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ENFORCEMENT

DATE:

1990

CASE # 9882

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

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 9882
Order No. R-9166

APPLICATION OF CONTROLLED RECOVERY INC.
FOR AN OIL TREATING PLANT PERMIT, SURFACE
WASTE DISPOSAL AND AN EXCEPTION TO ORDER
NO. R-3221, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April 4, 1990,
at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 27th day of April, 1990, the Division Director,
having considered the testimony, the record, and the recommenda-
tions of the Examiner, and being fully advised in the premises,

FINDS THAT:

- (1) Due public notice having been given as required by law,
the Division has jurisdiction of this cause and the subject matter
thereof.
- (2) Decretory Paragraph No. (3) of Division Order No. R-3221,
as amended, prohibits in that area encompassed by Lea, Eddy,
Chaves, and Roosevelt Counties, New Mexico, the disposal, subject
to minor exceptions, of water produced in conjunction with the
production of oil or gas, or both, on the surface of the ground, or
in any pit, pond, lake, depression, draw, streambed, or arroyo, or in
any water course, or in any other place or in any manner which
would constitute a hazard to any fresh water supplies.
- (3) The aforesaid Order No. R-3221 was issued in order to
afford reasonable protection against contamination of fresh water
supplies designated by the State Engineer through disposal of water
produced in conjunction with the production of oil or gas, or both,
in unlined surface pits.

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(4) The State Engineer has designated all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(5) The applicant, Controlled Recovery Inc., seeks authority to construct and operate a surface waste disposal facility and an oil treating plant for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation, or storage of produced water, drilling fluids, drill cuttings, completion fluids and other non-hazardous oilfield related waste in unlined surface pits at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico.

(6) The applicant proposes to install and operate an effective system, consisting of separating tanks, a water disposal pit, a solids disposal pit, and associated skimming, heat, and/or chemical separating equipment for the removal and reclamation of oil and basic sediments from the produced water to be disposed of, and a settling area to separate other solid waste.

(7) The proposed plant and method of processing will efficiently process, treat, and reclaim the aforementioned waste oil, thereby salvaging oil which would otherwise be unrecoverable.

(8) No interested party appeared at the hearing in opposition to the application.

(9) A naturally occurring salt lake (Laguna Toston) is located in the S/2 of Section 21 and the N/2 of Section 28, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico, and is approximately three-quarters of a mile from the proposed disposal area.

(10) The hydrogeologic evidence presented in this case establishes that:

- a) Triassic redbeds, comprised of the Chinle Shale, Santa Rosa sandstone, and the Dewey Lake formation, underlies both Laguna Toston and the proposed water disposal site;

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- b) Shales within the Triassic rebeds underlying the proposed waste disposal site and Laguna Toston are virtually impermeable and therefore prevent vertical seepage of the waters from the site and Laguna Toston into sand stringers within the rebeds which may contain fresh water;
- c) The surface of the Triassic rebeds is depressed in the vicinity of the waste disposal site and Laguna Toston thus creating a "collapse feature";
- d) The major flow of surface and subsurface water within the boundaries of the "collapse feature" is toward Laguna Toston;
- e) Seepage from the impoundments at the proposed waste disposal site will infiltrate into the subsurface and migrate toward Laguna Toston;
- f) After the seepage reaches Laguna Toston, practically all of the seepage will evaporate;
- g) There is no present or reasonably foreseeable beneficial use of the waters of Laguna Toston;
- h) There are no known sources of potable groundwater in sediments underlying the Triassic rebeds at Laguna Toston;
- i) The utilization of the proposed disposal site adjacent to Laguna Toston for the disposal of water produced in conjunction with the production of oil or gas, or both, and other non-hazardous oilfield waste products, including drill cuttings and drilling muds should not constitute a hazard to any fresh water supplies.

(11) The applicant should be authorized to utilize the unlined pits described in Finding Paragraph Nos. (5) and (6) above, for the disposal of water produced in conjunction with the production of oil or gas, or both, and other non-hazardous oilfield waste products, including drill cuttings and drilling muds.

(12) The maximum fill level in both of the above-described pits should be limited to a plane below the crest of the dikes surrounding the pits in order to preclude over-tapping of the dikes.

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(13) The proposed oil treating plant and disposal facility should be constructed in accordance with the engineering plat and topographic map presented as evidence in this case and in accordance with such additional conditions and requirements as may be directed by the Division Director, and should be operated and maintained in such a manner as to preclude spills and fires, and protect persons and livestock.

(14) Prior to initiating operations, the facility should be inspected by a representative of the Hobbs district office of the Division in order to determine the adequacy of fences, gates and cattleguards necessary to preclude livestock and unauthorized persons from entering and/or utilizing said facility, and also to determine the adequacy of dikes and berms needed to assure safe plant operation.

(15) The Director of the Division should be authorized to administratively grant approval for the expansion or modification of the proposed treating plant.

(16) Authority for operation of the treating plant and disposal facility should be suspended or rescinded whenever such suspension or rescission should appear necessary to protect human health or property, to protect fresh water supplies from contamination, to prevent waste, or for non-compliance with the terms and conditions of this order or Division Rules and Regulations.

(17) Prior to constructing said facility, the applicant should be required to submit to the Santa Fe office of the Division a surety or cash bond in the amount of \$25,000 in a form approved by the Division.

(18) Authority for operation of the treating plant and disposal facility should be transferrable only upon written application and approval by the Division Director.

(19) The granting of this application should not endanger designated fresh water supplies, and will prevent waste by allowing the recovery of otherwise unrecoverable oil.

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Order No. R-9166
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IT IS THEREFORE ORDERED THAT:

(1) The applicant, Controlled Recovery Inc., is hereby authorized to construct and operate a surface waste disposal facility complete with unlined surface pits and an oil treating plant at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico, for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation, or storage of produced water, drilling fluids, drill cuttings, completion fluids and other non-hazardous oilfield related waste.

PROVIDED HOWEVER THAT, the proposed oil treating plant and disposal facility shall be constructed in accordance with the engineering plat and topographic map presented as evidence in this case and in accordance with such additional conditions and requirements as may be directed by the Division Director, and shall be operated and maintained in such a manner as to preclude spills and fires, and protect persons and livestock.

PROVIDED FURTHER THAT, prior to initiating operations, the facility shall be inspected by a representative of the Hobbs district office of the Division in order to determine the adequacy of fences, gates and cattleguards necessary to preclude livestock and unauthorized persons from entering and/or utilizing said facility, and also to determine the adequacy of dikes and berms needed to assure safe plant operation.

(2) The maximum fill level in both of the proposed unlined surface pits shall be limited to a plane below the crest of the dikes surrounding the pits in order to preclude over-tapping of the dikes.

(3) The Director of the Division shall be authorized to administratively grant approval for the expansion or modification of the proposed treating plant.

(4) Authority for operation of the treating plant and disposal facility shall be suspended or rescinded whenever such suspension or rescission should appear necessary to protect human health or property, to protect fresh water supplies from contamination, to prevent waste, or for non-compliance with the terms and conditions of this order or Division Rules and Regulations.

(5) Prior to constructing said facility, the applicant shall submit, to the Santa Fe office of the Division, a surety or cash bond in the amount of \$25,000 in a form approved by the Division.

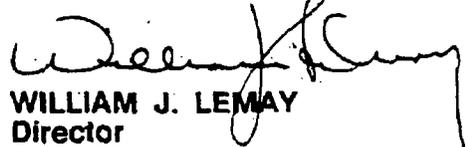
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(6) Authority for operation of the treating plant and disposal facility shall be transferrable only upon written application and approval by the Division Director.

(7) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year herein-above designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director

S E A L

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

*Please Circulate
to Roger Anderson*

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

*DG 4/23
RK 4/24
KS 4/23*

CASE NO. 9882

Order No. R-9166

MS 4/23

APPLICATION OF CONTROLLED RECOVERY INC.
FOR AN OIL TREATING PLANT PERMIT, SURFACE
WASTE DISPOSAL AND AN EXCEPTION TO ORDER
NO. R-3221, LEA COUNTY, NEW MEXICO.

WJS 4/24/90

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April 4, 1990, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this _____ day of April, 1990, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) Decretory Paragraph No. (3) of Division Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any water course, or in any other place or in any manner which would constitute a hazard to any fresh water supplies.

(3) The aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

(4) The State Engineer has designated all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(5) The applicant, Controlled Recovery Inc., seeks authority to construct and operate a surface waste disposal facility and an oil treating plant for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation, or storage of produced water, drilling fluids, drill cuttings, completion fluids and other non-hazardous oilfield related waste in unlined surface pits at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico.

(6) The applicant proposes to install and operate an effective system, consisting of separating tanks, a water disposal pit, a solids disposal pit, and associated skimming, heat, and/or chemical separating equipment for the removal and reclamation of oil and basic sediments from the produced water to be disposed of, and a settling area to separate other solid waste.

(7) The proposed plant and method of processing will efficiently process, treat, and reclaim the aforementioned waste oil, thereby salvaging oil which would otherwise be unrecoverable.

(8) No interested party appeared at the hearing in opposition to the application.

(9) A naturally occurring salt lake (Laguna Toston) is located in the S/2 of Section 21 and the N/2 of Section 28, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico, and is approximately three-quarters of a mile from the proposed disposal area.

(10) The hydrogeologic evidence presented in this case establishes that:

- a) Triassic redbeds, comprised of the Chinle Shale, Santa Rosa sandstone, and the Dewey Lake formation, underlies both Laguna Toston and the proposed water disposal site;
- b) Shales within the Triassic redbeds underlying the proposed waste disposal site and Laguna Toston are virtually impermeable and therefore prevent

vertical seepage of the waters from the site and Laguna Toston into sand stringers within the redbeds which may contain fresh water;

- c) The surface of the Triassic redbeds is depressed in the vicinity of the waste disposal site and Laguna Toston thus creating a "collapse feature";
- d) The major flow of surface and subsurface water within the boundaries of the "collapse feature" is toward Laguna Toston;
- e) Seepage from the impoundments at the proposed waste disposal site will infiltrate into the subsurface and migrate toward Laguna Toston;
- f) After the seepage reaches Laguna Toston, practically all of the seepage will evaporate;
- g) There is no present or reasonably foreseeable beneficial use of the waters of Laguna Toston;
- h) There are no known sources of potable groundwater in sediments underlying the Triassic redbeds at Laguna Toston;
- i) The utilization of the proposed disposal site adjacent to Laguna Toston for the disposal of water produced in conjunction with the production of oil or gas, or both, and other non-hazardous oilfield waste products, including drill cuttings and drilling muds should not constitute a hazard to any fresh water supplies.

(11) The applicant should be authorized to utilize the unlined pits described in Finding Paragraph Nos. (5) and (6) above, for the disposal of water produced in conjunction with the production of oil or gas, or both, and other non-hazardous oilfield waste products, including drill cuttings and drilling muds.

(12) The maximum fill level in both of the above-described pits should be limited to a plane below the crest of the dikes surrounding the pits in order to preclude over-tapping of the dikes.

(13) The proposed oil treating plant and disposal facility should be constructed in accordance with the engineering plat and topographic map presented as evidence in this case and in accordance with such additional conditions and requirements as may be directed by the Division Director, and should be operated and maintained in such a manner as to preclude spills and fires, and protect persons and livestock.

(14) Prior to initiating operations, the facility should be inspected by a representative of the Hobbs district office of the Division in order to determine the adequacy of fences, gates and cattleguards necessary to preclude livestock and unauthorized persons from entering and/or utilizing said facility, and also to determine the adequacy of dikes and berms needed to assure safe plant operation.

(15) The Director of the Division should be authorized to administratively grant approval for the expansion or modification of the proposed treating plant.

(16) Authority for operation of the treating plant and disposal facility should be suspended or rescinded whenever such suspension or rescission should appear necessary to protect human health or property, to protect fresh water supplies from contamination, to prevent waste, or for non-compliance with the terms and conditions of this order or Division Rules and Regulations.

(17) Prior to constructing said facility, the applicant should be required to submit to the Santa Fe office of the Division a surety or cash bond in the amount of \$25,000 in a form approved by the Division.

(18) Authority for operation of the treating plant and disposal facility should be transferrable only upon written application and approval by the Division Director.

(19) The granting of this application should not endanger designated fresh water supplies, and will prevent waste by allowing the recovery of otherwise unrecoverable oil.

IT IS THEREFORE ORDER THAT:

(1) The applicant, Controlled Recovery Inc., is hereby authorized to construct and operate a surface waste disposal facility complete with unlined surface pits and an oil treating plant at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico, for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation, or storage of produced water, drilling fluids,

drill cuttings, completion fluids and other non-hazardous oilfield related waste.

PROVIDED HOWEVER THAT, the proposed oil treating plant and disposal facility shall be constructed in accordance with the engineering plat and topographic map presented as evidence in this case and in accordance with such additional conditions and requirements as may be directed by the Division Director, and shall be operated and maintained in such a manner as to preclude spills and fires, and protect persons and livestock.

PROVIDED FURTHER THAT, prior to initiating operations, the facility shall be inspected by a representative of the Hobbs district office of the Division in order to determine the adequacy of fences, gates and cattleguards necessary to preclude livestock and unauthorized persons from entering and/or utilizing said facility, and also to determine the adequacy of dikes and berms needed to assure safe plant operation.

(2) The maximum fill level in both of the proposed unlined surface pits shall be limited to a plane below the crest of the dikes surrounding the pits in order to preclude over-tapping of the dikes.

(3) The Director of the Division shall be authorized to administratively grant approval for the expansion or modification of the proposed treating plant.

(4) Authority for operation of the treating plant and disposal facility shall be suspended or rescinded whenever such suspension or rescission should appear necessary to protect human health or property, to protect fresh water supplies from contamination, to prevent waste, or for non-compliance with the terms and conditions of this order or Division Rules and Regulations.

(5) Prior to constructing said facility, the applicant shall submit, to the Santa Fe office of the Division, a surety or cash bond in the amount of \$25,000 in a form approved by the Division.

(6) Authority for operation of the treating plant and disposal facility shall be transferrable only upon written application and approval by the Division Director.

(7) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

OIL CONSERVATION DIVISION

WILLIAM J. LEMAY
Director

S E A L

Dockets Nos. 9-90 and 10-90 are tentatively set for March 21, 1990 and April 4, 1990. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 7, 1990
8:15 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

The following cases will be heard before David R. Catanach, Examiner, or Michael E. Stogner, Alternate Examiner:

- ALLOWABLE: (1) Consideration of the allowable production of gas for April, 1990, from fourteen prorated gas pools in Lea, Eddy, and Chaves Counties, New Mexico.
- (2) Consideration of the allowable production of gas for April, 1990, from fourteen prorated gas pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 9732: (Reopened and Readvertised)

Application of Meridian Oil, Inc. for a non-standard gas proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 401.20-acre non-standard gas spacing and proration unit comprising Lots 1, 2, 8, 9, 10 and 11, N/2 SE/4, and the SE/4 SE/4 of Section 10 and Lots 3 and 4 of Section 11, both in Township 32 North, Range 7 West, Basin-Fruitland Coal Gas Pool. Said unit is to be dedicated to the existing Allison Unit Well No. 103 located at a standard coal gas well location 1795 feet from the South line and 2270 feet from the West line (Unit K) of said Section 10, which is approximately 1/2 mile southwest of Mile Corner No. 248 located on the Colorado/New Mexico state line. This case was originally heard at the August 23, 1989 hearing and was subsequently reopened at the October 4, 1989 hearing to correct an error in the subject well location; Order Nos. R-8995 and R-8995-A were issued as a result of both hearings. Due to inadvertence, the advertisement for both hearings and both orders contained an erroneous description of the non-standard gas proration unit. IN THE ABSENCE OF OBJECTION, THIS CASE WILL BE TAKEN UNDER ADVISEMENT.

CASE 9880: Application of Merrion Oil & Gas Corporation for a waterflood project, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks approval to institute a waterflood project on its Papers Wash Cooperative Agreement Unit Area underlying portions of Sections 15 and 16, Township 19 North, Range 5 West, by the injection of water into the Papers Wash-Entrada Oil Pool through the Navajo Allotted "15" Well No. 3 located 2310 feet from the South line and 2000 feet from the West line (Unit K) of said Section 15. Said project area is located approximately 22 miles northwest of San Luis, New Mexico.

CASE 9870: (Continued from February 21, 1990, Examiner Hearing.)

Application of Siete Oil & Gas Corporation for special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order promulgating special pool rules for the Parkway-Bone Spring Pool including a provision for a limiting gas-oil ratio limitation of 10,000 cubic feet of gas per barrel of oil. Said pool is located in Section 34, Township 19 South, Range 29 East and Sections 2 and 3, Township 20 South, Range 29 East, which is located approximately 5.5 miles north by west of the junction of U.S. Highway 62/180 and old New Mexico State Highway 31.

CASE 9881: Application of Richmond Petroleum, Inc. for unorthodox coal gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox coal gas well location for its Federal 31-4-32 Well No. 2 to be drilled 1617 feet from the South line and 1939 feet from the West line (Unit K) of Section 32, Township 31 North, Range 4 West, Basin-Fruitland Coal Gas Pool, the W/2 of said Section 32 to be dedicated to said well to form a standard 320-acre gas spacing and proration unit for said pool. Said unit is located approximately 10 miles south of Mile Corner No. 233 located on the New Mexico/Colorado Stateline.

CASE 9819: (Continued from February 21, 1990, Examiner Hearing.)

Application of Blackwood & Nichols Co., Ltd. for compulsory pooling and an unorthodox gas well location, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Fruitland formation underlying Lots 7 and 8, the S/2 NW/4, and the SW/4 of Section 4, Township 30 North, Range 7 West, in both San Juan and Rio Arriba Counties, forming a 319.38-acre gas spacing and proration unit for any and all formations and/or pools within said vertical extent developed on 320-acre spacing, which presently includes the Basin-Fruitland Coal Gas Pool, to be dedicated to its Northeast Blanco Unit Well No. 424, to be drilled at an unorthodox coal gas well location 2075 feet from the North line and 1330 feet from the West line (Unit F) of said Section 4. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is approximately 3.5 miles north-northeast of the Navajo Reservoir Dam.

CASE 9882: Application of Controlled Recovery, Inc. for an oil treating plant permit, and for surface waste disposal, ^{and an exception to} Lea County, ^{order} New Mexico. Applicant, in the above-styled cause, seeks authority for construction and operation of the surface waste disposal facility and an oil treating plant for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation or storage of produced water, drilling fluids, drill cuttings, completion fluids and other oil field related waste in unlined surface pits, at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East. This site is located on either side of U.S. Highway 62/180 at Mile Marker No. 66. ^{No. R-524}

CASE 9883: Application of BTA Oil Producers for an unorthodox oil well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox oil well location for its Pardue "C" 8808 JV-P Well No. 1 to be drilled 176 feet from the South line and 1550 feet from the West line (Unit N) of Section 11, Township 23 South, Range 28 East, to test the Undesignated East Loving-Delaware Pool, the SE/4 SW/4 of said Section 11 to be dedicated to said well forming a standard 40-acre oil spacing and proration unit. Said unit is located approximately 1/4 mile southwest of the Harroun Dam.

CASE 9873: (Continued from February 21, 1990, Examiner Hearing.)

Application of Tahoe Energy, Inc. for an unorthodox gas well location, non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval to redesignate acreage in the Jalmat Gas Pool to form a non-standard 160-acre gas spacing and proration unit comprising the S/2 NW/4 and N/2 SW/4 of Section 12, Township 23 South, Range 36 East. Said unit is to be simultaneously dedicated to the existing King Gas Com "WN" Well No. 1 located at a standard gas well location 2310 feet from the South line and 990 feet from the West line (Unit L) of said Section 12 and to the proposed Cochise Well No. 1 to be drilled at an unorthodox gas well location 1980 feet from the North line and 1600 feet from the West line (Unit F) of said Section 12. Said unit is located approximately 14 miles north by west of Jal, New Mexico.

CASE 9878: (Readvertised)

Application of Chevron USA Inc. for a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 160-acre non-standard gas proration unit comprising the W/2 NE/4, SE/4 NE/4, and SE/4 NW/4 of Section 8, Township 20 South, Range 37 East, Eumont Gas Pool. Said unit is to be simultaneously dedicated to the Bertie Whitmire Well Nos. 1 and 2 located at standard gas well locations 1980 feet from the North and East lines (Unit G) and 660 feet from the North line and 1980 feet from the East line (Unit B) of said Section 8, respectively. Said area is located approximately 2.25 miles south of Monument, New Mexico.

CASE 9884: Application of OXY USA, Inc. for compulsory pooling, non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool formation underlying the SE/4 of Section 5 and the NE/4 NE/4 of Section 8 all in Township 20 South, Range 37 East, forming a non-standard 200-acre gas spacing and proration unit for said pool, said unit to be simultaneously dedicated to the existing Laughlin "B" Well No. 5 located 330 feet from the South line and 2310 feet from the East line (Unit O) of said Section 5, and to the plugged and abandoned Laughlin "B" Well No. 1 to be re-entered and recompleted in the Eumont at a standard gas well location 1980 feet from the South and East lines (Unit J) of said Section 5. Also to be considered will be the cost of re-entering and recompleting the Laughlin "B" Well No. 1 and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the unit and a charge for risk involved in the re-entering and recompletion of said well. Said unit is located approximately 2.25 miles south of Monument, New Mexico.

CASE 9885: Application of Doyle Hartman for compulsory pooling, a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool underlying either the SE/4 SW/4 of Section 5 and the E/2 W/2 of Section 8, Township 20 South, Range 37 East, forming a non-standard 200-acre gas spacing and proration unit for said pool, or IN THE ALTERNATIVE, the SE/4 SW/4 of said Section 5 and the N/2 NE/4, and NE/4 NW/4 of said Section 8, forming a non-standard 160-acre gas spacing and proration unit for said pool. In either instance the applicant proposes to dedicate all production from the Eumont Gas Pool to the existing Britt "B-8" Well No. 1 located 660 feet from the North line and 1980 feet from the West line (Unit C) of said Section 8 and to a second well to be drilled at a standard gas well location within the applicable non-standard unit. Applicant further seeks to be designated operator of the non-standard gas proration unit so created and be entitled to recover out of the production therefrom its cost of drilling, completing and equipping a new infill well, plus a 200% risk factor for drilling, completing and equipping such infill well, plus an equitable and proper percentage of the value of the existing wellbore of said Britt "B-8" Well No. 1, and all costs of supervision and operation of such unit, and that such order also provide for any other relief which may be deemed equitable and proper. The subject area is located approximately 2.25 miles south of Monument, New Mexico.

CASE 9886: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating, establishing a discovery allowable, abolishing and extending certain pools in Eddy County, New Mexico.

- (a) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the Bandana Point-Strawn Gas Pool. The discovery well is the Yates Energy Desert Rose Fed. Well No. 1 located in Unit I of Section 27, Township 23 South, Range 23 East, NMPM. Said pool would comprise:

TOWNSHIP 23 SOUTH, RANGE 23 EAST, NMPM
Section 27: E/2

- (b) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Delaware production and designated as the La Huerta-Delaware Pool. The discovery well is the Ray Westall, Myrtle Myra Well No. 1 located in Unit C of Section 16, Township 21 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM
Section 16: NW/4

In addition, a discovery allowable of 24,865 barrels of oil shall be assigned to this well. This amount is to be produced over a two-year period and is over and above the daily top allowable.

- (c) Abolish the Boyd-Canyon Pool in Eddy County, New Mexico, in order to place abolished acreage into the North Dagger Draw-Upper Pennsylvanian Pool.
- (d) Extend the North Dagger Draw-Upper Pennsylvanian Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 25 EAST, NMPM
Section 14: NW/4
Section 15: All

- (e) Extend the North Burton Flat-Wolfcamp Gas Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM
Section 3: W/2
- (f) Extend the Cass Draw-Wolfcamp Gas Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 23 SOUTH, RANGE 27 EAST, NMPM
Section 11: E/2
Section 12: N/2
- (g) Extend the South Dagger Draw-Upper Pennsylvanian Associated Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 20 SOUTH, RANGE 24 EAST, NMPM
Section 22: E/2
- (h) Extend the South Eagle Creek Atoka-Morrow Gas Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 17 SOUTH, RANGE 24 EAST, NMPM
Section 31: E/2
Section 32: N/2
- (i) Extend the Livingston Ridge-Delaware Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 22 SOUTH, RANGE 31 EAST, NMPM
Section 24: W/2
Section 25: NW/4
- (j) Extend the West Parkway-Atoka Gas Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 27: S/2
Section 34: E/2
- (k) Extend the Rustler Bluff-Atoka Gas Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 25 SOUTH, RANGE 29 EAST, NMPM
Section 8: N/2
- (l) Extend the Rustler Bluff-Morrow Gas Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 25 SOUTH, RANGE 29 EAST, NMPM
Section 10: All
- (m) Extend the West Sand Dunes-Atoka Gas Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 23 SOUTH, RANGE 31 EAST, NMPM
Section 17: N/2
- (n) Extend the North Shugart-Bone Spring Pool in Eddy County, New Mexico, to include therein:
TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 5: NW/4

DOCKET: COMMISSION HEARING - THURSDAY - MARCH 15, 1990

9:00 A.M. - MORGAN HALL, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

CASE 9018: (Reopened)

In the matter of Case 9018 being reopened pursuant to the provisions of Division Order No. R-8170-D, which Order amended Rule 11(b) of Order R-8170-A, in order to take evidence on the following:

1. Whether larger overproduction limit in Northwest New Mexico established by Rule 11(b) as amended by Order R-8170-A is beneficial in preventing waste, and protecting correlative rights, while making the supply of gas available to meet interstate and intrastate demand.
2. The reasons for pools being underproduced when many wells are overproduced and whether or not the amendment has any affect on that issue.
3. Any transition mechanism which should be adopted if the Commission determines that a return to the 6 times overproduced limit is appropriate.

NO TESTIMONY OR COMMENTS WILL BE TAKEN AT THIS TIME AND THE CASE WILL BE CONTINUED TO THE COMMISSION HEARING SCHEDULED FOR MAY 25, 1990. IN THE INTERVENING TIME COMMENTS AND SUGGESTIONS WILL BE ACCEPTED BY THE COMMISSION.

CASE 7042: (Continued from the November 24, 1981, Commission Hearing) (This Case will be dismissed)

In the matter of Case 7042 being reopened pursuant to the provisions of Order R-6659, which order continued indefinitely the application of Doyle Hartman for the extension of vertical limits of the Langlie Mattix Pool, Lea County, New Mexico. All interested parties may appear and present evidence relating to this matter.

CASE 8228: (De Novo) (Continued from November 7, 1984, Commission Hearing.) (This Case will be dismissed.)

Application of Doyle Hartman for Hardship Gas Well Classification, Lea County, New Mexico. Applicant, in the above-styled cause, seeks a determination that its Langlie "A" State Well No. 3 located in Unit I of Section 36, Township 24 South, Range 36 East, Jalmat Gas Pool, is a hardship gas well which should be granted priority access to pipeline takes in order to avoid waste.

Upon application of Doyle Hartman, this case will be heard De Novo pursuant to the provisions of Rule 1220.

