

**KELLAHIN AND KELLAHIN**

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

POST OFFICE BOX 2265

SANTA FE, NEW MEXICO 87504-2265

W. THOMAS KELLAHIN\*

\*NEW MEXICO BOARD OF LEGAL SPECIALIZATION  
RECOGNIZED SPECIALIST IN THE AREA OF  
NATURAL RESOURCES-OIL AND GAS LAW

JASON KELLAHIN (RETIRED 1991)

May 18, 1993

Mr. William J. LeMay  
Oil Conservation Commission  
310 Old Santa Fe Trail, Room 219  
Santa Fe, New Mexico 87501

HAND DELIVERED

Mr. Gary Carlson  
State Land Commissioner's Office  
State Land Office Building, 1st Floor  
310 Old Santa Fe Trail  
Santa Fe, New Mexico 87501

HAND DELIVERED

Mr. William Weiss  
New Mexico Petroleum Recovery  
Research Center, Kelly Building  
New Mexico Tech Campus  
Socorro, New Mexico 87801

VIA TWO-DAY US MAIL

RE: APPLICATION FOR RE-HEARING  
NMOCD Case No. 10507 DeNovo  
Application of C & C Landfarm, Inc.  
for a Commercial Surface Waste Disposal  
Facility, Lea County, New Mexico

Gentlemen:

On behalf of Elsie Reeves and W. T. Stradley of S-W Cattle Company, we request that the enclosed Application for Rehearing be set for discussion at the next scheduled Commission hearing now set for May 27, 1993. Action taken on that date will comply with the ten-day action period set forth in Section 70-2-25 NMSA (1978).

Very truly yours

  
W. Thomas Kellahin

WTK/mg

Enclosure

cc: With Enclosure

Robert G. Stovall, Esq. (By Hand)

William F. Carr, Esq.

Elsie Reeves

W. T. Stradley

Gene Samberson, Esq.

LTR:514.647

New Mexico

# Statehouse Reporting Service

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September 7, 1992

Vol. 29 - No. 19

IMPORTANT NOTICE: An Examiner hearing has tentatively been scheduled for October 1, 1992. Applications for hearings must be filed at least 23 days in advance of hearing date.

## EXAMINER HEARING HELD - SEPTEMBER 1 - SANTA FE

Michael E. Stogner - Examiner

Robert Stovall, Oil Conservation Division General Counsel

### LEA COUNTY

#### Commercial Surface Waste Disposal Facility (Case 10507)

C & C Landfarm Inc. sought authorization to construct and operate a commercial landfarm facility for remediation of non-hazardous hydrocarbon-contaminated soils using an enhanced biodegradation process. Said area is to be located in the SW/4 NE/4 (Unit G) of Sec. 3, T-20-S, R-37-E, Lea County, which is approximately 2 miles southeast of Monument, New Mexico. This application has been administratively determined to be approvable, and this hearing was scheduled to allow parties the opportunity to present technical evidence why the application should not be approved pursuant to the rules of the Division. In the absence of objection, this application will be taken under advisement.

**Appearances:** William F. Carr (Santa Fe), attorney for C & C Landfarm Inc.; Michael L. Pierce of Peak Consulting Services (environmental, geological and regulatory), Hobbs, NM; W. Thomas Kellahin (Santa Fe), attorney for W. Trent Stradley, president of S-W Cattle Co., Hobbs, NM, and Elsie M. Reeves, Phoenix, AZ, representing Laughlin Farms, and T. W. (Tim) Kelly, Geohydrology Associates, Inc., Albuquerque, NM.

[The C & C proposed commercial surface disposal facility was determined to be approvable by the Oil Conservation Division on May 20, 1992, subject to 10 conditions: 1. All soils received at the facility will be spread and disked within 72 hours of receipt. 2. Solids will be spread on the surface in six-inch lifts or less. 3. Solids will be disked a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants. 4. No solids will be laid on previously spread solids until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 100 ppm and the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations will be maintained at the facility. Authorization from the Oil Conservation Division will be obtained prior to application of successive lifts. 5. Only solids that are non-hazardous by RCRA Subtitle C or by characteristic testing will be accepted at the facility. Solids from operations not currently exempt under RCRA Subtitle C or mixed exempt/non-exempt solids will be tested for appropriate hazardous constituents. Test results must be submitted to the Oil Conservation Division along with a request to receive the non-exempt solids, and a written Oil Conservation Division approval (case specific) must be obtained prior to disposal. Any non-oil field wastes which are RCRA Subtitle C exempt will be accepted on a case-by-case basis and with Oil Conservation Division approval. 6. Comprehensive records of all material disposed at the facility will be maintained at the facility. The records for each load will include: 1) the origin, 2) analysis for hazardous constituents if required, 3) transporter. 7. Oil Conservation Division approval must be obtained prior to the addition of any substances to enhance biodegradation of the soils landfarmed (i.e. chemical additives, manure, nutrients, bugs, etc.). 8. No free liquids or soils with free liquids will be accepted at the facility. 9. If any monitor wells are constructed in the future the drilling and completion plans will be submitted for Oil Conservation Division approval prior to conducting operations. 10. a redbed dike will be installed on the south, west, and north edges of the property as proposed in the C & C correspondence dated March 2, 1992.]

**Testimony:** Examiner Stogner said the hearing had been called because objections had been filed after the Oil Conservation Division announced that the waste disposal facility was approvable. In his opening statement, Carr noted that C & C had filed its application originally in October 1991. He submitted into evidence a certified copy of all documents in this case on file in the Oil Conservation Division office.

Kellahin said the hearing should focus on technical presentations. He said these proceedings had inappropriately shifted the burden of proof to the opponents. He said the applicant should have been required to show the facility would not impair fresh water sources.

Stovall noted that permit applications to the Oil Conservation Division Environmental Bureau have only recently been subject to the hearing process. It was the intent of the Oil Conservation Division that Kellahin's clients have input during the administrative process. Carr said the hearing was called, not because the C & C application was defective but because the opponents wished to complain about the Oil Conservation Division decision. He agreed that the review of environmental applications by the Oil Conservation Division has taken a different course than other types of applications which come before the Division. Stovall said technical witnesses on both sides should be available if needed. This is almost a prefile testimony type of approach, Stovall said. "We are evolving a new process." The burden is on C & C to show that the project can be operated in compliance with Oil Conservation Division regulations, he added. Carr said notice of the hearing had been sent to the objectors and to all parties within a half-mile of the proposed facility.

Stradley identified the boundaries of his property in respect to the disposal facility and presented photographs showing the relationship of his water wells and the landfarm. He said S-W Cattle Co. owns or leases 16 sections in this area, including more than 6,000 acres of deeded land, 1,800 acres of Federal land and 2,200 acres of State land. He said the company had spent \$65,000 in the past two years installing water lines and pumps. He described three fresh water wells in the area: 1) 33 feet deep to the redbed with 18 feet of water; 2) 45 feet deep with 22 feet of water; 3) 50 feet with 25 feet of water. In response to questioning by Carr, he identified a clay pit, which he said had been there 25 years and often has rainwater. Asked if there had been a problem with water moving from the pit to a nearby well, he said not that he knew of. Reeves identified the boundaries of the Laughlin properties in the area, including a windmill and a well that is 50 feet deep with 15 feet of water in the hole. She said water had been produced there since the early 1930's. In response to questioning by Carr, she said there are an estimated 15 oil and gas wells on the property.

Kelly said the C & C application would not have been approved by the State Engineer or the Environmental Department or the Bureau of Mines and Mineral Resources. He said Oil Conservation Division lacked the experience of other agencies with this type of application. He said there could be problems resulting from the S-W windmill land depression and the possibility of shale faulting. He said redbeds are not impermeable. He said C & C should drill a "significant number" of monitoring wells. He questioned drilling logs, lack of specified time for monitoring, and absence of bonding requirement. He said the applicant should have drainage plans and adequate preparation for a 100-year flood event. The arroyo coming off the ridge is aimed at the front of the disposal facility, Kelly said. He said there should be a dike on the eastern boundary. He said there was no evidence of percolation tests or data. The proposed monitor wells are not properly located to detect potential waste migration, he charged. He said the application was lacking in technical support. In responses to questioning by Carr, Kelly said he had only become involved with the case last Friday. He said he has not conducted any test at the site. Carr said C & C would be required to post a \$25,000 bond. Kellahin brought out that Kelly was hired after the original geological witness had to withdraw from the case because of the death of his wife. Kelly said the Oil Conservation should require the dikes around the pit attain certain compaction levels, but he said that would not reduce the need for monitoring and recovery wells. In response to questioning by Stovall, Stradley said there are 3,000 oil and gas wells in the area.

Pierce said the essential requirement for the disposal facility is that it does not cause any contamination or harm to fresh water supplies. He said the redbed is 2.5 feet from the surface. He said the land moves updip from the C & C location southward; that the land dip is to the West rather than Southwest, as indicated earlier. The proposed landfarm will bioremediate soil contaminated by well head activity and leaking pipelines. He said when the facility is finally closed, there will be no contamination left in the soil, nor will it be capable of contaminating anything else. He noted the soil will be tilled bi-weekly. There will be 6 inch lifts or levels, and a new level cannot be added until the first lift complies with all Oil Conservation Division environmental standards. He said the location was chosen because of the absence of ground water. He said all five of the test wells drilled outside the pit are dry. The pit started with 2 acres; now includes 6 acres, and eventually will encompass 40 acres. He said there is a buffer zone of 40-50 feet between the excavation area and the property line.

Pierce said there had been a 100-year flood situation in May and afterward the wells tested dry. He said the five wells had been drilled to determine the top of the redbed. More wells will be added if the Oil Conservation Division considers it necessary. He said they don't want to penetrate the redbed. Kellahin asked if it wouldn't be better to locate the disposal facility on a 40-acre site to the north of the proposed landfarms. Pierce said the proposed location is a good one.

