inches. The annual snowfall for the New Mexico region is about 10 to 13 inches. Snow can occur as early as October and as late as May.

As recorded at Cannon AFB, NM, the average annual rainfall in the area is 15.2 inches, the majority of which occurs in the summer months. Most of the precipitation for this region comes from sudden thundershowers, which form over the mountains and traverse the area. Thunderstorms occur on approximately 47-50 days each year. Individual monthly averages vary from 0.4 inches in the winter months to 2.5 to 2.7 inches in July and August. The maximum monthly rainfall of 11.4 inches occurs in July. The maximum daily rainfall is 4.8 inches.

f. Wind Rose information: ECD to NMED 4 DEC 92.

g. The soil geology around the OB/OD:

RESPONSE: Soil at the Melrose AFR OB/OD Area: Olton loam, 0-1 percent slope (Ot). This soil occurs in the wheat-growing section of the county in the vicinity of Rogers and Dora. It is not extensive. The surface layers consist of about four (4) inches of brown to dark-brown loam. It has strong granular structure and is noncalcareous. The subsoil is noncalcareous clay loam. It is about 24 inches thick and has subangular blocky structure (Atch 8) This layer overlies a strongly calcareous layer that is up to 20 inches thick, light reddish brown in color, and massive. The substratum is very strongly calcareous pin silt loam. It is similar to the present sediment of the Amarillo soils. Runoff is moderate, and internal drainage is slow. Puddling is common following a hard rain. Wind erosion is a slight or moderate hazard.

Environmental Management will meet with the State Engineers to verify and possibly obtain additional hydrology and geology data.

4. Waste Analysis: Items a, b, c, e, f, g, h and i the Bioenvironmental personnel will address for this portion. Due to the Military exercise, we will submit a revised plan 18 Dec 92.

d. Itemize all liquid fuels that are used during open burning and provide written assurance that fuels are in no way contaminated or unusable for their originally intended purposes.

RESPONSE: Unused diesel fuel (DF2) is the only fuel used for open burning. Open burn is not the standard method of treatment and has been seldom used per our Explosive Ordnance personnel.

5. Inspections: ECD 30 Nov 92.

6. Safety and Special Handling: ECD 4 DEC 92 due to the exercise and obtaining the necessary information from Explosive Ordnance personnel to forward to NMED.

7. Contingency Plan: Support is provided through a joint community agreement for Contingency and Disaster Preparedness. The Contingency Plan will be developed after constituents are identified in the munition items.

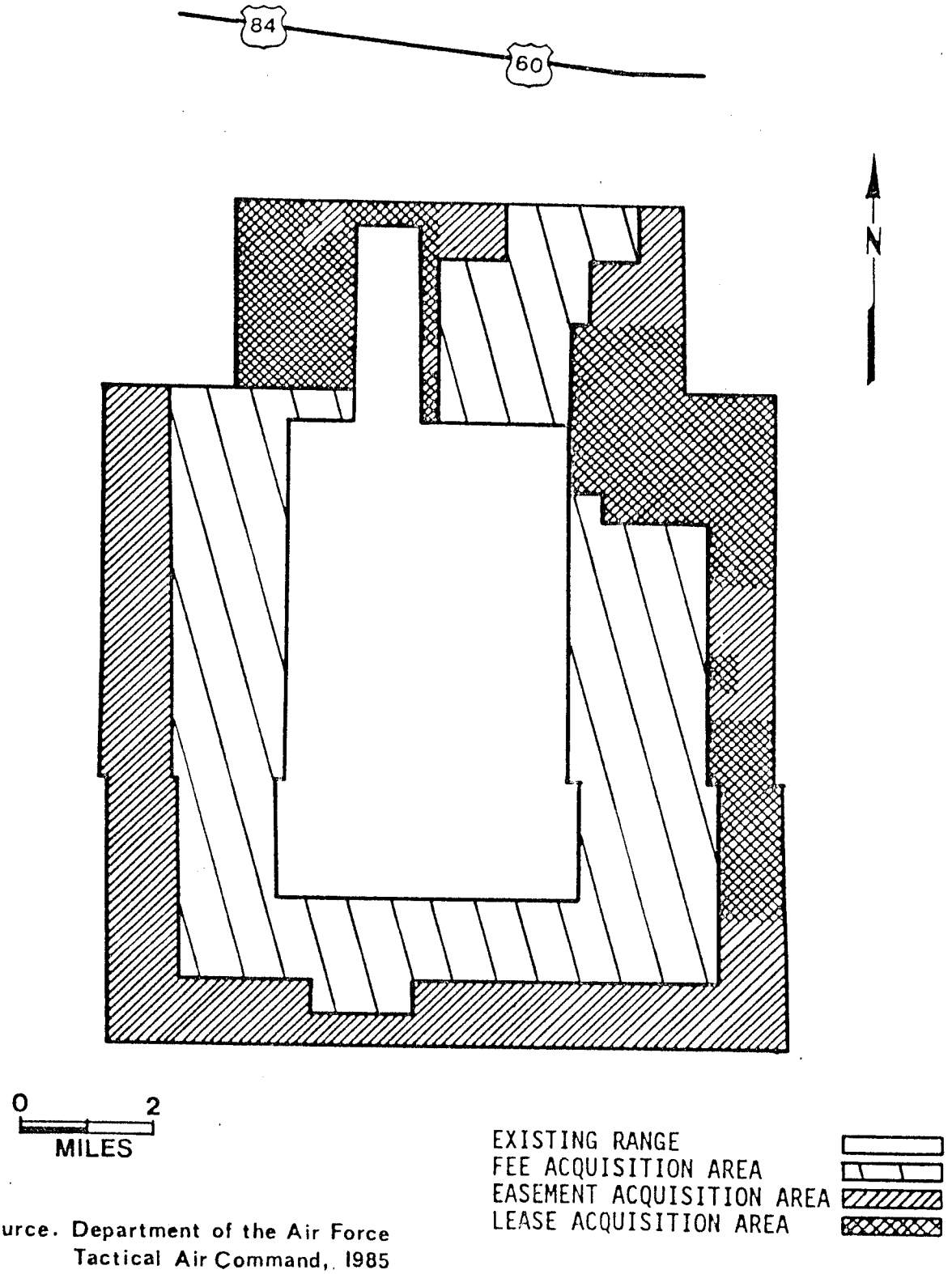
8. Storage and Disposal of Treated Waste

Explain how and when treated waste that do not meet regulatory standards is removed from the OB/OD. Even when the reactive portion of the waste is eliminated, there may still be other RCRA waste remaining (e.g., TCLP metals in ash or soils.)

RESPONSE: The explosives are primarily a treatment processes that typically result in by-products which are no longer reactive, and therefore, are not considered hazardous unless a constituent is identified

as a Toxic Characteristic Leaching Waste or a listed waste. This issue will be addressed further when working with the constituent of the items treated at the Range. ECD 18 DEC 92.

In addition soil samples will be addressed for NMED approved sampling and analysis plan for soil and the QA/QC will be addressed through a Statement of Work and required contracting support if Bioenvironmental cannot support sample analysis locally.




Source. Department of the Air Force
Tactical Air Command, 1985

Figure 3.3.5-1. Melrose Bombing Range Boundaries
(With Defined Areas for Easement and Lease Restrictions)

ATCH 1.