Case 9882:

RECEIVED

FEB 13 1990

OIL CONSERVATION DIV.
SANTA FE

Application of Controlled Recovery, Inc. for an oil treating plant permit and for surface waste disposal, Lea County, New Mexico. Applicant in the above-styled cause, seeks authority for construction and operation of the surface waste disposal facility and an oil treating plant for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation or storage of produced water, drilling fluids, drill cuttings, completion fluids and other oil fields related waste in unlined surface pits, at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico. This site is located __ miles west of the town of Halfway, New Mexico.

CAMPBELL & BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
WILLIAM P. SLATTERY
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JEFFERSON PLACE
SUITE 1 - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

February 28, 1990

HAND-DELIVERED

William J. LeMay, Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
State Land Office Building
Santa Fe, New Mexico 87503

RECEIVED

FEB 28 1990

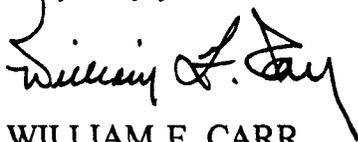
OIL CONSERVATION DIV.
SANTA FE

Re: Application of Controlled Recovery, Inc. for an Oil Treating Plant Permit,
Surface Waste Disposal, and an Exception to Division Order R-3221, as
Amended, Lea County, New Mexico

Dear Mr. LeMay:

Enclosed in triplicate is the above-referenced amended Application of Controlled
Recovery, Inc. Controlled Recovery, Inc., respectfully requests that this matter be placed
on the docket for the Examiner hearings scheduled on March 21, 1990.

Very truly yours,



WILLIAM F. CARR

WFC:mlh

Enclosures

cc w/enclosures: Mr. Jerry Sexton, Supervisor
and Oil and Gas Inspector
Post Office Box 1980
Hobbs, New Mexico 88240

David G. Boyer, Chief
Environmental Bureau
Oil Conservation Division
Santa Fe, New Mexico 87501

Mr. Ken Marsh
Controlled Recovery, Inc.

BEFORE THE
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IN THE MATTER OF THE APPLICATION OF
CONTROLLED RECOVERY, INC., FOR
AN OIL TREATING PLANT PERMIT,
SURFACE WASTE DISPOSAL, AND
AN EXCEPTION TO DIVISION
ORDER R-3221, AS AMENDED,
LEA COUNTY, NEW MEXICO.

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FEB 28 1990

OIL CONSERVATION DIV.
SANTA FE

CASE NO. _____

**APPLICATION
FOR AN OIL TREATING PLANT PERMIT, SURFACE WASTE DISPOSAL, AND
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CONTROLLED RECOVERY, INC. hereby makes application to the Oil Conservation Division for an oil treating plant permit, surface waste disposal, and an exception to Division Order R-3221, as amended, Lea County, New Mexico and in support thereof states:

1. Applicant is the owner of certain acreage in Lea County, New Mexico which is suitable for the surface disposal of oil field wastes. The President and local representative of Controlled Recovery, Inc. is Ken Marsh, Post Office Box 399, (5600 Carlsbad Highway), Hobbs, New Mexico 88240, (505) 393-1079.

2. This application is made pursuant to the provisions of Oil Conservation Division Rules 312 and 711.

3. The proposed location of this treating plant and surface waste disposal facility is in the S/2 N/2 and N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Attached hereto as Exhibit "A" are plats identifying the location of the proposed facility identifying all highways or roads going across to the plant site and giving access to this facility, locations of all pits, skimmer ponds, all above and below grade tanks, and all water courses, water wells and dwellings within one mile of the site.

4. The type and capacity of the proposed facility is set forth in Exhibit "B" which is attached hereto. Numbers in Exhibit "B" correspond to the Section numbers contained in the Division's "Guidelines for Applications for Waste Storage/Disposal Pit Permits."

5. Diagrams of the facility are attached hereto as Exhibit "C" which show the location of all fences and cattleguards and contains detailed engineering construction and installation diagrams of any and all pits for solids and liquids disposal, dikes, piping, sprayers, and tanks on the facilities prepared in accordance with Division "Guidelines for Permit Application, Design and Construction of Waste Storage/Disposal Pits."

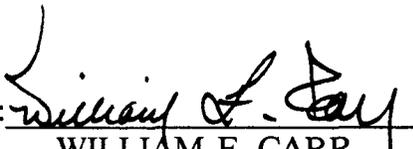
6. Although adjacent to acreage which has been exempted from the provisions of Division Order No. R-3221, as amended, which prohibits the disposal of water produced in conjunction with the production of oil and gas, this proposed facility is within the R-3221 area and, therefore, applicant seeks an exception to the provisions of this Order.

7. All operations at this facility including the reporting and clean-up of any spills, releases, routine inspection and maintenance of the facility, and closer of pits will be in accordance with Division Rules and Regulations.

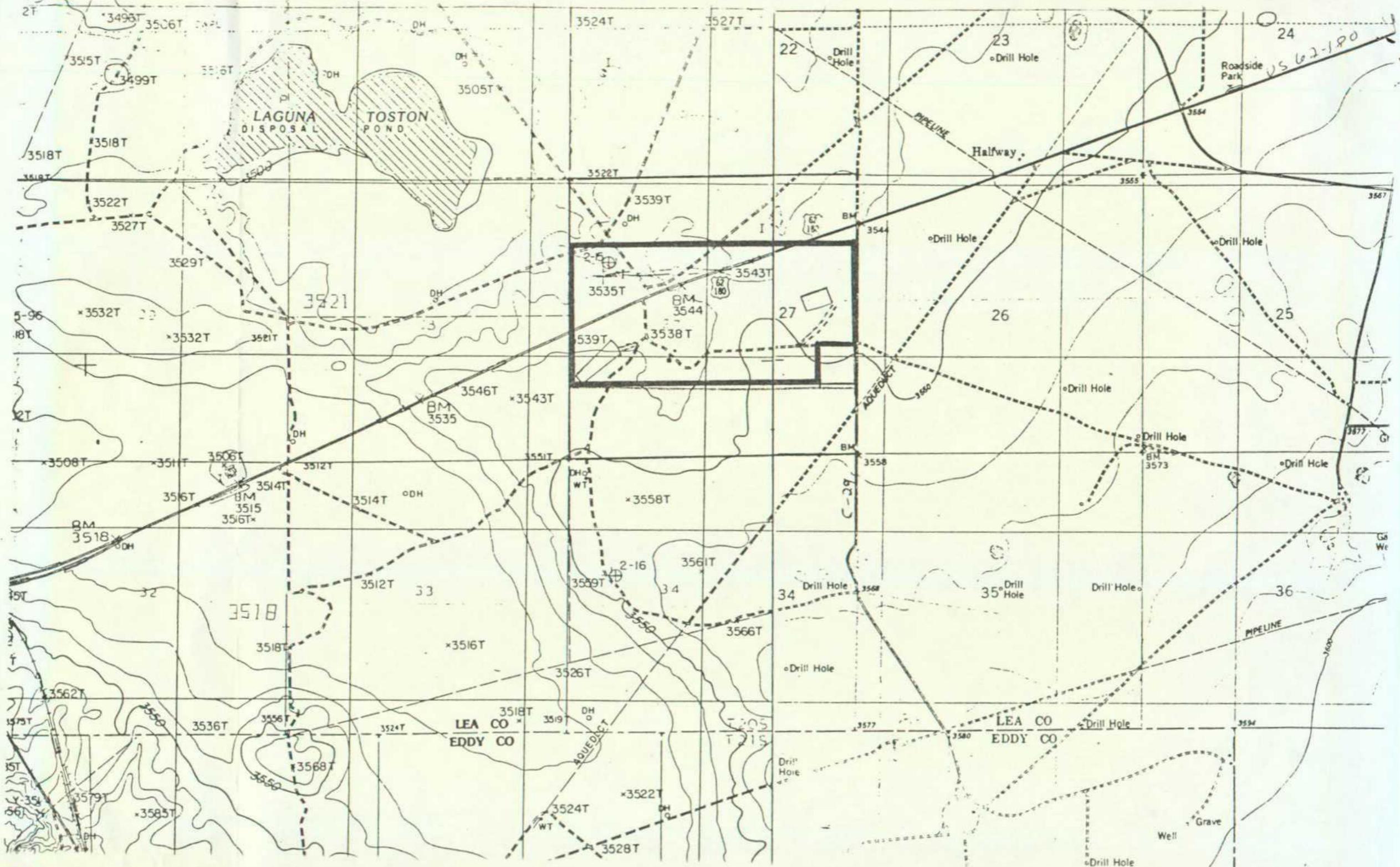
WHEREFORE, Controlled Recovery, Inc. requests that this application be set for hearing before a duly appointed Examiner of the Oil Conservation Division on March 21, 1990, that notice be given as required by law and the rules of the Division, and that this application be approved.

Respectfully submitted,

CAMPBELL & BLACK, P.A.

By: 
WILLIAM F. CARR
Post Office Box 2208
Santa Fe, New Mexico 87504
Telephone: (505) 988-4421

ATTORNEYS FOR CONTROLLED
RECOVERY, INC.



B.1 All pits are below grade, no ruptures anticipated. Berm will be constructed around settling tanks and oil storage tanks.

Notification on any leaks will be reported to O.C.D. if they occur. No leak detection planned other than observation.

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As required by EID & EPA

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F. Facility will be fenced per O.C.D. requirements. Signs will be lettered and contain all information required by O.C.D. and kept in good condition.

G. Below grade pits, settling tanks and oil storage tanks will be inspected at least twice weekly and observed daily.

H. H₂S detection will be located in close proximity to settling tanks.

- I (C) Facility location: All of S/2 N/2, N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico except for a 20-acre tract situated in the NE/4 SE/4 fully described in page 3 of Exhibit B to this application.
- (D) This facility will receive produced water, water from water flows, reverse pit liquids and solids, reserve pit liquids and solids, drilling liquids and solids, sediment oil, saturated soils, and other oilfield products or wastes. Process fluid thru settling, skimming tanks and dispose hydrocarbons free fluids in an unlined below grade surface pit for evaporation. Drill cuttings will be disposed in unlined below grade surface pits. The drilling solids will be recovered from drying ramps and disposed of in the solids pit. Sediment oil will be treated chemically and through heater treater.
- II A.1 Sec. 1D, the capacity of the facility is dependent upon the amount of incoming product.
- A.2 (a) Three 400 barrel settling tanks for gravity separation of hydrocarbons from water. Hydrocarbon free water to be discharged into below grade unlined evaporation pit. No leak detection system to be installed. Retaining dike will be constructed around settling tanks and oil storage tanks.
- (b) Drying ramps will be separate from liquid facility. Sloped drying ramps with solids retention system will be used to recover solids from drilling fluids. Solids will be removed and disposed of in below grade surface pit.

DESCRIPTION

A tract of land situated in the Northeast Quarter of the Southeast Quarter (NE $\frac{1}{4}$ SE $\frac{1}{4}$) of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico, being more particularly described as follows:

Beginning at a point which lies S89°54'13"W 60.00 feet from the Southeast Corner of the Northeast Quarter of the Southeast Quarter of said Section 27, said point being on the West right-of-way of a County Road; thence N00°01'W 933.38 feet along said right-of-way; thence S89°54'13"W 933.38 feet; thence S00°01'E 933.38 feet; thence N89°54'13"E 933.38 feet to the point of beginning, containing 20.00 acres, more or less.

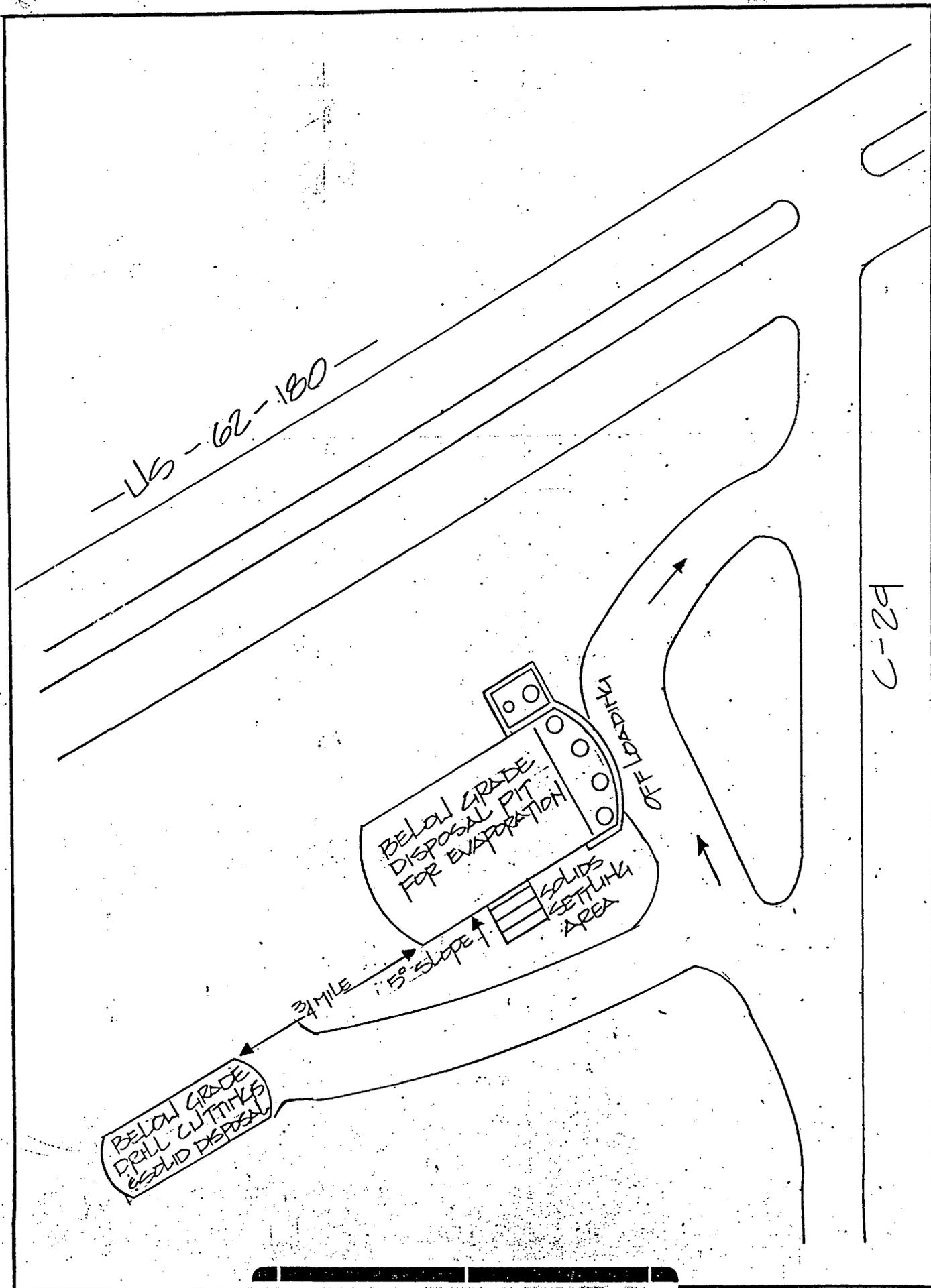
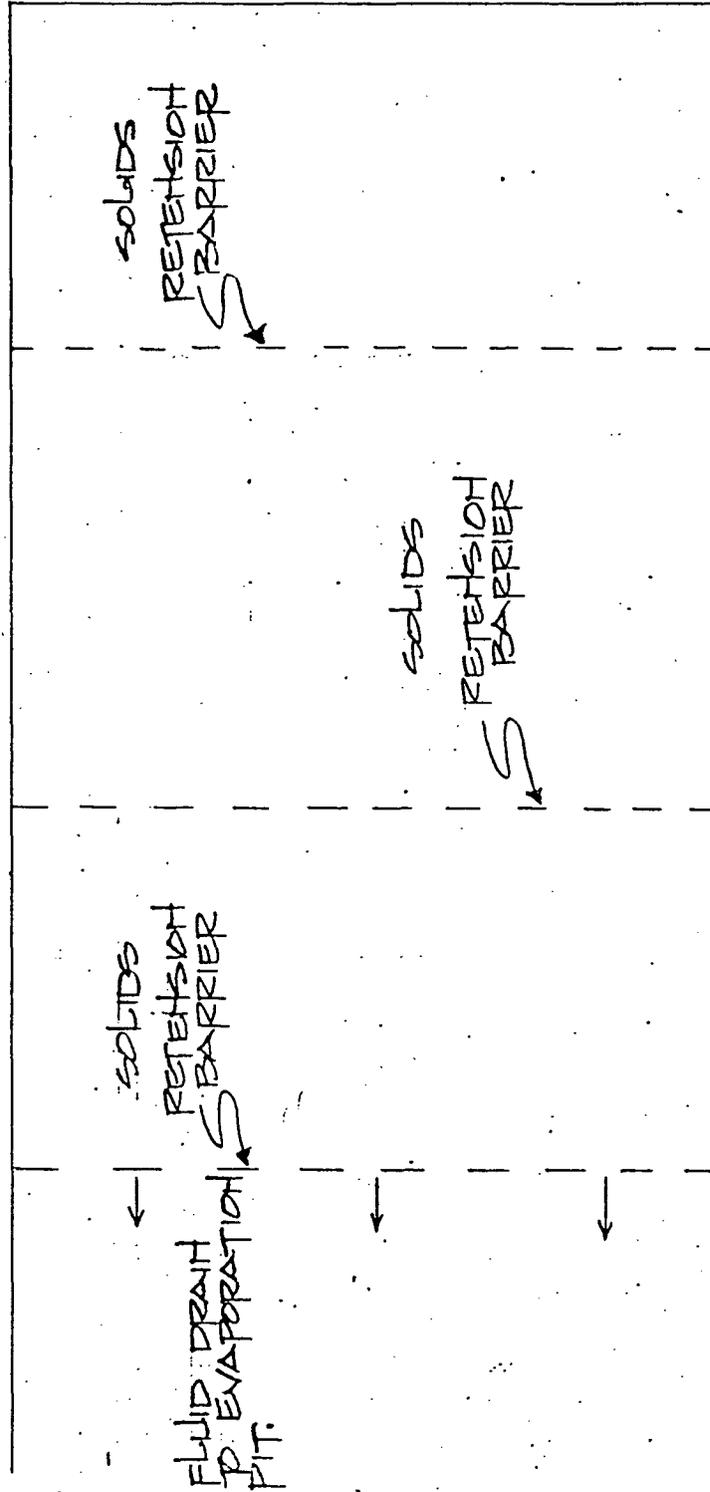


EXHIBIT "C"

SETTLING RAMP FOR DRILLING SOLIDS
INDUSTRY STANDARD DESIGN



OFF-LOADING AREA

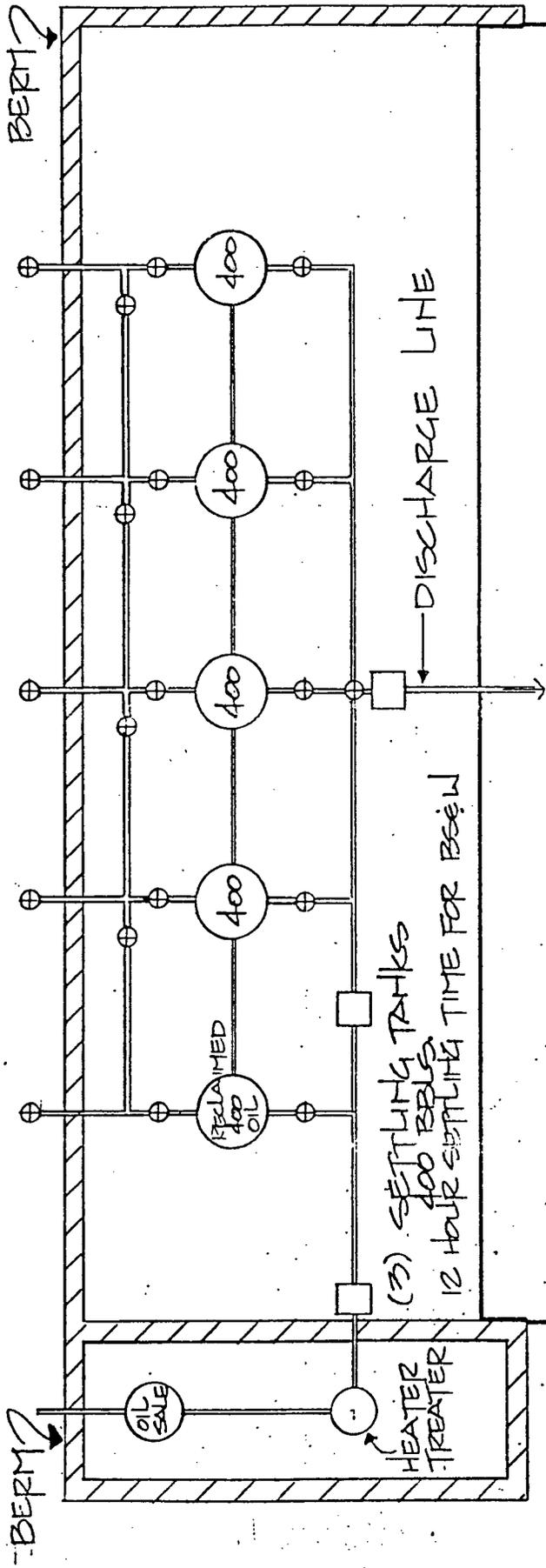
SOLIDS
RETENTION
BARRIER

SOLIDS
RETENTION
BARRIER

SOLIDS
RETENTION
BARRIER

FLUID DRAIN
TO EVAPORATION
PIT.

OFF LOADING AREA



(3) SETTLING TANKS
400
12 HOUR SETTLING TIME FOR BS&W

DISCHARGE LINE

EVAPORATION PIT AREA

LEGEND

□	- PUMPS
—	- PIPE
⊕	- VALVES

CAMPBELL & BLACK, P.A.
LAWYERS

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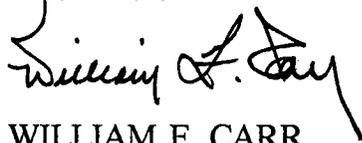
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SURFACE WASTE DISPOSAL, AND
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LEA COUNTY, NEW MEXICO.

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OIL CONSERVATION DIV.
SANTA FE

CASE NO. _____

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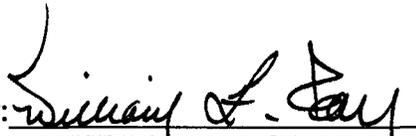
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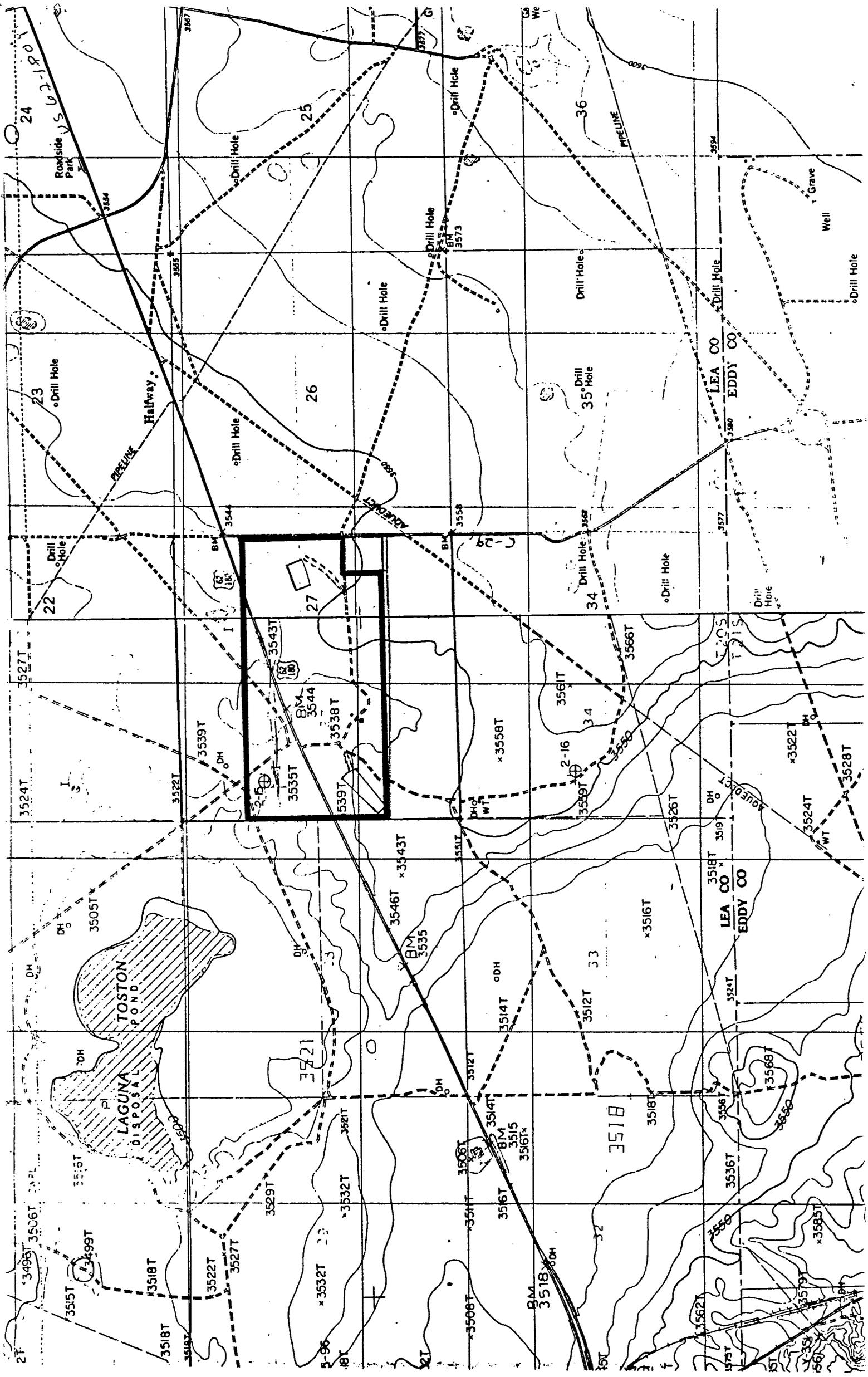
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By: 

