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REPORTS

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Preliminary Assessment
of
Gooch's Tank Service
Tatum, New Mexico

February 6, 1992

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Date:	February 6, 1992
Prepared by:	Susan A. Morris
Site Name:	Gooch's Tank Service
Site Address:	Highway 380 West Tatum, New Mexico
EPA ID No:	Not Assigned
TDD No:	Not Assigned

1. INTRODUCTION

a. Location

The Gooch's Tank Service site is located 0.5 miles west of the City of Tatum, Lea County, New Mexico, (Figure 1 and 2) on the south side of Highway 380 West. Surrounding the site are commercial properties and vacant land.

The coordinates of the site are: latitude 33 degrees, 15 min. and 20 sec. north, and longitude 103 degrees, 21 min. and 30 sec. west. The 10 acre site is within the NW 1/4, NE 1/4, NE 1/4 of Section 30, T.12 S, R.36 E.

b. Site Ownership

From 1967 to the present the site has been privately owned and operated by John and Ruby Gooch of 208 N Ave., Tatum, New Mexico.

c. Purpose

In 1990, the City of Tatum shutdown 4 municipal wells due to contamination by volatile organic compounds attributable to leaking underground storage tanks. Subsequently, a ground water investigation was initiated to determine if other potential

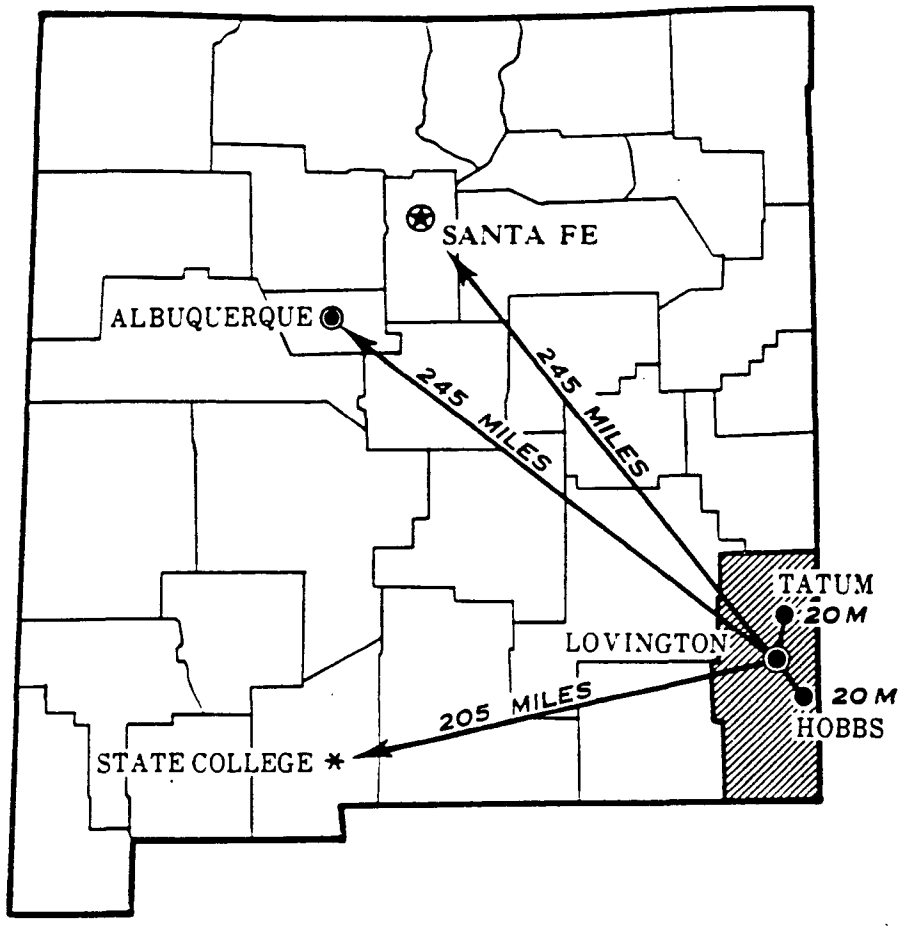

Figure 1. Tatum is located in southeastern New Mexico.