Carr said the company will comply with all the Oil Conservation Division requirements and any others which may be added later. He said the applicant is prepared to drill additional monitor wells, which could be converted to leachite recovery wells. He assured the Examiner the project poses no threat to fresh water in the area. In response to questioning by Stogner, Pierce said the monitor closest to the facility is 20 feet from the property line. He said the buffer zone could be enlarged up to 100 feet. Stradley expressed concern that monitor wells could be blocked by clay.

In the attorneys' closing statements, Kellahin said the owner of the disposal facility had put his neighbors at risk. He said the buffer is only a partial answer; the project should be located farther north. He said there was no research as to how long it will take the contaminants to reach ground water. He said his clients were seeking a fair chance to put the risk of failure on Cooper (owner of the facility) and not on themselves.

Carr said C & C has presented a technically sound program, which will be efficiently monitored. He said the absence of fresh water made it a good location and noted the project had been developed with the help of the Oil Conservation Division staff over many months. He said no liquids will be disposed in the pit. The rate of evaporation exceeds rainfall. The applicant will take any action Oil Conservation Division asks them to. He urged the Examiner to expedite approval of the application.

\* \* \* \* \*

**EXAMINER HEARING HELD - SEPTEMBER 2 - SANTA FE**

Michael E. Stogner - Examiner

Robert Stovall, Oil Conservation Division General Counsel

**SAN JUAN COUNTY**

**Commercial Surface Water Disposal Facility (Case 10539)**

Tierra Environmental Company, Inc. sought authorization to construct and operate a commercial landfarm facility for remediation of non-hazardous hydrocarbon-contaminated soils using an enhanced biodegradation process. Said area is to be located in the NW/4 SE/4 (Unit J) of Sec. 2, T-29-N, R-12-W, San Juan County, which is approximately 6 miles east of Farmington, New Mexico. This application has been administratively determined to be approvable, and this hearing was scheduled to allow parties the opportunity to present technical evidence why the application should not be approved pursuant to the rules for the Division. In the absence of objection, this application will be taken under advisement.

**Appearances:** J. Kevin Hale (Farmington, NM), attorney for Tierra Environmental Company, Inc.; Richard Cheney, president of Tierra, Farmington; Phillip C. Nobis, vice president, risk management, Tierra; Arthur H. Bichan, Bloomfield Hills, MI, owner of property near proposed commission landfarm; Glenn E. and Storme S. Vavra, Aztec, NM, owners of property near proposed landfarm.

[The hearing was called after the Tierra Environmental Commercial Landfarm application was protested by Bichan and Varva. The Oil Conservation Division's conditional approval was suspended pending today's hearing and the resulting recommendations of the hearing examiner. The Oil Conservation Division 711 Permit Approval of August 11 included an attachment with 16 conditions in relation to landfarm operations, treatment, zone monitoring, reporting, and bond and closure requirements.]

**Testimony:** In his introductory remarks Oil Conservation Division Counsel Stovall said the burden is on the applicant to show that the facility can be permitted under the rules of the Oil Conservation Division. He said the Division has determined that Tierra's application is administratively approvable, but that decision is not binding on the Examiner.

Cheney testified that Tierra owns 80 acres in the area with 23 acres scheduled for use as the surface waste disposal facility. He said it is located on top of Crouch Mesa. Nobis made a title search at the San Juan County Assessors Office to identify landowners or record. He said Vavra and Bichan are the only ones who have protested the operation, he added. He said the landfarm operator will take nonhazardous waste from well spills and old pits, transport the oily dirt to the landfarm by dump truck and spread it on the ground. The soil will be tested prior to movement to the site. The site will be divided into cells so the operator can keep track of each location, Cheney said. He said the oil will be spread on six-inch lifts, tilled periodically and moisture will be added from time to time to keep the bacteria alive. The soil will be tested periodically to check the level of hydrocarbon contamination. The remediated material may be left at the site or used for road fills or other uses. Tierra's operation of the landfarm will be subject to Oil Conservation Division review and approval. He said the nearest Oil Conservation Division office is at Aztec, 10-12 miles from the site. The nearest residence is occupied by the Vavra's, adjacent to the site's east boundary, across the county road. He said Tierra's application complies with all Oil Conservation Division rules. A minimal amount of the waste substance will be released into the air.

Bichan questioned Cheney's testimony in regard to site ownership, compliance with requirements regarding notification of landowners, the toxic nature of the disposed waste, the landfarm process, including dust control and air quality. Bichan said Tierra did not own the location. Cheney said the company had an agreement to purchase. Bichan said Tierra's landfarm application was faulty because the applicant had failed to notify all landowners, specifically Vavra. He said the company had not made a proper title search. Cheney said they had contacted the county clerk who referred them to the assessor's records. He said the records did not indicate that Vavra was the owner. Bichan said not all the mail receipt certificates were returned by the owners. He said the application was faulty in failing to comply with Oil Conservation Division rules regarding notification. Cheney said all were returned but some were signed by persons other than the landowner. Stovall said the Division required proof that notification had been sent to landowners, but did not require proof that the notification had been received by the landowner. Bichan referred to a memorandum from the Air Quality Bureau of the State Environment department, which said that the facility may require an air quality permit if the project should include volatilizing hydrocarbons to reduce soil contaminant levels. Cheney said the operator intends to rely on biodegradation and not on volatilization. Stovall noted that whatever is going to be done at the site will be subject to the Oil Conservation Division's regulation and inspection. Cheney said his company had notified the Division that Tierra is willing to add water to suppress dust if that is the wish of the State. Cheney noted that the landfarm will utilize a bio-remediation process to reduce the concentration of hydrocarbons to acceptable levels. In the initial phase, a one-acre plot will be used to demonstrate the effectiveness of adding bacteria to bio-remediation. The rest of the plot is natural biodegradation and water will be added there to enhance the bio-remediation process and suppress wind-blown dust. Stovall noted that the operator has no choice but to operate under Oil Conservation Division conditions if it wishes to operate at all.

Bichan also challenged Cheney's description of the waste as "nonhazardous." Cheney said that is the way it is classified by federal regulations. Bichan said that classification was made for the purpose of exempting oilfield wastes from certain federal regulations and was not intended as a description of the nature of the waste. He said the soil would contain a wide variety of hazardous constituents, such as Benzene, Toluene, Ethanes and Xylenes. Cheney said such toxics would not be allowed to exceed federal limits. In regard to applying water to the disposal site, Cheney said the operator could use a sprinkler system or water tank truck. He said the addition of water would enhance the natural biodegradation process. Bichan said Tierra's application for a permit indicated they planned to use evaporation. Cheney said they would do what they think is best in consultation with the Oil Conservation Division. He said the company is prepared to take any initiatives which would improve health measures while implementing the best technology. He said the amount of water to be added would depend on the nature of the soil. He said too much water could drive contaminants down into the soil. In response to questioning by Stovall, Cheney said visual

SAN JUAN COUNTY  
Commercial Surface Water Disposal Facility (Case 10539) (Continued)

indicators could be used to indicate specific air quality levels. Stovall said the proper application of moisture and the installation of detection backup equipment would help address the opponent's concerns. Bichan said the public would be served if Tierra sealed in the hydrocarbons and kept dust from blowing. Stogner cited other needs such as adequate fencing and compliance with all water and soil protection rules. He said it could become a model landfarm.

Hale suggested the Oil Conservation Division call for some type of ground monitoring in regard to air quality standards, the addition of a woven-type livestock fence, berms, windbreaks in connection with soil conservation practices, application of moisture to prevent soil erosion and violation of air quality. Cheney said he objected to the windbreaking. Bichan said he didn't think it was necessary.

Stovall asked Hale to prepare a proposed order for the Examiner to consider, covering the concerns that had been expressed at the hearing. Hale's draft would be submitted within 10 days to Bichan and Vavra for review, and they would have 10 days to comment. The Examiner will then draft the Oil Conservation Division order for the Director's signature.

Stovall told Mr. and Mrs. Vavra that technically they did not receive written notice as required by Oil Conservation Division rules. If they wished to object, another hearing could be scheduled in 30 days. Vavra said that was not necessary. He was generally satisfied by the recommendations which had been made to the Examiner at today's hearing, and would like to see a windbreak added on the west and east ends as a buffer. Mrs. Vavra said they are planning to drill a water well and want to be assured there would be no contamination.

\* \* \* \* \*

**EXAMINER HEARING HELD - SEPTEMBER 3 AND 4 - SANTA FE**

Michael E. Stogner - Examiner  
Robert Stovall, Oil Conservation Division General Counsel

EDDY COUNTY  
Unit Agreement (Case 10527)

Yates Petroleum Corporation sought approval of the Sedge Unit Agreement for an area comprising 1967.92 acres, more or less, of State and Federal lands in Secs. 18, 19, and 30, T-22-S, R-23-E, Eddy County, which is centered approximately 7.5 miles southwest by south of Marathon Oil Company's Indian Basin Gas Plant.

Appearances: William F. Carr (Santa Fe), attorney, for Yates Petroleum Corporation; James Bruce (Santa Fe), attorney, for BHP Petroleum Americas Inc.; Mike Burch, Yates landman, Artesia; Brent May, Yates geologist, Artesia.

Testimony: Burch said Yates seeks a voluntary unit that will be 1,304.48 acres, 663.44 less than advertised. (Carr said Sec. 30 is being dismissed.) He said there is one state acreage tract that is 6% of the proposed unit, and the rest, three tracts, is all federal. The federal acreage is 1,221.28 acres, he said. He said the federal tracts, owned by Yates Petroleum, Yates Drilling Co., MYCO Industries and Abo, are voluntarily committed. He said BHP is the lessee on the state tract. He said the Bureau of Land Management (BLM) has designated the proposed unit as an area logically suited for unit development. He said Yates also has preliminary approval from the State Land Office (SLO). He said the unit agreement calls for plans of development to be filed starting six months after the first well is completed. He said Yates wants to be the operator. He said the application was filed July 31, 1992 with the BLM. (Stogner noted that the SLO letter was dated September 2.)