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US-62-180

b2-7

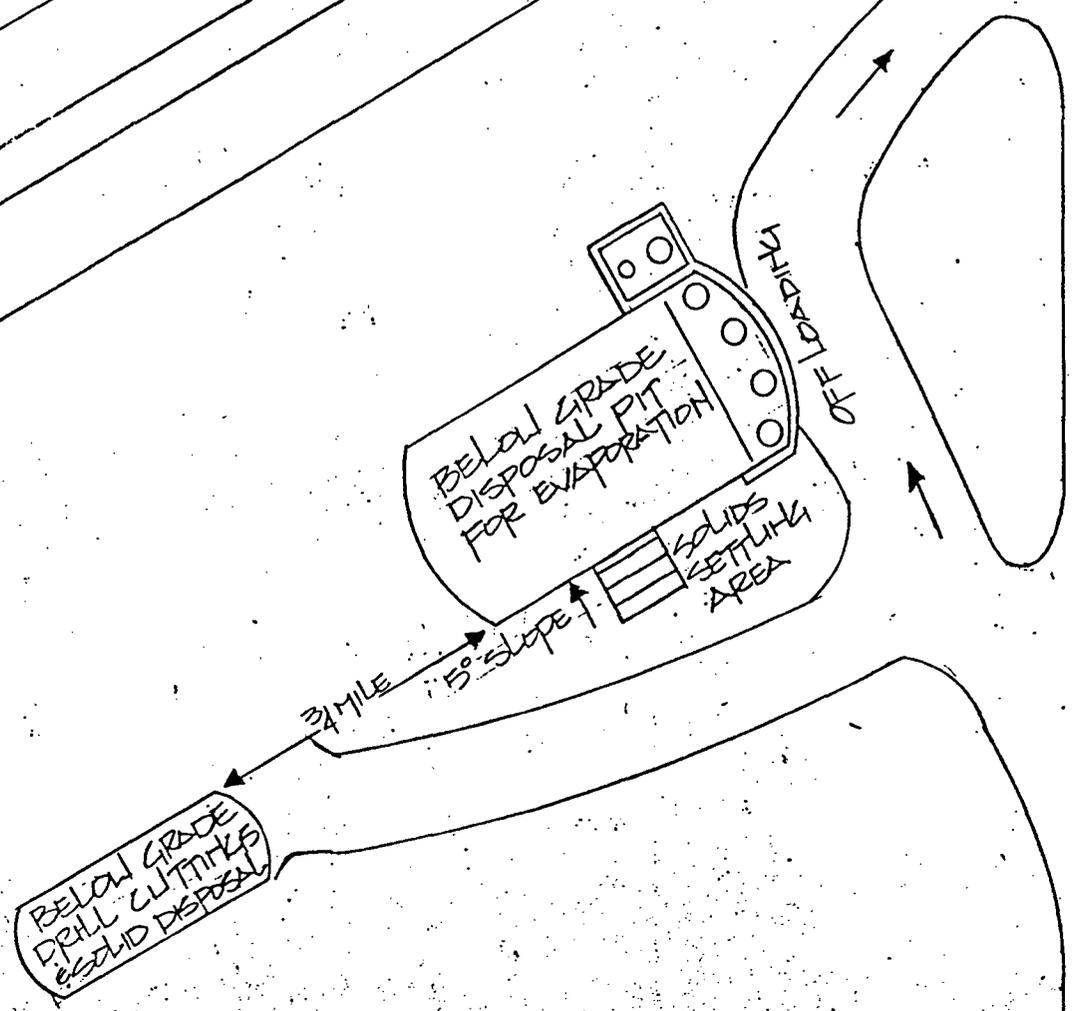
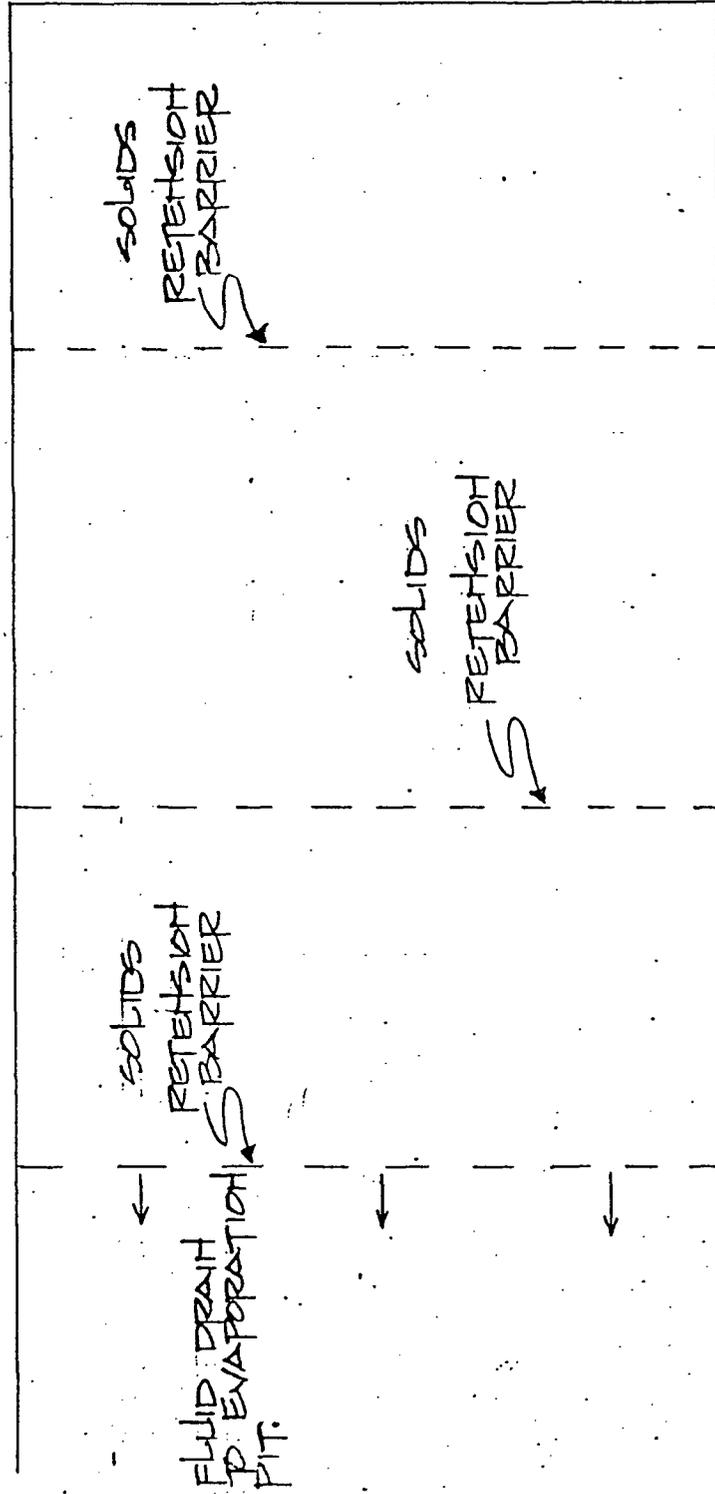


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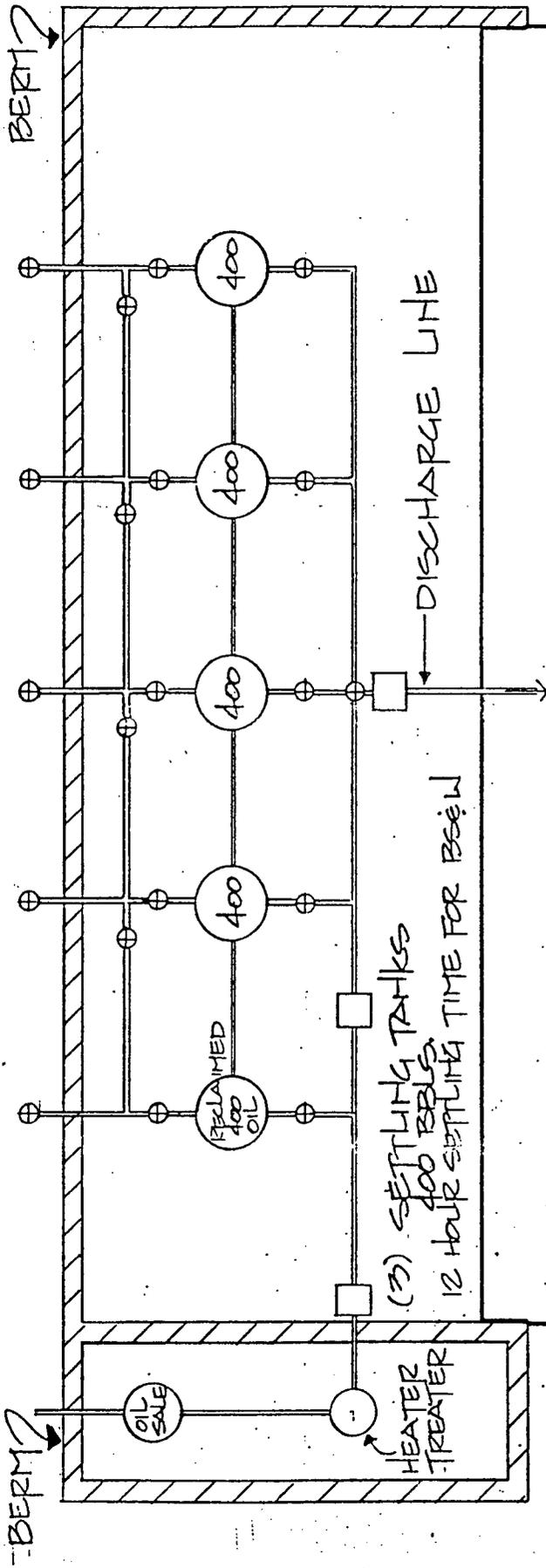
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LEGEND

□	- PUMPS
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LEA COUNTY, NEW MEXICO.

CASE NO. _____

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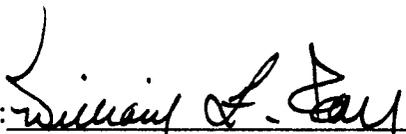
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CAMPBELL & BLACK, P.A.

By: 
WILLIAM F. CARR
Post Office Box 2208
Santa Fe, New Mexico 87504
Telephone: (505) 988-4421

ATTORNEYS FOR CONTROLLED
RECOVERY, INC.

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G. Below grade pits, settling tanks and oil storage tanks will be inspected at least twice weekly and observed daily.

H. H₂S detection will be located in close proximity to settling tanks.

I (C) Facility location: All of S/2 N/2, N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico except for a 20-acre tract situated in the NE/4 SE/4 fully described in page 3 of Exhibit B to this application.

(D) This facility will receive produced water, water from water flows, reverse pit liquids and solids, reserve pit liquids and solids, drilling liquids and solids, sediment oil, saturated soils, and other oilfield products or wastes. Process fluid thru settling, skimming tanks and dispose hydrocarbons free fluids in an unlined below grade surface pit for evaporation. Drill cuttings will be disposed in unlined below grade surface pits. The drilling solids will be recovered from drying ramps and disposed of in the solids pit. Sediment oil will be treated chemically and through heater treater.

II A.1 Sec. 1D, the capacity of the facility is dependent upon the amount of incoming product.

A.2 (a) Three 400 barrel settling tanks for gravity separation of hydrocarbons from water. Hydrocarbon free water to be discharged into below grade unlined evaporation pit. No leak detection system to be installed. Retaining dike will be constructed around settling tanks and oil storage tanks.

(b) Drying ramps will be separate from liquid facility. Sloped drying ramps with solids retention system will be used to recover solids from drilling fluids. Solids will be removed and disposed of in below grade surface pit.

DESCRIPTION

A tract of land situated in the Northeast Quarter of the Southeast Quarter (NE $\frac{1}{4}$ SE $\frac{1}{4}$) of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico, being more particularly described as follows:

Beginning at a point which lies S89°54'13"W 60.00 feet from the Southeast Corner of the Northeast Quarter of the Southeast Quarter of said Section 27, said point being on the West right-of-way of a County Road; thence N00°01'W 933.38 feet along said right-of-way; thence S89°54'13"W 933.38 feet; thence S00°01'E 933.38 feet; thence N89°54'13"E 933.38 feet to the point of beginning, containing 20.00 acres, more or less.

US-62-180

B2-7

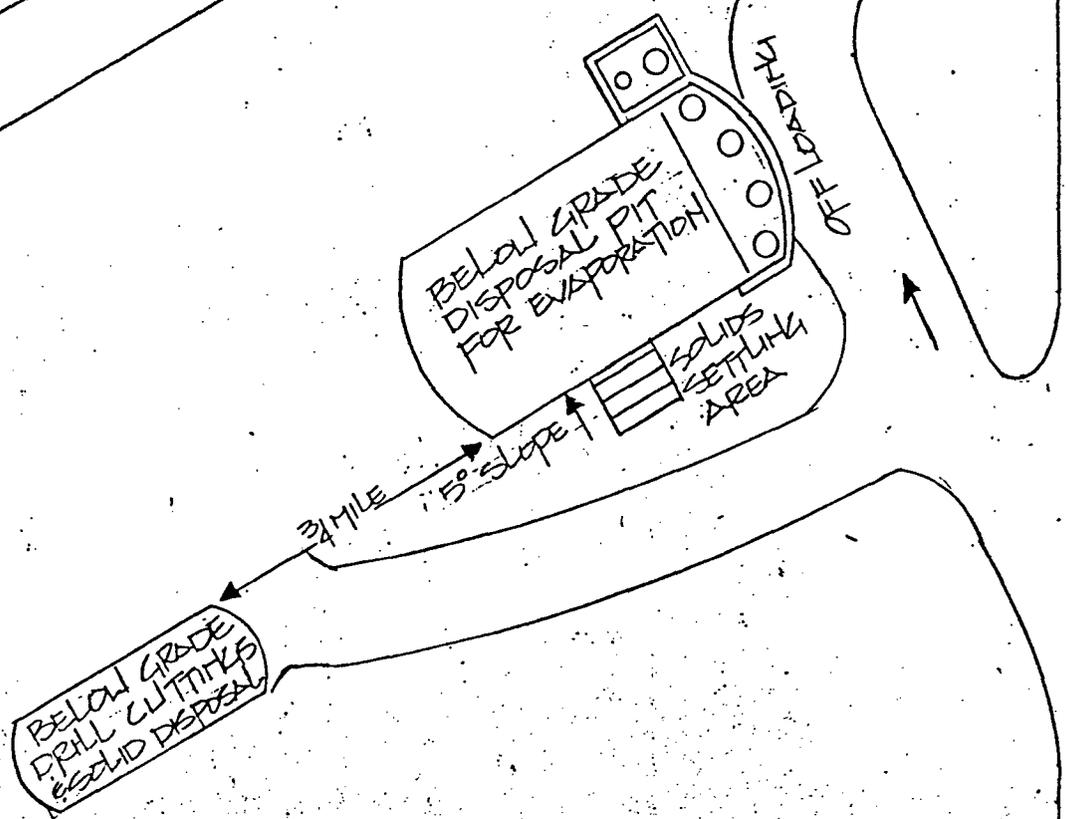
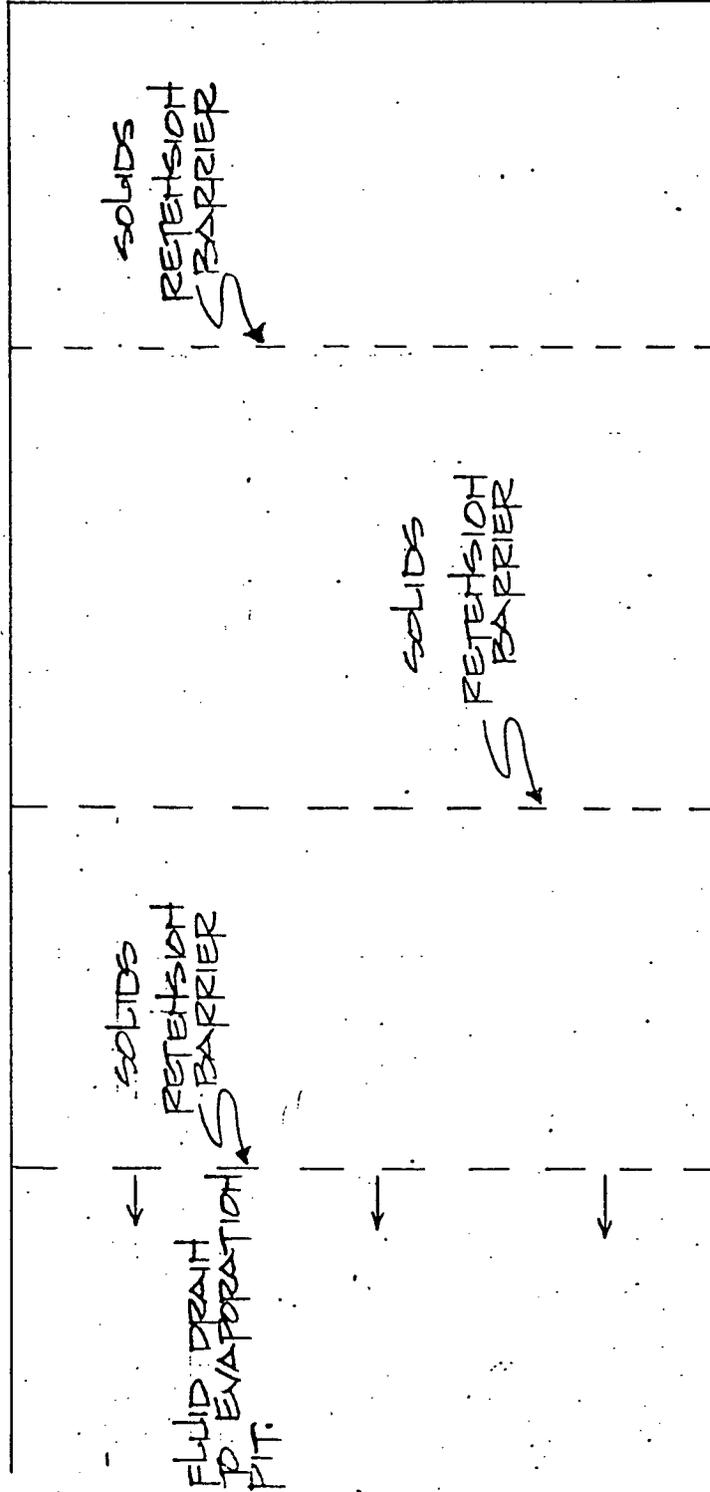
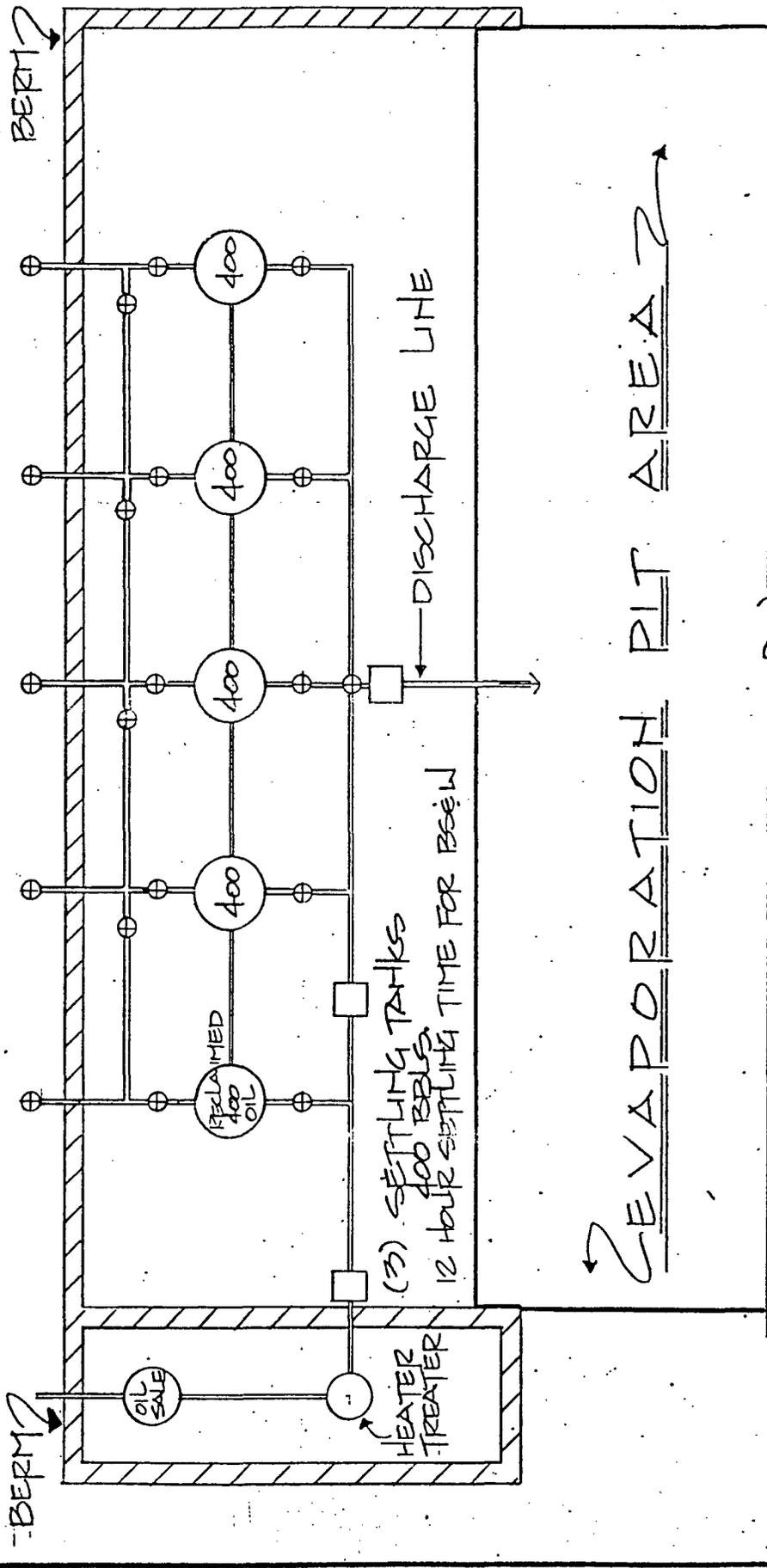


EXHIBIT "C"

SETTLING RAMP FOR DRILLING SOLIDS
INDUSTRY STANDARD DESIGN



OFF LOADING AREA



LEGEND

- - PUMPS
- - PIPE
- ⊕ - VALVES

BEFORE THE
OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION OF
CONTROLLED RECOVERY, INC., FOR
AN OIL TREATING PLANT PERMIT,
SURFACE WASTE DISPOSAL, AND
AN EXCEPTION TO DIVISION
ORDER R-3221, AS AMENDED,
LEA COUNTY, NEW MEXICO.

CASE NO. _____

**APPLICATION
FOR AN OIL TREATING PLANT PERMIT, SURFACE WASTE DISPOSAL, AND
AN EXCEPTION TO DIVISION ORDER R-3221, AS AMENDED**

CONTROLLED RECOVERY, INC. hereby makes application to the Oil Conservation Division for an oil treating plant permit, surface waste disposal, and an exception to Division Order R-3221, as amended, Lea County, New Mexico and in support thereof states:

1. Applicant is the owner of certain acreage in Lea County, New Mexico which is suitable for the surface disposal of oil field wastes. The President and local representative of Controlled Recovery, Inc. is Ken Marsh, Post Office Box 399, (5600 Carlsbad Highway), Hobbs, New Mexico 88240, (505) 393-1079.

2. This application is made pursuant to the provisions of Oil Conservation Division Rules 312 and 711.

3. The proposed location of this treating plant and surface waste disposal facility is in the S/2 N/2 and N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Attached hereto as Exhibit "A" are plats identifying the location of the proposed facility identifying all highways or roads going across to the plant site and giving access to this facility, locations of all pits, skimmer ponds, all above and below grade tanks, and all water courses, water wells and dwellings within one mile of the site.

4. The type and capacity of the proposed facility is set forth in Exhibit "B" which is attached hereto. Numbers in Exhibit "B" correspond to the Section numbers contained in the Division's "Guidelines for Applications for Waste Storage/Disposal Pit Permits."

5. Diagrams of the facility are attached hereto as Exhibit "C" which show the location of all fences and cattleguards and contains detailed engineering construction and installation diagrams of any and all pits for solids and liquids disposal, dikes, piping, sprayers, and tanks on the facilities prepared in accordance with Division "Guidelines for Permit Application, Design and Construction of Waste Storage/Disposal Pits."

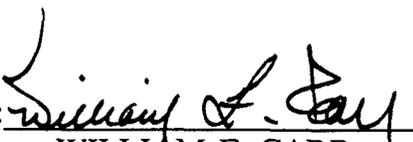
6. Although adjacent to acreage which has been exempted from the provisions of Division Order No. R-3221, as amended, which prohibits the disposal of water produced in conjunction with the production of oil and gas, this proposed facility is within the R-3221 area and, therefore, applicant seeks an exception to the provisions of this Order.

7. All operations at this facility including the reporting and clean-up of any spills, releases, routine inspection and maintenance of the facility, and closer of pits will be in accordance with Division Rules and Regulations.

WHEREFORE, Controlled Recovery, Inc. requests that this application be set for hearing before a duly appointed Examiner of the Oil Conservation Division on March 21, 1990, that notice be given as required by law and the rules of the Division, and that this application be approved.

Respectfully submitted,

CAMPBELL & BLACK, P.A.

By: 

WILLIAM F. CARR
Post Office Box 2208
Santa Fe, New Mexico 87504
Telephone: (505) 988-4421

ATTORNEYS FOR CONTROLLED
RECOVERY, INC.

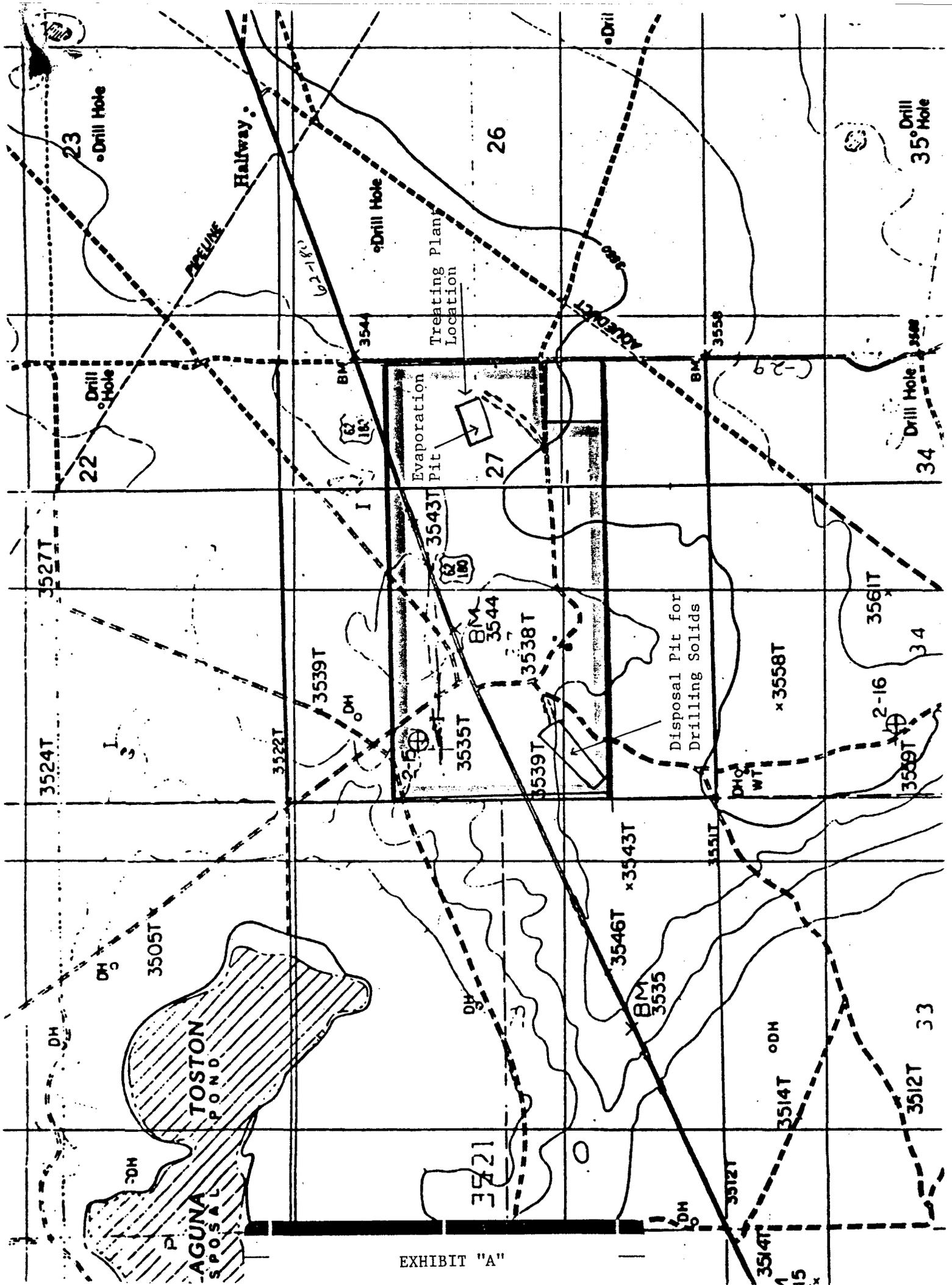


EXHIBIT "A"

B.1 All pits are below grade, no ruptures anticipated. Berm will be constructed around settling tanks and oil storage tanks.