*State Agricultural Experiment Station

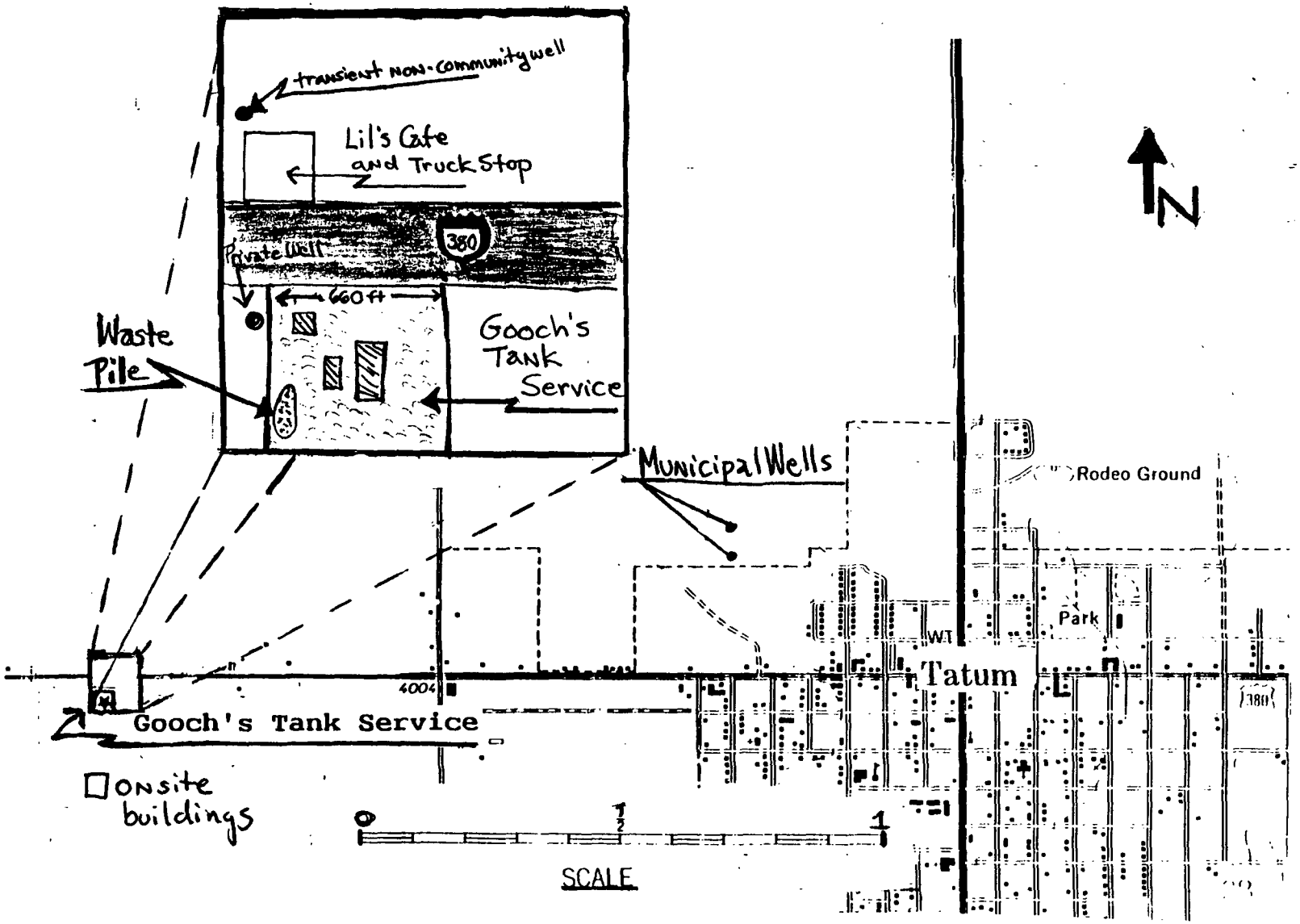

Figure 2. Location of Gooch's Tanks Service, Tatum, New Mexico

contaminant sources existed in the Tatum area. This report presents the findings of the Preliminary Assessment conducted at Gooch's Tank Service site by the New Mexico Environment Department (NMED) under the authority of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The purpose of the investigation is to obtain information needed to evaluate the possible threat to public health or the environment through air, groundwater, or surface water pathways, and to prepare a trial Hazardous Ranking System package for the site.

2. Site History

a. Site Operations

Since 1967, the site has been the location of a steel tank refurbishing and manufacturing business. The Gooch's Tank Service deals primarily with the oil field industries in the area.

On site, used tanks are cut open and sand blasted to remove rust and other residues. The tanks are then resold, reconstructed or sold as scrap metal. The operations on site include the selling of used, specialized, oil field tanks and the manufacturing of new tanks for oil field and ranching activities (Photograph 1 and 2).

3. Summary of Reconnaissance Visit

On December 11, 1991, 1990, Susan Morris, NMED Superfund, and Myra Meyers, NMED District IV Field Office, met with John Gooch at the Gooch's Tank Service site (Reference 1). Mr. Gooch stated that he has been in business at this site since 1967. At one time 20 to 30 persons were employed at Gooch's Tank Service. Currently, there are only 10 persons working on site.

The site is a 10 acre parcel that has 3 buildings: a central office and two work sheds (Figure 3). The site is entered through the main office building or through a locked gate. Along the western property line there is an above ground gasoline storage tank and pump (Photograph 3). Numerous large, steel storage tanks line the front fence along Highway 380 and occupy the yard east of the main building (Figure 3). A cesspool is located on the western side of the office building and serves the restroom facilities on site. Ms. Meyers spoke with Mr. Gooch about the feasibility of connecting to the Tatum Sewer line and informed him that a cesspool was a violation of the New Mexico Liquid Waste Regulations.