May said all horizons will be unitized; the primary objective test will be the sands of the Morrow clastic, mostly Indian Basin Morrow. He said secondary objectives will be the Upper Morrow, Morrow, Cisco, Canyon and Atoka formations, possibly the Queen. He said the well location is 1,980 feet from the north line and 660 feet from the east line of Sec. 18, and the well will be drilled to approximately 9,700 feet in depth. He said the sands in the area are tight; there is a structural high to the east of the proposed unit. He said the unit is on the western flank of the high, at the highest point. He said if they get too low, there is a risk on encountering water; the oil-water contact is unknown, he said. He said there is a sand deck through the unit. He said the thicker sand section within the unit should provide higher porosity and permeability. He said Yates plans to spud the initial test well before October 1, 1992, when the lease expires.

Under cross-examination by Bruce, May said the well in Sec. 6 was drilled in the early 1960s, did not produce much and is abandoned.

Under cross-examination by Stogner, May said none of the wells on his exhibit map have produced from the Morrow commercially.

RIO ARRIBA COUNTY  
Unorthodox Oil Well Location (Case 10540 - Continued to September 17)

Continued to September 17 is the application of American Hunter Exploration, Ltd. seeking approval for an unorthodox oil well location 2480 feet from the South line and 915 feet from the West line (Unit J) of irregular Sec. 6, T-27-N, R-2-W, Rio Arriba County, to test the Mancos formation. The NW/4 SE/4 of said Sec. 6 is to be dedicated to said well forming a standard 40-acre oil spacing and proration unit. Said unit is located approximately 19 miles west of El Vado, New Mexico.



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION



BRUCE KING  
GOVERNOR

ANITA LOCKWOOD  
CABINET SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

November 17, 1992

CAMBELL, CARR, BERGE  
& SHERIDAN  
Attorneys at Law  
P. O. Box 2208  
Santa Fe, New Mexico 87504

RE: CASE NO. 10507  
ORDER NO. R-9769

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Sincerely,

A handwritten signature in cursive script that reads "Florene".

Florene Davidson  
OC Staff Specialist

FD/sl

cc: BLM Carlsbad Office  
T. Kellahin

*Supplemental Notice  
issued in response  
to an order.*

**ATTACHMENT**  
(May 20, 1992)

**C & C LANDFARM INC. APPLICATION  
OCD CONDITIONS OF APPROVAL**

1. All soils received at the facility will be spread and disked within 72 hours of receipt.
2. Solids will be spread on the surface in six inch lifts or less.
3. Solids will be disked a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants.
4. No solids will be spread on previously spread solids until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 100 ppm and the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations will be maintained at the facility. Authorization from the OCD will be obtained prior to application of successive lifts.
5. Only solids that are non-hazardous by RCRA Subtitle C or by characteristic testing will be accepted at the facility. Solids from operations not currently exempt under RCRA Subtitle C or mixed exempt/non-exempt solids will be tested for appropriate hazardous constituents. Test results must be submitted to the OCD along with a request to receive the non-exempt solids, and a written OCD approval (case specific) must be obtained prior to disposal. Any non-oilfield wastes which are RCRA Subtitle C exempt will be accepted on a case-by-case basis and with OCD approval.
6. Comprehensive records of all material disposed of at the facility will be maintained at the facility. The records for each load will include: 1) the origin, 2) analysis for hazardous constituents if required, 3) transporter.
7. OCD approval must be obtained prior to the addition of any substances to enhance biodegradation of the soils landfarmed (ie. chemical additives, manure, nutrients, bugs, ect.).
8. No free liquids or soils with free liquids will be accepted at the facility.
9. If any monitor wells are constructed in the future the drilling and completion plans will be submitted for OCD approval prior to conducting operations.
10. A redbed dike will be installed on the south, west, and north edges of the property as proposed in the C & C correspondence dated March 2, 1992.

PEAK  
CONSULTING SERVICES  
ENVIRONMENTAL,  
GEOLOGICAL & REGULATORY  
SPECIALISTS

P.O. BOX 636  
HOBBS, NEW MEXICO 88240  
OFFICE (505) 392-1915



PCS

March 2, 1992

Kathy M. Brown  
Oil Conservation Division  
P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

Re: Response to letter dated February 21, 1992  
C & C Landfarm Inc.

Dear Ms. Brown:

This letter is in response to the Oil Conservation Divisions' requests and concerns regarding C & C Landfarm Inc.'s application. Please find enclosed the information you require:

1. C & C Landfarm Inc. proposes to install a redbed dike on the south, west, and north edges of the property to prevent any migration of fluids from the property. This dike will consist of a trench approximately 2 - 3 feet wide. This trench will be deep enough to penetrate the redbed interval to a depth of approximately 2 feet. The trench will then be backfilled and compacted with redbed material from the working pit. (Fig. 1)

This dike will be situated between the property line and the monitor wells previously installed. (Fig. 1)

The pit will be excavated to approximately 1 foot above the top of the redbed. (Fig. 1)

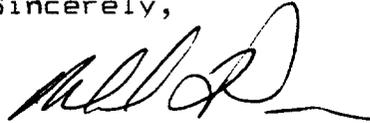
2. C & C Landfarm Inc. will seek OCD approval before any additional monitor wells are drilled.

3. C & C Landfarm Inc. acknowledges items A thru H of part three of the letter dated February 21, 1992, and agrees to comply with all conditions.
  
4. Figure 2 is a map showing all private residences within one mile of the facility. At the present time only one residence is within one mile. This residence is owned by Mr. A.C. Doyall, and he was provided with a copy of the original application by C & C Landfarm Inc..

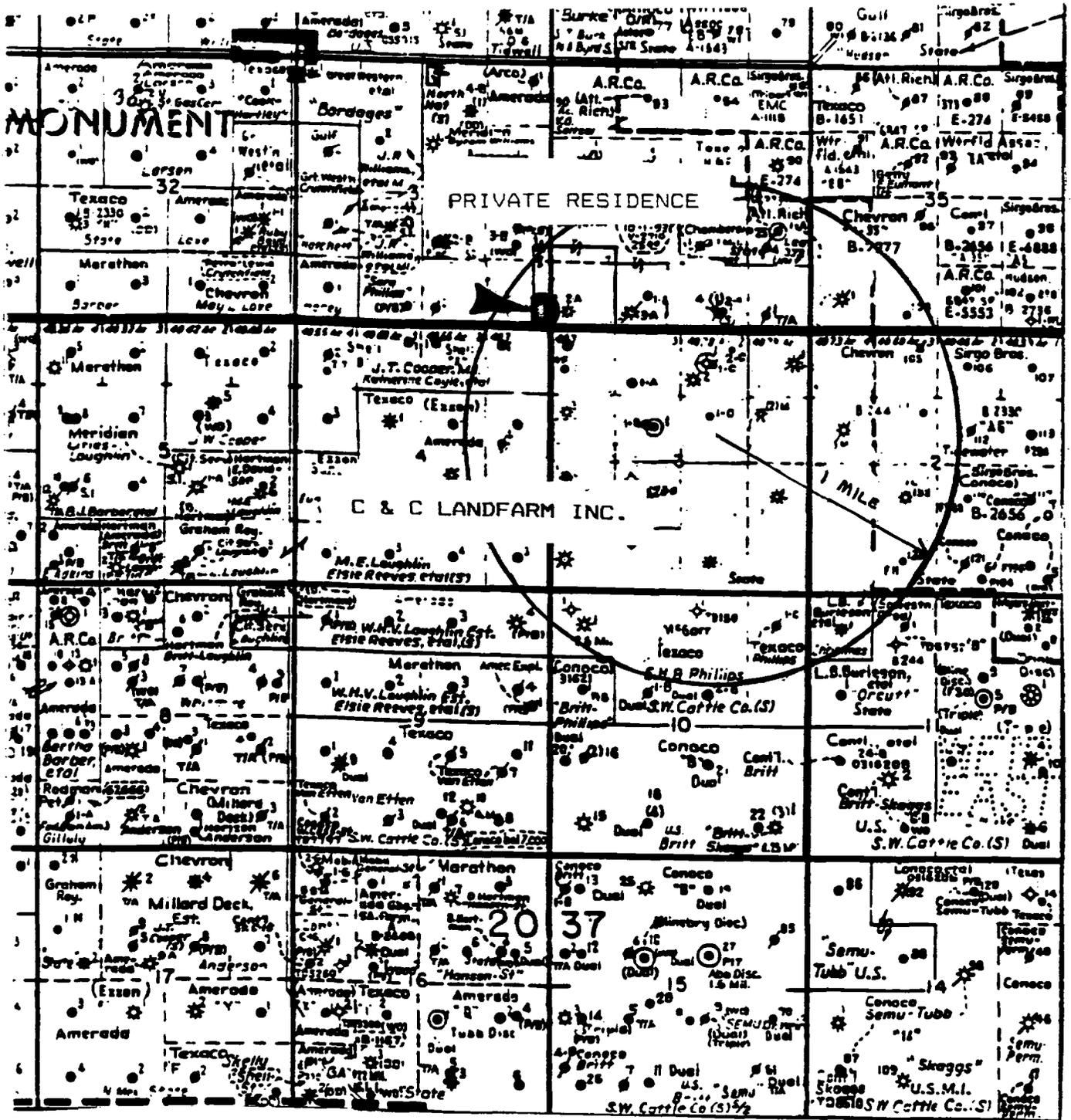
The pit occupies approximately 2 acres at this time. C & C Landfarm Inc. request that the entire 40 acre tract be permitted for landfarming. This way the pit can be expanded as needed.

C & C Landfarm Inc. and Peak Consulting Services appreciates the time and effort that the Oil Conservation Division has invested in this project. We are committed to provide a quality facility that the Oil Industry can depend on and have confidence in. If we can be of further assistance, please lets us know.

Sincerely,

A handwritten signature in black ink, appearing to read "M.L. Pierce", with a long horizontal flourish extending to the right.