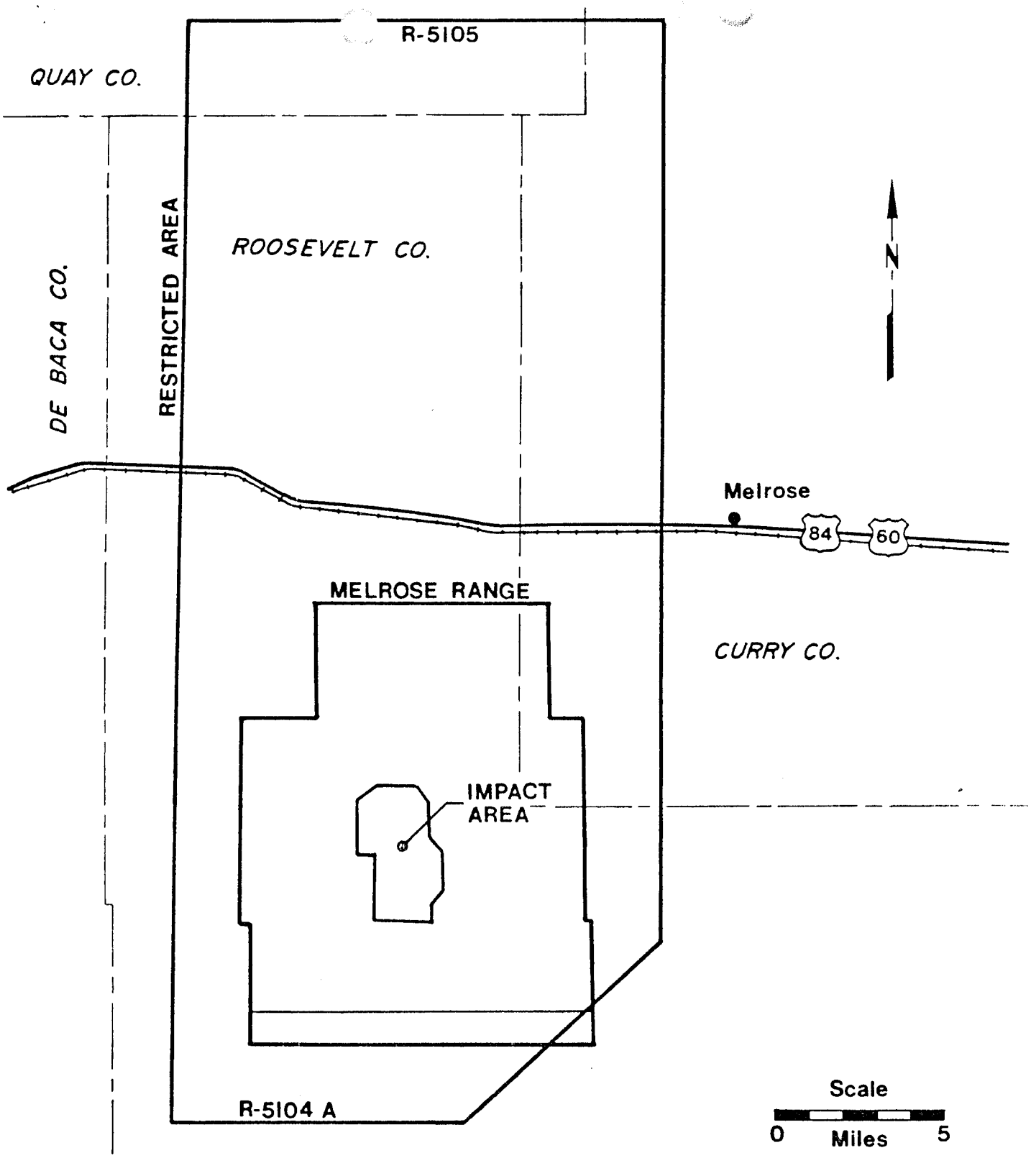



Figure 1.2-6. Melrose Range Operations Area

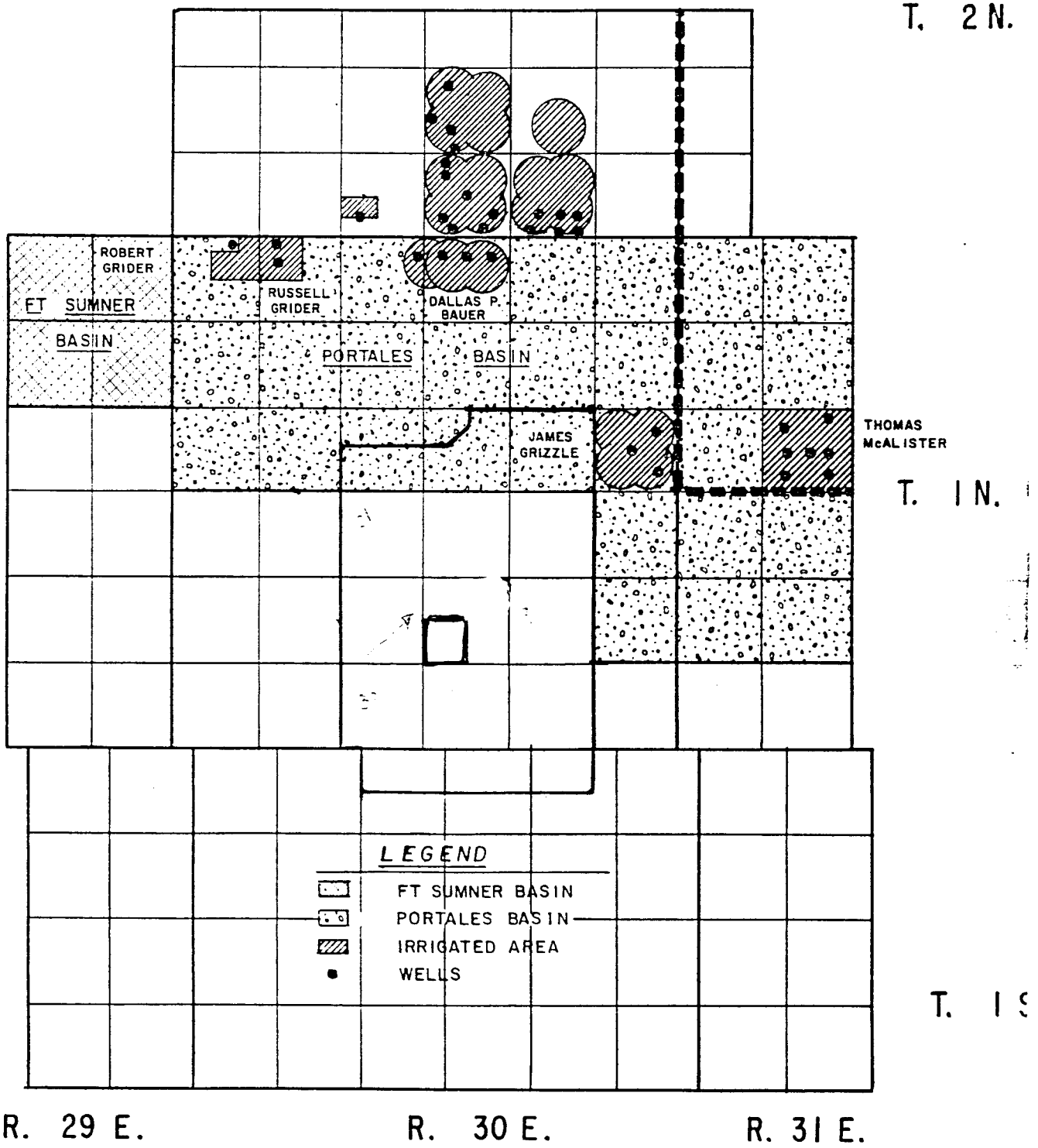
ATCH 1a

# WELL LOCATIONS — IRRIG.

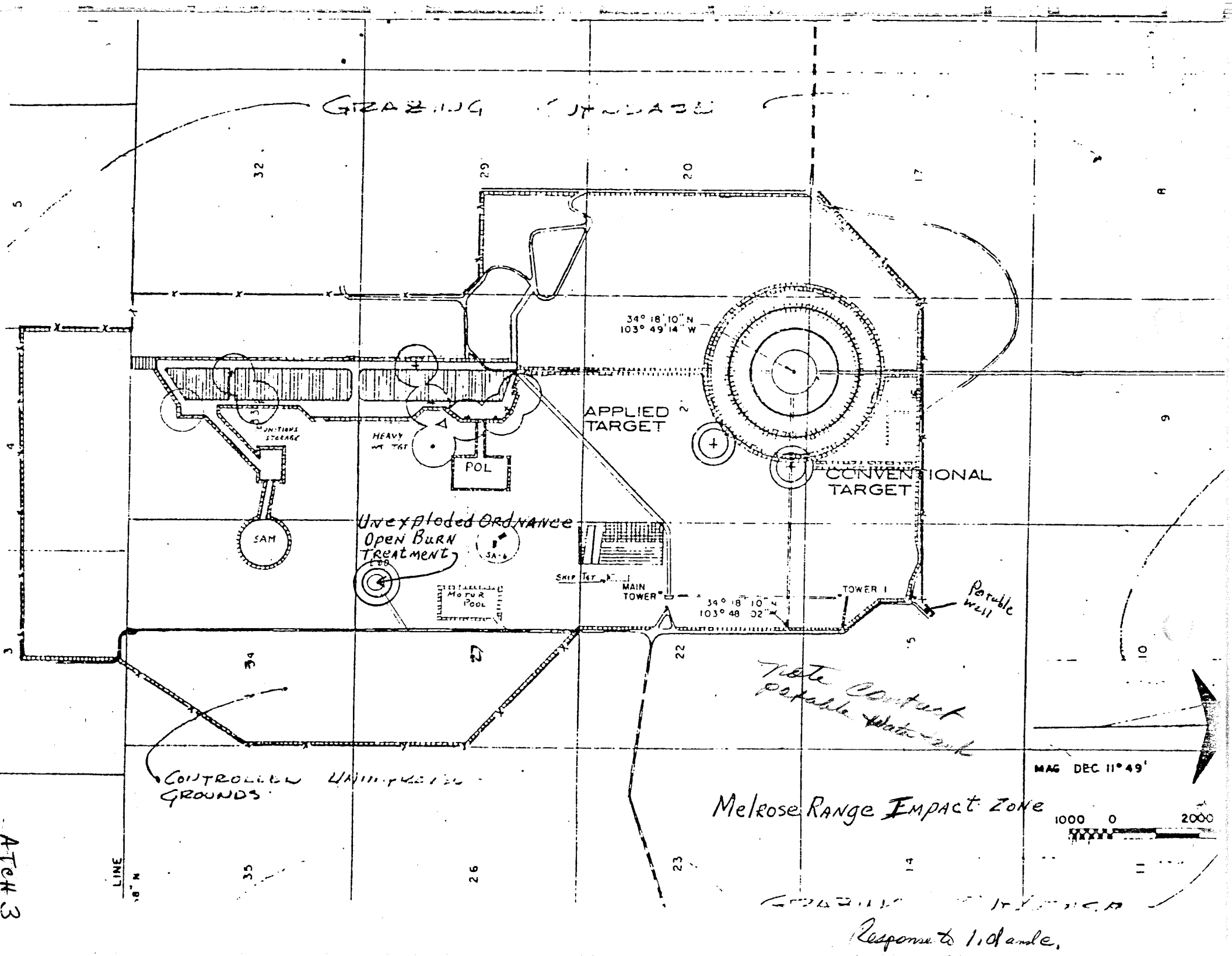
## PROPOSED MELROSE RANGE EXPANSION

## 1979

SCALE: 1" = 1.75 MILES = 1.52 N.M.




EXTRACTED FROM STATE ENGINEER'S VESTED WATER RIGHTS MAP




Response to 1.0 and e.