Mr. Gooch stated that solvents are not used to clean the tanks. The metal tanks are sand blasted clean. The blasting sands are reused after each tank until the material can no longer be used. The spent

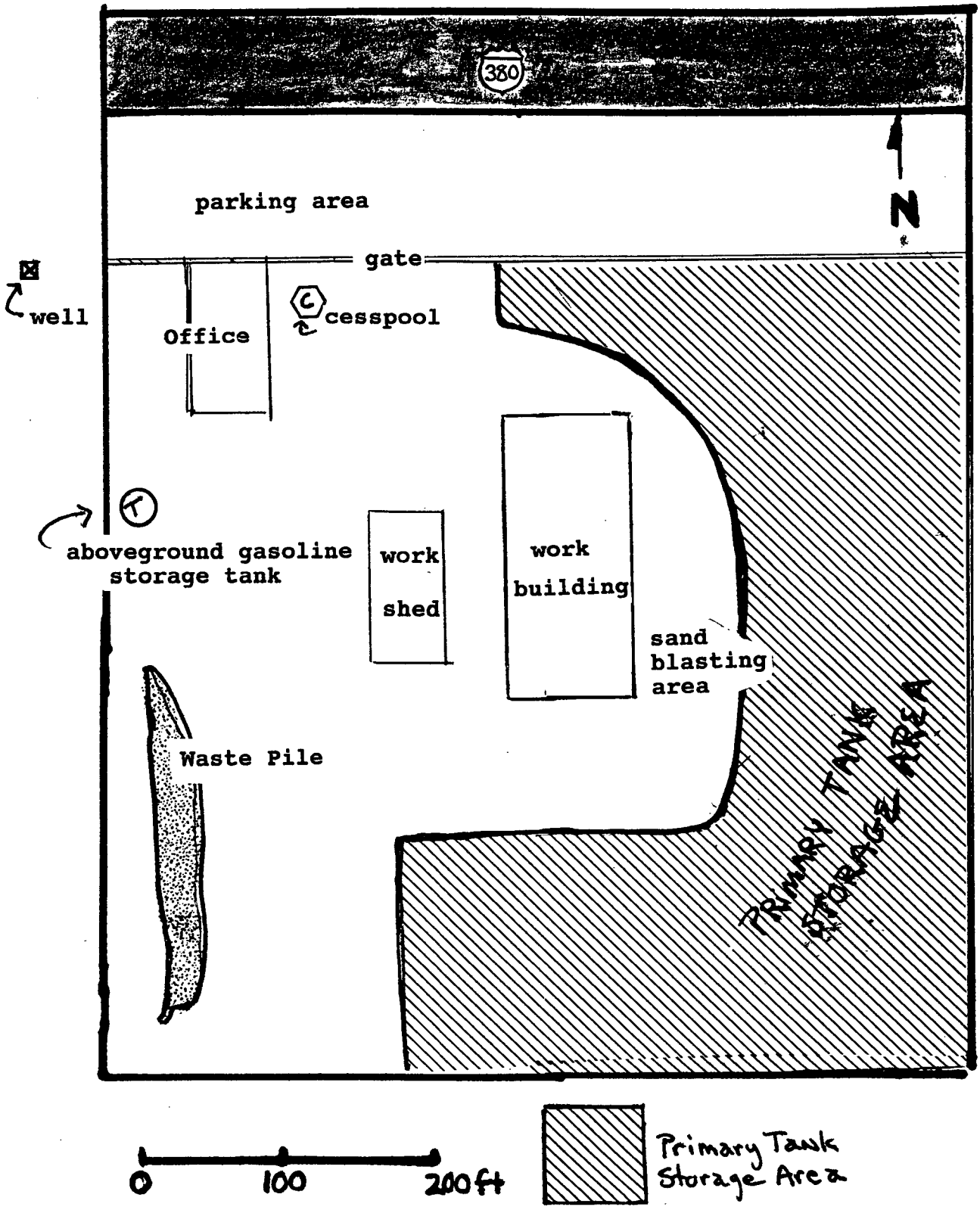

Figure 3. Site map of Gooch's Tank Service, Tatum, New Mexico

material is then deposited in a waste pile located on the southwest corner of the property (Photograph 4). The pile sits directly on the soil surface and is piled with bulldozers.

The waste pile has been used throughout the operation of the facility, a total of 24 years. Mr. Gooch stated that from 1967 until the mid 1980's he would clean out used oil field tanks and deposit the oily, spent blasting sands and scrap metal in the pile. After the mid 1980's, oil companies began cleaning out tanks prior to selling them.

