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GENERAL CORRESPONDENCE

YEAR(S):

1986

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GOVERNOR

DENISE D. FORT
DIRECTOR

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

MEMORANDUM:

March 5, 1986

To: David Boyer, Chief, Environmental Bureau, Oil Conservation Division

Through: Ernest Rebuck, Chief, Ground Water/Hazardous Waste Bureau, EID

From: Paige Morgan, Acting Program Manager, Ground Water Section, EID

Re: Reported contamination incidents involving oil and produced water.

The attached memorandum provides details of (1) an apparently long-standing problem of oil and produced water spillage and leakage, and (2) a recent case of a waterflow escaping from an improperly plugged well - all at a site northwest of Lovington in Lea County. These conditions are a source of considerable alarm, since the area is used for grazing and the Ogallala aquifer lies beneath the site, with a static water level at approximately 30 to 100 feet (Ash, 1963; Gutentag and Weeks, 1980*).

While recognizing that the OCD Environmental Bureau is severely understaffed to deal with the problems with which it is charged, I submit that perhaps the capable OCD District Office staff could be directed to devote a share of their compliance and enforcement activities to the Water Quality Control Commission regulations, in addition to their standard practice of enforcing the Oil Conservation Commission regulations at such sites as the one described in the attached memo.

Please keep this office informed of steps taken by OCD to investigate and rectify any damage to the vadose zone and ground water at the site described in the attached memo. Please provide the same information to the recipients of copies of this memorandum, listed below.

If the EID can be of any help in this effort, please advise.

*Ash, S.R. 1963. Ground-water Conditions in Northern Lea County, New Mexico. Hydrologic Investigations Atlas HA-62. US Geological Survey.

*Gutentag, E.D. and J.B. Weeks. 1980. Water Table in the High Plains Aquifer in 1978 in Parts of Colorado, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, and Wyoming. Hydrologic Investigations Atlas, US Geologic Survey.

cc: Floyd Prando, Oil and Gas Division, State Land's Office, PO Box 1148, Santa Fe 87504-1148

John Etcheverry, Box 1656, Lovington, NM 88260
Garrison McCaslin, EID District IV Manager

STATE OF NEW MEXICO
HEALTH ENVIRONMENT

MEMORANDUM

DATE: February 14, 1986

TO: Paige Morgan, Water Resource Spec. II, Santa Fe

FROM: Don Lutjens, Environmentalist, Hobbs

SUBJECT: BRINE CONTAMINATION IN LEA COUNTY

We have had a continuing problem of brine and oil spills on state land in an area NW of Lovington. At the west end of the operation (R33E, T14S, S34 or S35), there are brine storage tanks and skimmers (see map). This is near Highway 457 where tank trucks drop off brine with a little oil on it. These tanks may be on private land or on state land. A 4" brine pipeline runs east about 3 miles to an injection well and 2 storage tanks (R34E, T14S, S32). The pipeline and injection well are on state land.

The grazing rights are leased by a local rancher, John Etcheverry. The mineral rights (the pipeline and injection well) are more complicated and have involved several companies over the past decade. The sign at the disposal well reads "Shell State Leases, SWD #1." It is owned or leased now by Sage Oil Company. At one time, this company was owned or managed by Weldon Guest; but he may have gone bankrupt, and it is now being held by the Mercantile Bank in Wichita Falls, Texas. C & T Roustabout Service of Lovington is contracted to maintain the pipeline and possibly operate the injection well.

The pipeline is 4" plastic gas line pipe. Last spring and early summer, it developed many leaks. Figure 1 shows an area above a leaking pipe. Brine and oil have covered a large area, and the oil has stained the ground and vegetation. Figure 2 shows a roustabout patching a leak. The pipe is about a foot underground, so the brine saturates the soil at this level before it spreads out on the surface.

Figure 1 also shows some pipe laying on the surface. This was used in the last part of July 1985 to replace about 1.2 miles of the west end of the pipeline. To do this, they used a grader with the blade tilted at an angle and plowed out the old pipe. Wherever the pipe broke, the brine flowed out onto the pasture--1.2 miles of 4" pipe would contain a little over 4,000 gallons of brine.

At the disposal well, there were two fiberglass storage tanks and an unlined pit in the ground for overflow. In June 1985, the tanks collapsed, spilling an unknown amount of brine. They were replaced with metal tanks. In the last of July or the first part of August 1985, the overflow pit was plowed out with a bulldozer, removing oil and salt crystals and enlarging the pit. The new pit is about 90 ft. by 60 ft. at the top and tapers down to about 45 ft. by 39 ft. at the bottom. TOMCO of Hobbs was called in to "line" the pit by spraying asphalt on the walls. After spraying with asphalt, it was defined as a "lined" pit and was supposed to achieve the letter of the law, if not the spirit of the law. The walls of this pit, of course, crumble and erode as easily as any other dirt pit. Figure 3 shows

a rainwater erosion channel on the south wall of the "lined" pit. The asphalt was sprayed only on the surface, and bare dirt could be seen between the high points. As the level of brine went up and down, the surface layer of oil dissolved or softened the asphalt. Figure 4 shows the tank overflowing into the pit. Jerry Sexton, at the Hobbs office of OCD, assured me that the tanks overflow only about once a month--I have reason to believe that it is more often than that. Actually it makes little difference how often, because there is always some standing brine in the pit; and it can be leaking into the ground continually.