ATCH 3

# APPENDIX C
# WATER WELLS

| LOCATION | OWNER |
|---|---|
| 26. 1N 30E 02 443 | Unknown |
| 27. 1N 30E 03 213 | Guar Tex Inc. |
| 28. 1N 30E 04 231 | Davis Bros. |
| 29. 1N 30E 05 123 | Russel Grider |
| 30. 1N 30E 06 212 | Robert Grider |
| 31. 1N 30E 06 222 | Robert Grider |
| 32. 1N 30E 07 211 | Robert Grider |
| 33. 1N 30E 13 223 | State of NM |
| 34. 1N 30E 13 314 | Jim Grizzle |
| 35. 1N 30E 13 414 | Grayum Steele |
| 36. 1N 30E 15 322 | J. J. Steele |
| 37. 1N 30E 24 114 | H. H. Davis |
| 38. 1N 30E 24 114 | Steele Ranch |
| 39. 1N 30E 30 111 | H. H. Davis |
| 40. 1N 30E 31 313 | H. H. Davis |
| 41. 1N 30E 32 344 | H. H. Davis |
| 42. 1N 30E 32 344 | H. H. Davis |
| 43. 1N 31E 20 321 | J. J. Steele |
| 44. 1N 30E 33 211 | J. J. Steele |
| 45. 1S 30E 06 111 | H. H. Davis |
| 46. 1S 30E 18 221 | A. J. Parker |
| 47. 1S 30E 23 | F. L. Martin |

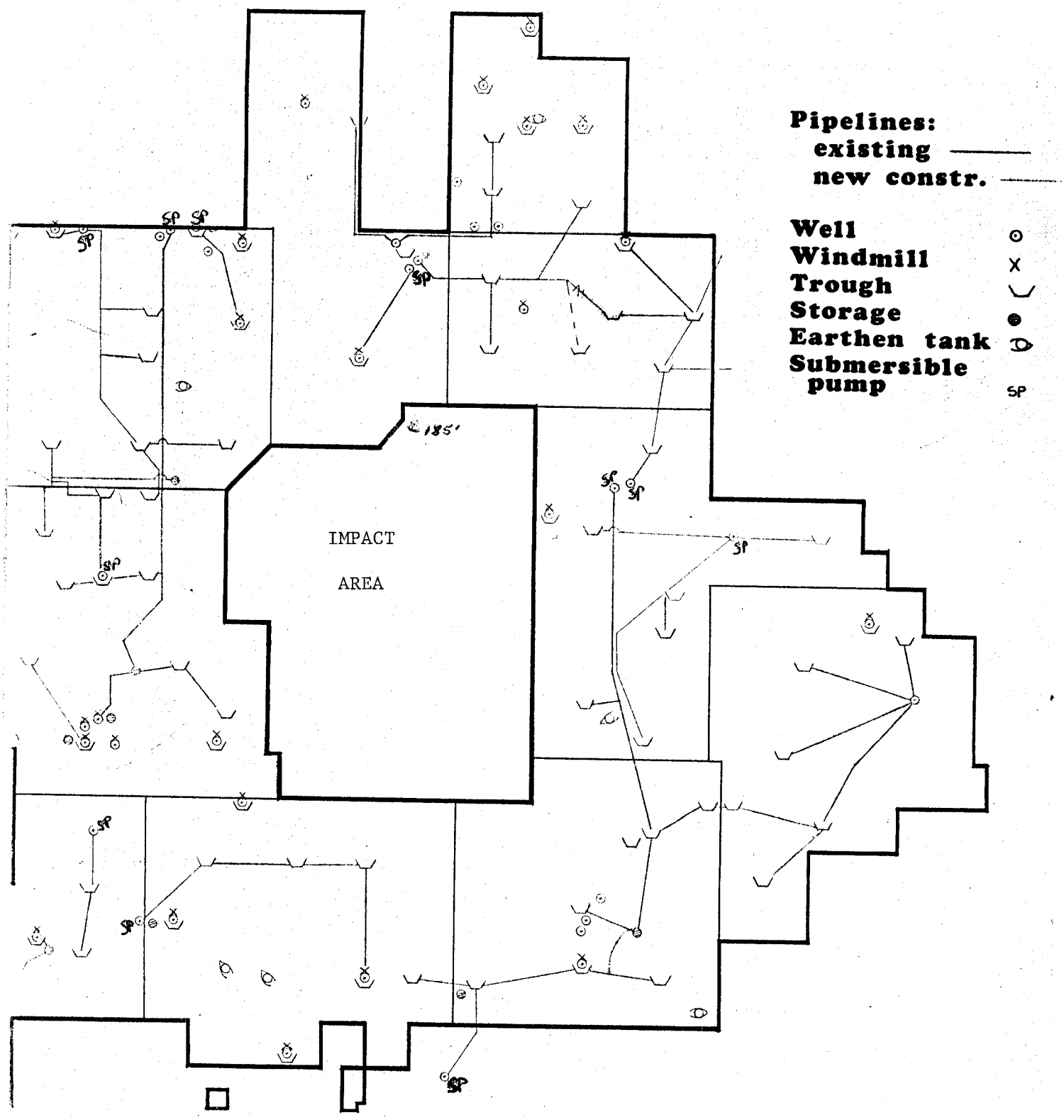
| LOCATION | OWNER |
|---|---|
| 1. 2N 31E 31 221 | Hart Ranch |
| 2. 2N 30E 19 412 | Harris Cattle Co. |
| 3. 2N 30E 23 423 | Unknown |
| 4. 2N 30E 25 432 | Jack Simon |
| 5. 2N 30E 25 441 | Hart Ranch |
| 6. 2N 30E 26 442 | Nolan Lawrence |
| 7. 2N 30E 26 442 | H. L. Harral |
| 8. 2N 30E 27 132 | Bob Jenkins |
| 9. 2N 30E 27 234 | Bob Jenkins |
| 10. 2N 30E 31 233 | Harris Cattle Co. |
| 11. 2N 30E 31 343 | Robert Grider |
| 12. 2N 30E 31 344 | Robert Grider |
| 13. 2N 30E 33 314 | Davis Bros. |
| 14. 2N 30E 33 434 | Unknown |
| 15. 2N 30E 34 121 | Bob Jenkins |
| 16. 2N 30E 34 141 | Bob Jenkins |
| 17. 2N 30E 39 341 | Bob Jenkins |
| 18. 2N 30E 34 432 | Bob Jenkins |
| 19. 2N 30E 35 332 | Bob Jenkins |
| 20. 2N 30E 35 432 | Bob Jenkins |
| 21. 1N 31E 17 132 | Lenord Bigler |
| 22. 1N 31E 17 341 | Lenord Bigler |
| 23. 1N 31E 17 441 | Lenord Bigler |
| 24. 1N 31E 18 224 | Harris Cattle Co. |
| 25. 1N 30E 01 212 | Harris Cattle Co. |

This appendix contains the locations and known previous owners of wells in the proposed Melrose AF Range expansion area. Extract from the 1985 Final Environmental Impact Statement for Expansion of the Melrose AFR, Curry County and Roosevelt Counties