4. Source/Waste Characteristics

The unlined waste pile is approximately 30 feet wide and 280 feet long. The average height of the pile is approximately 4 feet. The volume of on-site waste is an estimated 1240 cubic yards.

The onsite waste pile has never been sampled. The material consists of primarily blacken blasting sand, and appears oily. Potential contaminants of concern are semi-volatile organic compounds and heavy metals. In some areas, the traffic of heavy machinery has mixed the waste materials into to the soil (Photograph 5). Within the piles are pieces of rusting metal debris and construction materials (Photograph 6).

5. Pathway Characteristics

a. Ground Water Characteristics

The site is situated on well-drained, strongly calcareous and level soils formed from alluvial and wind deposited materials (Reference 2). These soils have a moderate permeability of 0.63 to 2.0 inches per hour (Reference 2).

Underlying the site is Quaternary alluvium that is comprised of calcareous fine sand, silt and clay. In the Tatum area the alluvium is thin (1 to 2 feet) and hydraulically continuous with the underlying Ogallala Formation. The Ogallala is primarily a calcareous, unconsolidated sand but it also contains clay, silt, gravel and some well consolidated, silica cemented, congolmeratic sandstone beds (Reference 3). Freeze and Cherry, 1979 (Reference 4), estimate the hydraulic conductivity (K) for the Ogallala and alluvial type deposits to range from 10^{-8} to 10^{-1} cm/sec. The materials underlying the Ogallala are fine-grained siltstones, sandstones and shale that yield relatively low quantities of water high in sulfates (Reference 3).

The Ogallala aquifer is the principal water source in the Tatum

area. The depth to water in the monitoring wells near the site is 20-25 feet (Reference 5). The saturated thickness of the Ogallala aquifer in the Tatum area is approximately 50 feet (Reference 5) Ground water flow in the Tatum area is to the southeast and the gradient ranges from 0.0005 to 0.0014 (Reference 5).

The principal source of recharge to the aquifer is through direct infiltration of precipitation or snow melt (Reference 2 and 6). The annual precipitation for the Tatum area is approximately 15.5 inches. Eighty percent of the annual rainfall occurs in the six-month period of May through October, much of it in brief but heavy thunderstorms (Reference 2). The seasonal net precipitation of 0.45 inches is calculated for the southeastern plains area of New Mexico (Reference 6). The winter moisture surplus is illustrated in black on graph #55 in Reference 6. The two year 24 hour precipitation is 2.6 inches (Reference 7).

There is potential for migration of hazardous substances from the Gooch's Tank Service site via the groundwater pathway due to the shallow depth to ground water and moderate to high permeability of the unsaturated zone. However, the waste on site is a solid mixture of corroded metals and oily blasting sands. The long chain hydrocarbons do not move readily through soils and the heavy metals should not be highly mobile within the calcareous soils onsite.

1. Ground Water Targets

Ground water is the only source of drinking water in Lea County. Within a 1-2 mile radius of the site are two operating municipal water supply wells (Figure 4). A transient non-community water supply well that serves Lil's Cafe and service station, (Figure 2), is located approximately 200 feet north and upgradient of the site. Four of Tatum's municipal wells have been taken off line since 1989, due to contamination by leaking underground gasoline storage tanks (Figure 5). There are approximately 50 private wells within a four mile radius of the site (Reference 8).

The two municipal wells serve the 780 person population of Tatum (Reference 8). The transient non-community well at Lil's Cafe is categorized as serving more than 25 persons daily. Privately owned wells within the 4 mile radius are used for domestic, agricultural and possibly industrial uses. These private wells serve approximately 140 persons outside of the City of Tatum water distribution system. Private wells in the area are utilized for domestic, commercial, municipal, industrial, and agricultural uses.

The closest well is on the adjoining property west of Gooch's Tank Service Site (Figure 2 and 3). The well is shared between the two businesses: Gooch's Tank Service and Permian Chemical, and is used