Michael L. Pierce  
Peak Consulting Services

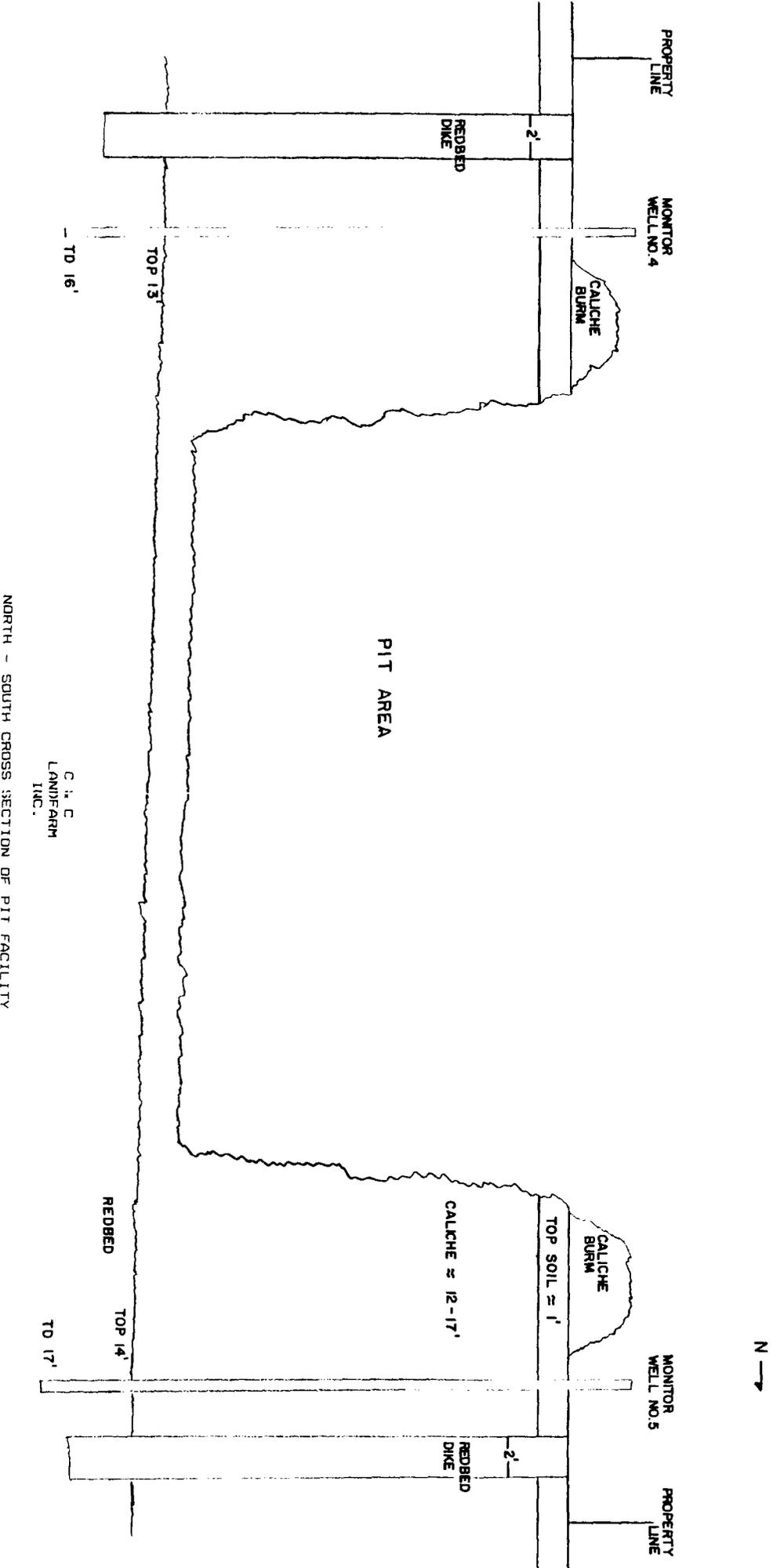


C & C LANDFARM INC.

LOCATION MAP OF PRIVATE RESIDENCES WITHIN ONE MILE OF THE FACILITY

Figure 2

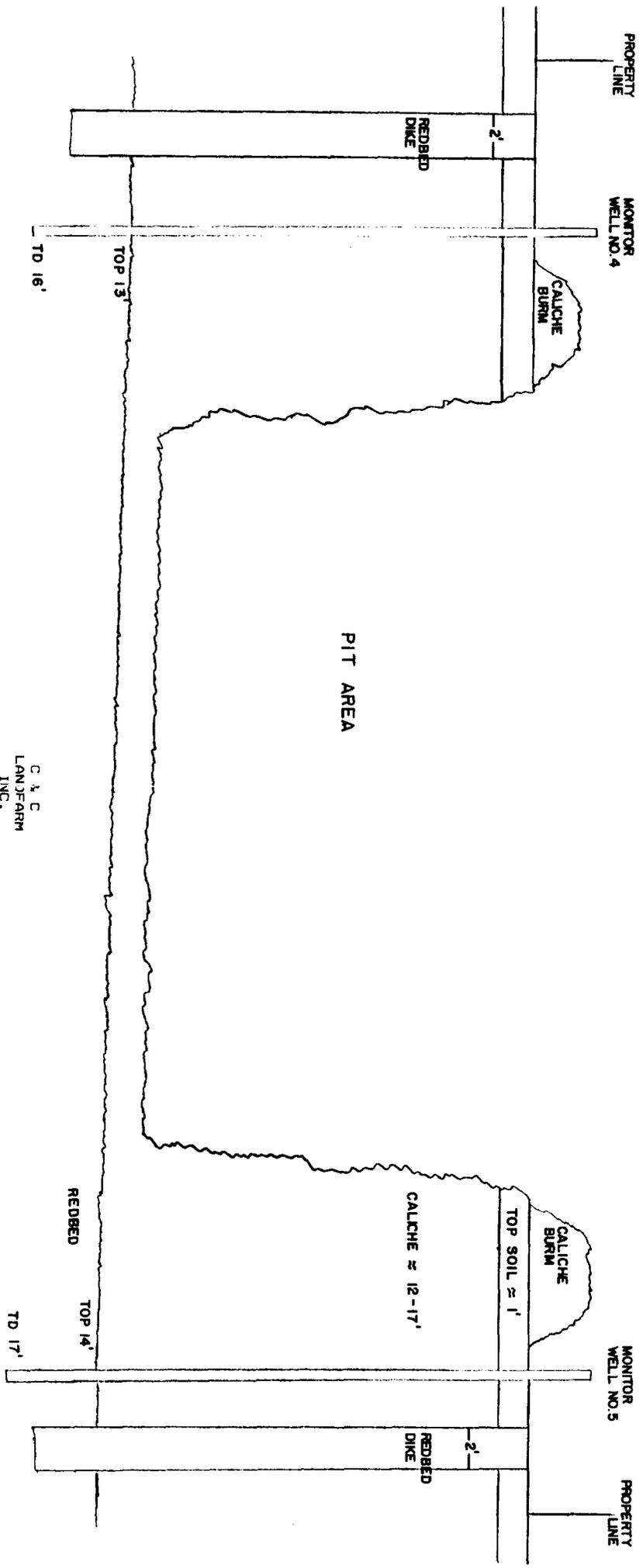




NORTH - SOUTH CROSS SECTION OF PIT FACILITY

FIGURE 1

Vertical Scale 1" = 3'  
 No Horizontal Scale



NORTH - SOUTH CROSS SECTION OF PIT FACILITY

C. I. C.  
LANDFARM  
INC.

N →

FIGURE 1

Vertical Scale 1" = 3'  
No Horizontal Scale

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION



BRUCE KING  
GOVERNOR



POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

February 21, 1992

CERTIFIED MAIL

RETURN RECEIPT NO. P-670-683-494

Mr. Jimmie T. Cooper  
C & C Landfarm Inc.  
Box 55  
Monument, New Mexico 88265

RE: **Landfarm Request, C & C Landfarm Inc.  
Lea County, New Mexico**

Dear Mr. Cooper:

The Oil Conservation Division (OCD) has received and is in the process of reviewing the above referenced application for an oil field related solids landfarm located in the SW/4 NE/4, Section 3, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico. The following comments and requests for additional information are based on review of the application, dated October 4, 1991, and inspection of the proposed facility on February 11, 1992 by representatives of the OCD and C & C Landfarm Inc. In order for the review process to continue the OCD requires the following information:

1. In your surface disposal application you propose to construct a pit by excavating down to the top of the redbed (about 10 to 12 feet) and using the overburden (caliche) to build berms around the site. The OCD is concerned with the possibility of contaminants migrating off of your property along the surface of the redbed. The OCD requires a detailed description of how C & C plans to prevent the migration of contaminants down gradient along the redbed surface. If there are any modifications or additions to the original application, please submit detailed descriptions and diagrams. Include the dimensions (3-D) of the proposed facility (pit) along with a cross-sectional diagram.

Mr. Jimmie T. Cooper  
February 21, 1992  
Page 2

2. Constuction of your present monitor wells does meet the current OCD standards and recommendation for monitor well construction. If any monitor wells are constructed in the future please submit drilling and completion plans for OCD approval prior to conducting operations.
  