WATER SYSTEMS

MELI E AIR FORCE RANGE, NEW MEXICO

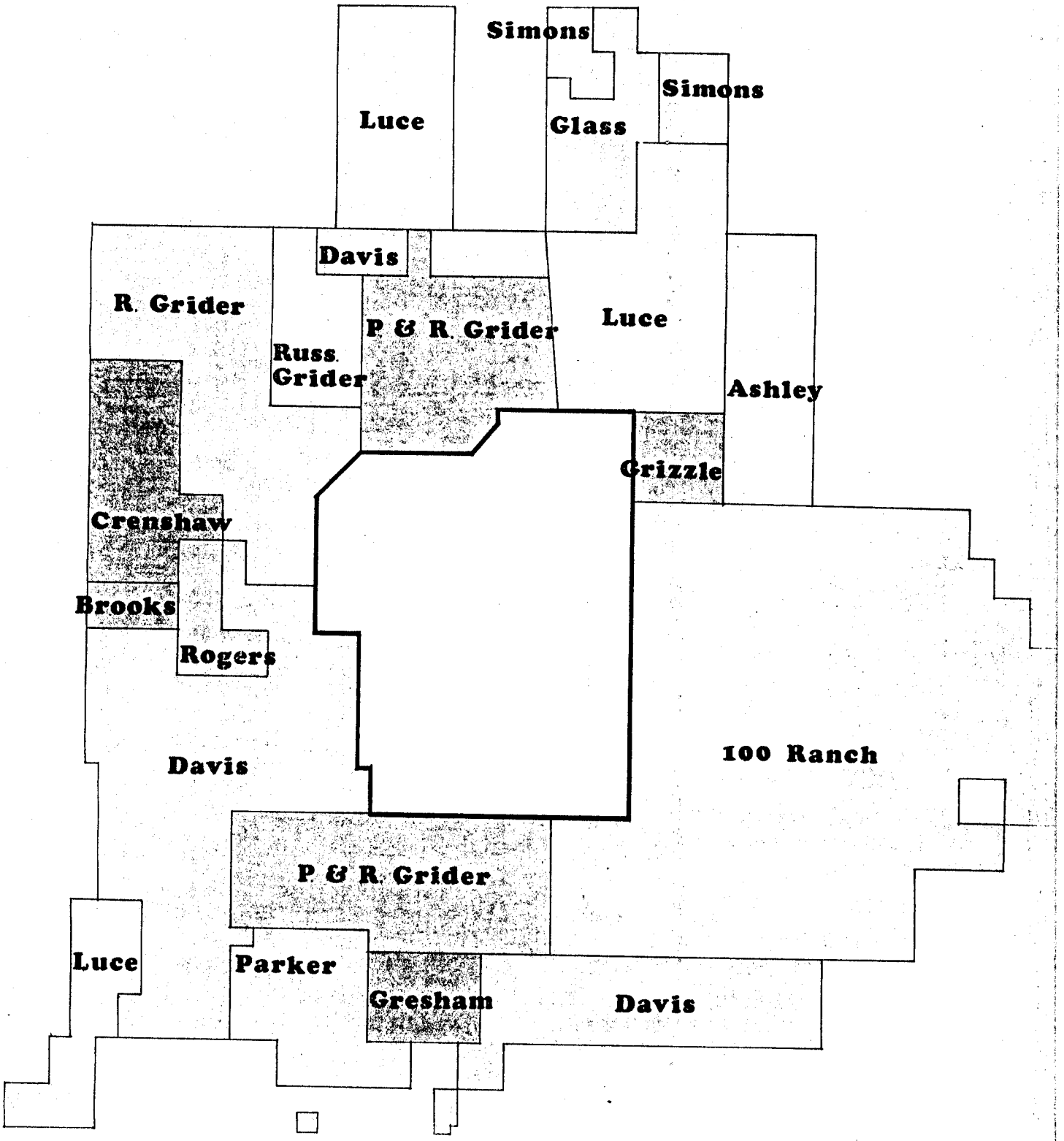
WATER SYSTEMS



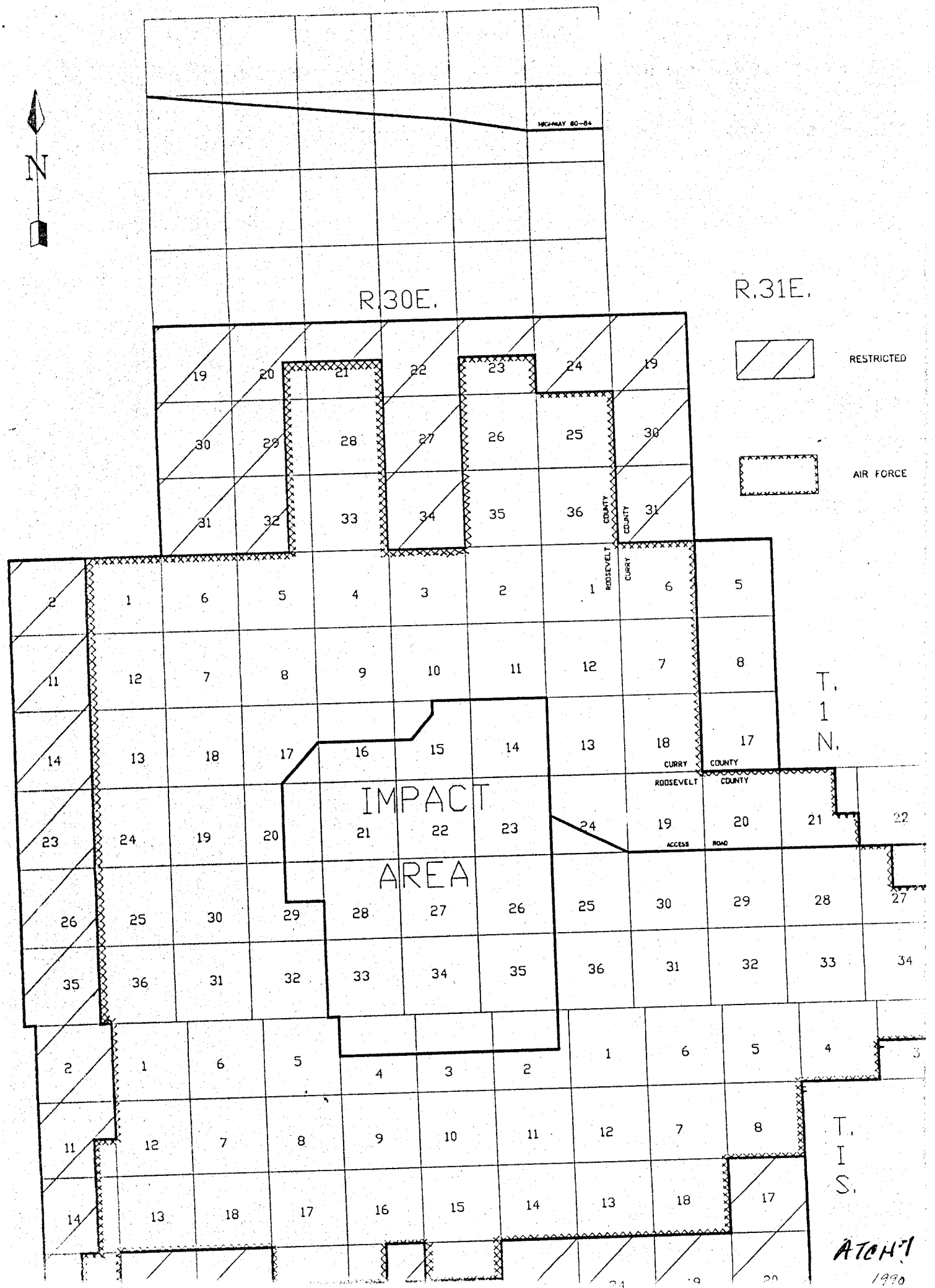

ATCH 5
1990

# LEASEE

MELROSE AIR FORCE RANGE, NEW MEXICO




ATCH6
1990


N
HIGHWAY 60-84
R.30E.
R.31E.
RESTRICTED
AIR FORCE
T. 1 N.
T. 1 S.
IMPACT AREA
CURRY COUNTY
ROOSEVELT COUNTY
ACCESS ROAD

ATCH 1
1990

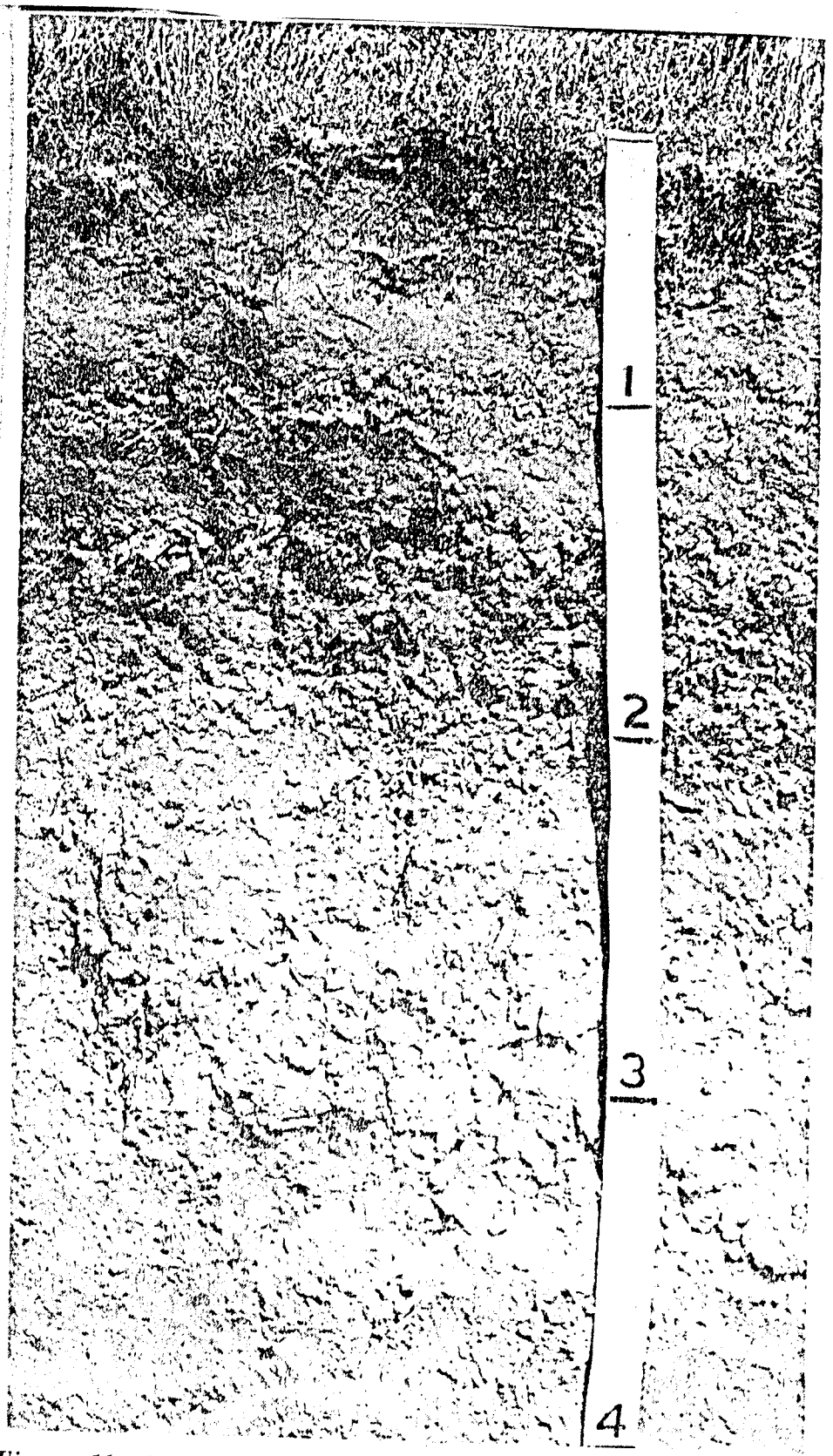
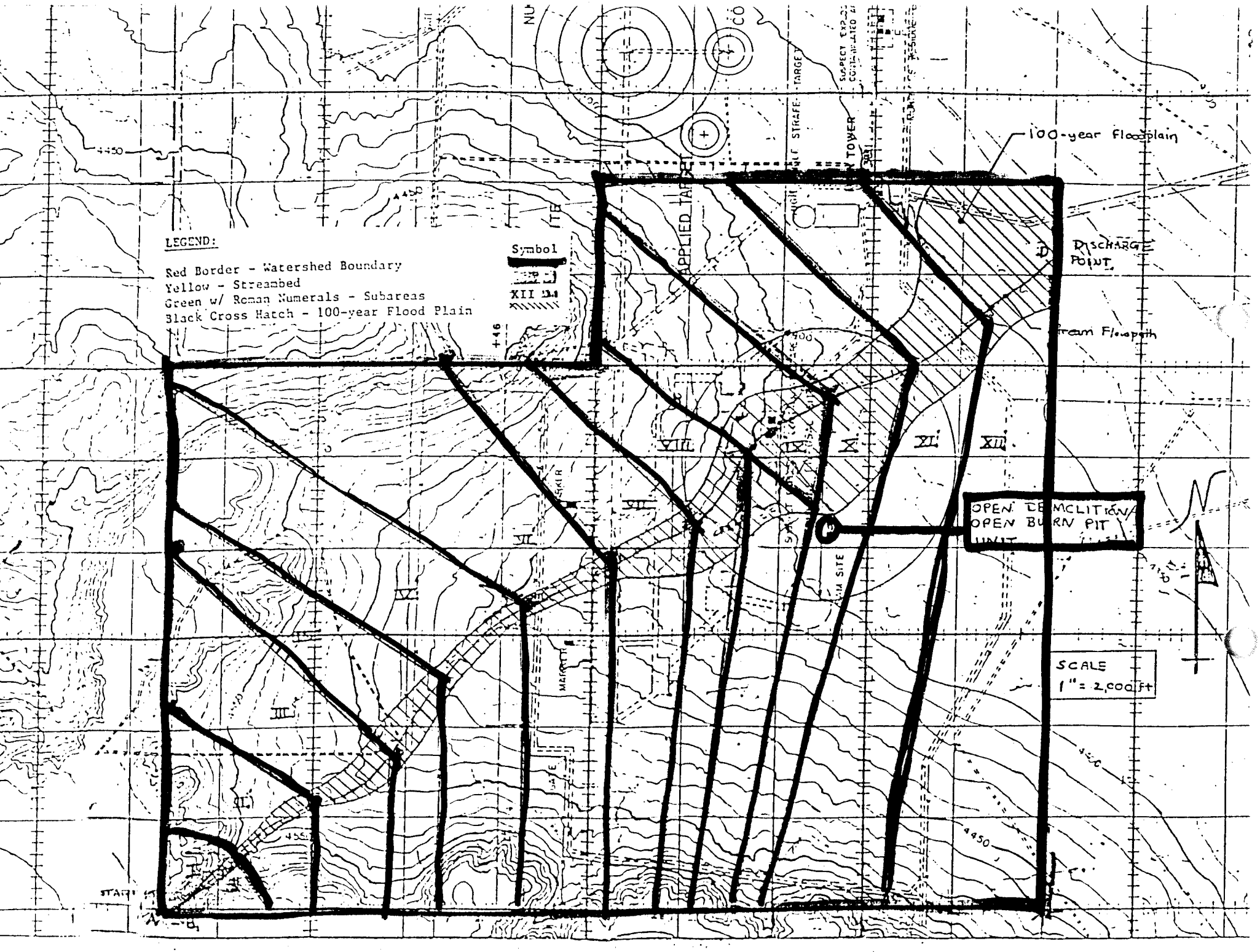