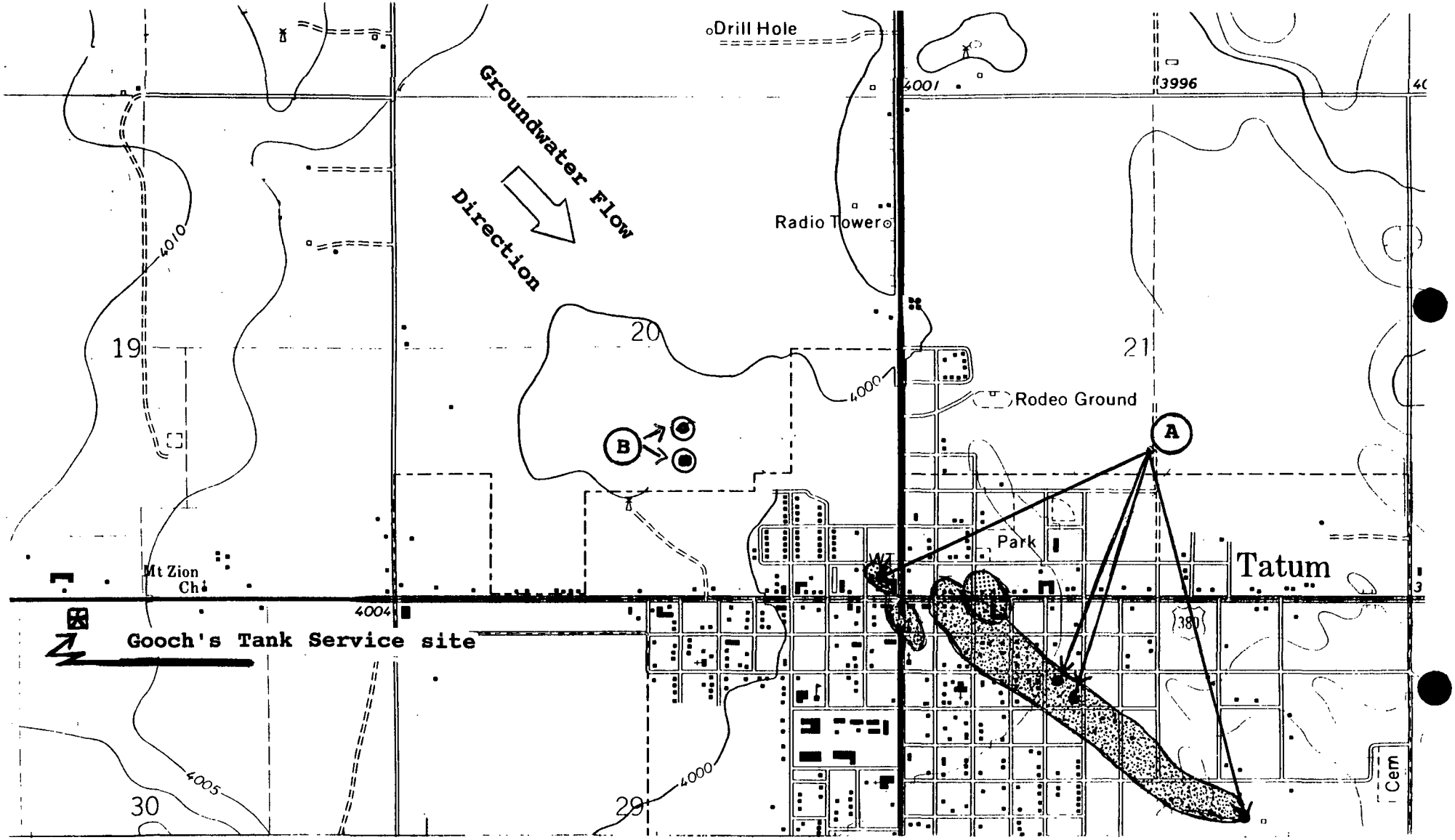

Figure 5. Four groundwater plumes emanating from leaking underground storage tank sites have contaminated four municipal wells (A) in Tatum. Gooch's Tank Service site is off gradient from the two, new municipal wells (B) that are serve the community.