3. The OCD has stringent requirements for the operation of all OCD regulated landfarms. A commitment to the following conditions is required prior to OCD approval of commercial landfarms:
  - a. All soils received at the facility will be spread and disked within 72 hours of receipt.
  - b. Solids will be spread on the surface in six inch lifts or less.
  - c. Solids will be disked a minimum of one time every two weeks (biweekly) to enhance biodegradation of contaminants.
  - d. No solids will be spread on previously spread solids until a laboratory measurement of Total Petroleum Hydrocarbons (TPH) in the previous lift is less than 100 ppm and the sum of all aromatic hydrocarbons (BTEX) is less than 50 ppm, and benzene is less than 10 ppm. Comprehensive records of the laboratory analyses and the sampling locations will be maintained at the facility. Authorization from the OCD will be obtained prior to application of successive lifts.
  - e. Only solids that are non-hazardous by RCRA Subtitle C or by characteristic testing will be accepted at the facility. Solids from operations not currently exempt under RCRA Subtitle C or mixed exempt/non-exempt solids will be tested for appropriate hazardous constituents. Test results must be submitted to the OCD along with a request to receive the non-exempt solids, and a written OCD approval (case specific) must be obtained prior to disposal. Any non-oilfield wastes which are RCRA Subtitle C exempt will be accepted on a case-by-case basis and with OCD approval.
  - f. Comprehensive records of all material disposed of at the facility will be maintained at the facility. The records for each load will include: 1) the origin, 2) analysis for hazardous constituents if required, 3) transporter.

Mr. Jimmie T. Cooper  
February 21, 1992  
Page 3

- g. OCD approval must be obtained prior to the addition of any substances to enhance biodegradation of the soils landfarmed (ie. chemical additives, manure, nutrients, bugs, ect.).
  - h. No free liquids or soils with free liquids will be accepted at the facility.
4. The OCD is concerned about the impact of disposal facilities on private residences. Please submit a map showing all private residences within one mile of the proposed facility. Include the name and land status of the resident.

Submission of the above requested information will allow the review process to continue. If you have any questions please do not hesitate to contact me at (505) 827-5884.

Sincerely,



Kathy M. Brown  
Geologist

cc: Jerry Sexton, OCD Hobbs Office  
Chris Eust  
Mike Pier

<b>SENDER:</b> <ul style="list-style-type: none"><li>• Complete items 1 and/or 2 for additional services.</li><li>• Complete items 3, and 4a &amp; b.</li><li>• Print your name and address on the reverse of this form so that we can return this card to you.</li><li>• Attach this form to the front of the mailpiece, or on the back if space does not permit.</li><li>• Write "Return Receipt Requested" on the mailpiece below the article number.</li><li>• The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.</li></ul>		I also wish to receive the following services (for an extra fee): <ul style="list-style-type: none"><li>1. <input type="checkbox"/> Addressee's Address</li><li>2. <input type="checkbox"/> Restricted Delivery</li></ul> Consult postmaster for fee.	
3. Article Addressed to: Mr. Jimmie T. Cooper C & C Landfarm Inc Box 55 Monument, New Mexico 48265		4a. Article Number P-670-683-494	
5. Signature (Addressee) <i>Jimmie T. Cooper</i>		4b. Service Type <ul style="list-style-type: none"><li><input type="checkbox"/> Registered</li><li><input checked="" type="checkbox"/> Certified</li><li><input type="checkbox"/> Express Mail</li><li><input type="checkbox"/> Insured</li><li><input type="checkbox"/> COD</li><li><input type="checkbox"/> Return Receipt for Merchandise</li></ul>	
6. Signature (Agent) 2-24-92		7. Date of Delivery	
PS Form 3811, November 1990		8. Addressee's Address (Only if requested and fee is paid)	

State of New Mexico  
Energy, Minerals and Natural Resources Department  
OIL CONSERVATION DIVISION  
P.O. Box 2088  
Santa Fe, NM 87501

9 2 00 01  
10 00 01  
10 08 85

**APPLICATION FOR SURFACE WASTE DISPOSAL FACILITY**

(Refer to OCD Guidelines for assistance in completing the application.)

- I. Type:  Produced Water  Drilling Muds  Treating Fluids  
 Solids  Other \_\_\_\_\_
- II. OPERATOR: C & C Landfarm Inc.  
ADDRESS: Box 55 Monument, NM 88265  
CONTACT PERSON: Jimmie T. Cooper PHONE: 505-397-2045
- III. LOCATION: SW /4 NE /4 Section 3 Township 20 Range 37 E  
Submit large scale topographic map showing exact location.
- IV. IS THIS AN EXPANSION OF AN EXISTING FACILITY?  Yes  No
- V. Attach the name and address of the landowner of the disposal facility site and landowners of record within one-half mile of the site.
- VI. Attach description of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility.
- VII. Attach detailed engineering designs with diagrams prepared in accordance with Division guidelines for the construction/installation of the following: pits or ponds; leak-detection systems; aerations systems; enhanced evaporation (spray) systems; waste treating systems and security systems.
- VIII. Attach a contingency plan for reporting and clean-up of spills or releases.
- IX. Attach a routine inspection and maintenance plan to ensure permit compliance.
- X. Attach a closure plan.
- XI. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact fresh water.
- XII. Attach proof that the notice requirements of OCD Rule 711 have been met. (Commercial facilities only.)
- XIII. Attach a contingency plan in the event of a release of H<sub>2</sub>S.
- XIV. Attach such other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.
- XV. CERTIFICATION

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Eddie W. Seay Title: Agent/Consultant  
Signature: Eddie W. Seay Date: October 4, 1991

DISTRIBUTION: Original and one copy to Santa Fe with one copy to appropriate Division District Office.

APPLICATION FOR SURFACE WASTE DISPOSAL FACILITY

- I. Type: Solids - Oil or Salt water contaminated soils from production facilities only.
- II. OPERATOR: C & C Landfarm Inc.  
ADDRESS: Box 55 Monument, NM 88265  
CONTACT PERSON: Jimmie T. Cooper  
PHONE: 505-397-2045
- III. LOCATION: SW 1/4 of the NE 1/4 of Section 3,  
Township 20, Range 37 East, Lea Co., NM.
- IV. IS THIS AN EXPANSION OF AN EXISTING FACILITY? No,  
this is a new facility.
- V. LANDOWNER OF FACILITY SITE  
Jimmie T. Cooper  
P.O. Box 55  
Monument, NM 88265  
  
LANDOWNERS OF RECORD WITHIN 1/2 MILE  
State of New Mexico  
State Land Office  
P.O. Box 1148  
Santa Fe, NM 87504  
  
S & W Cattle Co.  
8900 South County Rd. 58  
Monument, NM 88265  
  
J.R. Williams, et al  
P.O. Box 215  
Monument, NM 88265  
  
A.C. Doyall  
P.O. Box 188  
Monument, NM 88265
- VI. DIAGRAM (attached)
  - (A) Excavate area as needed down to top of redbed approximately 10 to 12 feet. Use overburden to build berms around site to prevent and restrict rain run off and drainage to facility.
  - (B) Fence around all sides, with chain link fence adjacent to County Road 58.
  - (C) Gate with cattle guard at entrance. Open during daylight hours only.
  - (D) 5 monitor wells on North, South, East, and West sides.
  - (E) Signs posted with restrictions and permit no.

(F) Any other improvement as needed or required by  
OCD.

VII. DRAWING OF MONITOR WELL (attached)

Excavate land area down to redbed, dispose of contaminated soil in 6 in. lifts and till or plow every 30 to 60 days as needed to ensure proper aeration so soil can be cleaned up by natural remediation according to government standards. Have soil tested for TPH and BTEX before adding new lift as required.

VII. CONTINGENCY PLAN (NA)

There will be no liquids at facility. Any soil accidentally spilled at facility will be picked up with front end loader and deposited within landfill. No material will be accepted without documentation.

IX. ROUTINE INSPECTION AND MAINTENANCE PLAN

- (1) Weekly inspection of monitor wells.
- (2) Road area around facility will be graded and kept free of oily dirt.
- (3) All loads will be documented and logged.
- (4) No liquids accepted.
- (5) No tank bottoms accepted.
- (6) Area will be posted with proper signs.
- (7) No dumping will be allowed unless facility is open.
- (8) May require letter from company showing waste has not been mixed with non-exempt waste.
- (9) All area properly fenced with locked gates.
- (10) Each lift will be tested for BTEX Method 602 and TPH Method 8015 EPA test requirements before adding new lift.

X. CLOSURE PLAN

All overburden will be removed down to the redbed, averaging from 12 ft. on the east side, to 16 ft. on the west side.

Disposal of solids will start at redbed, when area has been filled and tested to within 1 ft. of surface elevation, area will be backfilled with top soil, mound over and compacted. The mound should prevent rain or water from standing or leaching into backfill.

All fences will be left in tact and monitor wells left in place for future monitoring.

Also, any additional rule or regulation at time of closure will be adhered to.

- XI. Geographically, the site is situated near the western boundary of the southern extension of the High Plains in Southeastern New Mexico. The site in question is a 40 acre tract located in Unit G, Section 3, Township 20, Range 37 E, Lea Co., NM.

The site which is bordered by County road 58 on the east, has a gradual surface slope to the west. To the SE of this site in Unit Lettter O is a large pit with the redbed exposed. Redbed is a layer of relatively impermeable clays, red to reddish brown in color, underlying the fresh water aquifer in SE New Mexico ranging in thickness up to 1200 ft.

C & C Landfarm Inc. is located on or near the redbed layer. A series of test wells were drilled to define the redbed and check for fresh water.

#### TEST WELL LOGS

- #1 Located 100 yds. N of NW corner  
0-1 ft. Top Soil  
1-18 ft. Caliche, Rock  
18-20 ft. Redbed  
All formations dry.
- #2 Located 125 ft. N of the south line on the extreme west edge.  
0-1 1/2 ft. Top Soil  
1 1/2-16 ft. Caliche, Rock  
16-18 ft. Redbed  
All formations dry.
- #3 Located 100 yds. E of the west line on the south side.  
0-1 ft. Top Soil  
1-15 ft. Caliche, Rock  
15-17 ft. Redbed  
All formations dry.
- #4 Located 50 yds. W of the east line on the south border.  
0-1 ft. Top Soil  
1-13 ft. Caliche, Rock  
13-16 ft. Redbed  
All formations dry.
- #5 Located 150 yds. W of east line on the north side.  
0-1 ft. Top Soil

1-14 ft. Caliche, Rock  
14-17 ft. Redbed  
All formations dry.

- \* An area in the middle of the east edge of the property, was excavated with a backhoe. Rock and caliche at 0-12 ft. Redbed was encountered at 12 ft.