*Figure 11.*—Profile of Olton loam, 0 to 1 percent slopes, showing subangular blocky structure of subsoil.

ATCH8


LEGEND:
Red Border - Watershed Boundary
Yellow - Streambed
Green w/ Roman Numerals - Subareas
Black Cross Hatch - 100-year Flood Plain
Symbol
XII
100-year Floodplain
DISCHARGE POINT
Stream Flowpath
OPEN DEMOLITION/ OPEN BURN PIT UNIT
SCALE
1" = 2,000 ft
APPLIED TARGET
TOWER
STRAFE TARGET
VIII
IX
X
XI
XII
VII
VI
V
III
II
4450

TELEFAX ELECTROMAIL TRANSMITTAL

1. NUMBER OF PAGES: 16

2. FROM (Unit, FAS, Location): VERA A WOOD, 27 SG/CEV, ENGINEERS WAY, CANNON AFB, NM

3. TELEPHONE NUMBER: 505-784-2739, FAX 505-784-2738

4. CLASSIFICATION: ☒ UNCLASSIFIED ☐ FOUO

5. TO (Unit, FAS, Location): NMED-PCB + Section N, MR TOM TA

6. DOCUMENT IDENTIFICATION: MELROSE AFB, NM PART B PERMIT TECH REVIEWS, INSPECTIONS

7. REMARKS (Indicate additional information which will be made by the agency shown in Item 5)

Tom,

This response covers the Inspection Section of your questions for our Part B Hazardous Waste Permit.

IT IS MISSION ESSENTIAL THAT THIS DOCUMENT BE TRANSMITTED VIA FACSIMILE

8. DATE OF TRANSMISSION: 2 DEC 92 ~~30 NOV 92~~

9. TIME OF TRANSMISSION: 1000 ~~1035~~

10. RELEASER'S SIGNATURE: Vera Wood, GS-11

TAC FORM APR 84 272

DEC- 2-92 WED 11:47 CIV / ENG 5057842738 P.02

CEV/WOOD/2739/vaw/30NOV92/nmed2

CANNON AIR FORCE BASE REPORT ON:
Preliminary Technical Review
Request for Information
And Comments for Discussion
FOR MELROSE AF RANGE

30 NOV 92 UPDATE

5 Inspections: ECD 30 Nov 92.

a Describe in detail all responsibilities assigned to the AFR management contractor, Arcata.

RESPONSE: Remove all reference to Arcata and substitute with current contractor. The current contractor for Melrose AFR is Westar. Per conversation with our contracting personnel, modifying terms of the contract is costly and cannot be considered until the contract renewal. The contractor is in charge of [illegible] and maintenance of Melrose AFR. The attachments listed as TE1-7 through TE[illegible] Requirements Summary, is a list of duties for Melrose AFR contractor.

b Items to be inspected are included in Figure F-1 of the Part B application. It is stated that these items will be inspected before each treatment session. Certain items must be inspected more regularly, such as maintenance of berms, signs and fencing. The presence of standing water in the OB/OD unit may have to be checked for and evacuated after each rain storm. Provide a more comprehensive inspection list than the one in Figure F-1.

RESPONSE: A more comprehensive inspection list than the one listed in Figure F-1 is provided for your review and approval. Explosive Ordnance personnel will inspect in accordance with Figure F-1 prior to ordnance treatment. The new weekly inspection log is listed as F-3a through F-3j and will be accomplished by the Operation Group personnel (27 OSS/OSTW) handle the contract quality assurance evaluator (QAE) duties to ensure contract compliance.

c Explain what group performs inspections, what group responds to noted deficiencies and reporting process works to initiate response.

The Operations Group personnel (27 OSS/OSTW) serves as the contract Quality Assurance Evaluator and inspects for contract and environmental compliance. The QAE files appropriate forms with contracting personnel in order that resolution to any findings are accomplished timely. Enviornmental Management is consulted or notified by telephone or through meetings concerning environmental compliance matters. Environmental Management performs quarterly site visits and inspections at Melrose AFR. Explosive Ordnance personnel inspect the immediate area of the OB/OD prior to ordnance treatment.

PERFORMANCE REQUIREMENTS SUMMARY

| REQUIRED SERVICE | STANDARD | PERFORMANCE REQUIREMENT | METHOD SURVEILLANCE | MAXIMUM PAYMENT PERCENTAGE FOR MEETING THE PERFORMANCE REQUIREMENT | MAXIMUM PAYMENT PERCENTAGE FOR MEETING THE PERFORMANCE |
|---|---|---|---|---|---|
| RS-7 CONTROL OF TRAFFIC IN IMPACT AREA Para 1.5.3., Para 1.5.4., | (1) Contractor shall restrict range entry on the primary access route to the weapons impact area and maintenance compound. | 0 Lot: Is number of range periods in the month | Daily Checklist | 10% | 3% |
| | (2) Contractor shall keep access gates to the impact area locked during bombing operations unless otherwise authorized by the RCO | 0 Lot: Is number of range periods in the month | Daily Checklist | 2% | 5% |
| RS-8 PERFORM MAINTENANCE AND CONSTRUCTION OF TARGETS Paras 5.5., 5.5.4.4.2., 5.5.4.3.1., 5.5.4.4.3., 5.5.4.5.3. | (1) Contractor shall provide effective management and supervision of range administration, operations, maintenance, decontamination, and clearance. | 0 Lot: Is number of operational days in the month | Weekly Checklist | 5% | |
| | (2) Contractor shall perform scheduled target maintenance which is accomplished on a periodic recurring basis. | 0 Lot: Is number of times maintenance performed times number of weeks in the month | Weekly Checklist | 5% | |
| | (3) Contractor shall perform unscheduled maintenance which provides short notice repair to unacceptable target damage. | 0 Lot: Is number of unscheduled repairs to target equipment | As Required Checklist | 5% | |
| | (4) Contractor shall replace target vehicles in the exact surveyed location of the removed target vehicles. | 0 Lot: Is number of times target vehicles are replaced | As Required | 5% | |