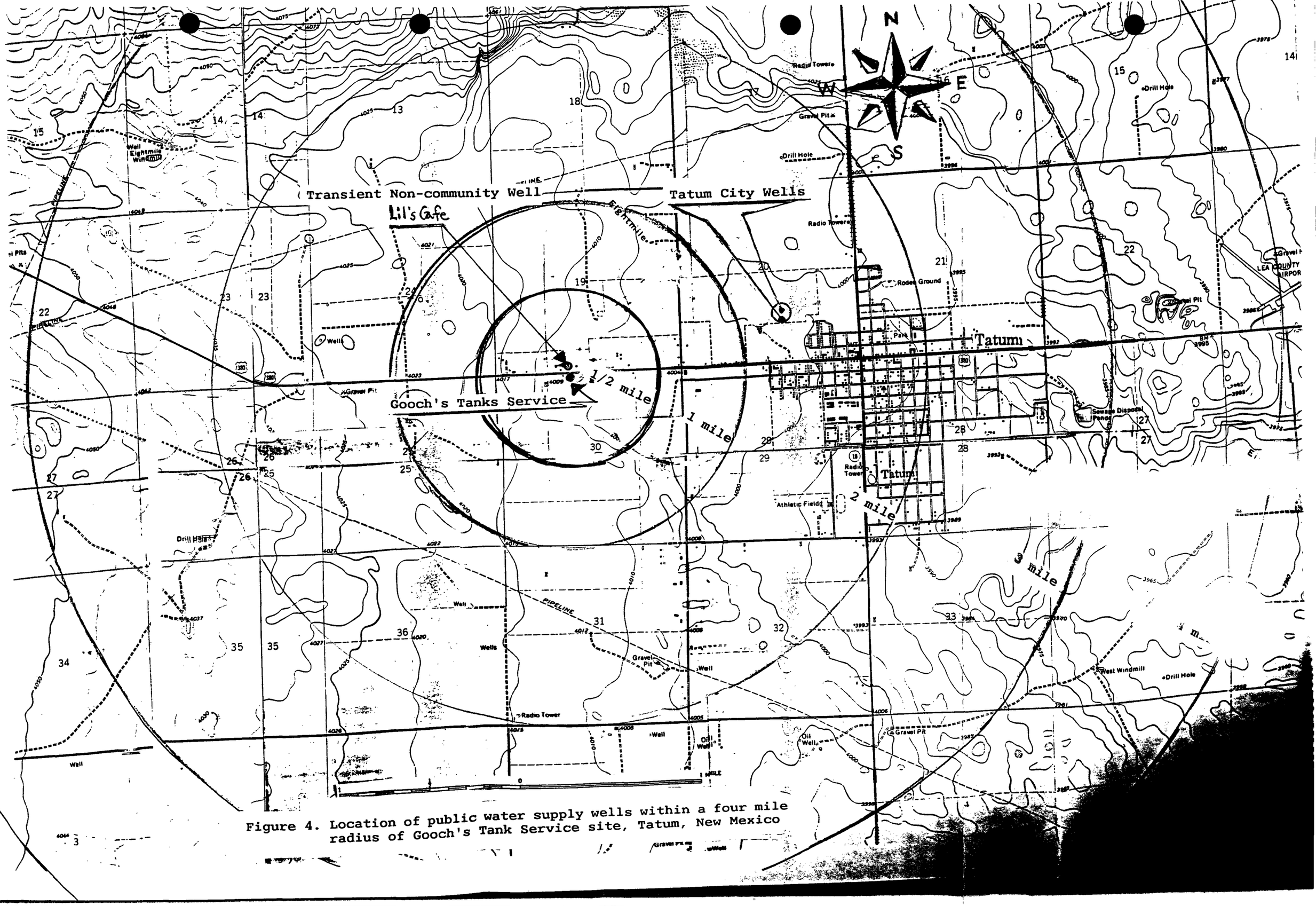

Figure 4. Location of public water supply wells within a four mile radius of Gooch's Tank Service site, Tatum, New Mexico

primarily to supply the restrooms.

The population distribution of groundwater users and the type of wells supplying water is shown below:

Tatum City Wells (TW), Transient Non-Community Wells (NC), Private Wells (PW)

Distance (miles)	Wells	Population
0 - 1/4	1-NC, 2-PW	40
1/4 - 1/2	6-PW	20
1/2 - 1	4-PW	10
1 - 2	2-TW,6-PW	800
2 - 3	8-PW	30
3 - 4	6-PW	20
Total population		**920**

b. Air Pathway Characteristics

The air route is not a significant contaminant pathway for the migration of hazardous substances. The potential contaminants of concern are not highly volatile and the oily sediments and metal scraps are not readily entrained by wind. Since the migration of contaminants through the air pathway is unlikely, the possible targets were not identified.

c. Surface Water Pathway Characteristics

There are no surface water courses in Lea County (Reference 2).

1. Surface Water Targets

There are no natural surface water bodies in Lea County. The City of Tatum has constructed an artificial wetland at their Sewage Treatment facility. The wetland is located three miles east of the Gooch's Tank Service site.

d. Soil Exposure Pathway Characteristics

The Soil Exposure Pathway is not a significant contaminant route for the migration of hazardous substances at this site. The onsite waste pile consists black, oily, used blasting sand and pieces of rusting scrap metal. Potential contaminants of concern are semi-volatile organic compounds and heavy metals. The estimated volume of the unlined waste pile is 1240 cubic yards.

1. Soil Exposure Targets

No one lives on the site and the nearest residential structures are 1/4 miles southeast of the site. The site is fenced and access to the site is only through the main office and locked gates.

There are approximately 10 employees at the site. While the waste pile is separated from the general work areas, it is within 200 ft of a workplace area.

6. Other Regulatory Involvement

a. State, Federal and Local Agencies

Currently, only the NMED Superfund Program is investigating the Gooch's Tank Service site. This investigation is part of a larger effort by NMED to identify the sources of groundwater contamination in the Tatum area. The NMED UST Bureau is currently initiating remedial activities at four leaking underground storage tank facilities in the city of Tatum.

7. CONCLUSIONS AND RECOMMENDATIONS

The potential for migration of hazardous substances from the Gooch's Tank Service site via the groundwater pathway is possible. However, the waste on site is a solid mixture of corroded metals and crude oil and is not highly mobile through calcareous soils. The soil exposure pathway is not a likely route for contaminant migration since access to the site is limited and there are no residences onsite or within 1/4 mile of the site. Release of contaminants through the air pathway is also not likely and few targets exist. In addition, there are no surface water targets in the area.