The wells were drilled with rotary rig, no water was encountered, only caliche, rock, and sand down to redbed. The redbeds came in at 12 ft. on the east side, down to 17 ft. on the west side. The five wells drilled were completed into the redbed and cased with 3 in. PVC pipe with 5 ft. of screen on bottom with the top 2 ft. cemented and capped. Wells to be secured with locks and used as monitor wells.

Researched State Engineers records and U.S.G.S. file, no fresh water was recorded or found within area of review. A physical inspection was made and a windmill was found approximately 1 mile SW of the site, a sample was taken and analysis recorded for future use.

We feel this is one of the better sites for deposit of contaminated soil due to the thickness of redbeds, little or no fresh water in the area, a monitor system is in place for control of system. This system is in the middle of the oil and gas production and will serve a valuable environmental need, both regulatory and industrial.

- XII. PROOF OF OCD RULE 711 (attached)
- XIII. CONTINGENCY PLAN FOR RELEASE OF H<sub>2</sub>S (NA)

Open pit system should not have H<sub>2</sub>S. If encountered, OCD Rule 118 will be adhered to.

- XIV. All State of New Mexico, Oil Conservation rules will be enforced as they pertain to this system.

19 37



Area of Review:  
 SW 1/4 - NE 1/4  
 sect 3  
 Township 20  
 Range 37 E

GREEN SKAGGS UNIT

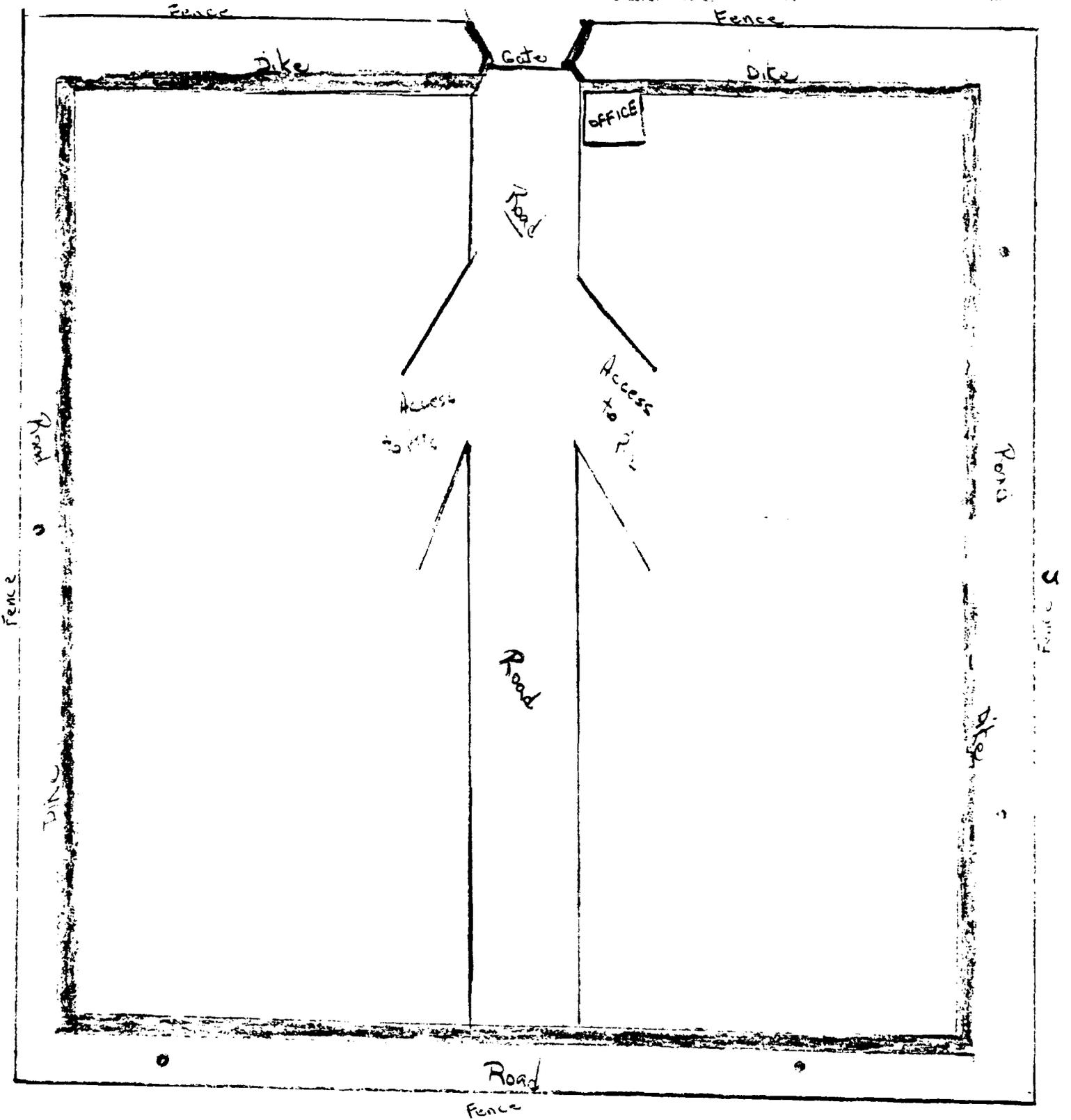
37

37

VI

W

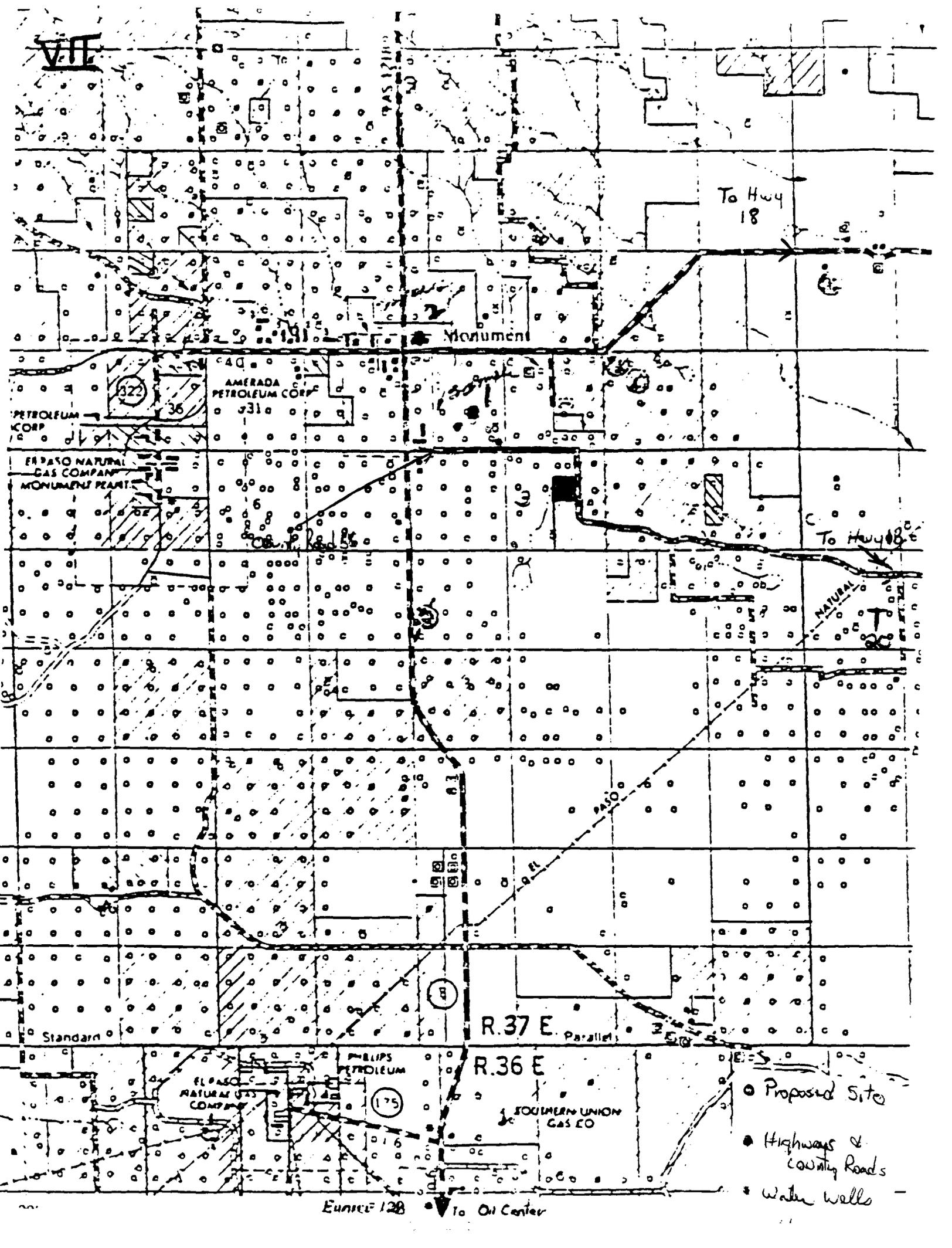
County Road 58 "Billy Walker Road"



Written walls  
 arms or Dyke  
 disposal Area

N

VII



To Hwy 18

Monument

322

AMERADA PETROLEUM CORP

PETROLEUM CORP

EL PASO NATURAL GAS COMPANY MONUMENT PLANT

To Hwy 8

NATURAL

Standard

R. 37 E

Parallels

R. 36 E

PHILIPS PETROLEUM

EL PASO NATURAL GAS COMPANY

SOUTHERN UNION GAS CO

Proposed Site

Highways & County Roads

Water Wells

Eureka 128

To Oil Center

LEASE

C+C Landfarm Inc.

WELL No.