Notification on any leaks will be reported to O.C.D. if they occur. No leak detection planned other than observation.

C. Closure Plan:

As required by EID & EPA

E. Skimmer Tanks

Tanks will receive all fluids & separation of hydrocarbons will be accomplished by gravity separation. No hydrocarbons will be discharged into evaporation pit. Oil recovered from skimmer tank will be transferred to oil storage tanks and processed through heater treater and stored in sales tanks. Plan is that neither storage nor sales tanks will be over 1/2 full before removed by sales or treatment.

F. Facility will be fenced per O.C.D. requirements. Signs will be lettered and contain all information required by O.C.D. and kept in good condition.

G. Below grade pits, settling tanks and oil storage tanks will be inspected at least twice weekly and observed daily.

H. H₂S detection will be located in close proximity to settling tanks.

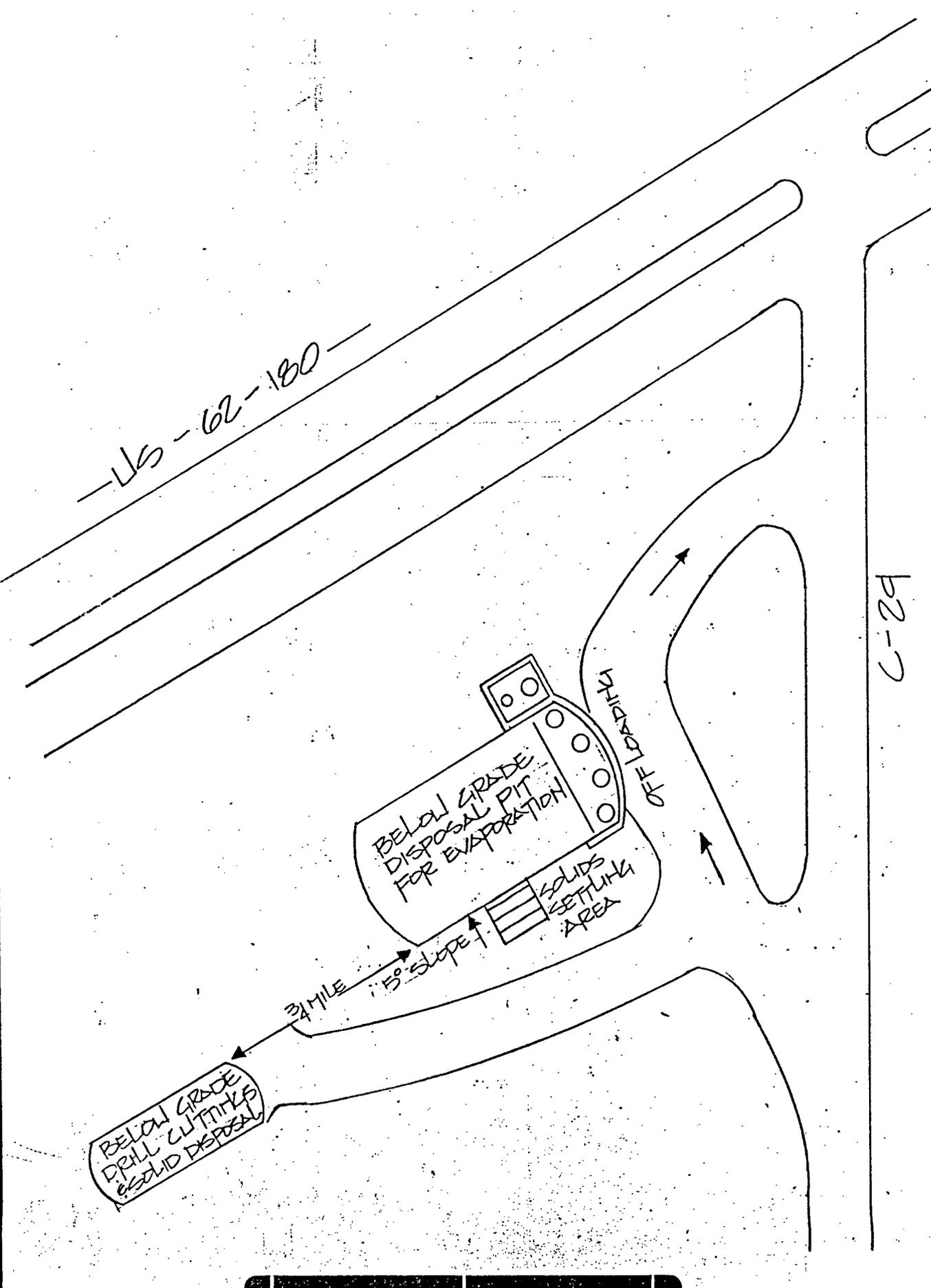
- I (C) Facility location: All of S/2 N/2, N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico except for a 20-acre tract situated in the NE/4 SE/4 fully described in page 3 of Exhibit B to this application.
- (D) This facility will receive produced water, water from water flows, reverse pit liquids and solids, reserve pit liquids and solids, drilling liquids and solids, sediment oil, saturated soils, and other oilfield products or wastes. Process fluid thru settling, skimming tanks and dispose hydrocarbons free fluids in an unlined below grade surface pit for evaporation. Drill cuttings will be disposed in unlined below grade surface pits. The drilling solids will be recovered from drying ramps and disposed of in the solids pit. Sediment oil will be treated chemically and through heater treater.
- II A.1 Sec. 1D, the capacity of the facility is dependent upon the amount of incoming product.
- A.2 (a) Three 400 barrel settling tanks for gravity separation of hydrocarbons from water. Hydrocarbon free water to be discharged into below grade unlined evaporation pit. No leak detection system to be installed. Retaining dike will be constructed around settling tanks and oil storage tanks.
- (b) Drying ramps will be separate from liquid facility. Sloped drying ramps with solids retention system will be used to recover solids from drilling fluids. Solids will be removed and disposed of in below grade surface pit.

DESCRIPTION

A tract of land situated in the Northeast Quarter of the Southeast Quarter (NE $\frac{1}{4}$ SE $\frac{1}{4}$) of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico, being more particularly described as follows:

Beginning at a point which lies S89°54'13"W 60.00 feet from the Southeast Corner of the Northeast Quarter of the Southeast Quarter of said Section 27, said point being on the West right-of-way of a County Road; thence N00°01'W 933.38 feet along said right-of-way; thence S89°54'13"W 933.38 feet; thence S00°01'E 933.38 feet; thence N89°54'13"E 933.38 feet to the point of beginning, containing 20.00 acres, more or less.

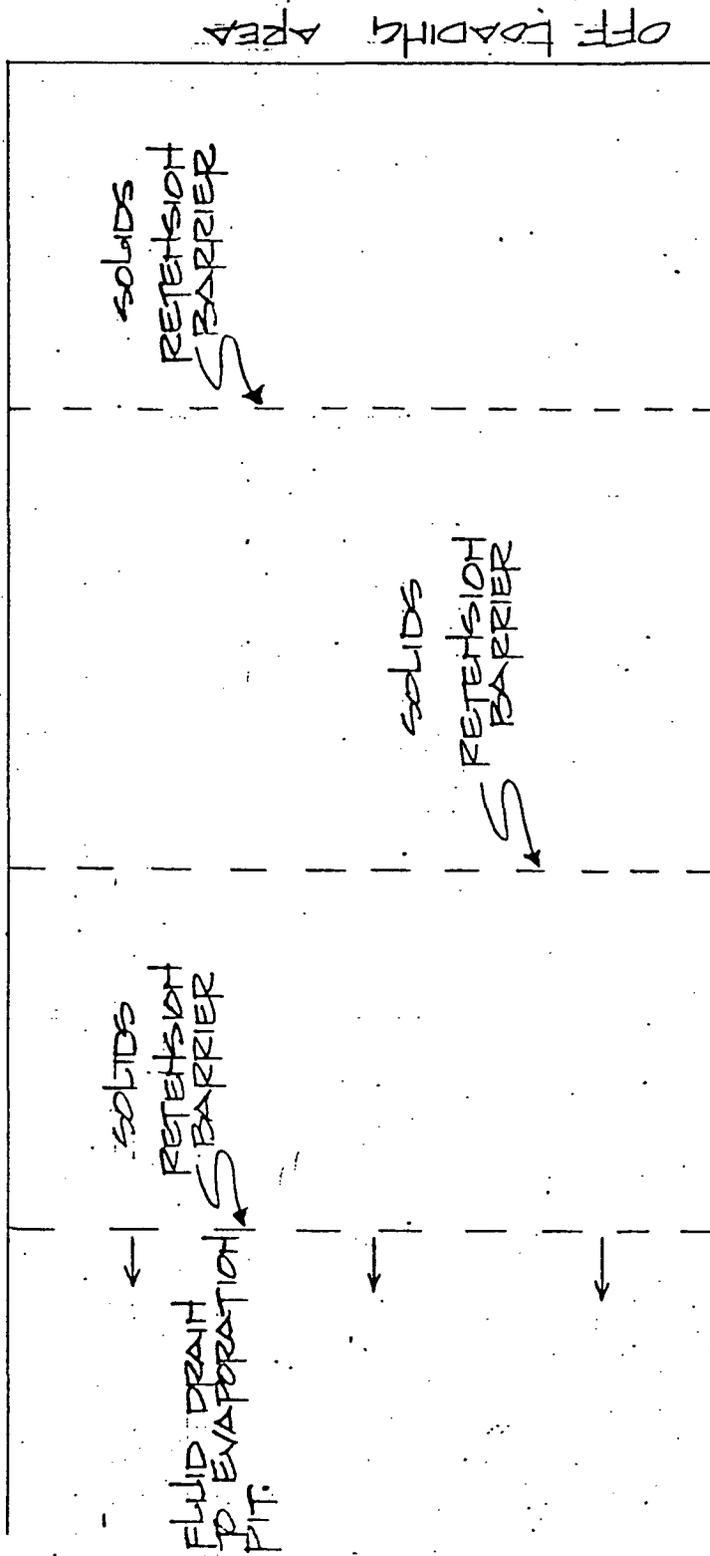
US-62-180



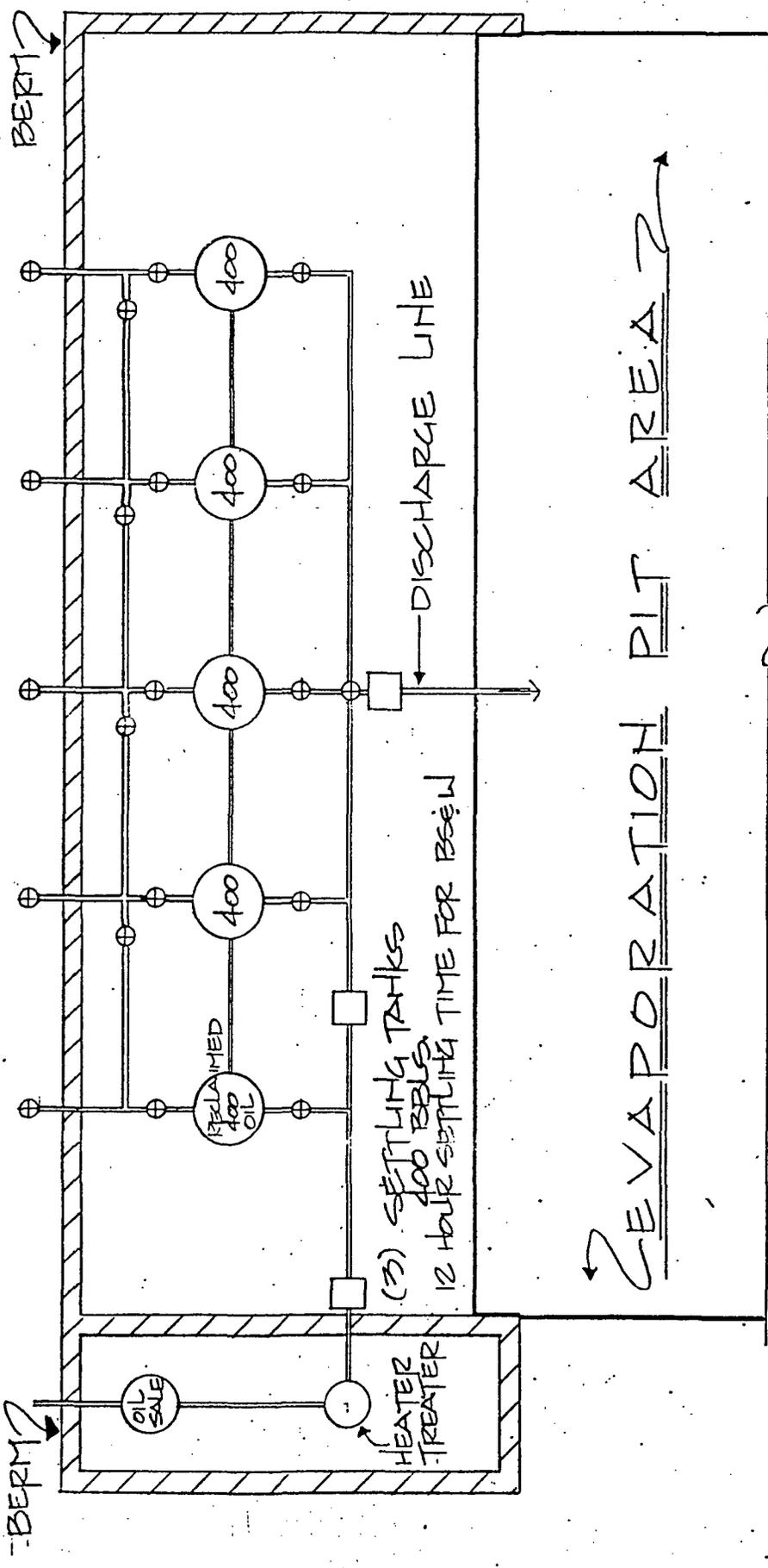
b2-7

EXHIBIT "C"

SETTLING RAMP FOR DRILLING SOLIDS
INDUSTRY STANDARD DESIGN



OFF LOADING AREA



EVAPORATION PIT AREA

LEGEND

□	- PUMPS
—	- PIPE
⊕	- VALVES

Page 2 of 2

V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	TLV 100ppm (estimated--not established by ACGIH or OSHA)
EFFECTS OF OVEREXPOSURE	Inhalation of high vapor, concentrations may have results ranging from mild depression to convulsions and loss of consciousness. Concentrations over 100ppm may cause dizziness, nausea, and headache. Prolonged or repeated skin contact is irritating and will cause defatting and dermatitis. Eye contact may cause burning and irritation. Aspiration can be a hazard if material is swallowed.
EMERGENCY AND FIRST AID PROCEDURES	SKIN: Remove contaminated clothing; wash with soap and water. EYES: Flush eyes with lots of running water. INHALATION: Remove to fresh air. Restore breathing if necessary. Call a Physician. INGESTION: Do not induce vomiting. Give white mineral oil or edible oil. Call a physician.

VI REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	NONE
UNSTABLE	STABLE		
	XXXXXX		
INCOMPATIBILITY (MATERIALS TO AVOID)		Avoid oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS		Toxic fumes and gases including oxides and carbon and nitrogen.	
HAZARDOUS POLYMERIZATION MAY OCCUR		CONDITIONS TO AVOID	NONE
WILL NOT OCCUR	XXXXXXXXXX		

VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Remove all sources of ignition. Provide adequate ventilation. Contain and recover free liquid. Use vermiculite, sand, etc. to absorb residue or small spill. Scrape up and place in covered metal container. Prevent liquid from entering sewer or water course.
WASTE DISPOSAL METHOD	Dispose of by incineration or by depositing in an approved landfill under controlled conditions. Follow all Federal, State, and local regulations.

VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	Use respirators with organic solvent type canisters for short periods of nonroutine work at 100-2000ppm. Use self-contained breathing apparatus for higher or unknown vapor concentrations.			
VENTILATION	LOCAL EXHAUST	As needed to meet TLV requirements	SPECIAL	100 fpm face velocity for exhaust hoods.
	MECHANICAL (GENERAL)	As needed to meet TLV requirements	OTHER	
PROTECTIVE GLOVES	Buna-N rubber gloves and apron to prevent contact.	EYE PROTECTION	Safety glasses or goggles and/or face shield.	
OTHER PROTECTIVE EQUIPMENT	Eye wash stations should be readily accessible.			

IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store containers in clean, cool, well-ventilated, low fire-risk area away from oxidizing agents and ignition sources. Ground and electrically interconnect metal containers when dispensing. Use safety cans for small amounts.
OTHER PRECAUTIONS	NONE

WRIGHT CONSULTING
JAMES I. WRIGHT, HYDROLOGIST
403 S. Sycamore
Roswell, New Mexico 88201
(505) 622-1294

April 6, 1990

RECEIVED

APR 18 1990

OIL CONSERVATION DIVISION

Case 9882

Ken Marsh
Box 399
Hobbs, NM 88241

Dear Sir:

At the conclusion of your hearing in Santa Fe on 04/04/90 for an oil treating plant permit and surface waste disposal pit, you were asked by OCD personnel for additional mapping of the water table covering a much larger area than I had mapped. As you requested, I have checked the available water table control in this area and find that there is insufficient data to show the water table contours closing around the playas without drilling additional test holes. Due to the fact that much of the area is unsaturated, it may take a sizable number of holes to obtain the needed data.

In a March, 1983 report done for Wallen Production Co., Ed Reed contoured the water table in this area, T. 19 and T. 20 S., R. 32 and 33 E. (figure 5). He had insufficient data to show water table closures around the playas. However, closures are implied by the portion which has been contoured and a statement on page 4 of this report states that the ground water movement is toward the playa lakes. This report was an exhibit in case number 7836 before the Oil Conservation Commission (order number 7348).

The members of the OCD staff, which were present at the hearing, may not be aware of this report and it is quite possible that figure 5 in this report will suffice.

Yours truly,

James I. Wright
James I. Wright



NEW MEXICO POTASH
C O R P O R A T I O N

March 15, 1990

Energy, Minerals and Natural Resources Department
Oil Conservation Division
Santa Fe, NM 87501

Attn: David R. Catanach, Examiner
or
Michael E. Stogner, Alternate Examiner

Re: Docket: March 21, 1990
Case 9882: Application of Controlled Recovery, Inc. for an
oil treating plant permit.

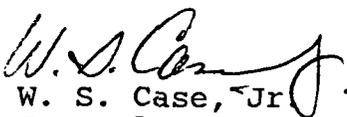
New Mexico Potash Corporation, which owns and operates a potash mine and refining facility adjacent to the requested permit area in Case 9882, requests the examiner or alternate examiner to consider the following items 1 thru 5 and the attached plat and make them part of the record in Case 9882.

- Item 1: New Mexico Potash Corporation was granted R-O-W No. NM12177 (see attached plat shown in yellow) for the disposal of clay-brine tailings from their potash refinery. The disposal of these tailings has been continuous since 1970 and will continue in the future.
- Item 2: New Mexico Potash Corporation has returned clear brine from the Laguna Toston area in the past and will in the future to its refinery for re-processing.
- Item 3: Clear brine returned to the plant for re-use must be free of oilfield related wastes.
- Item 4: A representative of New Mexico Potash Corporation has been in contact with a representative of Controlled Recovery, Inc. and it is New Mexico Potash Corporation's understanding that all oil treating

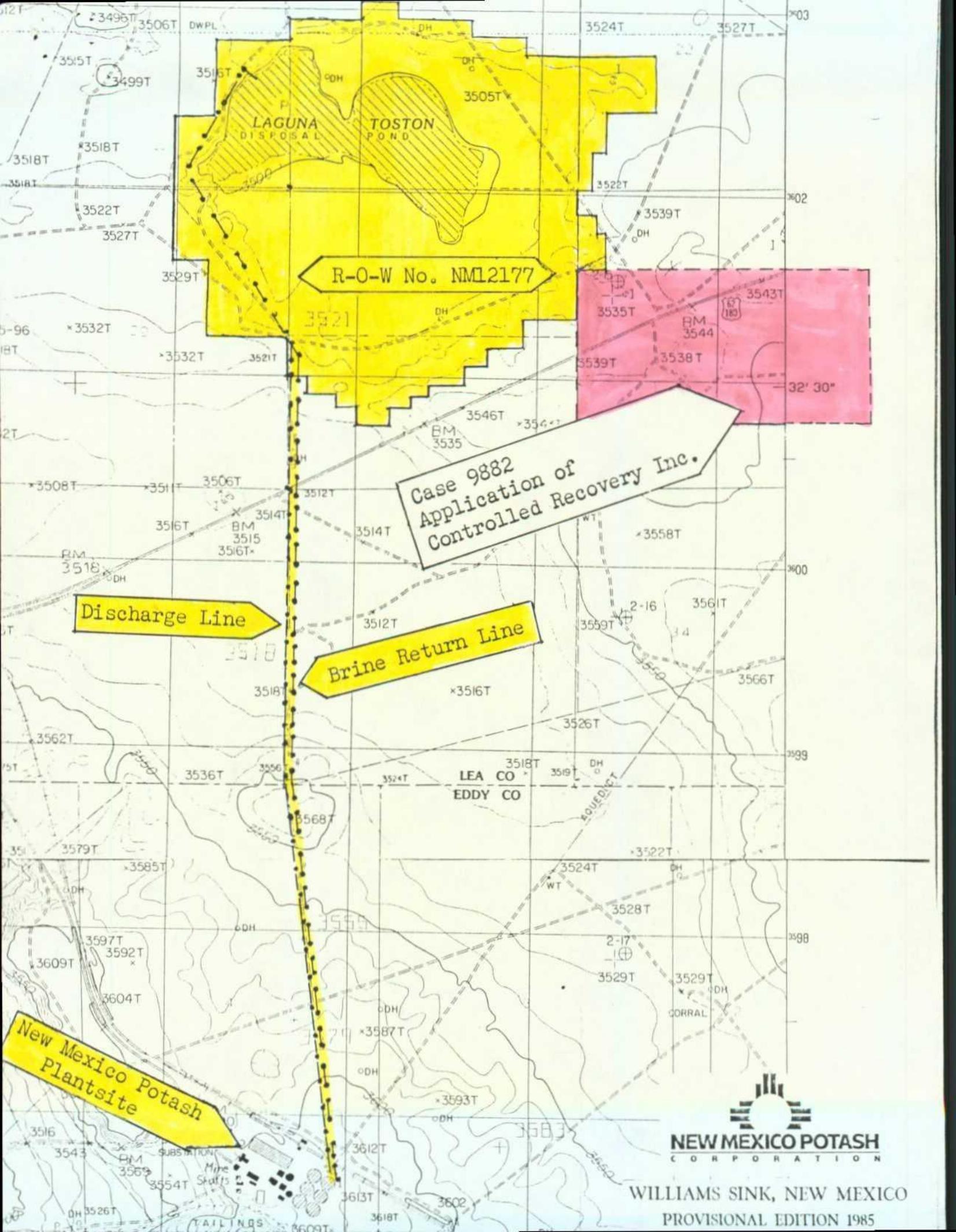
plant facilities will be located on the south side of highway 62-180 and the collection, disposal, evaporation or storage of produced water, drilling fluids, drill cuttings, completion fluids and other oilfield related waste will be in unlined surface pits without direct discharge by either pipeline, ditch, or natural surface drainage into the Laguna Toston area.

Item 5: New Mexico Potash Corporation has no objection to the approval of this application if Item 4 is generally correct and the approved permit has a stipulation containing "no direct discharge by pipeline, ditch, or natural surface drainage into the Laguna Toston area."

NEW MEXICO POTASH CORPORATION


W. S. Case, Jr.
General Manager

WSC/bt



R-O-W No. NML2177

Case 9882
Application of
Controlled Recovery Inc.

Discharge Line

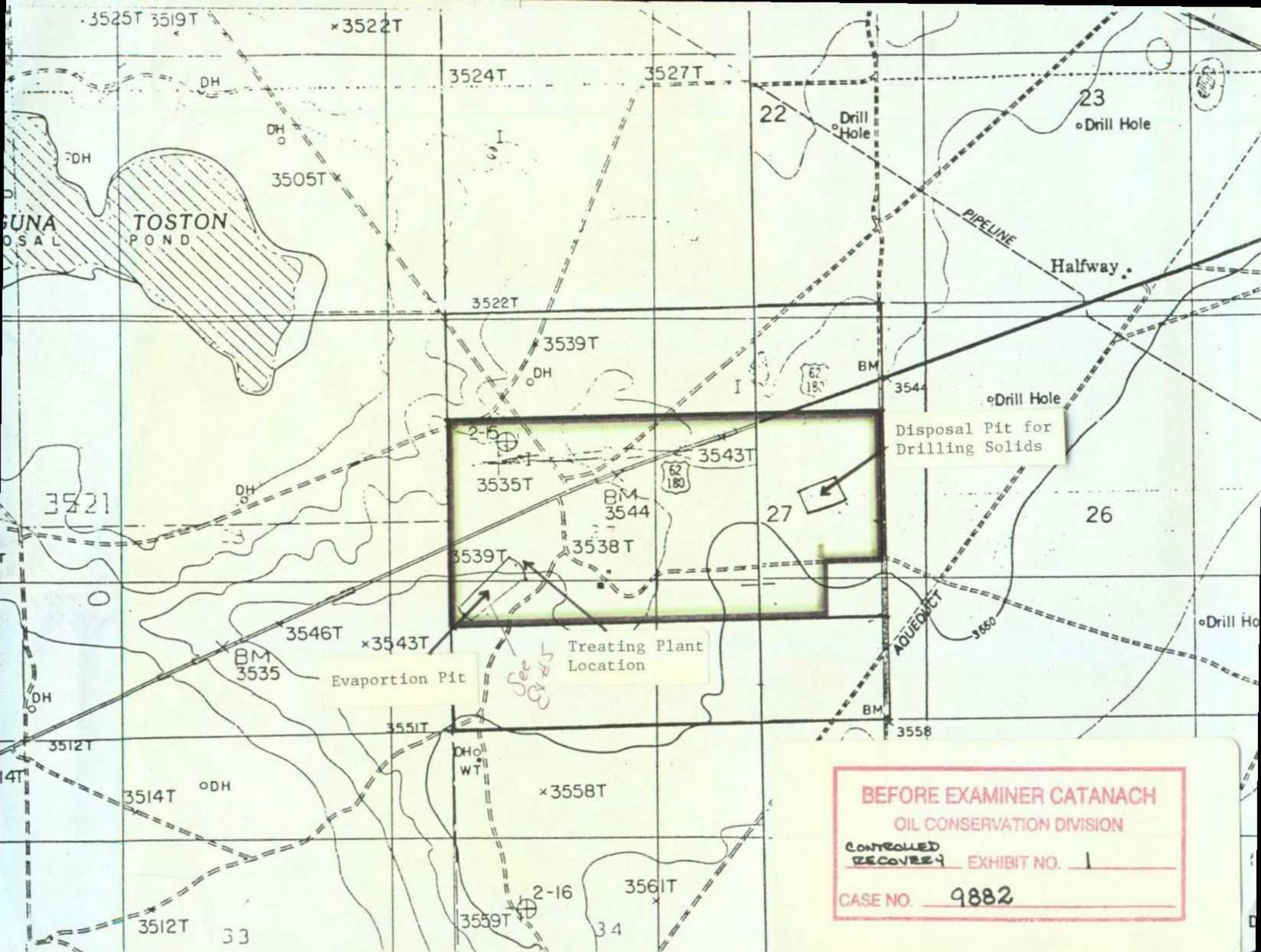
Brine Return Line

New Mexico Potash
Plantsite



NEW MEXICO POTASH
CORPORATION

WILLIAMS SINK, NEW MEXICO
PROVISIONAL EDITION 1985



BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION

CONTROLLED
 RECOVERY EXHIBIT NO. 1

CASE NO. 9882



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS NEW MEXICO 88241-1980
(505) 393-8161

MEMORANDUM: To Whom It May Concern
FROM: Jerry Sexton, District I Supervisor
DATE: February 23, 1990

Lea County has only one facility to handle oilfield waste such as tank bottoms, drilling mud, etc. This does present a problem in disposal of such matter in an environmentally safe manner at a reasonable cost due to hauling distance.