References

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2. U.S. Soil Conservation Service, 1977, Soil Survey of Lea County, New Mexico, U.S.D.A., pp. 38-40, 72-73.

3. Nicholson, A., Jr. and A. Clebsch, 1961, Geology and Ground-Water Conditions in Southern Lea County, New Mexico, N. M. Bureau of Mines and Mineral Resources, Ground-Water Report 6, pp. 7-9, 18-72.

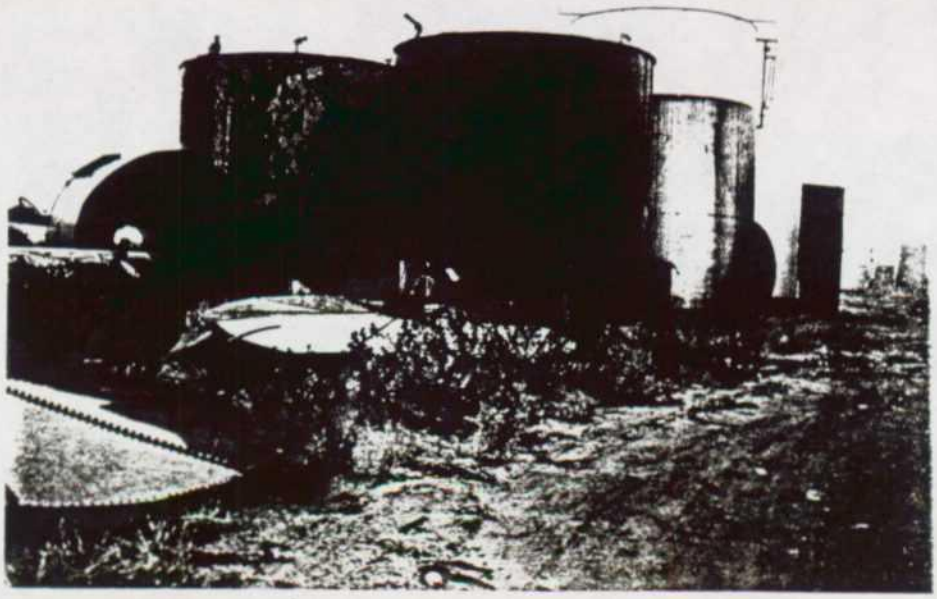
4. Freeze, R.A. and J.A. Cherry, 1979, Groundwater, Prentice Hall, Inc., p. 604.

5. NMEID, 1989 - present, Underground Storage Tank Bureau case files regarding the investigation of groundwater contamination in Tatum.

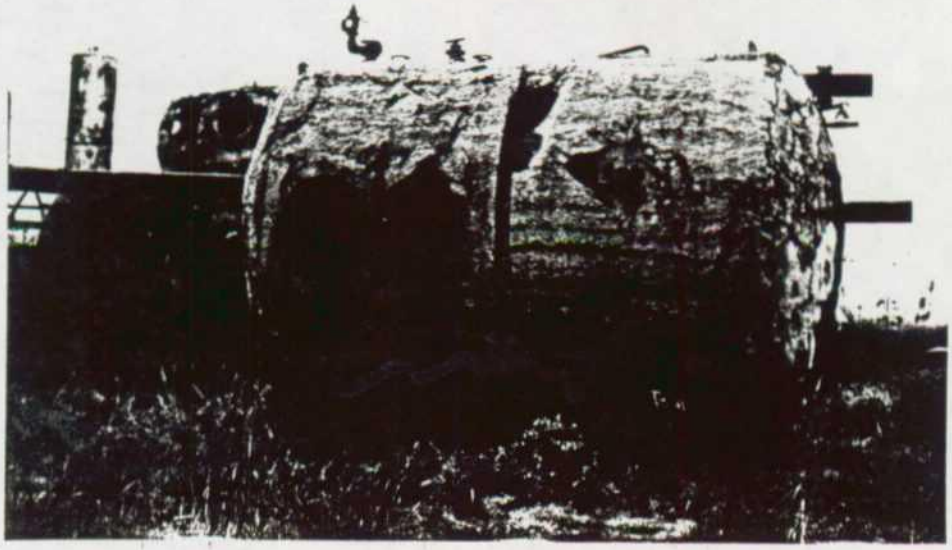
6. Tuan, et.al., 1973, The Climate of New Mexico: State Planning Office, Santa Fe, 87501.

7. National Oceanic and Atmospheric Administration, 1973 Precipitation - Frequency Atlas of the Western United States: U.S. Department of Commerce, NOAA Atlas 2, Volume IV - New Mexico.