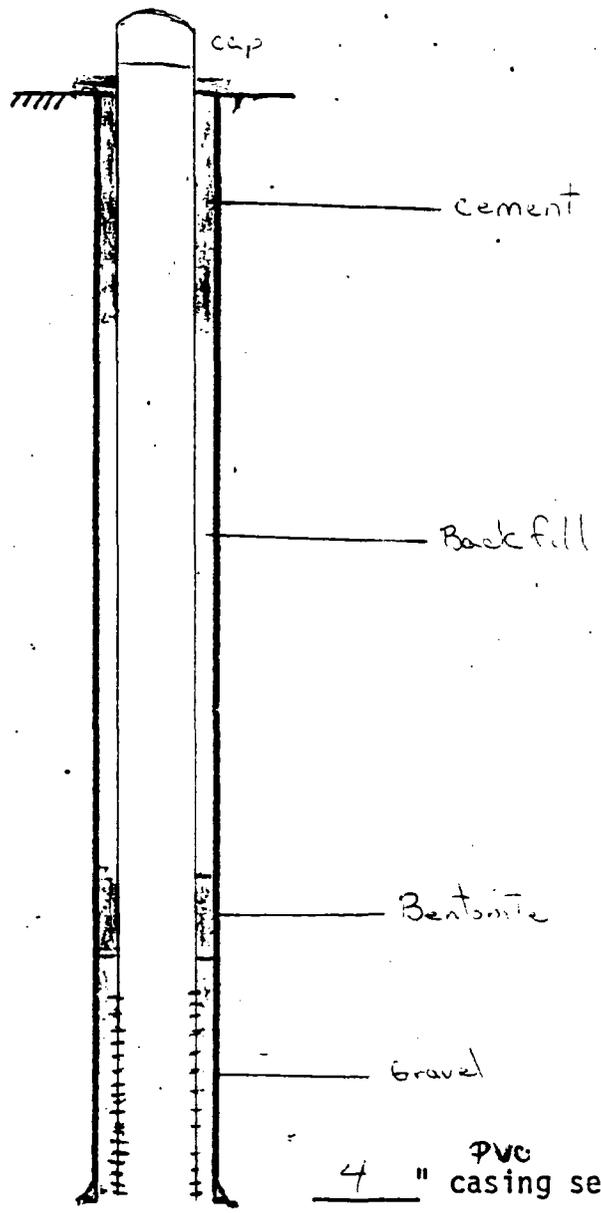
MW

LOCATION

Unit G S 3 T 20 R 37 E

VII

Test well - Monitor well



4" <sup>PVC</sup> casing set at Redbed

Hole size 6 3/4"



XII

P 661 750 233



### Certified Mail Receipt

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

Sent to	
S & W Cattle Co.	
Street & No.	
8900 S. County Rd. 58	
P.O., State & ZIP Code	
Monument, NM 88265	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, June 1990

P 661 750 234



### Certified Mail Receipt

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

Sent to	
Mr. Jimmie T. Cooper	
Street & No.	
Box 55	
P.O., State & ZIP Code	
Monument, NM 88265	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, June 1990

P 661 750 230



### Certified Mail Receipt

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

Sent to	
Mr. A.C. Doyall	
Street & No.	
P.O. Box 188	
P.O., State & ZIP Code	
Monument, NM 88265	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, June 1990

P 661 750 231



### Certified Mail Receipt

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

Sent to	
Commissioner of Public Lands	
Street & No.	
P.O. Box 1148	
P.O., State & ZIP Code	
Santa Fe, NM 87504	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, June 1990

P 661 750 232



### Certified Mail Receipt

No Insurance Coverage Provided  
Do not use for International Mail  
(See Reverse)

Sent to	
J.R. Williams, et al	
Street & No.	
P.O. Box 215	
P.O., State & ZIP Code	
Monument, NM 88265	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, June 1990

XII

C & C Landfarm Inc.  
Jimmie T. Cooper P.O. Box 55 Monument, NM 88265  
505-397-2045

October 1, 1991

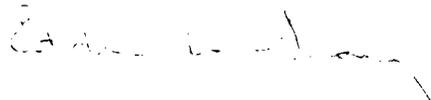
Dear Sir:

Pursuant to Rule 711 of the Oil Conservation Commission, State of New Mexico, notice is hereby given that Jimmie T. Cooper, owner and operator of C & C Landfarm Inc., will be filing an application for a surface waste disposal facility located at SW 1/4 of the NE 1/4 of Section 3, Township 20, Range 37E, Lea Co., NM on deeded land. The facility will be for the disposal of contaminated soils only from oil and gas production. No produced waters or tank bottoms will be allowed. This disposal will allow a safe place for the natural occurrence of remediation of the soil.

If there are any questions please contact:

Mr. Roger Anderson  
State of New Mexico  
Oil Conservation Division  
P.O. Box 2088  
Santa Fe, NM 87501  
505-827-5884

Thank You.



Eddie W. Seay  
Peak Consulting Service

C & C LANDFARM INC.

Additional information to Application for Surface Waste Disposal.

- I. The thickness of the rebeds varied from area to area in Section 3. The information was taken from logs of producing oil wells in the area and lithology reports.

Unit C	Top 20 ft.	Base 960 ft.
F	30 ft.	562 ft.
B	14 ft.	880 ft.
H	15 ft.	1350 ft.
M	30 ft.	1270 ft.
L	40 ft.	1050 ft.

with the average thickness being 987 ft.

- II. Groundwater in the area; Figure I is a copy of the State Engineer's water analysis and locations for this area, none were listed in Sect. 3. The windmill SSW of our proposed site appears to be located in Unit M of Sect. 3 approximately 3/4 mile from site; Figure II is a copy of analysis from S & W windmill. Figure III indicates water wells in the general area showing top and bottom of water formation and contour line indicating direction of flow, which is SE. Figure IV is a contour map of top of rebed, with slopes to the SSE. Figure V is a contour map of the surface for the surrounding area, the direction of slope is to the west.

The contour maps provided are information from the State Bureau of Mines, which shows any movement at our site would run SE along the rebed surface and west along the top of ground.

If the State feels it is necessary, additional monitor wells can be installed or a rebed barrier constructed on the SW portion of our site to prevent any contaminate from moving.

- III. Also provided are the mail receipts from registered letters.

Any additional information needed, please call (505)392-2236.

*Eddie W Seay*

Eddie W. Seay  
Peak Consulting

Figure I  
Sheet  
FILE

	LOCATION	DATE COLLECTED	CHLORIDE mg/L	CONDUCT M-MHOS	TEMP DEG	WBF	
4	20S 36E 09 13440	10/12/84	434	2350	63F	T0G	
5	20S 36E 10 32114	08/28/72	79	520		GAL	State Eng. List of Water wells in the area. They List none in Sect 3
6	20S 36E 10 32114	11/01/76	66	889	66F	GAL	
7	20S 36E 10 32114	10/19/79	68	880	66F	GAL	
8	20S 36E 10 32114	10/12/84	92	980	64F	GAL	
9							
10	20S 36E 11 42243	08/28/72	1000	1450		GAL	L
11	20S 36E 11 42243	11/01/76	918	3969	63F	GAL	
12	20S 36E 11 42243	10/19/79	1074	4569	65F	GAL	
13	20S 36E 11 42243	10/12/84	840	4330	64F	GAL	
14							
15	20S 36E 15 242421	08/28/72	720	1800		GAL	L
16	20S 36E 15 242421	11/01/76	518	3223		GAL	
17	20S 36E 15 242421	10/12/84	882	3630	63F	GAL	
18	20S 36E 15 242421	5/07/86	884	3715	70F	GAL	
19							
20	20S 36E 15 24342	03/30/54	1080	6780		T0G	L
21	20S 36E 15 24342	09/09/58	1240	7500		T0G	
22							
23	20S 36E 15 24342A	08/28/72	1280	2900		TRC	L 06986
24	20S 36E 15 24342A	11/01/76	1192	6988	70F	TRC	
25							
26	20S 36E 26 24344	11/08/79	150	1790		T0G	L
27	20S 36E 26 24344	2/08/85	150	1798	68F	T0G	
28							
29	20S 36E 26 24443	11/08/79	182	1895		T0G	L
30							
31	20S 36E 35 24444	11/08/79	118	1541		T0G	L
32							
33	20S 37E 04 11114	04/02/54	450	2180		GAL	L
34	20S 37E 04 11114	04/22/55	425	2090		GAL	
35	20S 37E 04 11114	09/09/58	325	1670		GAL	L
36							
37	20S 37E 04 221321	04/22/55	51	758		GAL	L
38	20S 37E 04 221321	09/09/58	47	708		GAL	
39	20S 37E 04 221321	07/14/77	106	1070		GAL	L
40	20S 37E 04 221321	10/25/79	214	1506	65F	GAL	
41	20S 37E 04 221321	2/06/85	81	964		GAL	L
42							
43	20S 37E 05 222144	11/29/79	258	1611		T0G	L
44	20S 37E 05 222144	9/26/84	314	1729		T0G	
45							
46	20S 37E 07 24331	11/09/79	1268	4232		T0G	L
47	20S 37E 07 24331	2/13/85	2680	8160	68F	T0G	
48							
49	20S 37E 08 244124	11/29/79	868	3734	57F	T0G	L 07620 ES L
50							
51	20S 37E 08 423223	10/25/79	520	2396	66F	T0G	L
52	20S 37E 08 423223	9/26/84	886	3806		T0G	
53							
54							
55							
56							
57							

1.112 G.D.

WATER ANALYSIS REPORT  
-----

Company	: S & W CATTLE CO	Date	: 10/29/91
Address	: HOBBS, NEW MEXICO	Date Sampled	: 10/28/91
Lease	: SECT 3 T20 R37	Analysis No.	: 876
Well	: UNIT M		
Sample Pt.	: WINDMILL		