In January 1986, brine surfaced in an abandoned oil well about 1/2 mile east of the disposal well and flowed onto the adjacent pasture (this is also in section 32). Halliburton of Hobbs was contracted to put 3,000 gallons of acid down this old well to open up the formation. I have been able to obtain only sketchy information on the disposal well, but I think it is in the San Andres formation and this is supposed to be sand; so I don't know what the acid can do.

The recurrent spills of brine on the surface have killed vegetation in the grazing area and this will not grow back for many years--until the salt is leached into deeper layers. Also the cattle drink the brine-oil mixture and get sick. The rancher has complained to OCD several times, but the spills continue. The water table in this area is 100 feet or less, and this salt will be working its way into the groundwater.

DL/jp

Enclosures: (1) Map
(2) Figures--One page with 4 figures

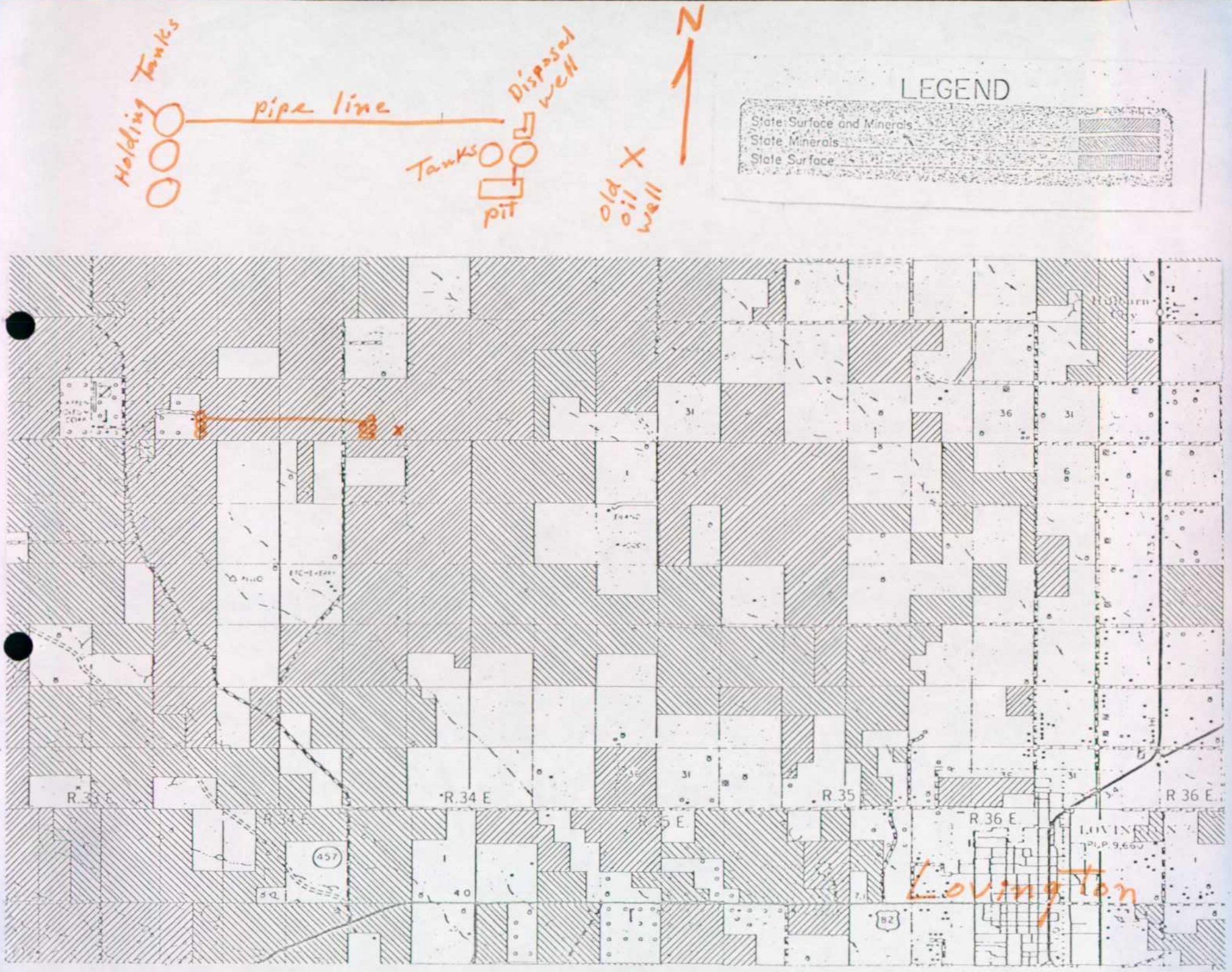
pc Garrison McCaslin, HPM II, Roswell
Tom Burt, HPM I, Carlsbad/Hobbs
Files - Hobbs EID

Fig. 1 Brine and oil above a leak in the pipe line

Fig. 2 Patching a leak. Dirt removed from around the pipe is saturated with brine and oil.

Fig. 3 Rainwater erosion of the pit wall. Surface of standing brine and oil at upper left

Fig. 4 Routine overflow into the pit.


Holding Tanks
pipe line
Disposal well
Tanks
pit
old oil well
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LEGEND
State: Surface and Minerals
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R.33 E.
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