PERFORMANCE REQUIREMENTS SUM

| REQUIRED SERVICE | STANDARD | PERFORMANCE REQUIREMENT | METHOD OF SURVEILLANCE | MAXIMUM PAYMENT PERCENTAGE FOR MEETING THE PERFORMANCE REQUIREMENT |
|---|---|---|---|---|
| RS-1 ENVIRONMENTAL MAINTENANCE Para 5.5.3. | (1) Contractor shall ensure that hazardous materials are removed from target vehicles prior to placing on the range target area. | 0 Lot: is the number of operational days in the month | Monthly Checklist | 5% |
| | (2) All hazardous materials shall be handled and disposed of in accordance with all Federal, State, and Local Laws and Regulations. | 0 Lot: Is the number of operational days in the month | Monthly Checklist | 5% |
| RS-2 PREPARE AND MAINTAIN DAILY EVENTS AND MAINTENANCE LOGS Para 5.7.9. Para 5.7.10. | Prepare and maintain daily events log of all pertinent actions on range such as important telephone conversations, cleared area releases, fires, crashes, ineffective or lost sorties, etc. Prepare and maintain a log of all maintenance functions performed on the range. | 3 Lot: is the number of operational days in the month | Daily Checklist | 5% |
| RS-3 RANGE PREPARATION Para 5.6.11. | Ensure operational readiness of all range targets, scoring equipment, [illegible] recordings, communications and support systems, not later than 20 minutes prior to an[illegible]ed opening range period | 0 Lot: Is number of range periods in the month | Daily Checklist | 15% |

AF FORM 713 PERFORMANCE REQUIR

PERFORMANCE REQUIREMENTS SUMMARY

| REQUIRED SERVICE | STANDARD | PERFORMANCE REQUIREMENT | METHOD OF SURVEILLANCE | MAXIMUM PAYMENT PERCENTAGE FOR MEETING THE PERFORMANCE REQUIREMENT |
|---|---|---|---|---|
| RS-4 STRAFE PIT AND AREA MAINTENANCE<br>Paras 5.5.4.1.1.<br>5.4.1.9. | (1) Disc plow each strafe impact area approximately (100 x 1000 ft) at least weekly or every six range use days to maintain loose soil at least 12 inches deep. Strafe area shall be cleared of projectiles, fused brass, etc. | 1<br>Lot: Is the number of times maintenance performed times the number of weeks in the month | Weekly Checklist | 4% |
| | (2) Contractor shall replace unserviceable strafe traget panels, suspension cables and tale-up reels. | 1<br>Lot: Is same as Item 1 | Weekly Checklist | 4% |
| | (3) Contractor shall maintain strafe berms IAW TAC SUP 1 to AFR 50-46. | 1<br>Lot: Is same as Item 1 | Weekly Checklist | 1% |
| | (4) Contractor shall maintain the foul lines IAW TE 15 | 1<br>Lot: Is same as Item 1 | Weekly Checklist | 1% |
| RS-5 TOSS OPERATION AND MAINTENANCE<br>Paras 5.6.1.1. thru 5.6.2.2. and TE 6 | (1) Ensure TOSS is operational 20 minutes before first scheduled range period of the day. | 0<br>Lot: Is the number of operational days in the month | Daily Checklist | 5% |
| | (2) Contractor shall m[illegible]ain TOSS at a rate of 95% o[illegible] readiness per year. | 0<br>Lot: Is the number of range periods per year | Quarterly Checklist | 10% |
| RS-6 RECURRING REPORTS<br>TE 2-1, Para 1.2.<br>Para 5.6.2.2. | Prepare recurring quarterly reports based upon information obtained thru compilation of Operations and Maintenance Data such as: TAC Form 156, AF Form 457, TAC-DOX (Q) 7301, Range Historical Report, CAFB Form 7, Inspection and Maintenance Record. | 3<br>Lot: Is number of reports to be prepared | Quarterly Checklist | 5% |

[illegible] AIR FORCE RANGE TREATMENT
FACILITY WEEKLY INSPECTION LOG

Point of Contact:

Building #:

Telephone #:

Date of Inspection:

| | Yes | No | Comments: |
|---|---|---|---|
| 1. How does the TSD know what it's receiving (e.g., process knowledge or testing)?[HW ] | | | |
| 2. Are there records showing types and quantities of HW received from on base or off base SAPs or APs?[HW ] | | | |
| 3. Are containers clearly marked as to their contents? (264. )[HW ] | | | |
| 4. Are containers maintained in good condition? (264.171)[HW ] | | | |
| 5. Are containers compatible with contents? (264.172)[HW ] | | | |
| 6. Are containers closed when not in use? (264.173(a))[HW ] | | | |
| 7. Are containers managed to avoid ruptures or leaks? (264.173(b))[HW ] | | | |
| 8. Are inspections of the TSD performed weekly? (264.174)[HW ] Are the records of these inspections kept on file for 3 years? (264.73)[HW 61.2] | | | |
| 9. Do the inspections look for leaks and corrosion? (264.174)[HW ] | | | |
| 10. Are containers of ignitable HW at least 15 meters (50 ft.) from the property line? (264.176)[HW ] | | | |

| | Yes | No | Comments: |
|---|---|---|---|
| 11. Are incompatible wastes stored in the same container? (264.177(a)) [HW ] | | | |
| 12. Are HW stored in unwashed containers that previously held an incompatible waste? (264.177(b)) [HW ] | | | |
| 13. Are HW that are incompatible with other HW, stored "nearby" the other HW without adequate separation? (264.177))[HW ] | | | |
| 14. If HW are stored in tanks, consult Subpart J of Sec. 264.[HW ] | | | |
| 15. If the TSD is being closed, consult 264.111 and 264.114.[HW ] | | | |
| 16. Are TSD personnel trained in HW management, emerg. procedures and emerg. equipment (OJT or classroom training) including unique facility standards? (264.16(a)(3))[HW ] | | | |
| 17. Is the trainer of these personnel trained in hazardous waste management procedures? (264.16(a)(2)) [HW ] | | | |
| 18. Is training conducted w/in 6 months of initial assignment and movement to new positions? (264.16(b))[HW ] | | | |
| 19. Until such training is conducted, do employees work in supervised positions? (264.16(b))[HW ] | | | |
| 20. Is an annual review of this training conducted by each employee? (264.16(c))[HW ] | | | |
| 21. Are RCRA training records properly maintained: (264.16(d))[HW ] | | | |
| a Job title for each position relating to HW management? | | | |

2

| | Yes | No | Comments: |
|---|---|---|---|
| b. Employee name in each position? | | | |
| c. Written job description for each position w/specificity as to duties, skill, educat., and other qualifications? | | | |
| d. Written description of type and amount of introductory and continuing training for each position listed above? | | | |
| e. Records that document that the training or OJT has been given and completed? | | | |
| 22. Are training records kept for current employees until facility closure, and past employees for at least 3 years (but records can be transferred to new job)? (264.16(e)) [HW ] | | | |
| 23. Are those who work with HM or HW receiving OSHA HAZWOPER training? (29 CFR 1910.120)[HW ] | | | |
| 24. Are those who work with HM or HW receiving OSHA HAZCOM training? (29 CFR 1910.1200)[HW ] | | | |
| 25. TSD maintained to minimize fire, explosion, unplanned sudden or nonsudden releases of HW (e.g., HW signs, No Smoking signs, proper grounding, etc.)? (264.31)[HW ] | | | |
| 26. TSD has internal comm. or alarm system to alert facility personnel in emergencies? (264.32(a))[HW ] | | | |
| 27. TSD has telephone (or other device) "immediately available at the scene of operations" to summon emergency assistance? (264.32(b)) [HW ] | | | |

| | Yes | No | Comments: |
|---|---|---|---|
| 28. TSD has portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment? (264.32(c))[HW ] | | | |
| 29. TSD has water at adequate volume and pressure to supply water hose streams, water sprinklers, or other devices? (264.32(d))[HW ] | | | |
| 30. Is this emergency comm. and response equipment listed above maintained and tested, and is this documented? (264.33)[HW ] | | | |
| 31. When HW is being handled at the TSD, do personnel involved have access to the equipment in item 26 above? (264.34(b))[HW ] | | | |
| 32. When only one employee is present at the TSD, does s/he have access to the equipment in item 27 above? (264.34(b))[HW ] | | | |
| 33. Is the TSDs aisle space sufficient to allow unobstructed movement of personnel in an emergency? (264.35) [HW ] | | | |
| 34. Arrangements made to familiarize SPs, fire department, and emergency response teams with layout and hazards of the TSD? (264.37(a)(1))[HW ] | | | |
| 35. Arrangements made to familiarize SG w/hazardous wastes handled at the TSD? (264.37(a)(4))[HW ] | | | |
| 36. Where state/local authorities will respond to emergencies, are arrangements made to make them aware of 34 and 35? (264.37(a))[HW ] | | | |

| | Yes | No | Comments: |
|---|---|---|---|
| 37. Where state/local authorities would respond, but decline to enter into any arrangements, is this documented in the TSD operating record? (264.37(b))[HW ] | | | |
| 38. TSD have a current copy of the base SPCC/HWCP? (264.51)[HW ] | | | |
| 39. Does the SPCC/HWCP meet the requirements of 264.52, and is it accurate in regard to the TSD?[HW ] | | | |
| 40. Does the SPCC/HWCP contain names and telephone numbers of the TSD's ECs, & does it reflect changes in regulations, the facility, and emergency equipment? (264.54)[HW ] | | | |
| 41. Who is/are the TSD's Emergency Coordinators? (264.55)[HW ] | | | |
| 42. Is one of the TSD's ECs at the facility or on call at all times? (264.55) [HW ] | | | |
| 43. Are the TSD's ECs familiar with their duties under 264.56? | | | |
| 44. Are there any floor drains? Does the TSD manager know where they go? | | | |
| 45. Have there been any releases, spills, or overfills? How were they managed? | | | |
| 46. As to the TSD's secondary containment, is it effective (e.g., if a pan, is the drain plug closed; if painted, is it really impervious), is it tested, and are results documented? | | | |
| 47. If TSD is outside, what do they do with rainwater? Is it ever tested? | | | |