JS:jm

BEFORE EXAMINER GATANACH	
OIL CONSERVATION DIVISION	
CONTROLLED RECOVERY	EXHIBIT NO. <u>3</u>
CASE NO.	<u>9882</u>

BEFORE EXAMINER CATANACH

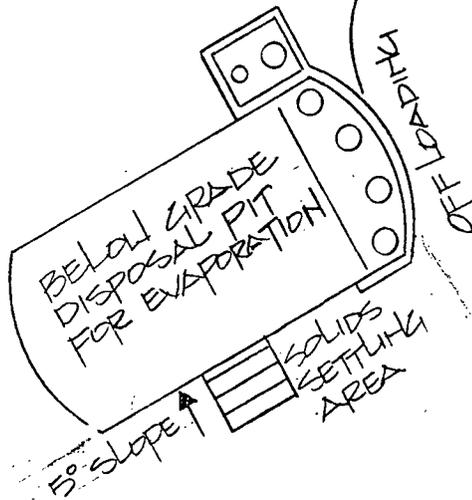
OIL CONSERVATION DIVISION

CONTROLLED
RECOVERY

EXHIBIT NO. 5

CASE NO. 9882

— 46-62-180 —





WELDED GUNBARREL PRODUCTION TANKS

RECEIVER
 or
 FLOW TANKS

SHOP WELDED

▶

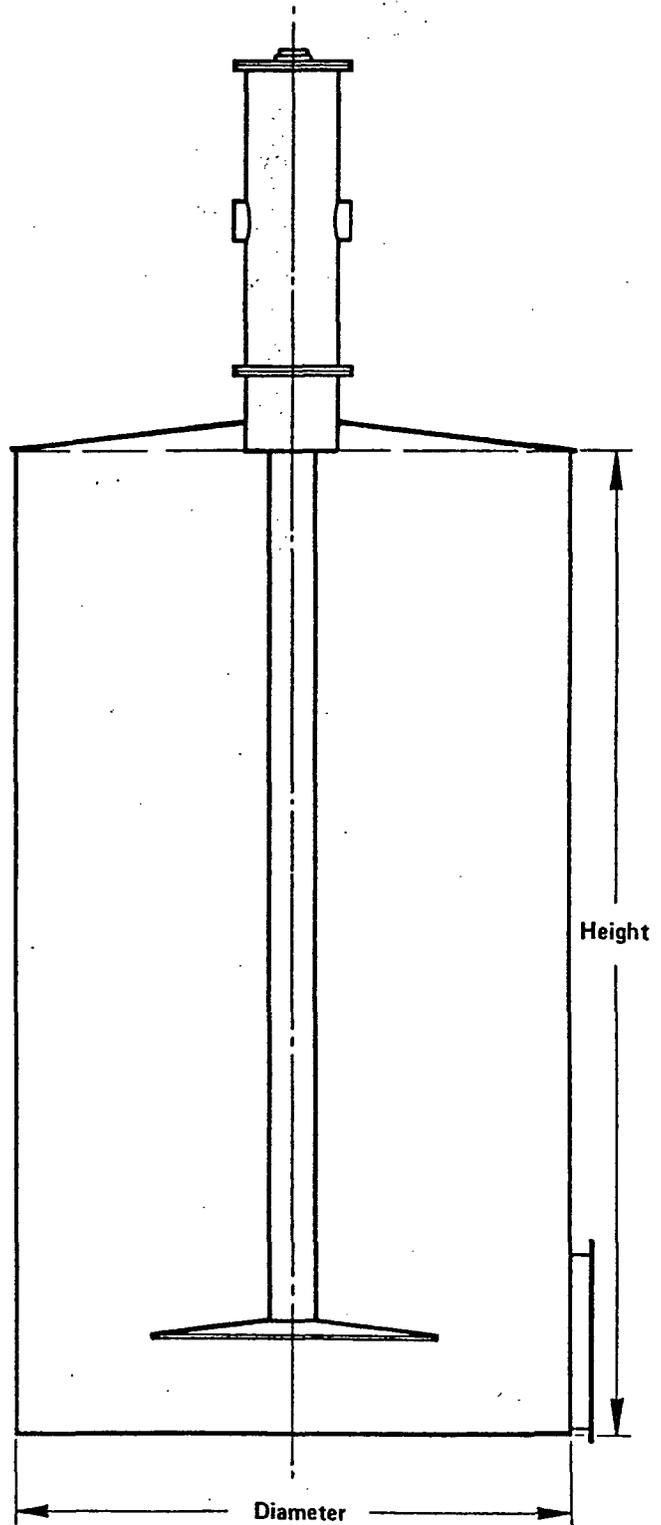
14' DIAMETER
 and
 LARGER

FLOW TANK SIZE (Dia. x Height)
15-1/2' x 16'
15-1/2' x 20'
15-1/2' x 24'
20' x 24'

Standard Gunbarrel Tanks include the following equipment:

- 1 — 8" Round Thief Valve
- 2 — 4" Inlets
- 2 — 4" Outlets
- 1 — 4" Siphon Connection
- 1 — 4" Dome Connection
- 1 — 4" Connection in Deck for Outside Equalizer
- 1 — 3" Side Drain
- 1 — 24" x 36" Cleanout Box
- 1 — Flume Stack
- 1 — Inside Flume
- 1 — Coned Distributor Plate
- Gauge Cock Connections
- Ladder Lugs
- Walkway Lugs

Gauge Cocks, Gauge Glasses, and Outside Ladders are EXTRA price items.



BEFORE EXAMINER CATANACH
 OIL CONSERVATION DIVISION
 CONTROLLED RECOVERY EXHIBIT NO. 6
 CASE NO. 988Z



TECHNI-BREAK 100

**UNICHEM
INTERNATIONAL**

PRODUCT BULLETIN

DESCRIPTION: TECHNI-BREAK 100 is a specially formulated solvent-based solution of surface active agents designed to promote the separation of water in oil emulsions. The incorporated wetting agents will effectively displace oil from iron sulfide, sand and other solids contained in the crude oil emulsion, and therefore aid the demulsification process.

USES: TECHNI-BREAK 100 has been formulated primarily to demulsify "tank bottoms" and "slop oil." However, TECHNI-BREAK 100 can also be used to dehydrate crude oil production.

APPLICATION: TECHNI-BREAK 100 may be batch treated into stock tanks and treating vessels with agitation or rolling. TECHNI-BREAK 100 can also be injected continuously into the treating system at a point of turbulence to insure thorough mixing with the produced fluids. An emulsion breaker bottle test should be performed to determine the most effective demulsifier.

**TYPICAL
PROPERTIES:**

Specific Gravity @ 60°F	.92
Pounds Per Gallon @ 60°F	7.64
Pour Point	-40°F
Flash Point (TCC)	66°F
SOLUBILITIES:	
Fresh Water	Dispersible
2% Brine	Dispersible
15% Brine	Dispersible
Crude Oil	Soluble
Appearance	Amber Liquid

HANDLING: Warning! Flammable. Keep away from heat, sparks and open flame. Keep container closed when not in use. Do not breathe vapors, use with adequate ventilation. Avoid contact with eyes, skin and clothing. Refer to material safety data sheet for additional information and first aid.

PACKAGING: TECHNI-BREAK 100 is sold in 55 gallon drums and bulk.

BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION

4/85

~~CONTROLLED~~
~~RECOVERED~~ EXHIBIT NO. 7

CASE NO. 9882



MATERIAL SAFETY DATA SHEET

"Essentially Similar" to Form OSHA-20,

Date Prepared May 20, 1988

Supersedes Previous Sheet Dated July 1, 1986

I PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL
707 N. Leech / P. O. Box 1499 / Hobbs, New Mexico 88240

EMERGENCY TELEPHONE NO.
(505) 393-7751

PRODUCT NAME **TECHNI-BREAK 100**

TRADE NAME: **DEMULSIFIER**

CHEMICAL DESCRIPTION:

Proprietary blend of surfactants, organic amines and acid in aromatic solvent.

II HAZARDOUS INGREDIENTS

MATERIAL	TLV (UNITS) TWA 100 ppm recommended
TRADE SECRET	

III PHYSICAL DATA

BOILING POINT, 760 mm Hg	N/D	FREEZING POINT:	-40° F
SPECIFIC GRAVITY (H ₂ O=1)	.92	VAPOR PRESSURE @	N/D
VAPOR DENSITY (AIR=1)	N/D	SOLUBILITY IN WATER	Dispersible
PERCENT VOLATILES BY WEIGHT	N/D	EVAPORATION RATE	N/D

APPEARANCE AND ODOR **Dark Amber liquid, aromatic odor**

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT
(TEST METHOD) **66° F (TCC)**

FLAMMABLE LIMITS IN AIR, % BY VOLUME	LOWER	N/A	UPPER	N/A
--------------------------------------	-------	-----	-------	-----

EXTINGUISHING MEDIA **Foam, dry chemical, CO₂, water spray or fog. Use a water spray to cool fire-exposed containers.**

SPECIAL FIRE FIGHTING PROCEDURES **Use self-contained breathing equipment for enclosed areas in a fire situation.**

UNUSUAL FIRE AND EXPLOSION HAZARDS **Vapors can flow along surfaces to distant ignition sources and flash back.**

Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated.

*N/D - Not Determined

V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	TLV 100ppm (estimated--not established by ACGIH or OSHA)
EFFECTS OF OVEREXPOSURE	Inhalation of high vapor concentrations may have results ranging from mild depression to convulsions and loss of consciousness. Concentrations over 100 ppm may cause dizziness, nausea, and headache. Prolonged or repeated skin contact is irritating and will cause defatting and dermatitis. Eye contact may cause burn and irritation. Aspiration can be a hazard if material is swallowed.
EMERGENCY AND FIRST AID PROCEDURES	Skin: Remove contaminated clothing; wash with soap and water. Eyes: Flush eyes with lots of running water. INHALATION: Remove to fresh air. restore breathing if necessary. (a physician)

VI REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	NONE
UNSTABLE	STABLE		
	XXXXXXXXXX		
INCOMPATIBILITY (MATERIALS TO AVOID)		Avoid oxidizing agents	
HAZARDOUS DECOMPOSITION PRODUCTS		Toxic fumes and gases including oxides and carbon and nitrogen.	
HAZARDOUS POLYMERIZATION MAY OCCUR		CONDITIONS TO AVOID	NONE
WILL NOT OCCUR	XXXXXXXXXXXXXX		

VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Remove all sources of ignition. Provide adequate ventilation. Contain and recover free liquid. Use vermiculite, sand, etc. to absorb residue or small spill. Scrape up and place in covered metal container. Prevent liquid from entering sewer or water course.
WASTE DISPOSAL METHOD	Dispose of by incineration or by depositing in an approved landfill under controlled conditions. Follow all Federal, State, and local regulations.

VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	Use respirators with organic solvent type canisters for short periods of nonroutine work at 100-200ppm. Use self-contained breathing apparatus for higher or unknown vapor concentrations.			
VENTILATION	LOCAL EXHAUST	As needed to meet TLV requirements	SPECIAL	100 lfm face velocity for exhaust hoods.
	MECHANICAL (GENERAL)	As needed to meet TLV requirements	OTHER	
PROTECTIVE GLOVES	Buna-N rubber gloves and apron to prevent contact.		EYE PROTECTION	safety glasses or goggles and/or face shield.
OTHER PROTECTIVE EQUIPMENT	Eye wash stations should be readily accessible.			

IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store containers in clean, cool, well-ventilated, low fire-risk area away from oxidizing agents and ignition sources. Ground and electrically interconnect metal containers when dispensing. Use safety cans for small amount.

OTHER PRECAUTIONS



**UNICHEM
INTERNATIONAL**

TECHNI-BREAK 105

PRODUCT BULLETIN

DESCRIPTION:

TECHNI-BREAK 105 is a specially formulated solvent based solution of surface active agents designed to promote the separation of water in oil emulsions. TECHNI-BREAK 105 is especially effective in breaking acid emulsions. TECHNI-BREAK 105 will also control hydration of water sensitive clays.

USES:

TECHNI-BREAK 105 was originally formulated to demulsify tank bottoms, slop oil, and acid emulsions. However, TECHNI-BREAK 105 can also be used to dehydrate crude oil production.

APPLICATION:

TECHNI-BREAK 105 may be batch treated into stock tanks and treating vessels with agitation or rolling. TECHNI-BREAK 105 can also be injected continuously into the treating system at a point of turbulence to insure thorough mixing with the produced fluids. An emulsion breaker bottle test should be performed to determine the most effective demulsifier.

**TYPICAL
PROPERTIES:**

Specific Gravity @ 60°F	.90
Pounds Per Gallon @ 60°F	7.52
Pour Point	-40°F
Flash Point (TCC)	74°F

SOLUBILITIES:

Fresh Water	Dispersible
2% Brine	Dispersible
15% Brine	Dispersible
Crude Oil	Soluble
Appearance	Amber Liquid

HANDLING:

Warning! Flammable. Keep away from heat, sparks, and open flame. Keep container closed when not in use. Do not breathe vapors, use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Refer to material safety data sheet for additional information and first aid.

PACKAGING:

TECHNI-BREAK 105 is sold in 55 gallon drums and bulk.

12/83



MATERIAL SAFETY DATA SHEET

"Essentially Similar" to Form OSHA-20

Date Prepared 1/31/85

Supersedes Previous Sheet Dated New

I PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL
707 N. Leech / P. O. Box 1499 / Hobbs, New Mexico 88240

EMERGENCY TELEPHONE NO.
(505) 393-7751

PRODUCT NAME **TECHNI-BREAK 105**

TRADE NAME: **DEMULSIFIER**

CHEMICAL DESCRIPTION:

Proprietary blend of demethyl benzyl ammonium chloride in aromatic solvent.

II HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (UNITS)
Aromatic Solvent		8 hr. TWA 100 ppm
Dimethyl benzyl ammonium chloride	25%	recommended

III PHYSICAL DATA

BOILING POINT, 760 mm Hg	N/D	FREEZING POINT:	0°F
SPECIFIC GRAVITY (H ₂ O=1)	.90	VAPOR PRESSURE @	N/D
VAPOR DENSITY (AIR=1)	N/D	SOLUBILITY IN WATER	Insoluble
PERCENT VOLATILES BY WEIGHT	N/D	EVAPORATION RATE	N/D

APPEARANCE AND ODOR

Dark Amber liquid, aromatic odor.

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT
(TEST METHOD) 74°F (TCC)

FLAMMABLE LIMITS IN AIR, % BY VOLUME	LOWER	N/A	UPPER	N/A

EXTINGUISHING MEDIA Foam, dry chemical, CO₂, water spray or fog. Use a water spray to cool fire-exposed containers.

SPECIAL FIRE FIGHTING PROCEDURES Use self-contained breathing equipment for enclosed areas in a fire situation.

UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors can flow along surfaces to distant ignition sources and flash back.

Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated.

*N/D - Not Determined

V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	TLV 100ppm (estimated--not established by ACGIH or OSHA)
EFFECTS OF OVEREXPOSURE	Inhalation of high vapor, concentrations may have results ranging from mild depression to convulsions and loss of consciousness. Concentrations over 100ppm may cause dizziness, nausea, and headache. Prolonged or repeated skin contact is irritating and will cause defatting and dermatitis. Eye contact may cause burning and irritation. Aspiration can be a hazard if material is swallowed.
EMERGENCY AND FIRST AID PROCEDURES	SKIN: Remove contaminated clothing; wash with soap and water. EYES: Flush eyes with lots of running water. INHALATION: Remove to fresh air. Restore breathing if necessary. Call a Physician. INGESTION: Do not induce vomiting. Give white mineral oil or edible oil. Call a physician.

VI REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	NONE
UNSTABLE	STABLE		
	XXXXXX		
INCOMPATIBILITY (MATERIALS TO AVOID)		Avoid oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS		Toxic fumes and gases including oxides and carbon and nitrogen.	
HAZARDOUS POLYMERIZATION MAY OCCUR		CONDITIONS TO AVOID	NONE
WILL NOT OCCUR	XXXXXXXXXX		

VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Remove all sources of ignition. Provide adequate ventilation. Contain and recover free liquid. Use vermiculite, sand, etc. to absorb residue on small spill. Scrape up and place in covered metal container. Prevent liquid from entering sewer or water course.
WASTE DISPOSAL METHOD	Dispose of by incineration or by depositing in an approved landfill under controlled conditions. Follow all Federal, State, and local regulations.

VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	Use respirators with organic solvent type canisters for short periods of nonroutine work at 100-2000ppm. Use self-contained breathing apparatus for higher or unknown vapor concentrations.			
VENTILATION	LOCAL EXHAUST	As needed to meet TLV requirements	SPECIAL	100 lfm face velocity for exhaust hoods.
	MECHANICAL (GENERAL)	As needed to meet TLV requirements	OTHER	
PROTECTIVE GLOVES	Buna-N rubber gloves and apron to prevent contact.	EYE PROTECTION	Safety glasses or goggles and/or face shield.	
OTHER PROTECTIVE EQUIPMENT	Eye wash stations should be readily accessible.			

IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store containers in clean, cool, well-ventilated, low fire-risk area away from oxidizing agents and ignition sources. Ground and electrically interconnect metal containers when dispensing. Use safety cans for small amount.
OTHER PRECAUTIONS	NONE



TECHNI-BREAK 957

**UNICHEM
INTERNATIONAL**

PRODUCT BULLETIN

DESCRIPTION: TECHNI-BREAK 957 is a specially formulated solvent-based solution of surface active agents designed to promote the separation of water in oil emulsions.

USES: TECHNI-BREAK 957 has been found to be a highly effective broad spectrum crude oil emulsion breaker.

APPLICATION: TECHNI-BREAK 957 should be injected continuously into the system at a point of turbulence to insure thorough mixing with the produced fluids. Batch treatment may be used in stock tanks with agitation or rolling. A standard emulsion breaker bottle test should be performed in the field to determine the most effective demulsifier. Plant testing of the selected demulsifier should be conducted to determine the most cost effective use concentration.

**TYPICAL
PROPERTIES:**

Specific Gravity @ 60°F	.93
Pounds Per Gallon @ 60°F	7.75
Pour Point	-40°F
Flash Point (TCC)	79°F
SOLUBILITIES:	
Fresh Water	Dispersible
2% Brine	Dispersible
15% Brine	Dispersible
Crude Oil	Soluble
Appearance	Amber Liquid

HANDLING: Warning! Flammable. Keep away from heat, sparks and open flame. Keep container closed when not in use. Do not breathe vapors, use with adequate ventilation. Avoid contact with eyes, skin and clothing. Refer to material safety data sheet for additional information and first aid.

PACKAGING: TECHNI-BREAK 957 is sold in 55 gallon drums and bulk.

3/85



MATERIAL SAFETY DATA SHEET

"Essentially Similar" to Form OSHA-20

Date Prepared January 14, 1987

Supersedes Previous Sheet Dated 9-19-83

I PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL 707 N. Leech / P. O. Box 1499 / Hobbs, New Mexico 88240	EMERGENCY TELEPHONE NO. (505) 393-7751
--	---

PRODUCT NAME TECHNI-BREAK 957 TRADE NAME: DEMULSIFIER

CHEMICAL DESCRIPTION: Proprietary blend of organic surfactants in aromatic solvent.

II HAZARDOUS INGREDIENTS

MATERIAL	TLV (UNITS)
Contains Aromatic Solvent	8 hr. TWA 100 ppm recommended

III PHYSICAL DATA

BOILING POINT, 760 mm Hg	N/D	FREEZING POINT:	-40°F
SPECIFIC GRAVITY (H ₂ O=1)	.93	VAPOR PRESSURE @	N/D
VAPOR DENSITY (AIR=1)	N/D	SOLUBILITY IN WATER	Dispersible
PERCENT VOLATILES BY WEIGHT	N/D	EVAPORATION RATE	N/D

APPEARANCE AND ODOR Clear Amber Liquid, Aromatic Odor

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (TEST METHOD) 74°F (TCC)

FLAMMABLE LIMITS IN AIR, % BY VOLUME	LOWER	N/D	UPPER	N/D
--------------------------------------	-------	-----	-------	-----

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	XXXXXXX		
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HAZARDOUS POLYMERIZATION MAY OCCUR		CONDITIONS TO AVOID	NONE
WILL NOT OCCUR	XXXXXXXXXX		

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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store containers in clean, cool, well-ventilated, low fire-risk area away from oxidizing agents and ignition sources. Ground and electrically interconnect metal containers when dispensing. Use safety cans for small amounts.
--	---

OTHER PRECAUTIONS



THE CITY OF
HOBBS, NEW MEXICO

(505) 397-3636 • 300 NORTH TURNER • HOBBS, NEW MEXICO 88240

March 19, 1990

MEMORANDUM

TO: ROBERT M. GALLAGHER, CITY MANAGER

FROM: RUSSELL DOSS, CITY ENGINEER

RE: FLOOD ZONE INVESTIGATION FOR STORAGE FACILITY TRACT

BEFORE EXAMINER CATANACH	
OIL CONSERVATION DIVISION	
CONTROLLED RECOVERY	EXHIBIT NO. <u>8</u>
CASE NO. <u>988Z</u>	

This memo is in response to your request for the Flood Zone location in relation to the tract described in the attached legal description. The tract is located south of US 62-180 near the Lea County West boundary line.

Lea County presently does not possess a flood zone map that determines the flood zone for county tracts. Also, the City of Hobbs Flood Mapping only includes areas within the City limits.

I have reviewed a copy of a Lea County map that covers the central portion of the county and shows a few of the major drainage courses throughout the area.

However, this map does not cover the area adjacent the West Boundary line of the County. At it's closest point this map is still approximately 12 miles away from the proposed site.

I have been in contact with the Eddy County Manager and he informed me that Eddy County does have Flood Zone maps that show the flood zones over to their East County Boundary line.

He stated that his maps reach to Township 20 South, Range 31 East which would be within four miles of the proposed storage facility tract.

His flood map shows that there are no flood zones in the Township adjacent the storage facility tract. In fact, he noted that the nearest flood zone to this area is over 20 miles to the West.

Hopefully, this information might be helpful for your use. If further information is needed, someone could obtain a copy of the United States Geological Survey (USGS) Quadrangle Map of the proposed storage facility area.

By reviewing the contours on the USGS map, the drainage areas could be delineated and the approximate flood hazard for the area could be roughly assessed.

Please let me know if you have any questions or need any further information.

Russell Doss

RESUME

BEFORE EXAMINER CATANACH	
OIL CONSERVATION DIVISION	
CONTROLLED RECOVERY	EXHIBIT NO. <u>9</u>
CASE NO. <u>9882</u>	

James I. Wright, 403 South Sycamore, Roswell, New Mexico 88201

Education: Bachelor of Science in Civil Engineering from New Mexico State University, 1952.

Registered as a Professional Engineer in New Mexico, License No. 3838

Professional Experience:

Portales Basin Supervisor: March 29, 1954 through March 1, 1956.

Work consisted primarily of water rights administration. Field work done in this position was measuring well discharges, computing pumping unit efficiencies, calculating irrigated acreage from aerial photography, plane table surveys and the collection of basic hydrological data.

Field Engineer: March 1, 1956 through May 31, 1986.

Work consisted of the supervision of several professional and non-professional personnel in the collection of basic hydrological data, interpretation of this data and the preparation of maps, charts and tabulation for water rights administration.

Most of my work has been in Lea, Roosevelt, Curry and Quay Counties, where quantities of ground water storage are determined by preparing a series of maps and interpreting the information needed from these maps. The maps prepared are as follows:

Altitude of the Base of the Shallow Aquifer

This involves determining the surface elevation of well logs (driller logs and electric logs), determining the base of the water bearing formation, plotting the data and contouring the information.

Altitude of the Water Table

This consists of measuring water levels in wells, determining the elevation of the wells, calculating the elevation of the water table, plotting the data and contouring the information.

Thickness of Saturated Sediments

This map is prepared by isopaching the base of the shallow aquifer and the water table map.

Pumping tests were run to determine the hydraulic coefficients of the aquifer in each of these areas and then calculations were run to determine the

demands of existing water rights on ground water in storage.

Other work performed in southeastern New Mexico involved determining chemical quality of ground water in certain areas and preparing reports. Investigation of ground water contamination was conducted by drilling a series of test holes for information regarding geological, hydrological and quality data. This data was evaluated in an effort to determine the source of contamination.

I also advised water users and other interested people in regard to well construction and gave technical advice on where to locate wells to get maximum yields and maximum life expectancies, when requested to do so. In addition to this, I supervised the construction of wells to ascertain that the proposed casing and cementing programs were adequate to insure protection of all fresh water zones.

Another major function of the Field Engineer is the preparation of exhibits for hearings or court cases and testifying as an expert witness on ground water hydrology and related matters.

Wright Consulting: July 1, 1986 - -

Retired from New Mexico State Engineer Office on May 31, 1986. Opened consulting business on July 1, 1986. Consulting business has been limited to hydrological investigations and related work; mostly in Lea County.