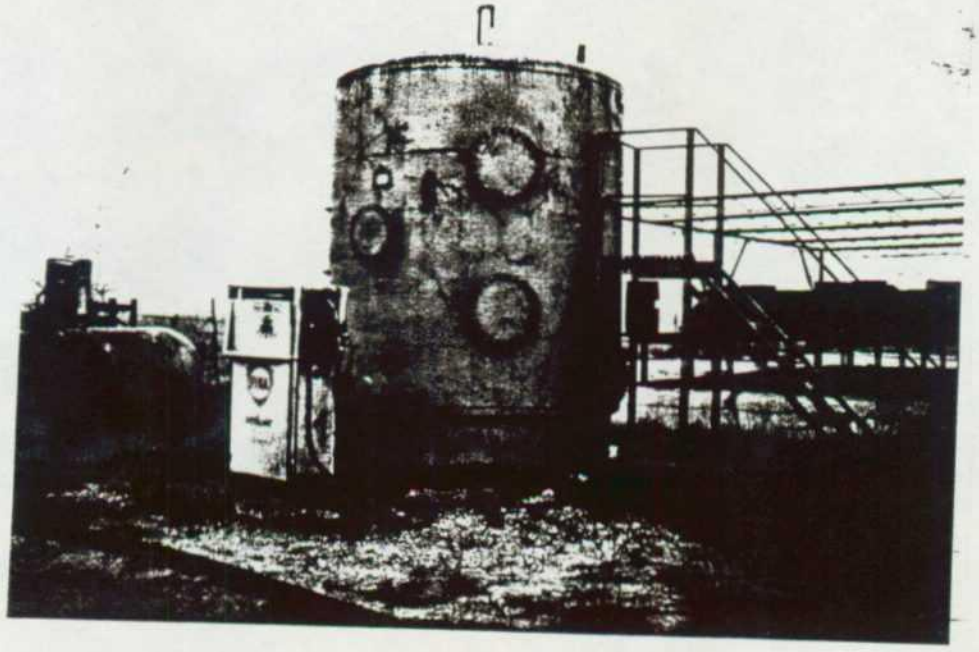
8. Personal Communication, January 8, 1992, Leon Glover, Public Works Manager, City of Tatum, and Susan Morris: discussion regarding the location of the new municipal wells, water use in Tatum and the occurrence of private wells in and about Tatum.



Photograph 1. Refurbished and restored tanks are stored on the eastern portion of the Gooch's Tank Service property. **Photographer: Susan A. Morris, Date: 12/11/91**



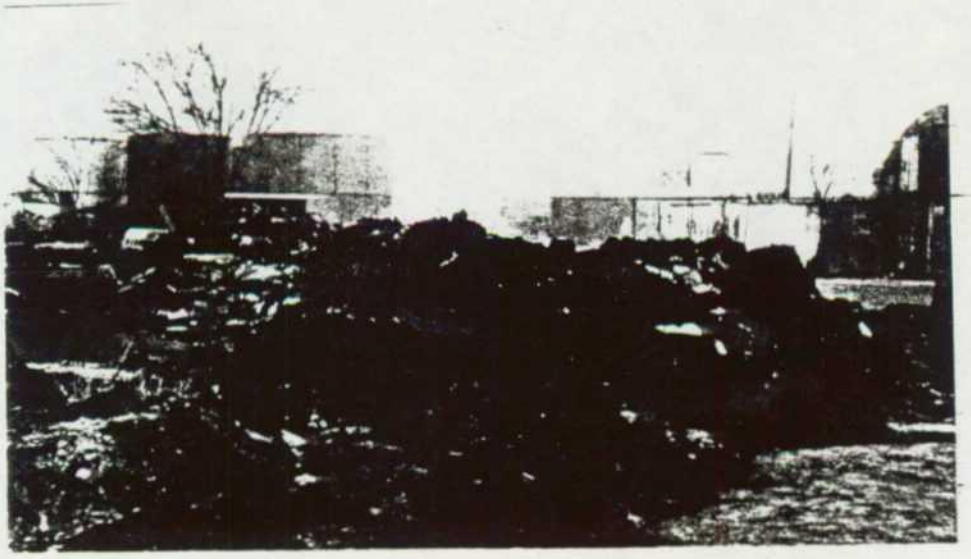
Photograph 2. An old oil field tank used to separate oil/water phases. **Photographer: Susan A. Morris, Date: 12/11/91**



Photograph 3. Located on the western edge of the property, an aboveground tank stores gasoline on site.
Photographer: Susan A. Morris, Date: 12/11/91

Photograph 4. View looking westward at the waste pile on the Gooch's Tank Service site. The pile which contains oily, spent blasting sands and pieces of scrap metal is located on the southwestern portion of the property. **Photographer: Susan A. Morris, Date: 12/11/91**

Photograph 5. Oily waste has been mixed into the surface soil by heavy machinery traffic. **Photographer: Susan A. Morris, Date: 12/11/91**



Photograph 6. Large metal scraps are mixed in the waste pile. **Photographer: Susan A. Morris, Date: 12/11/91**