| | Yes | No | Comments: |
|---|---|---|---|
| 48. Hazardous Materials: | | | |
| a. Are DRMO resale products being properly managed as HM or HW? | | | |
| b. | | | |
| c. | | | |
| d. | | | |
| 49. Permit standards: | | | |
| a. | | | |
| b. | | | |
| c. | | | |
| d. | | | |
| 50. As for munitions activities: | | | |
| a. Does the facility have a Subpart X Waste Ordnance Treatment facility? If so, is it managed IAW the permit? | | | |
| b. Is waste ordnance manifested to the treatment facility?(264. )[HW ] | | | |
| c. Does the installation have a transporter identification number to transport the waste ordnance?(263. ) [HW ] | | | |
| d. Do LDR notices accompany the shipment of this waste ordnance?(268. )[HW ] | | | |
| e. Is the ash from OB/OD/SF tested? What are the results? If a HW, how is it managed?(262.11)[HW ] | | | |
| f. Is the ordnance transported to the treatment facility, and any resultant HW ash included in the base's an- | | | |

6

| | Yes | No | Comments: |
|---|---|---|---|
| nual/biennial generator report? (262. )[HW ] | | | |
| g. Does the treatment facility report in its annual/biennial TSD report all of the ordnance that is treated there? (264. )[HW ] | | | |
| h. In terms of emergency response to off base ordnance issues (e.g., pipe bombs on the economy), have emergency procedures with state and local officials been coordinated in advance? (270.61) [HW 9] | | | |
| 51. Unique State/Local requirements: | | | |
| a. | | | |
| b. | | | |
| c. | | | |
| d. | | | |
| 52. Select 8-10 different entries in the facilities HW log for HW that are currently being stored; go to the storage area and see if you can find them, if they have the proper labeling, and if they are stored in the area that the log indicates.(264. )[HW ] | | | |
| 53. While in the storage area, select 8-10 different HWs, and see if the codes are reflected in the generator ID # and Part A/B permit applications as the types of wastes managed at the facility.(264. )[HW ] | | | |
| 54. Compare the yearly/biennial generator and TSD reports with the generator ID # and Part A/B permit applications: are the same RCRA HW ID#s being reported?(264. )[HW ] | | | |

| | Yes | No | Comments: |
|---|---|---|---|
| 55. Select 8-10 different entries in the facilities HW log for HW that are currently being stored or have been stored: are they the same RCRA HW ID#s that are reported in the yearly/ biennial generator and TSD reports, and the generator ID # and Part A/B permit applications?(262. ,264. ) [HW ] | | | |
| 56. Does the annual/biennial TSD report inlcude all of the HW managed by the TSD, not just HW generated by the host facility? (264. ) [HW ] | | | |
| 57. Select 8-10 manifests and see if there is an LDR notice directly associated with each manifest. (268.7(a)(1)(iii)) [HW 156] | | | |
| 58. With these manifests and their associated LDR notices; are there appropriate LDR notices for each of the RCRA HW ID# codes reflected in the manifests? (268. )[HW ] | | | |
| 59. With these same manifests, are the destinations and addresses the same as reported in the yearly/ biennial TSD report? (264. ) [HW ] | | | |
| 60. With these same manifests, are the RCRA HW ID#s the same as reported in the Part A/B permit application and the yearly/biennial TSD report? (264. ) [HW ] | | | |
| 61. With these same manifests, see if the Waste Analysis and Characterization Plan and the analyses done of the manifested wastes, support the conclusions as to the RCRA identity of the nature of what was manifested (as well as the LDR notices accompanying the manifests.(264. ) [HW ] | | | |

8

| | Yes | No | Comments: |
|---|---|---|---|
| 62. Are waste analyses, when available, being sent along with the LDR notices? (268.7(a)(1)(iv))[HW 156] | | | |
| 63. Record requirements for the waste ordnance activity (264. ) [HW ] | | | |
| a. Training records for 3 years. | | | |
| b. Inspection records for 3 years. | | | |
| c. Manifests for 3 years. | | | |
| d. LDR notices for 5 years. | | | |
| e. Operating records/logs for 3 years. | | | |
| f. Waste analyses for the life of the facility. | | | |
| 64. Inspect the waste ordnance activity | | | |
| a. Hazardous Waste Contingency Plan (HWCP) | | | |
| b. Hazardous Waste Management Plan (HWMP). | | | |
| c. Hazardous Waste Minimization Plan (HWMP) | | | |
| d. Hazardous Waste Analysis and Characterization Plan (HWACP) | | | |
| e. Closure Plan. | | | |
| 65. Does the Part B Permit application accurately reflect current TSD conditons? (270.14(b)(7) [HW46.1] | | | |
| 66. Has the TSD ever been inspected before?<br>a. When and by whom?<br>b. Results? | | | |

| | Yes | No | Comments: |
|---|---|---|---|
| 67. Did you inform your Point of Contact of the inspection results? | | | |
| 68. Should you immediately notify the Team Chief of any discrepancies you found? | | | |
| 69. Are there any improvements in managing the AP that you could recommend? | | | |
| 70. Are there any positive aspects of the TSD worth noting? | | | |

71. Additional observations:

PERFORMANCE REQUIREMENT

| REQUIRED SERVICE | STANDARD | PERFORMANCE REQUIREMENT | METHOD OF SURVEILLANCE | MAXIMUM PAYMENT PERCENTAGE FOR MEETING THE PERFORMANCE |
|---|---|---|---|---|
| RS-9 PERFORM MAINTENANCE TO GATES, FENCES, AND SIGNS Para 5.9.1.11.4. | Contractor shall inspect, repair, and maintain gates, fences, and signs as required to ensure a viable impediment to unauthorized access. | Lot: is number of times maintenance performed times number of weeks in the month | As Required Checklist | 3% |
| RS-10 EOD DISPOSAL RANGE/ THERMAL TREATMENT PIT MAINTENANCE 5.12.7.1. | Contractor shall grade and clear an area to a radius of 500 feet from the center of the Thermal Treatment Pit. This area shall be kept free of all combustible material and vegetation. | Lot: is number of operational days in the month | Daily Checklist | 5% |

AF FORM 713 PERFORMANCE REQUIREMENTS SUMMARY

CEV/WOOD/2739/vaw/2[illegible]C92/nmed3

d. Describe how "treatment action" for safe, expeditious and cost effective [illegible] been defined for the Melrose AFR, and explain how compatible characteristics are determined. (p. [illegible] Appendix F-1), (1-11).

RESPONSE: The US Government Ordnance experts developed studies and guidelines for personnel in Explosive Ordnance and Munitions to follow, based on the studies each individual ordnance has a guideline and checklist to follow with appropriate disposition instructions (e.g. repair, expired shelf life item, etc.).

e. Explain what is meant by bulk explosives, and why mixing of bulk explosives will not be permitted.
RESPONSE: Explosive Ordnance personnel assure us that we do not use bulk explosives in any treatment operation at Melrose AFR.

f. Confirm that the explosive limit for the OD trench is 100 pounds (p. D-1) during any one detonation. Provide additional commentary if necessary to clarify this amount, such as, "This weight does not include the inert portion of the item." (1-12)

RESPONSE: Explosive Ordnance personnel requested that we revise Melrose AFR Part A and Part B permit to reflect an increase from 100 to 1,000 pounds total net explosive weight. One ordnance that requires detonation treatment reflects a net explosive weight of 150 pounds. Revision to the Part A and B will be modified to reflect this requirement. Munitions personnel are responsible for calculating the total net explosive weight for manifesting and tracking ordnance, however, this weight does not include the inert portion of a the ordnance.

g. It is stated in Appendix F-1, Item 1-13 that disposals of munitions by open burn and open detonation involve the release of toxic fumes. The control of these fumes is to be determined after assessment of each particular ordnance item is completed. Explain how this assessment is performed for Melrose AFR OB/OD unit.

RESPONSE: Explosive Ordnance personnel ensure us that we are not treating any ordnance at Melrose AFR with toxic fumes. The technical Order listed there is a general guidance and each ordnance will be reviewed in accordance with specific checklist and guideline.

h. Explain why the uses of concrete pads are not permissible for open detonation (1-21).

RESPONSE: The concrete pad would become debris during detonation.

i. Describe the location and features of the holding area for explosives associated to the OB/OD unit (1-22).

RESPONSE: Melrose Air Force Range does not have a dedicated holding area for Munitions. Items are stored at Cannon Air Force Base in a highly secured facility. Prior to continuous treatment, the items are manifested and transported to the physical site of the OB/OD.

j. Describe where tools, safety equipment and safety clothing are stored relative to the OB/OD unit (1-22).

RESPONSE: All tools, safety equipment and personal protective equipment are stored at Cannon AFB. Prior to a treatment at Melrose AFR, the necessary accompanying tools and equipment is loaded on a truck and transported to the OB/OD area. The Melrose AFR Fire Fighters is equipped to respond to emergency situations during OB/OD treatment.

k. Describe the safety training program that is required for all EOD personnel.

CEV/WOOD/2739/vaw/2DEC92/nmed3

RESPONSE: All EOD personnel receive twenty-two (22) weeks of specialized explosive ordnance training and in accordance with AFR 127-100 receive a two hour Safety Training course. Annually.