PARTIAL LIST OF REPORTS BY J.I. WRIGHT

Wright, 1955, Determining Horsepower from the Line Load: New Mexico State Engineer

Wright, 1957, Oil Field Pollution of W.H. Ellison's Water Supply in the Vicinity of Hobbs, New Mexico: New Mexico State Engineer

Galloway and Wright, 1958, Suggestions Relative to the Drilling and Development of a Municipal Water Well: New Mexico State Engineer

Wright, 1961, Status of Ground-Water Development in the Lea County Underground Water Basin, Lea, Chaves, and Eddy Counties, New Mexico: New Mexico State Engineer

Wright, 1963, Ground-Water Development in the Curry County Ground-Water Basin, Curry and Roosevelt Counties, New Mexico: New Mexico State Engineer

Wright, 1965, Disposal of Salt Water in the South Lane Pennsylvanian Pool: New Mexico State Engineer

Wright, 1965, Contamination of Fresh Water by the Oil Industry on the Fields Ranch in Lea County: New Mexico State Engineer

Wright, 1966, Lea County Underground Water Basin - Explanation of Inventory Sheets: New Mexico State Engineer

Galloway and Wright, 1968, Administration of Water Rights Portales Valley Underground Water Basin, New Mexico: New Mexico State Engineer

Wright, 1974, Estimate of Normal Consumptive Irrigation Water Requirements for Crops in Vicinity of Village of Cloudcroft, Otero County, New Mexico, based on climatic conditions observed at Cloudcroft Weather Stations, 1902 - 1973: New Mexico State Engineer

Wright, 1974, Estimate of Normal Consumptive Irrigation Water Requirements for Crops in Vicinity of Mayhill, Otero County, New Mexico, Based on Average Climatic Conditions Observed at Mayhill Ranger Station from 1917 - 1973: New Mexico State Engineer

Wright, 1974, Estimate of Normal Consumptive Irrigation Water Requirements for Crops in Vicinity of Elk, Otero County, New Mexico, Based on Average Climatic Conditions Observed at Elk Weather Station from 1904 - 1973: New Mexico State Engineer

Wright, 1979, Estimated Life Expectancy, in Years, of Shallow Ground-Water Supply in the Clovis - Portales Area of New Mexico, as of January, 1979: New Mexico State Engineer

Wright, 1979, Contamination of Fresh Ground-Water Supplies in Southeastern New Mexico: New Mexico State Engineer

Wright, 1986, Contamination of Fresh Ground-Water Supplies in Southeastern New Mexico: New Mexico State Engineer

CAMPBELL & BLACK, P.A.

LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
WILLIAM P. SLATTERY
PATRICIA A. MATTHEWS

JEFFERSON PLACE
SUITE 1 - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

February 23, 1990

HAND-DELIVERED

William J. LeMay, Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
State Land Office Building
Santa Fe, New Mexico 87503

RECEIVED

FEB 23 1990

OIL CONSERVATION DIV.
SANTA FE

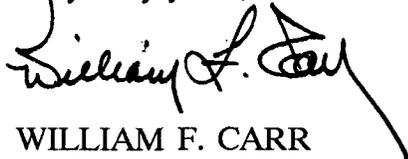
Case 9882

Re: Application of Controlled Recovery, Inc. for an Oil Treating Plant Permit,
and Surface Waste Disposal, Lea County, New Mexico

Dear Mr. LeMay:

Enclosed in triplicate is the above-referenced Application of Controlled Recovery, Inc. Controlled Recovery, Inc., respectfully requests that this matter be placed on the docket for the Examiner hearings scheduled on March 7, 1990.

Very truly yours,



WILLIAM F. CARR

WFC:mlh

Enclosures

cc w/enclosures: Mr. Jerry Sexton, Supervisor
and Oil and Gas Inspector
Post Office Box 1980
Hobbs, New Mexico 88240

David G. Boyer, Chief
Environmental Bureau
Oil Conservation Division
Santa Fe, New Mexico 87501

Mr. Ken Marsh
Controlled Recovery, Inc.

BEFORE THE
OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES

RECEIVED

IN THE MATTER OF THE APPLICATION OF
CONTROLLED RECOVERY, INC., FOR
AN OIL TREATING PLANT PERMIT,
AND SURFACE WASTE DISPOSAL,
LEA COUNTY, NEW MEXICO.

FEB 23 1990

OIL CONSERVATION DIV.
SANTA FE

CASE NO. 9882

**APPLICATION
FOR AN OIL TREATING PLANT PERMIT AND
SURFACE WASTE DISPOSAL**

CONTROLLED RECOVERY, INC. hereby makes application to the Oil Conservation Division for an oil treating plant permit and surface waste disposal, Lea County, New Mexico and in support thereof states:

1. Applicant is the owner of certain acreage in Lea County, New Mexico which is suitable for the surface disposal of oil field wastes. The President and local representative of Controlled Recovery, Inc. is Ken Marsh, Post Office Box 399, (5600 Carlsbad Highway), Hobbs, New Mexico 88240, (505) 393-1079.
2. This application is made pursuant to the provisions of Oil Conservation Division Rules 312 and 711.
3. The proposed location of this treating plant and surface waste disposal facility is in the S/2 N/2 and N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Attached hereto as Exhibit "A" are plats identifying the location of the proposed facility identifying all highways or roads going across to the

plant site and giving access to this facility, locations of all pits, skimmer ponds, all above and below grade tanks, and all water courses, water wells and dwellings within one mile of the site.

4. The type and capacity of the proposed facility is set forth in Exhibit "B" which is attached hereto. Numbers in Exhibit "B" correspond to the Section numbers contained in the Division's "Guidelines for Applications for Waste Storage/Disposal Pit Permits."

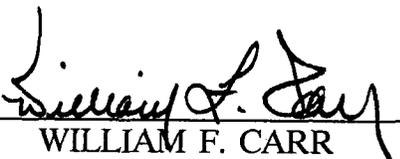
5. Diagrams of the facility are attached hereto as Exhibit "C" which show the location of all fences and cattleguards and contains detailed engineering construction and installation diagrams of any and all pits for solids and liquids disposal, dikes, piping, sprayers, and tanks on the facilities prepared in accordance with Division "Guidelines for Permit Application, Design and Construction of Waste Storage/Disposal Pits."

6. All operations at this facility including the reporting and clean-up of any spills, releases, routine inspection and maintenance of the facility, and closer of pits will be in accordance with Division Rules and Regulations.

WHEREFORE, Controlled Recovery, Inc. requests that this application be set for hearing before a duly appointed Examiner of the Oil Conservation Division on March 7, 1990, that notice be given as required by law and the rules of the Division, and that this application be approved.

Respectfully submitted,

CAMPBELL & BLACK, P.A.

By: 

WILLIAM F. CARR

Post Office Box 2208

Santa Fe, New Mexico 87504

Telephone: (505) 988-4421

ATTORNEYS FOR CONTROLLED
RECOVERY, INC.

"I hereby certify that I am familiar with the information contained in and submitted with this application and that such information is true, accurate, and complete to the best of my knowledge and belief."

Ken Marsh
(Signature)

2-22-90
(Date)

Ken Marsh
(Printed Name of Person Signing)

President
(Title)

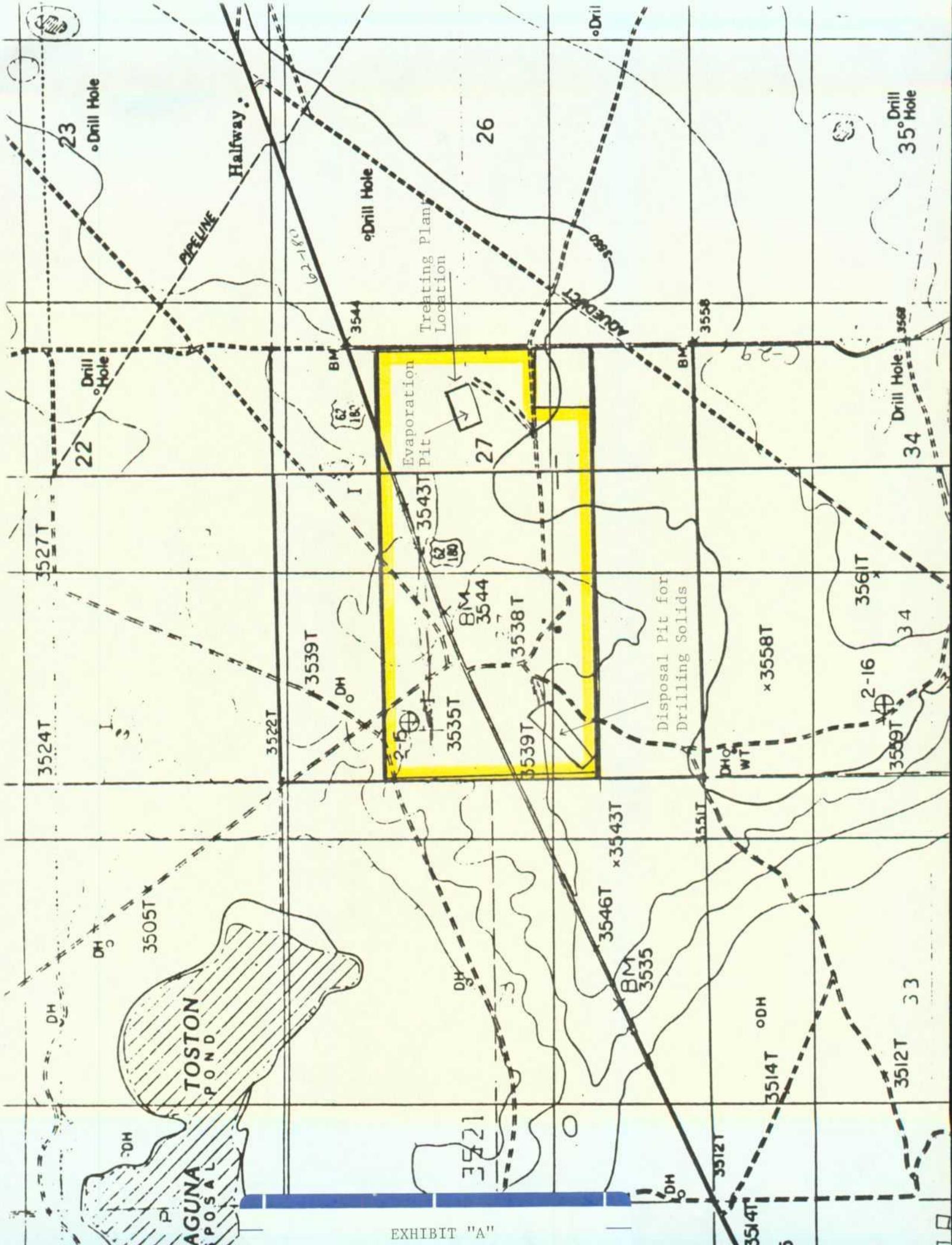
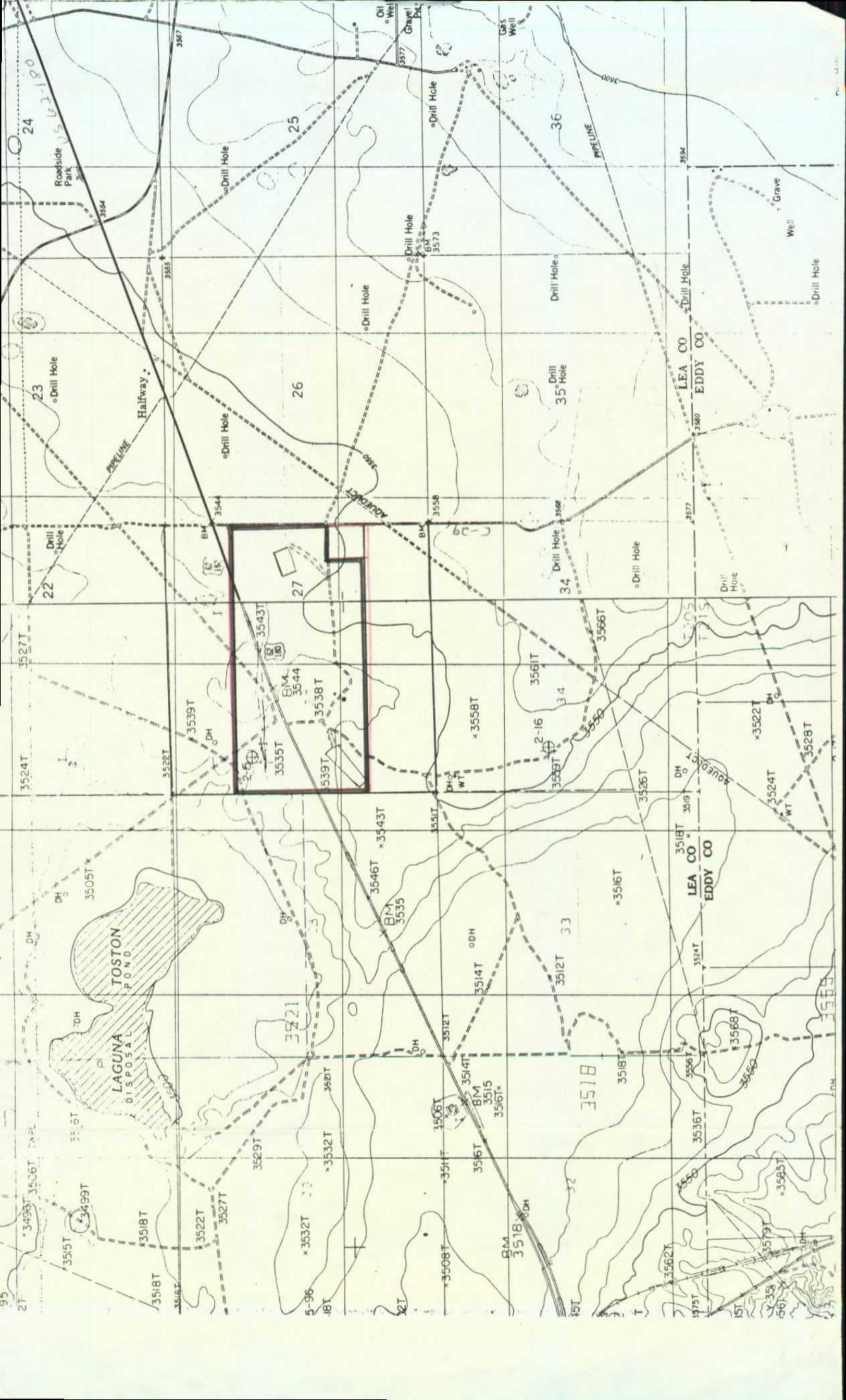


EXHIBIT "A"



B.1 All pits are below grade, no ruptures anticipated. Berm will be constructed around settling tanks and oil storage tanks.

Notification on any leaks will be reported to O.C.D. if they occur. No leak detection planned other than observation.

C. Closure Plan:

As required by EID & EPA

E. Skimmer Tanks

Tanks will receive all fluids & separation of hydrocarbons will be accomplished by gravity separation. No hydrocarbons will be discharged into evaporation pit. Oil recovered from skimmer tank will be transferred to oil storage tanks and processed through heater treater and stored in sales tanks. Plan is that neither storage nor sales tanks will be over 1/2 full before removed by sales or treatment.

F. Facility will be fenced per O.C.D. requirements. Signs will be lettered and contain all information required by O.C.D. and kept in good condition.

G. Below grade pits, settling tanks and oil storage tanks will be inspected at least twice weekly and observed daily.

H. H2S detection will be located in close proximity to settling tanks.

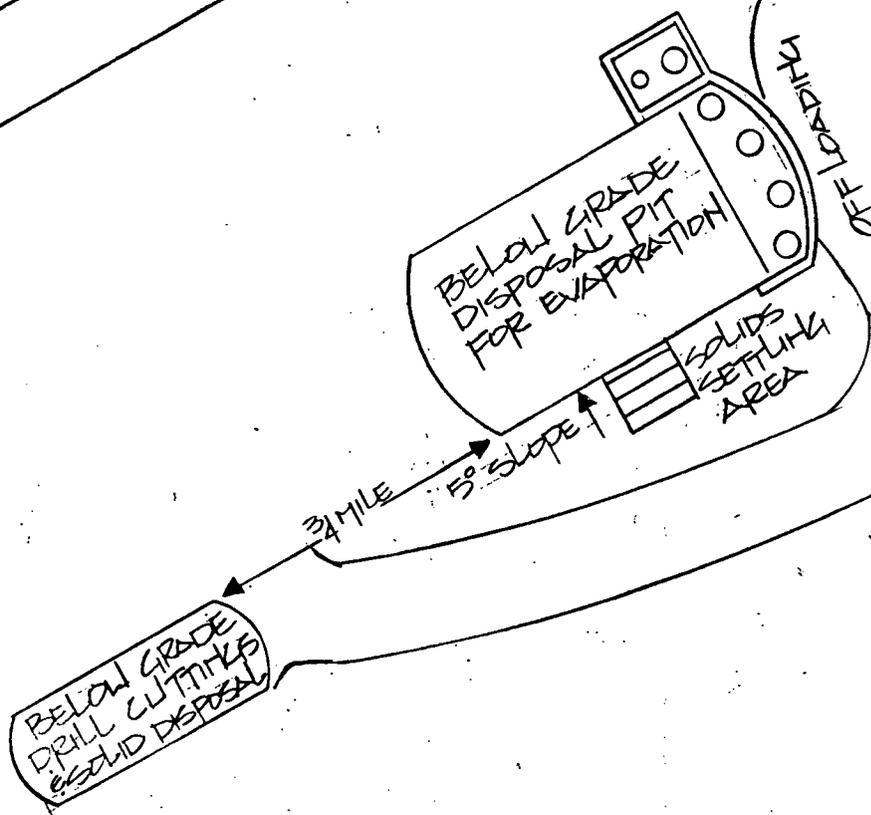
- I (C) Facility location: All of S/2 N/2, N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico except for a 20-acre tract situated in the NE/4 SE/4 fully described in page 3 of Exhibit B to this application.
- (D) This facility will receive produced water, water from water flows, reverse pit liquids and solids, reserve pit liquids and solids, drilling liquids and solids, sediment oil, saturated soils, and other oilfield products or wastes. Process fluid thru settling, skimming tanks and dispose hydrocarbons free fluids in an unlined below grade surface pit for evaporation. Drill cuttings will be disposed in unlined below grade surface pits. The drilling solids will be recovered from drying ramps and disposed of in the solids pit. Sediment oil will be treated chemically and through heater treater.
- II A.1 Sec. 1D, the capacity of the facility is dependent upon the amount of incoming product.
- A.2 (a) Three 400 barrel settling tanks for gravity separation of hydrocarbons from water. Hydrocarbon free water to be discharged into below grade unlined evaporation pit. No leak detection system to be installed. Retaining dike will be constructed around settling tanks and oil storage tanks.
- (b) Drying ramps will be separate from liquid facility. Sloped drying ramps with solids retention system will be used to recover solids from drilling fluids. Solids will be removed and disposed of in below grade surface pit.

DESCRIPTION

A tract of land situated in the Northeast Quarter of the Southeast Quarter (NE $\frac{1}{4}$ SE $\frac{1}{4}$) of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico, being more particularly described as follows:

Beginning at a point which lies S89°54'13"W 60.00 feet from the Southeast Corner of the Northeast Quarter of the Southeast Quarter of said Section 27, said point being on the West right-of-way of a County Road; thence N00°01'W 933.38 feet along said right-of-way; thence S89°54'13"W 933.38 feet; thence S00°01'E 933.38 feet; thence N89°54'13"E 933.38 feet to the point of beginning, containing 20.00 acres, more or less.

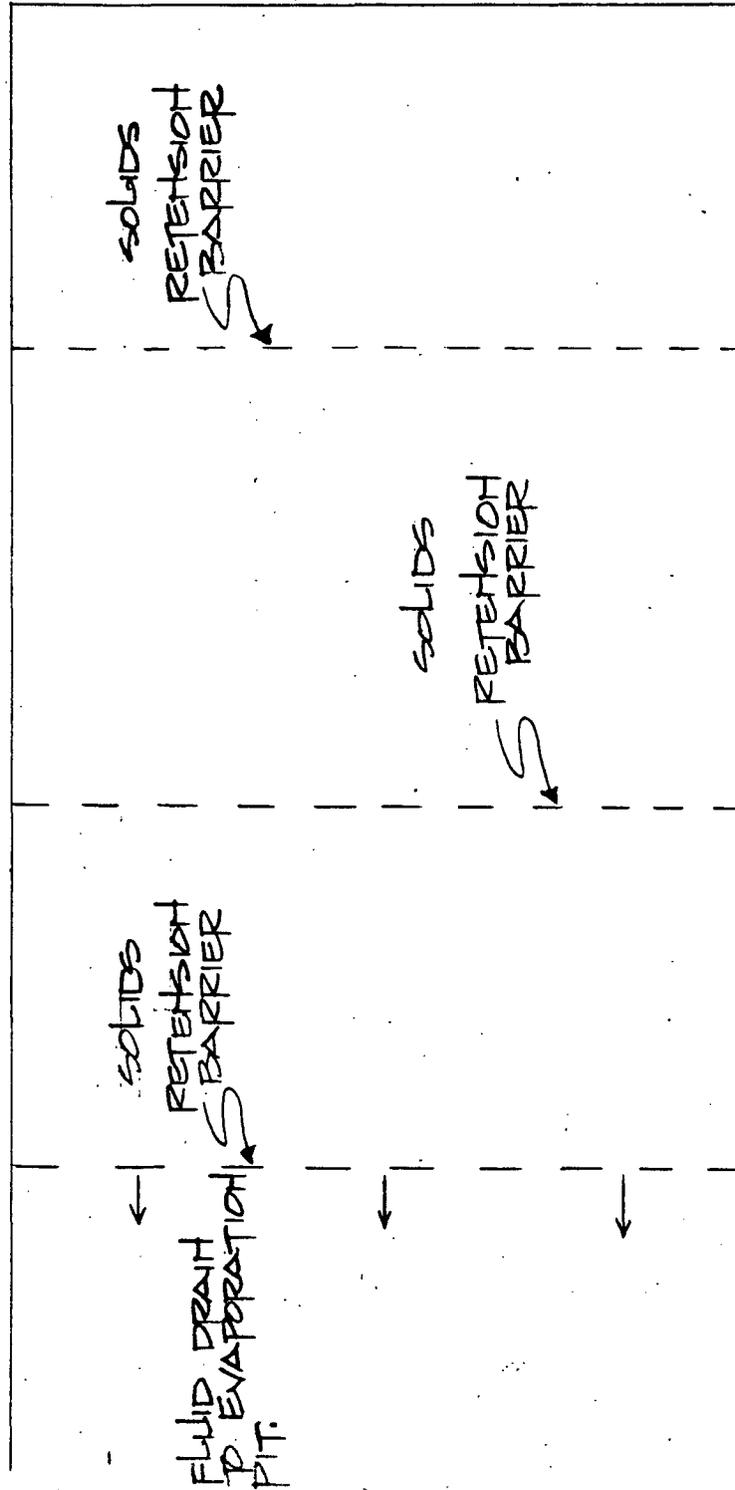
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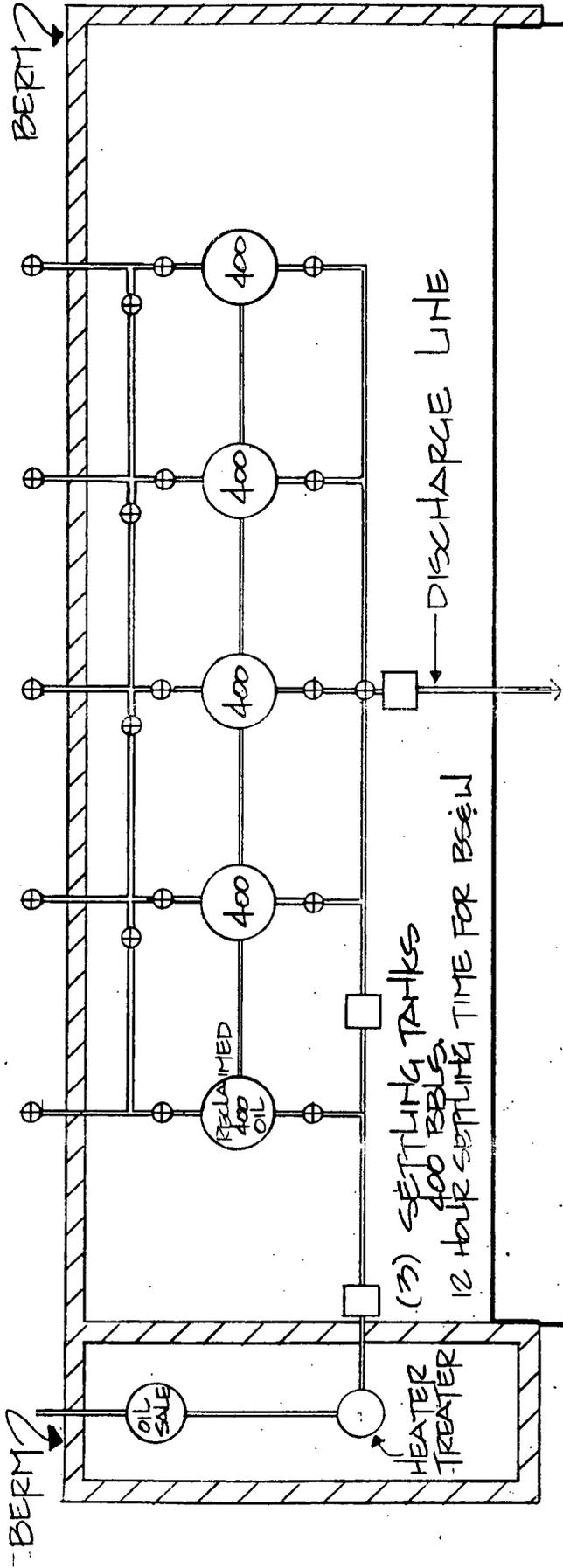
C-29

EXHIBIT "C"

SETTLING RAMP FOR DRILLING SOLIDS
INDUSTRY STANDARD DESIGN



OFF LOADING AREA



(3) SETTLING TANKS
400 BBL'S
12 HOUR SETTLING TIME FOR B&W

EVAPORATION PIT AREA

LEGEND

□	- PUMPS
—	- PIPE
⊕	- VALVES

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

RECEIVED

FEB 23 1990

IN THE MATTER OF THE APPLICATION OF
CONTROLLED RECOVERY, INC., FOR
AN OIL TREATING PLANT PERMIT,
AND SURFACE WASTE DISPOSAL,
LEA COUNTY, NEW MEXICO.

OIL CONSERVATION DIV.
SANTA FE

CASE NO. 9882

APPLICATION
FOR AN OIL TREATING PLANT PERMIT AND
SURFACE WASTE DISPOSAL

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plant site and giving access to this facility, locations of all pits, skimmer ponds, all above and below grade tanks, and all water courses, water wells and dwellings within one mile of the site.

4. The type and capacity of the proposed facility is set forth in Exhibit "B" which is attached hereto. Numbers in Exhibit "B" correspond to the Section numbers contained in the Division's "Guidelines for Applications for Waste Storage/Disposal Pit Permits."

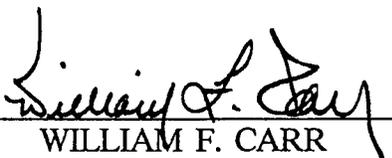
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Respectfully submitted,

CAMPBELL & BLACK, P.A.

By: 
WILLIAM F. CARR

Post Office Box 2208

Santa Fe, New Mexico 87504

Telephone: (505) 988-4421

ATTORNEYS FOR CONTROLLED
RECOVERY, INC.

"I hereby certify that I am familiar with the information contained in and submitted with this application and that such information is true, accurate, and complete to the best of my knowledge and belief."