ANALYSIS		mg/L		* meq/L
-----		----		-----
1. pH	7.1			
2. H2S	NEGATIVE			
3. Specific Gravity	1.000			
4. Total Dissolved Solids		2245.2		
5. Suspended Solids				
6. Dissolved Oxygen				
7. Dissolved CO2				
8. Oil In Water				
9. Phenolphthalein Alkalinity (CaCO3)				
10. Methyl Orange Alkalinity (CaCO3)		291.0		
11. Bicarbonate	HCO3	355.0	HCO3	5.8
12. Chloride	Cl	599.1	Cl	16.9
13. Sulfate	SO4	575.0	SO4	12.0
14. Calcium	Ca	153.5	Ca	7.7
15. Magnesium	Mg	66.1	Mg	5.4
16. Sodium (calculated)	Na	496.4	Na	21.6
17. Iron	Fe	0.0		
18. Barium	Ba	0.0		
19. Strontium	Sr	0.0		
20. Total Hardness (CaCO3)		655.6		

PROBABLE MINERAL COMPOSITION  
-----

*milli equivalents per Liter		Compound	Equiv wt	X meq/L	= mg/L
-----		-----			-----
8	*Ca <----- *HCO3	Ca(HCO3)2	81.0	5.8	472
	/----->	CaSO4	68.1	1.8	125
5	*Mg -----> *SO4	CaCl2	55.5		
	<-----/	Mg(HCO3)2	73.2		
22	*Na -----> *Cl	MgSO4	60.2	5.4	327
		MgCl2	47.6		
		NaHCO3	84.0		
		Na2SO4	71.0	4.7	333
		NaCl	58.4	16.9	988

Saturation Values Dist. Water 20 C	
CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

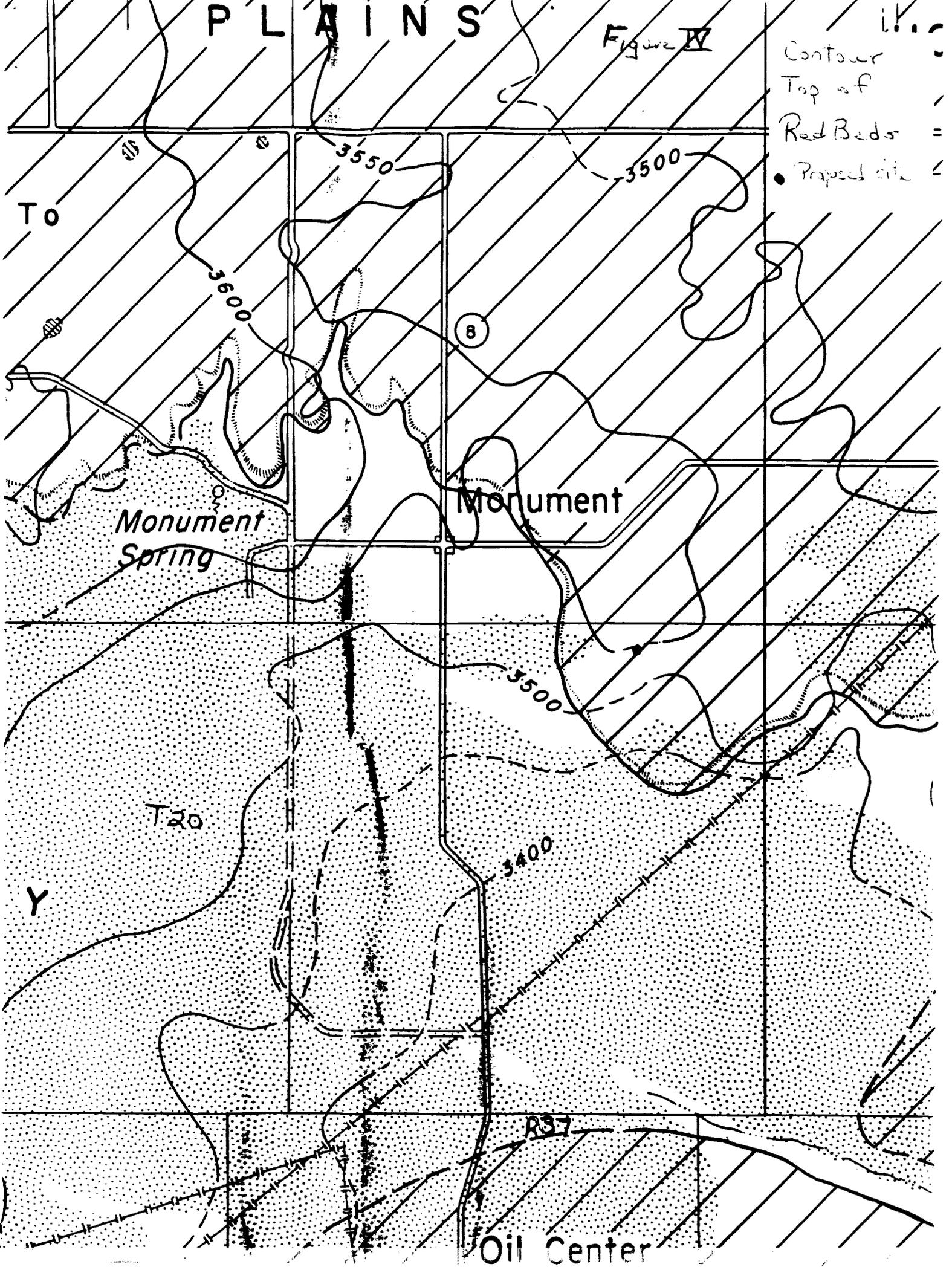
REMARKS: EDDIE SEAY  
-----

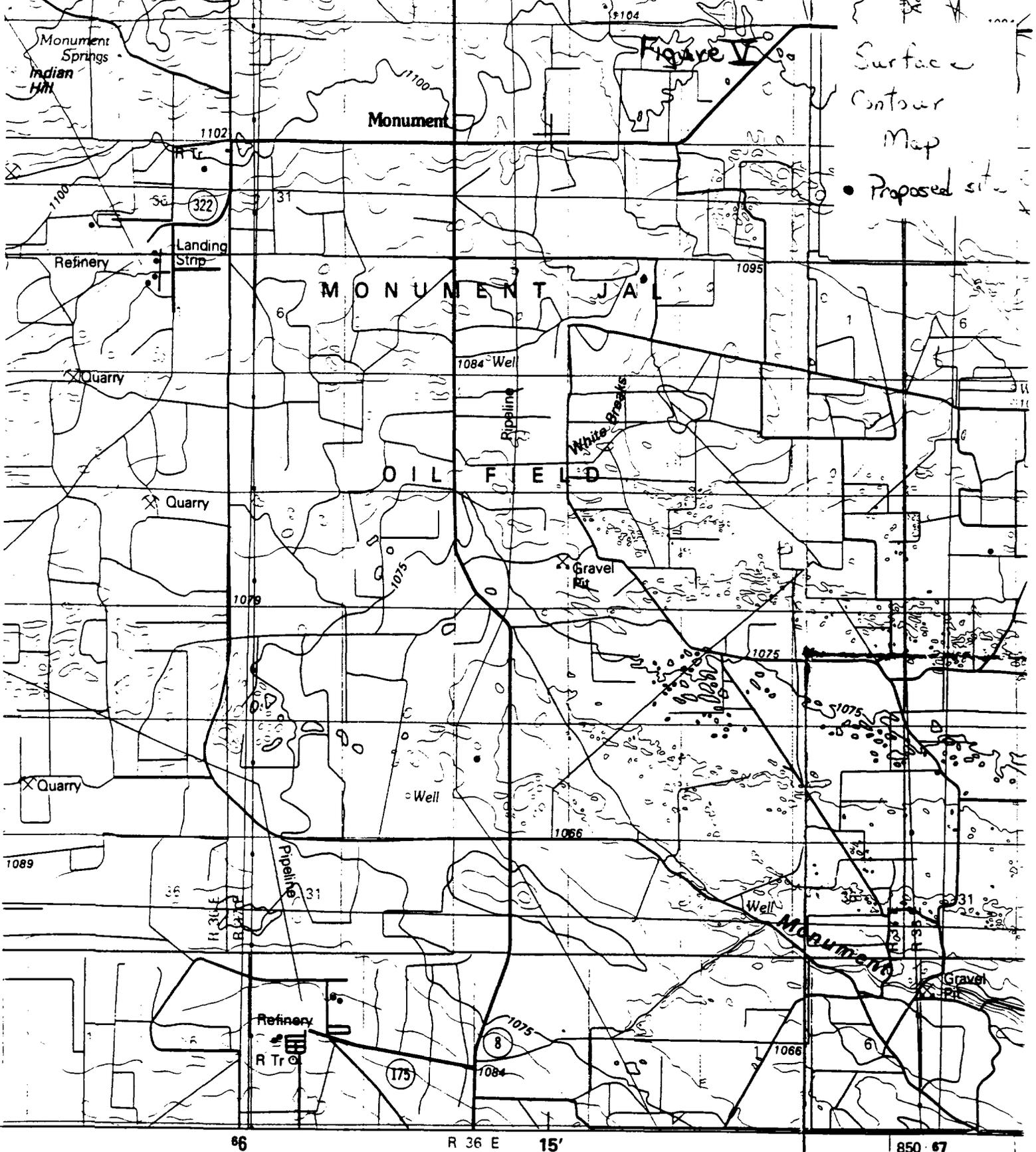


# PLAINS

Figure IV

Contour  
Top of  
Red Beds =  
• Proposed site





Surface  
Contour  
Map

• Proposed site

Figure V

NEW MEXICO



CI 5 METERS

Perennial

Intermittent

Village



**SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.** Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1.  Show to whom delivered, date, and addressee's address. 2.  Restricted Delivery (Extra charge)

3. Article Addressed to:  
 Apollo Realty  
 ATTN: J. R. Williams  
 P. O. Box 75285  
 Albuquerque, NM 87194-0285

4. Article Number: P 661 750 228

Type of Service:  
 Registered  Insured  
 Certified  COD  
 Express Mail  Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature - Addressee  
 *[Signature]*

6. Signature - Agent  
 *[Signature]*

7. Date of Delivery  
 10-15-91

8. Addressee's Address (ONLY if requested and fee paid)