Form WR-23

STATE ENGINEER OFFICE

# WELL RECORD

INSTRUCTIONS: This form shall be executed in triplicate, preferably typewritten, and submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

(A) Owner of well Cannon Air Force Base Bombing Range (TH #1)

Street and Number

City State

Well was drilled under Permit No. and is located in the ¼ ¼ ¼ of Section Twp. Rge.

(B) Drilling Contractor Jimmy Roman License No. WD-395

Street and Number 2005 La Luz

City Clovis State New Mexico

Drilling was commenced 19

Drilling was completed 19

(Plat of 640 acres)

Elevation at top of casing in feet above sea level Total depth of well

State whether well is shallow or artesian Depth to water upon completion

Section 2

PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet From | Depth in Feet To | Thickness in Feet | Description of Water-Bearing Formation |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

RECORD OF CASING

| Dia. in. | Pounds ft. | Threads in. | Depth Top | Depth Bottom | Feet | Type Shoe | Perforations From | Perforations To |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

RECORD OF MUDDING AND CEMENTING

| Depth in Feet From | Depth in Feet To | Diameter Hole in In. | Tons Clay | No. Sacks of Cement | Methods Used |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows:

| No. | Depth of Plug From | Depth of Plug To | No. of Sacks Used |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received

File No. Use Location No. IN.30.22.323231

TH #1
Page 2

Section 6

LOG OF WELL

| Depth in Feet From | Depth in Feet To | Thickness in Feet | Color | Type of Material Encountered |
|---|---|---|---|---|
| | | | | 4356 |
| | | | | 35?? |
| | | | | 4321?? |
| | | | | IN.30.22.323231 |
| | | | | X |
| | | | | 4356 |
| | | | | USCE plat of facility shows that |
| | | | | this hole is located 1060 feet FWL |
| | | | | and 1765 feet FSL of Section 26 |

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Well Driller

| Type Color & Character | Depth Material Encountered | Time required to drill each 5 ft. | Water Bearing Character | Total Gas Measured | Any Additional Information |
|---|---|---|---|---|---|
| Red Sand | 0-5 | 20 Min | None | 0-5-5 | None |
| Hard White Rock | 5-10 | 35 Min | " | " | " |
| " | 10-15 | 1 hr 10 | " | " | " |
| Loose Red Sand & Sand Stones | 15-20 | 55 Min | " | | |
| " | 20-25 | 1 hr 5 | " | 15 | " |
| Hard Brown Rock & Sand | 25-30 | 1 hr 10 | " | " | " |
| Gray Caliche | 30-35 | 1 hr 55 | " | 27 | " |
| Soft Pink Shale | 35-40 | 1 hr 55 | " | 31 | " |
| " | 45 | 46 Min | " | 36 | " |
| | 50 | 55 Min | " | " | " |
| Hard Pink Shale | 55 | 2 hr 10 | " | " | " |
| " | 60 | 1 hr 40 | " | 52 | " |
| Hard Gray Shale | 65 | 1 hr 5 | " | " | " |
| Hard Pink Shale | 70 | 1 hr 25 | " | 64 | " |
| " | 75 | 1 hr 35 | " | 68 | " |
| " | 80 | 1 hr 20 | " | " | " |
| " | 85 | 1 hr 30 | " | 78 | " |
| " | 90 | 1 hr 10 | " | " | " |
| " | 95 | 1 hr 25 | " | " | " |
| " | 100 | 1 hr 30 | " | " | " |
| " | 105 | 1 hr 35 | " | " | " |
| " | 110 | 1 hr 15 | " | " | " |
| " | 115 | 1 hr 20 | " | " | " |
| " | 120 | 1 hr 40 | " | " | " |
| " | 125 | 2 hr 10 | " | " | " |
| " | 130 | 1 hr 40 | " | " | " |
| " | 135 | 1 hr 25 | " | " | " |
| " | 140 | 1 hr 25 | " | " | " |
| " | 145 | 1 hr 35 | " | " | " |
| " | 150 | 1 hr 30 | " | " | " |
| " | 155 | 1 hr 20 | " | " | " |
| " | 160 | 1 hr 35 | " | " | " |
| | 165 | 1 hr 45 | " | " | " |
| Same with traces of red bed | | | | | |
| " | 170 | 1 hr 40 | " | " | |
| | 175 | 1 hr 55 | " | " | " |
| Red Bed | 175-180 | 2 hr 20 | " | 179 | " |

Land Surface Elev at Well: 4356
This well was a dry hole.

Elev 4356
35 ??
4321 ??

IN.30.22.323231

Form WR-23

STATE ENGINEER OFFICE

# WELL RECORD

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, [illegible] submitted to the nearest district office of the State Engineer. All sections, except Section 5, shall be ans[illegible] as completely and accurately as possible when any well is drilled, repaired or deepened. When this form [illegible] used as a plugging record, only Section 1A and Section 5 need be completed.

Section 1

(Plat of 640 acres)

(A) Owner of well Cannon Air Force Base Bombing Range (TH #2)

Street and Number

City State

Well was drilled under Permit No. and is located in the ¼ ¼ ¼ of Section Twp. Rge.

(B) Drilling Contractor Jimmy Roman License No. WD-395

Street and Number 3005 La Luz

City Clovis State New Mexico

Drilling was commenced 19

Drilling was completed 19

Elevation at top of casing in feet above sea level Total depth of well

State whether well is shallow or artesian Depth to water upon completion

Section 2

## PRINCIPAL WATER-BEARING STRATA

| No. | Depth in Feet From | Depth in Feet To | Thickness in Feet | Description of Water-Bearing Formation |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Section 3

## RECORD OF CASING

| Dia In. | Pounds ft. | Threads in | Depth Top | Depth Bottom | Feet | Type Shoe | Perforations From | Perforations To |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Section 4

## RECORD OF MUDDING AND CEMENTING

| Depth in Feet From | Depth in Feet To | Diameter Hole in In. | Tons Clay | No. Sacks of Cement | Methods Used |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Section 5

## PLUGGING RECORD

Name of Plugging Contractor License No.

Street and Number City State

Tons of Clay used Tons of Roughage used Type of roughage

Plugging method used Date Plugged 19

Plugging approved by:

Basin Supervisor

Cement Plugs were placed as follows.

| No. | Depth of Plug From | Depth of Plug To | No. of Sacks Used |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

FOR USE OF STATE ENGINEER ONLY

Date Received

File No. Use Location No. IN. 30. 22. 32120

TH 2

Section 8

LOG OF WELL

| Depth in Feet From | Depth in Feet To | Thickness in Feet | Color | Material Encountered |
|---|---|---|---|---|
| | | | | 4349 |
| | | | | 65?? |
| | | | | 4284?? |
| | | | | IN. 30. 22 32120 |
| | | | | 4349 |
| | | | | USCE Plat of facility shows that |
| | | | | this hole is located 1800 feet |
| | | | | FWL and 2500 ft FSL of Sec 26 |

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described well.

Well Driller

Test Hole No. 2

| Type Color & Character | Depth of Material Encountered | Time required to drill each 5 ft | Water Bearing C Character | Tot M | Any Additional Information |
|---|---|---|---|---|---|
| [illegible] | 0-5 | 30 Min | None | 0-5-5 | None |
| Mild White [illegible] | 5-10 | 45 Min | " | " | " |
| Mild red sand & [illegible] | 10-15 | 45 Min | " | 14 | " |
| " | 15-20 | 40 Min | " | " | " |
| " | 20-25 | 45 Min | " | " | " |
| " | 25-30 | 40 Min | " | " | " |
| " | 30-35 | 45 Min | " | " | " |
| Course Brown Sand Mild | 35-40 | 35 Min | " | 42 | " |
| " | 40-45 | 40 Min | " | " | " |
| " | 45-50 | 45 Min | " | " | " |
| River gravel & Sand (Mild) | 50-55 | 1 hr 10 | " | 54 | " |
| " | 55-60 | 1 hr 15 | " | " | " |
| Course Sand | 60-65 | 1 hr 5 | " | 63 | " |
| Brown Sand & Pink Shale | 65-70 | 1 hr 30 | " | 68 | " |
| Pink Shale | 75 | 1 hr 15 | " | " | " |
| " | 80 | 1 hr 40 | " | " | " |
| " | 85 | 1 hr 40 | " | " | " |
| Red Clay | 90 | 90 Min | " | 86 | " |
| " | 95 | 1 hr 45 | " | " | " |
| " | 100 | 1 hr 40 | " | " | " |
| Pink Shale Soft | 105 | 1 hr 15 | " | 103 | " |
| " | 110 | 1 hr 45 | " | " | " |
| Blue Clay & Course Sand | 115 | 1 hr 50 | " | 114 | " |
| " | 120 | 2 hr 5 | " | " | " |
| " | 125 | 2 hr 10 | " | " | " |
| " | 130 | 1 hr 50 | " | " | " |
| " | 135 | 1 hr 45 | " | " | " |
| Hard Pink Shale | 140 | 1 hr 50 | " | 138 | " |
| " | 145 | 1 hr 40 | " | " | " |
| " | 150 | 1 hr 45 | " | " | " |
| " | 155 | 1 hr 45 | " | " | " |
| " | 160 | 1 hr 40 | " | " | " |
| " | 165 | 1 hr 50 | " | " | " |
| Mild blue shale | 170 | 1 hr 45 | " | 169 | " |
| " | 175 | 1 hr 45 | " | " | " |
| " | 180 | 1 hr 35 | " | " | " |
| | 180-185 | 1 hr 15 | " | " | " |

4349
65 ??
4284 ??

IN.30.22. 32120