Ken Marsh
(Signature)

2-22-90
(Date)

Ken Marsh
(Printed Name of Person Signing)

President
(Title)

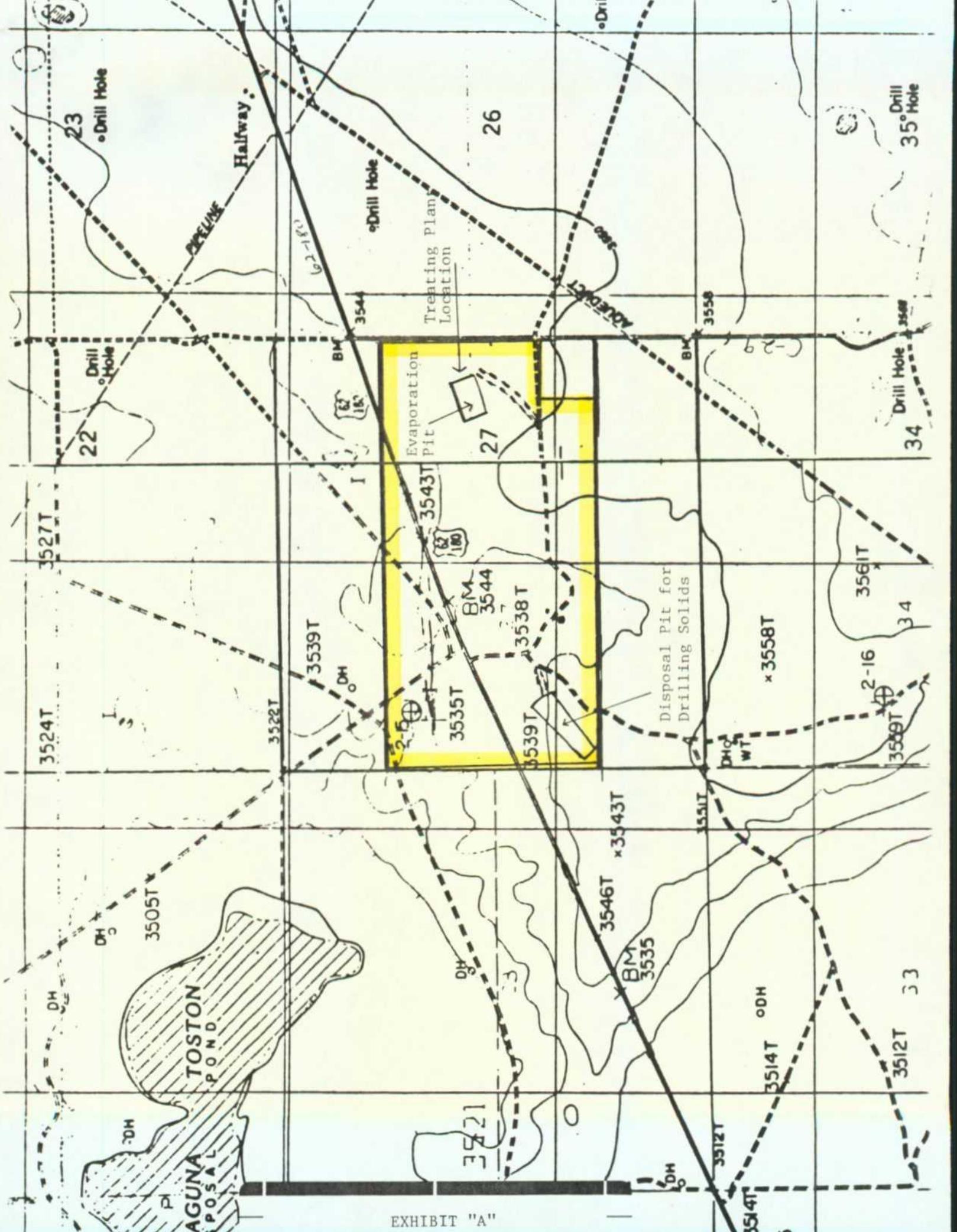
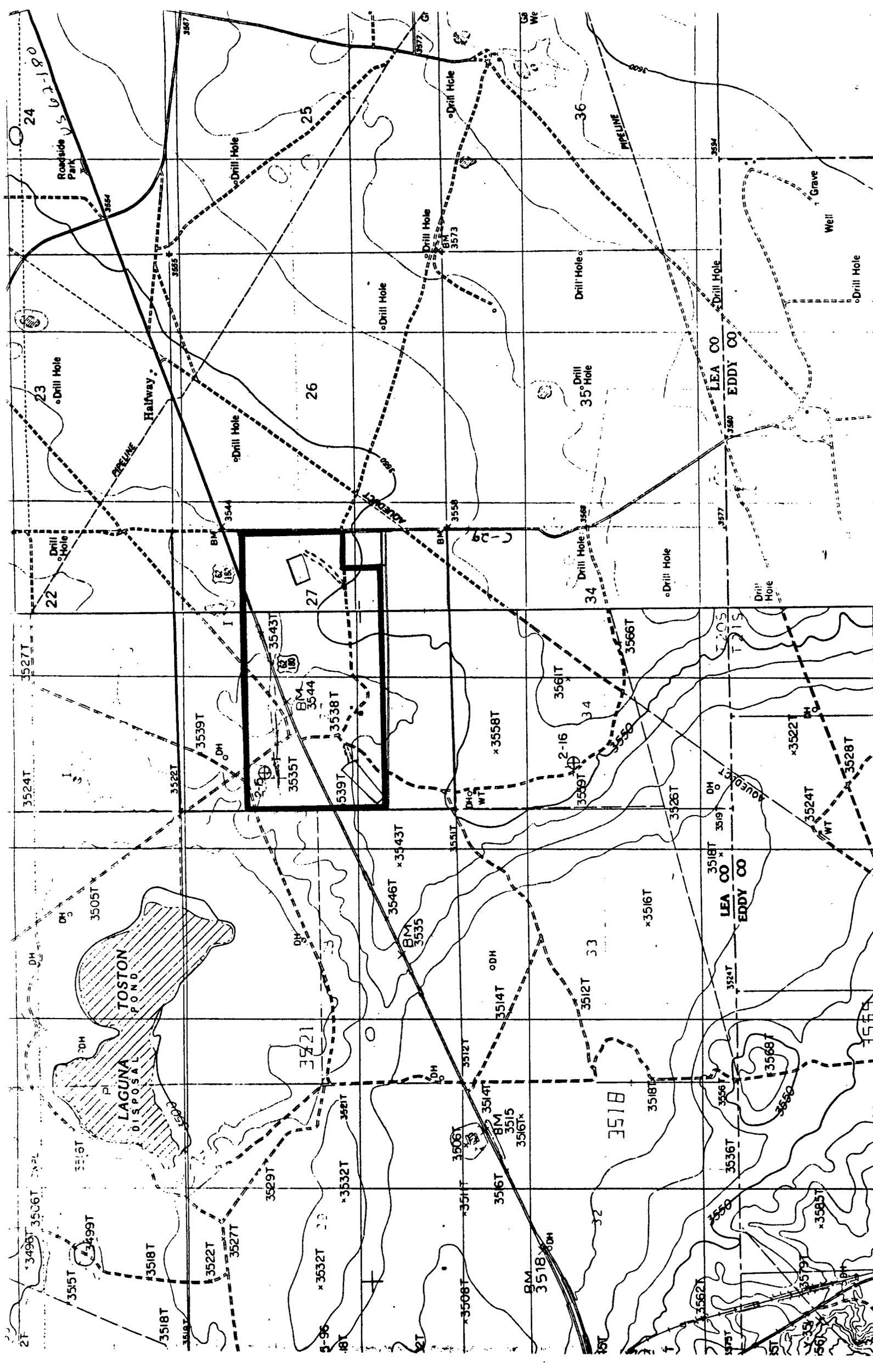


EXHIBIT "A"



TOSTON POND
LAGUNA DISPOSAL POND

LEA CO
EDDY CO

KORREKT

Halfway

PIPE LINE

ROADSIDE PARK

Well
Grave

3524T, 3527T, 3528T, 3529T, 3530T, 3531T, 3532T, 3533T, 3534T, 3535T, 3536T, 3537T, 3538T, 3539T, 3540T, 3541T, 3542T, 3543T, 3544T, 3545T, 3546T, 3547T, 3548T, 3549T, 3550T, 3551T, 3552T, 3553T, 3554T, 3555T, 3556T, 3557T, 3558T, 3559T, 3560T, 3561T, 3562T, 3563T, 3564T, 3565T, 3566T, 3567T, 3568T, 3569T, 3570T, 3571T, 3572T, 3573T, 3574T, 3575T, 3576T, 3577T, 3578T, 3579T, 3580T, 3581T, 3582T, 3583T, 3584T, 3585T, 3586T, 3587T, 3588T, 3589T, 3590T, 3591T, 3592T, 3593T, 3594T, 3595T, 3596T, 3597T, 3598T, 3599T, 3600T

B.1 All pits are below grade, no ruptures anticipated. Berm will be constructed around settling tanks and oil storage tanks.

Notification on any leaks will be reported to O.C.D. if they occur. No leak detection planned other than observation.

C. Closure Plan:

As required by EID & EPA

E. Skimmer Tanks

Tanks will receive all fluids & separation of hydrocarbons will be accomplished by gravity separation. No hydrocarbons will be discharged into evaporation pit. Oil recovered from skimmer tank will be transferred to oil storage tanks and processed through heater treater and stored in sales tanks. Plan is that neither storage nor sales tanks will be over 1/2 full before removed by sales or treatment.

F. Facility will be fenced per O.C.D. requirements. Signs will be lettered and contain all information required by O.C.D. and kept in good condition.

G. Below grade pits, settling tanks and oil storage tanks will be inspected at least twice weekly and observed daily.

H. H₂S detection will be located in close proximity to settling tanks.

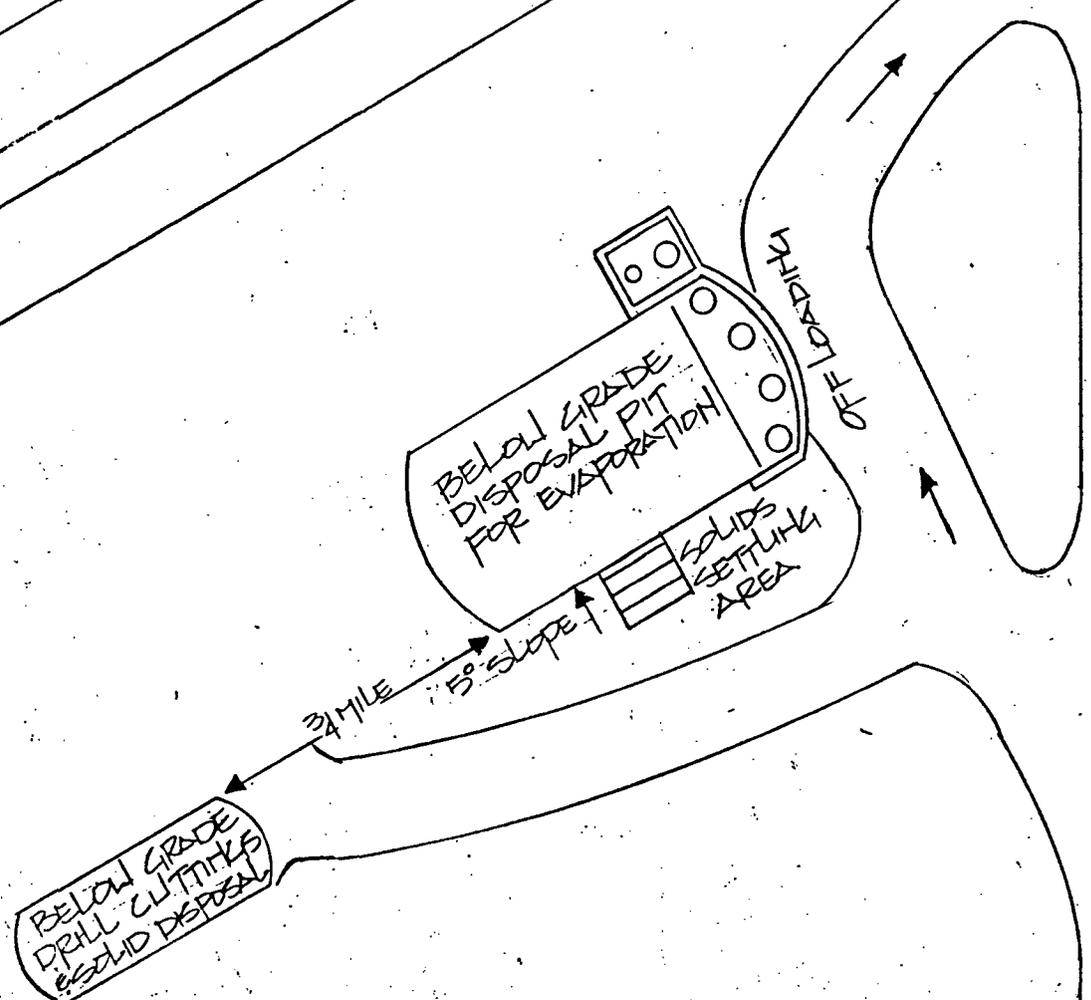
- I (C) Facility location: All of S/2 N/2, N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico except for a 20-acre tract situated in the NE/4 SE/4 fully described in page 3 of Exhibit B to this application.
- (D) This facility will receive produced water, water from water flows, reverse pit liquids and solids, reserve pit liquids and solids, drilling liquids and solids, sediment oil, saturated soils, and other oilfield products or wastes. Process fluid thru settling, skimming tanks and dispose hydrocarbons free fluids in an unlined below grade surface pit for evaporation. Drill cuttings will be disposed in unlined below grade surface pits. The drilling solids will be recovered from drying ramps and disposed of in the solids pit. Sediment oil will be treated chemically and through heater treater.
- II A.1 Sec. 1D, the capacity of the facility is dependent upon the amount of incoming product.
- A.2 (a) Three 400 barrel settling tanks for gravity separation of hydrocarbons from water. Hydrocarbon free water to be discharged into below grade unlined evaporation pit. No leak detection system to be installed. Retaining dike will be constructed around settling tanks and oil storage tanks.
- (b) Drying ramps will be separate from liquid facility. Sloped drying ramps with solids retention system will be used to recover solids from drilling fluids. Solids will be removed and disposed of in below grade surface pit.

DESCRIPTION

A tract of land situated in the Northeast Quarter of the Southeast Quarter (NE $\frac{1}{4}$ SE $\frac{1}{4}$) of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico, being more particularly described as follows:

Beginning at a point which lies S89°54'13"W 60.00 feet from the Southeast Corner of the Northeast Quarter of the Southeast Quarter of said Section 27, said point being on the West right-of-way of a County Road; thence N00°01'W 933.38 feet along said right-of-way; thence S89°54'13"W 933.38 feet; thence S00°01'E 933.38 feet; thence N89°54'13"E 933.38 feet to the point of beginning, containing 20.00 acres, more or less.

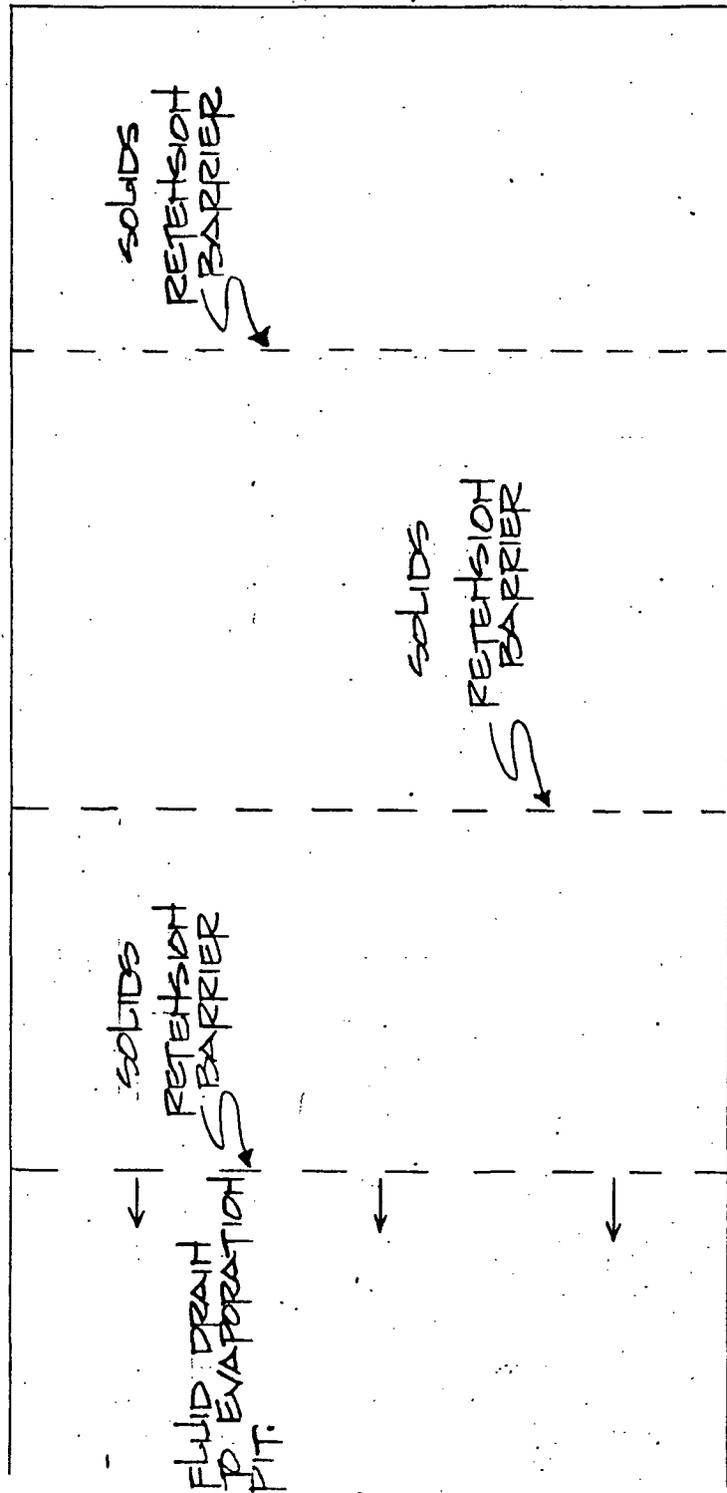
US-62-180



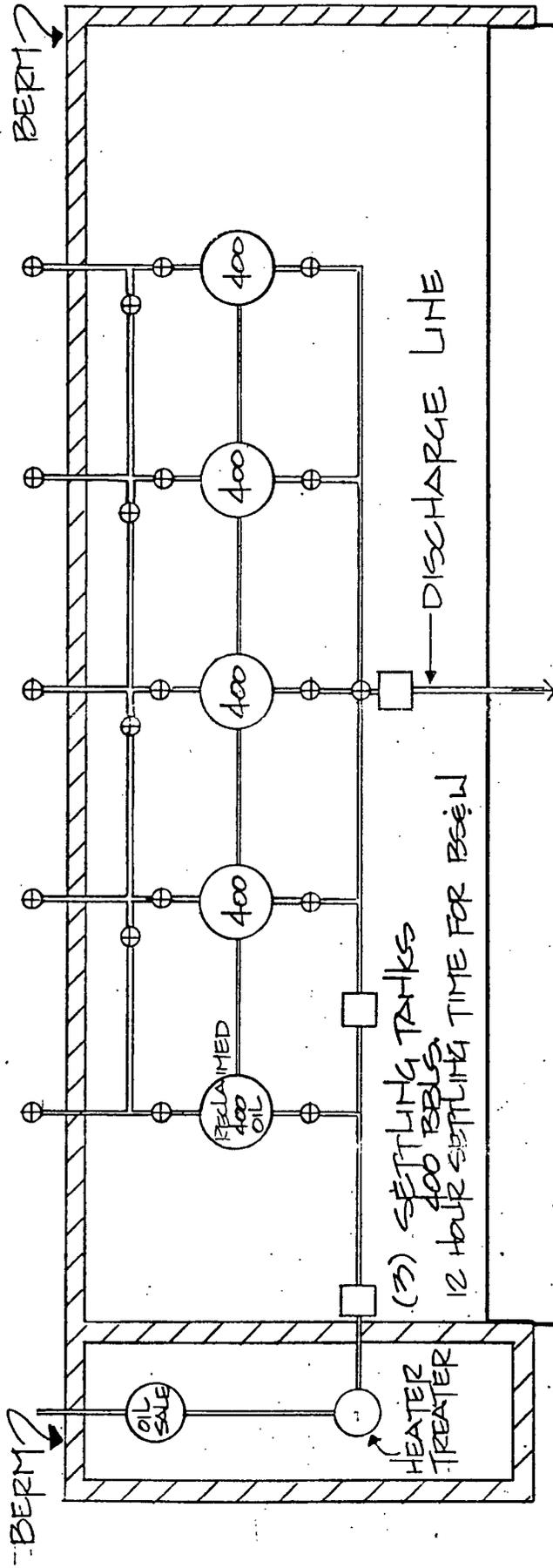
C-29

EXHIBIT "C"

SETTLING RAMP FOR DRILLING SOLIDS
INDUSTRY STANDARD DESIGN



OFF LOADING AREA



EVAPORATION PIT AREA

LEGEND

□	- PUMPS
—	- PIPE
⊕	- VALVES

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

RECEIVED

IN THE MATTER OF THE APPLICATION OF
CONTROLLED RECOVERY, INC., FOR
AN OIL TREATING PLANT PERMIT,
AND SURFACE WASTE DISPOSAL,
LEA COUNTY, NEW MEXICO.

FEB 23 1990

OIL CONSERVATION DIV.
SANTA FE

CASE NO. _____

**APPLICATION
FOR AN OIL TREATING PLANT PERMIT AND
SURFACE WASTE DISPOSAL**

CONTROLLED RECOVERY, INC. hereby makes application to the Oil Conservation Division for an oil treating plant permit and surface waste disposal, Lea County, New Mexico and in support thereof states:

1. Applicant is the owner of certain acreage in Lea County, New Mexico which is suitable for the surface disposal of oil field wastes. The President and local representative of Controlled Recovery, Inc. is Ken Marsh, Post Office Box 399, (5600 Carlsbad Highway), Hobbs, New Mexico 88240, (505) 393-1079.

2. This application is made pursuant to the provisions of Oil Conservation Division Rules 312 and 711.

3. The proposed location of this treating plant and surface waste disposal facility is in the S/2 N/2 and N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico. Attached hereto as Exhibit "A" are plats identifying the location of the proposed facility identifying all highways or roads going across to the

plant site and giving access to this facility, locations of all pits, skimmer ponds, all above and below grade tanks, and all water courses, water wells and dwellings within one mile of the site.

4. The type and capacity of the proposed facility is set forth in Exhibit "B" which is attached hereto. Numbers in Exhibit "B" correspond to the Section numbers contained in the Division's "Guidelines for Applications for Waste Storage/Disposal Pit Permits."

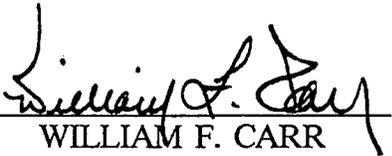
5. Diagrams of the facility are attached hereto as Exhibit "C" which show the location of all fences and cattleguards and contains detailed engineering construction and installation diagrams of any and all pits for solids and liquids disposal, dikes, piping, sprayers, and tanks on the facilities prepared in accordance with Division "Guidelines for Permit Application, Design and Construction of Waste Storage/Disposal Pits."

6. All operations at this facility including the reporting and clean-up of any spills, releases, routine inspection and maintenance of the facility, and closer of pits will be in accordance with Division Rules and Regulations.

WHEREFORE, Controlled Recovery, Inc. requests that this application be set for hearing before a duly appointed Examiner of the Oil Conservation Division on March 7, 1990, that notice be given as required by law and the rules of the Division, and that this application be approved.

Respectfully submitted,

CAMPBELL & BLACK, P.A.

By: 
WILLIAM F. CARR

Post Office Box 2208

Santa Fe, New Mexico 87504

Telephone: (505) 988-4421

ATTORNEYS FOR CONTROLLED
RECOVERY, INC.

"I hereby certify that I am familiar with the information contained in and submitted with this application and that such information is true, accurate, and complete to the best of my knowledge and belief."

Ken Marsh
(Signature)

2-22-90
(Date)

Ken Marsh
(Printed Name of Person Signing)

President
(Title)

B.1 All pits are below grade, no ruptures anticipated. Berm will be constructed around settling tanks and oil storage tanks.

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As required by EID & EPA

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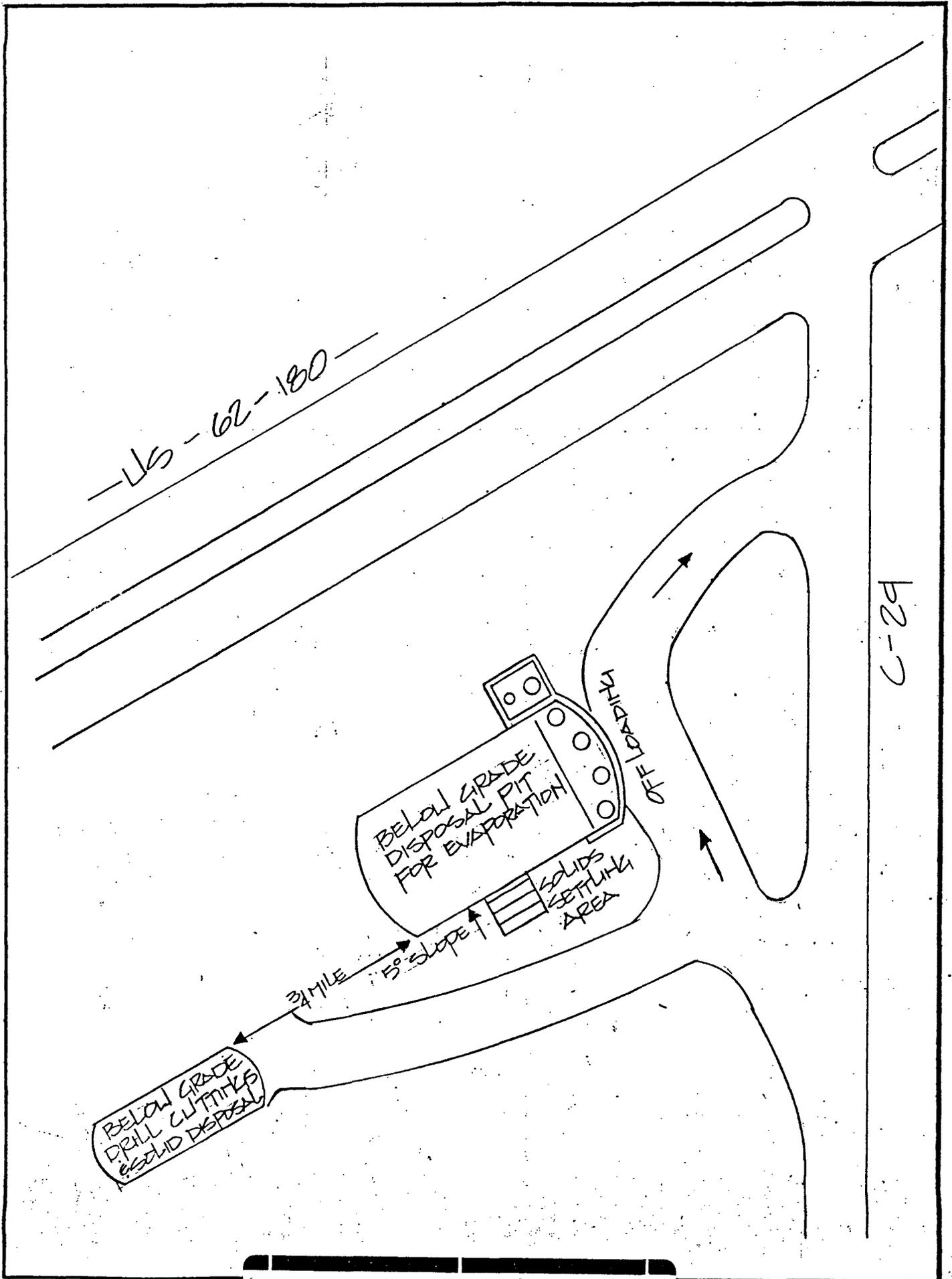
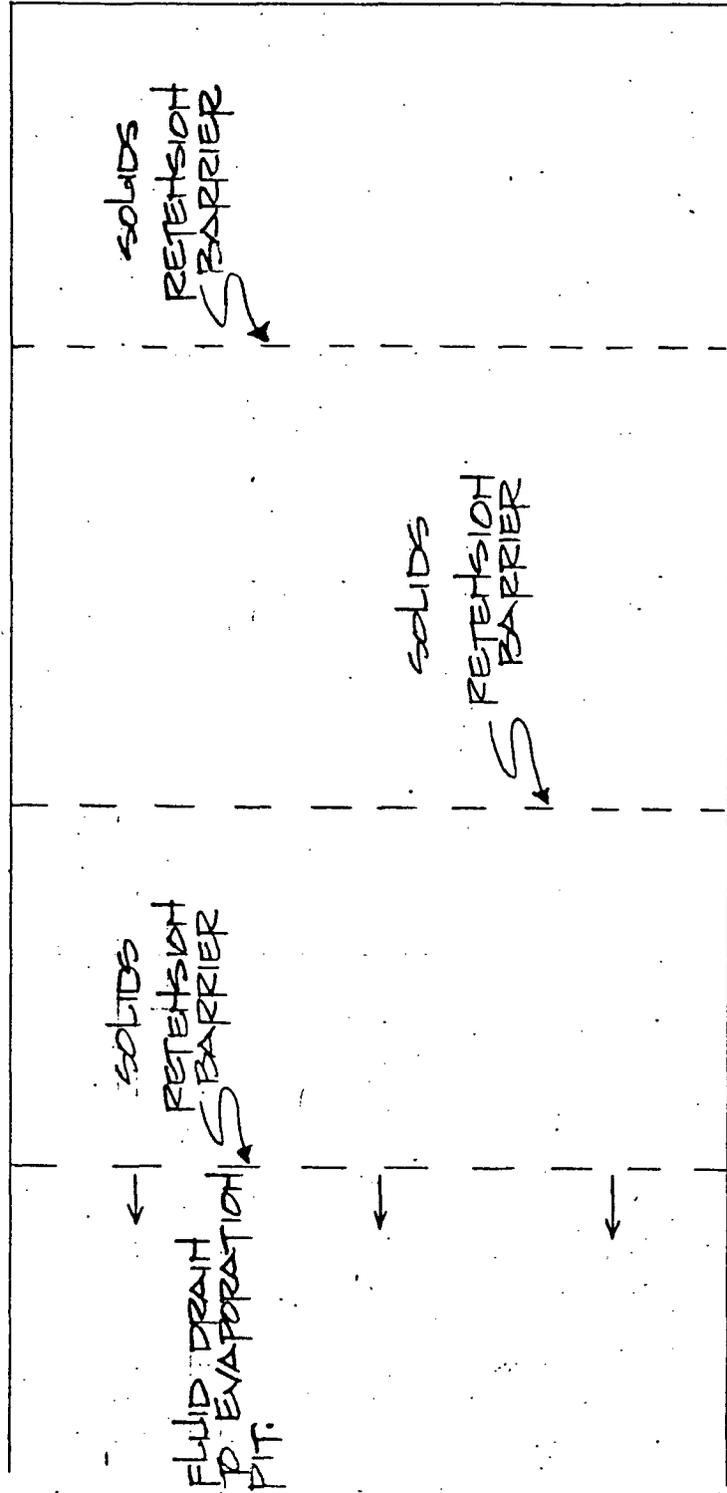
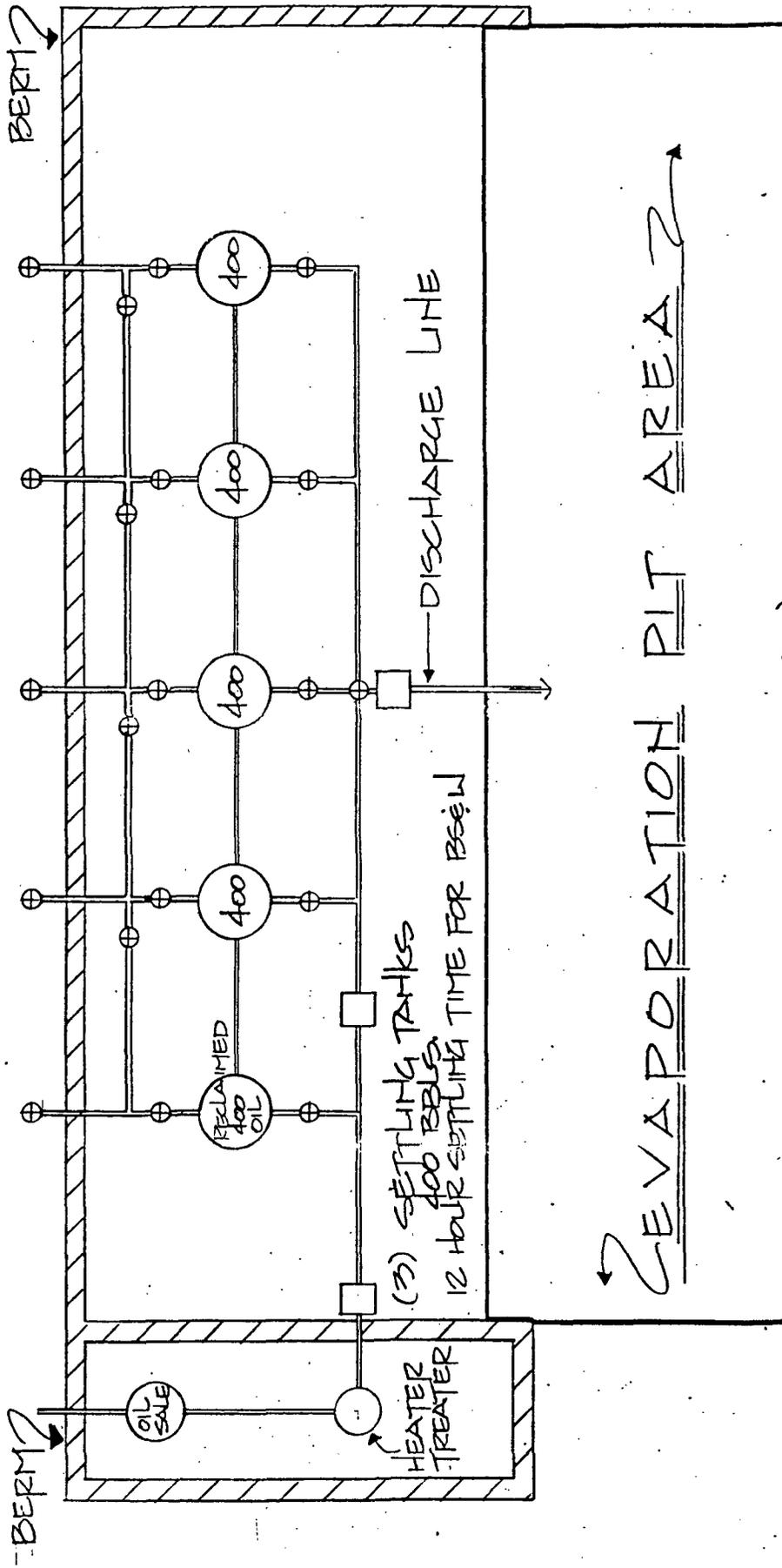


EXHIBIT "C"

SETTLING RAMP FOR DRILLING SOLIDS
INDUSTRY STANDARD DESIGN



OFF LOADING AREA



LEGEND

- - PUMPS
- ≡ - PIPE
- ⊕ - VALVES

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

CASE 9881

CASE 9882

CASE 9884

CASE 9885

EXAMINER HEARING

CONTINUED AND DISMISSED CASES

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

March 7, 1990

A P P E A R A N C E S

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FOR THE DIVISION:

ROBERT G. STOVALL
Attorney at Law
Legal Counsel to the Divison
State Land Office Building
Santa Fe, New Mexico

1 EXAMINER CATANACH: Call this hearing to
2 order this morning for Docket No. 7-90. First off
3 we'll call the continuances and dismissals.

4 Call Case 9881.

5 MR. STOVALL: Application of Richmond
6 Petroleum, Inc., for an unorthodox coal gas well
7 location Rio Arriba County, New Mexico.

8 This case will be continued and
9 readvertised for March 21, 1990.

10 EXAMINER CATANACH: Case 9881 is hereby
11 continued to the March 21st docket.

12 * * * * *

13 EXAMINER CATANACH: Call Case 9819.

14 MR. STOVALL: Application of Blackwood and
15 Nichols, Ltd., for compulsory pooling and an
16 unorthodox gas well location, San Juan and Rio Arriba
17 Counties, New Mexico.

18 Applicant requests this case be dismissed.

19 EXAMINER CATANACH: Case 9819 is hereby
20 dismissed.

21 * * * * *

22 EXAMINER CATANACH: Call Case 9882.

23 MR. STOVALL: Application of Controlled
24 Recovery, Inc., for an oil treating plant permit and
25 for surface waste disposal, Lea County, New Mexico.

1 Applicant requests this case be continued
2 and readvertised to March 21, 1990.

3 EXAMINER CATANACH: Case 9882 is hereby
4 continued to the March 21st docket.

5 * * * * *

6 EXAMINER CATANACH: Call Case 9884.

7 MR. STOVALL: Application of OXY USA, Inc.,
8 for compulsory pooling, a nonstandard gas proration
9 unit and simultaneous dedication, Lea County, New
10 Mexico.

11 Applicant requests this case be continued
12 to March 21st.

13 EXAMINER CATANACH: Case 9884 is hereby
14 continued to the March 21st docket.

15 * * * * *

16 EXAMINER CATANACH: Call Case 9885.

17 MR. STOVALL: Application of Doyle Hartman
18 for compulsory pooling, a nonstandard gas proration
19 unit and simultaneous dedication, Lea County, New
20 Mexico.

21 Applicant has now requested that this case
22 be continued to March 21, 1990.

23 EXAMINER CATANACH: Case 9885 is hereby
24 continued to the March 21st docket.

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CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Carla Diane Rodriguez, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL March 8, 1990.

Carla Diane Rodriguez
CARLA DIANE RODRIGUEZ
CSR No. 91



My commission expires: May 25, 1991

I do hereby certify that the foregoing is a complete record of the proceedings in the Examining hearing of Case No. 9802, heard by me on March 7 1990.

David R. Cabant, Examiner
Oil Conservation Division

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

CASE 9882, CASE 9888, CASE 9889, CASE 9892
CASE 9893, CASE 9881, CASE 9894, CASE 9895
CASE 9897, CASE 9898, CASE 9884, CASE 9885

EXAMINER HEARING

IN THE MATTER OF:

CONTINUED AND DISMISSED CASES

TRANSCRIPT OF PROCEEDINGS

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

March 21, 1990

ORIGINAL

CUMBRE COURT REPORTING
(505) 984-2244

A P P E A R A N C E S

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FOR THE DIVISION:

ROBERT G. STOVALL
Attorney at Law
Legal Counsel to the Divison
State Land Office Building
Santa Fe, New Mexico

1 EXAMINER STOGNER: This hearing will come
2 to order for Docket 9-90. Today is March 21, 1990.
3 I'm Michael E. Stogner, appointed hearing officer for
4 today's cases. I call all the continued and dismissed
5 cases at this time. First I'll call Case No. 9882.

6 MR. STOVALL: Application of Controlled
7 Recovery, Inc., for an oil treating plant permit, for
8 surface water disposal, and an exception to Order No.
9 R-3221, Lea County, New Mexico.

10 Applicant requests this case be continued
11 to April 4, 1990.

12 EXAMINER STOGNER: Case No. 9882 will be so
13 continued.

14 * * * * *

15 EXAMINER STOGNER: Call next case, No.
16 9888.

17 MR. STOVALL: Application of Conoco, Inc.,
18 for compulsory pooling, Lea County, New Mexico.

19 Applicant requests this case be continued
20 to April 4, 1990.

21 EXAMINER STOGNER: Case No. 9888 will be so
22 continued.

23 * * * * *

24 EXAMINER STOGNER: Call next case, No.
25 9889.

1 MR. STOVALL: Application of Meridian Oil,
2 Inc., for temporary well testing allowable for certain
3 wells in the Parkway-Delaware Pool, Eddy County, New
4 Mexico.

5 Applicant requests this case be continued
6 to April 18, 1990.

7 EXAMINER STOGNER: Case No. 9889 will be so
8 continued.

9 * * * * *

10 EXAMINER STOGNER: Second page. I'll call
11 Case No. 9892.

12 MR. STOVALL: Application of Pacific
13 Enterprises Oil Company (USA) for compulsory pooling,
14 Eddy County, New Mexico.

15 Applicant requests this case be dismissed.

16 EXAMINER STOGNER: Case No. 9892 will be
17 dismissed.

18 * * * * *

19 EXAMINER STOGNER: Call next case, No.
20 9893.

21 MR. STOVALL: Application of Pacific
22 Enterprises Oil Company (USA) for compulsory pooling,
23 Eddy County, New Mexico.

24 Applicant requests this case be continued
25 to April 4, 1990.

1 EXAMINER STOGNER: Case No. 9893 will be so
2 continued.

3 * * * * *

4 EXAMINER STOGNER: Call next case, No.
5 9881.

6 MR. STOVALL: Application of Richmond
7 Petroleum, Inc., for compulsory pooling, unorthodox
8 coal gas well location, and a non-standard gas spacing
9 and proration unit, San Juan and Rio Arriba Counties,
10 New Mexico.

11 Applicant requests this case be continued
12 to April 4, 1990.

13 EXAMINER STOGNER: Case No. 9881 will be so
14 continued.

15 * * * * *

16 EXAMINER STOGNER: Call next case, No.
17 9894.

18 MR. STOVALL: Application of Richmond
19 Petroleum, Inc., for compulsory pooling, unorthodox
20 coal gas well location, and a non-standard gas spacing
21 and proration unit, San Juan and Rio Arriba Counties,
22 New Mexico.

23 Applicant requests this case be continued
24 to April 4, 1990.

25 EXAMINER STOGNER: Case No. 9894 will be so

1 continued.

2 * * * * *

3 EXAMINER STOGNER: Call next case, No.
4 9895.

5 MR. STOVALL: Application of Richmond
6 Petroleum, Inc., for compulsory pooling and an
7 unorthodox coal gas well location, San Juan and Rio
8 Arriba Counties, New Mexico.

9 Applicant requests this case be continued
10 to April 4, 1990.

11 EXAMINER STOGNER: Case No. 9895 will be so
12 continued.

13 * * * * *

14 EXAMINER STOGNER: Call next case, No.
15 9897.

16 MR. STOVALL: Application of Siete Oil &
17 Gas Corporation for a waterflood project, Eddy County,
18 New Mexico.

19 Applicant requests this case be continued
20 to April 4, 1990.

21 EXAMINER STOGNER: Case No. 9897 will be so
22 continued.

23 * * * * *

24 EXAMINER STOGNER: Call next case, No.
25 9898.

1 MR. STOVALL: Application of Doyle Hartman
2 for compulsory pooling, a non-standard gas proration
3 unit and simultaneous dedication, Lea County, New
4 Mexico.

5 Applicant requests this case be continued
6 to April 4, 1990.

7 EXAMINER STOGNER: Case No. 9898 will be so
8 continued.

9 * * * * *

10 EXAMINER STOGNER: Call next case, No.
11 9884.

12 MR. STOVALL: Application of OXY USA, Inc.,
13 for compulsory pooling, non-standard gas proration
14 unit and simultaneous dedication, Lea County, New
15 Mexico.

16 Applicant requests this case be dismissed.

17 EXAMINER STOGNER: Case 9884 will be
18 dismissed.

19 * * * * *

20 EXAMINER STOGNER: Call next case, No.
21 9885.

22 MR. STOVALL: Application of Doyle Hartman
23 for compulsory pooling, a non-standard gas proration
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25 Mexico.

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Applicant requests this case be continued
to April 4, 1990.

EXAMINER STOGNER: Case No. 9885 will be so
continued.

CERTIFICATE OF REPORTER

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) ss.

COUNTY OF SANTA FE)

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Carla Diane Rodriguez
CARLA DIANE RODRIGUEZ
CSR No. 91



My commission expires: May 25, 1991

I do hereby certify that the foregoing is a complete record of the proceedings in the Examinor hearing of Case No. 9802, heard by me on 21 March 1990.
Michael B. Higgins Examiner
Oil Conservation Division

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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
CASE 9882, CASE 9888, CASE 9889, CASE 9892
CASE 9893, CASE 9881, CASE 9894, CASE 9895
CASE 9897, CASE 9898, CASE 9884, CASE 9885

EXAMINER HEARING

IN THE MATTER OF:

CONTINUED AND DISMISSED CASES

TRANSCRIPT OF PROCEEDINGS

BEFORE: MICHAEL E. STOGNER, EXAMINER

STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

March 21, 1990

A P P E A R A N C E S

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8 continued.

9 * * * * *

10 EXAMINER STOGNER: Second page. I'll call
11 Case No. 9892.

12 MR. STOVALL: Application of Pacific
13 Enterprises Oil Company (USA) for compulsory pooling,
14 Eddy County, New Mexico.

15 Applicant requests this case be dismissed.

16 EXAMINER STOGNER: Case No. 9892 will be
17 dismissed.

18 * * * * *

19 EXAMINER STOGNER: Call next case, No.
20 9893.

21 MR. STOVALL: Application of Pacific
22 Enterprises Oil Company (USA) for compulsory pooling,
23 Eddy County, New Mexico.

24 Applicant requests this case be continued
25 to April 4, 1990.

1 EXAMINER STOGNER: Case No. 9893 will be so
2 continued.

3 * * * * *

4 EXAMINER STOGNER: Call next case, No.
5 9881.

6 MR. STOVALL: Application of Richmond
7 Petroleum, Inc., for compulsory pooling, unorthodox
8 coal gas well location, and a non-standard gas spacing
9 and proration unit, San Juan and Rio Arriba Counties,
10 New Mexico.

11 Applicant requests this case be continued
12 to April 4, 1990.

13 EXAMINER STOGNER: Case No. 9881 will be so
14 continued.

15 * * * * *

16 EXAMINER STOGNER: Call next case, No.
17 9894.

18 MR. STOVALL: Application of Richmond
19 Petroleum, Inc., for compulsory pooling, unorthodox
20 coal gas well location, and a non-standard gas spacing
21 and proration unit, San Juan and Rio Arriba Counties,
22 New Mexico.

23 Applicant requests this case be continued
24 to April 4, 1990.

25 EXAMINER STOGNER: Case No. 9894 will be so

1 continued.

2 * * * * *

3 EXAMINER STOGNER: Call next case, No.
4 9895.

5 MR. STOVALL: Application of Richmond
6 Petroleum, Inc., for compulsory pooling and an
7 unorthodox coal gas well location, San Juan and Rio
8 Arriba Counties, New Mexico.

9 Applicant requests this case be continued
10 to April 4, 1990.

11 EXAMINER STOGNER: Case No. 9895 will be so
12 continued.

13 * * * * *

14 EXAMINER STOGNER: Call next case, No.
15 9897.

16 MR. STOVALL: Application of Siete Oil &
17 Gas Corporation for a waterflood project, Eddy County,
18 New Mexico.

19 Applicant requests this case be continued
20 to April 4, 1990.

21 EXAMINER STOGNER: Case No. 9897 will be so
22 continued.

23 * * * * *

24 EXAMINER STOGNER: Call next case, No.
25 9898.

1 MR. STOVALL: Application of Doyle Hartman
2 for compulsory pooling, a non-standard gas proration
3 unit and simultaneous dedication, Lea County, New
4 Mexico.

5 Applicant requests this case be continued
6 to April 4, 1990.

7 EXAMINER STOGNER: Case No. 9898 will be so
8 continued.

9 * * * * *

10 EXAMINER STOGNER: Call next case, No.
11 9884.

12 MR. STOVALL: Application of OXY USA, Inc.,
13 for compulsory pooling, non-standard gas proration
14 unit and simultaneous dedication, Lea County, New
15 Mexico.

16 Applicant requests this case be dismissed.

17 EXAMINER STOGNER: Case 9884 will be
18 dismissed.

19 * * * * *

20 EXAMINER STOGNER: Call next case, No.
21 9885.

22 MR. STOVALL: Application of Doyle Hartman
23 for compulsory pooling, a non-standard gas proration
24 unit and simultaneous dedication, Lea County, New
25 Mexico.

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Applicant requests this case be continued
to April 4, 1990.

EXAMINER STOGNER: Case No. 9885 will be so
continued.

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)

) ss.

COUNTY OF SANTA FE)

I, Carla Diane Rodriguez, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL March 21, 1990.

Carla Diane Rodriguez
CARLA DIANE RODRIGUEZ
CSR No. 91

My commission expires: May 25, 1991

I do hereby certify that the foregoing is a complete record of the proceedings in the Examining hearing of Case No. 9882, heard by me on 21 March 1990.

Mark T. Lopez, Examiner
Oil Conservation Division



NEW MEXICO POTASH
C O R P O R A T I O N

March 15, 1990

*Received
3/21/90*

Energy, Minerals and Natural Resources Department
Oil Conservation Division
Santa Fe, NM 87501

Attn: David R. Catanach, Examiner
or
Michael E. Stogner, Alternate Examiner

Re: Docket: March 21, 1990
Case 9882: Application of Controlled Recovery, Inc. for an
oil treating plant permit.

New Mexico Potash Corporation, which owns and operates a potash mine and refining facility adjacent to the requested permit area in Case 9882, requests the examiner or alternate examiner to consider the following items 1 thru 5 and the attached plat and make them part of the record in Case 9882.

- Item 1: New Mexico Potash Corporation was granted R-O-W No. NM12177 (see attached plat shown in yellow) for the disposal of clay-brine tailings from their potash refinery. The disposal of these tailings has been continuous since 1970 and will continue in the future.
- Item 2: New Mexico Potash Corporation has returned clear brine from the Laguna Toston area in the past and will in the future to its refinery for re-processing.
- Item 3: Clear brine returned to the plant for re-use must be free of oilfield related wastes.
- Item 4: A representative of New Mexico Potash Corporation has been in contact with a representative of Controlled Recovery, Inc. and it is New Mexico Potash Corporation's understanding that all oil treating

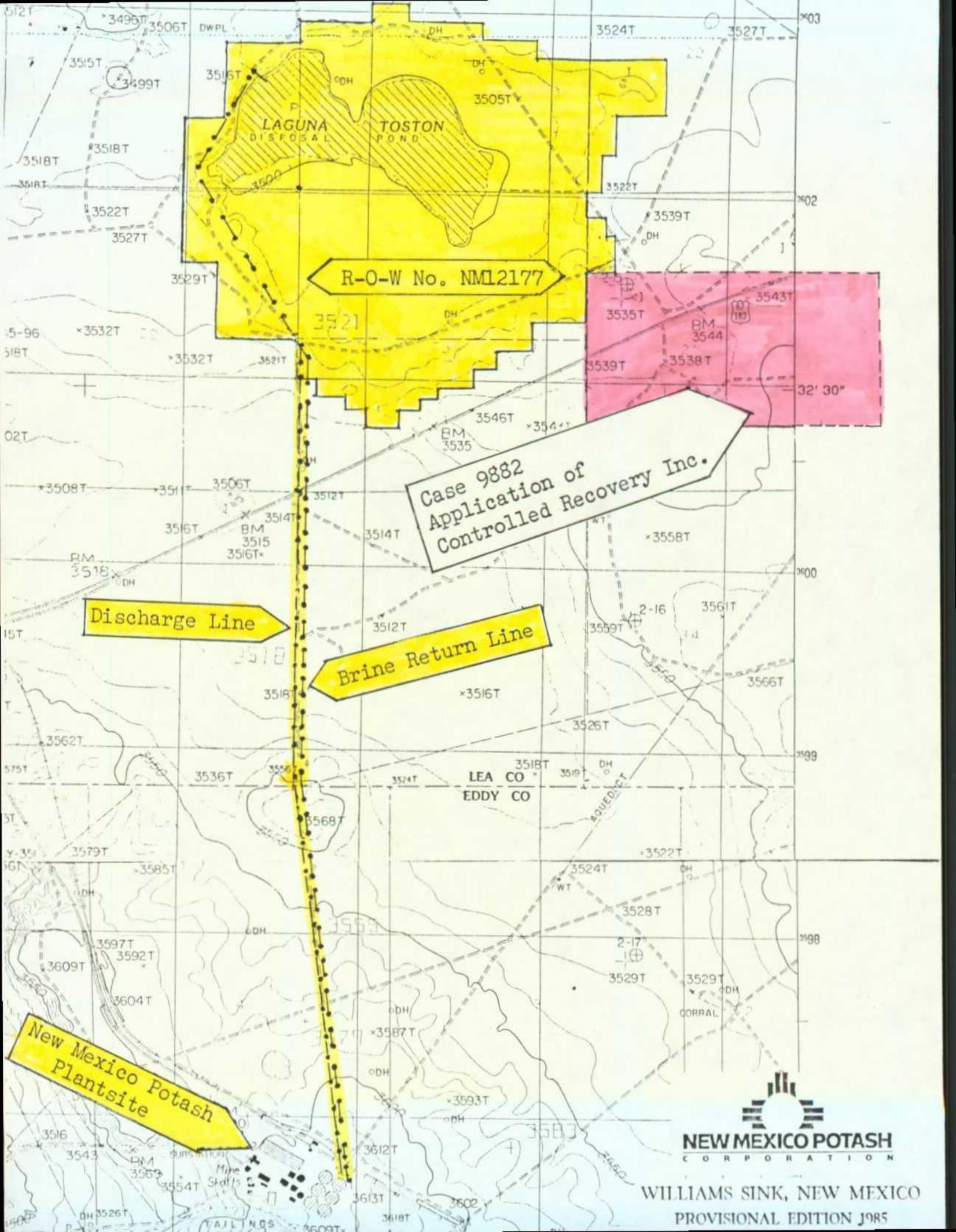
plant facilities will be located on the south side of highway 62-180 and the collection, disposal, evaporation or storage of produced water, drilling fluids, drill cuttings, completion fluids and other oilfield related waste will be in unlined surface pits without direct discharge by either pipeline, ditch, or natural surface drainage into the Laguna Toston area.

Item 5: New Mexico Potash Corporation has no objection to the approval of this application if Item 4 is generally correct and the approved permit has a stipulation containing "no direct discharge by pipeline, ditch, or natural surface drainage into the Laguna Toston area."

NEW MEXICO POTASH CORPORATION


W. S. Case, Jr.
General Manager

WSC/bt



R-O-W No. NML2177

Case 9882
Application of
Controlled Recovery Inc.

Discharge Line

Brine Return Line

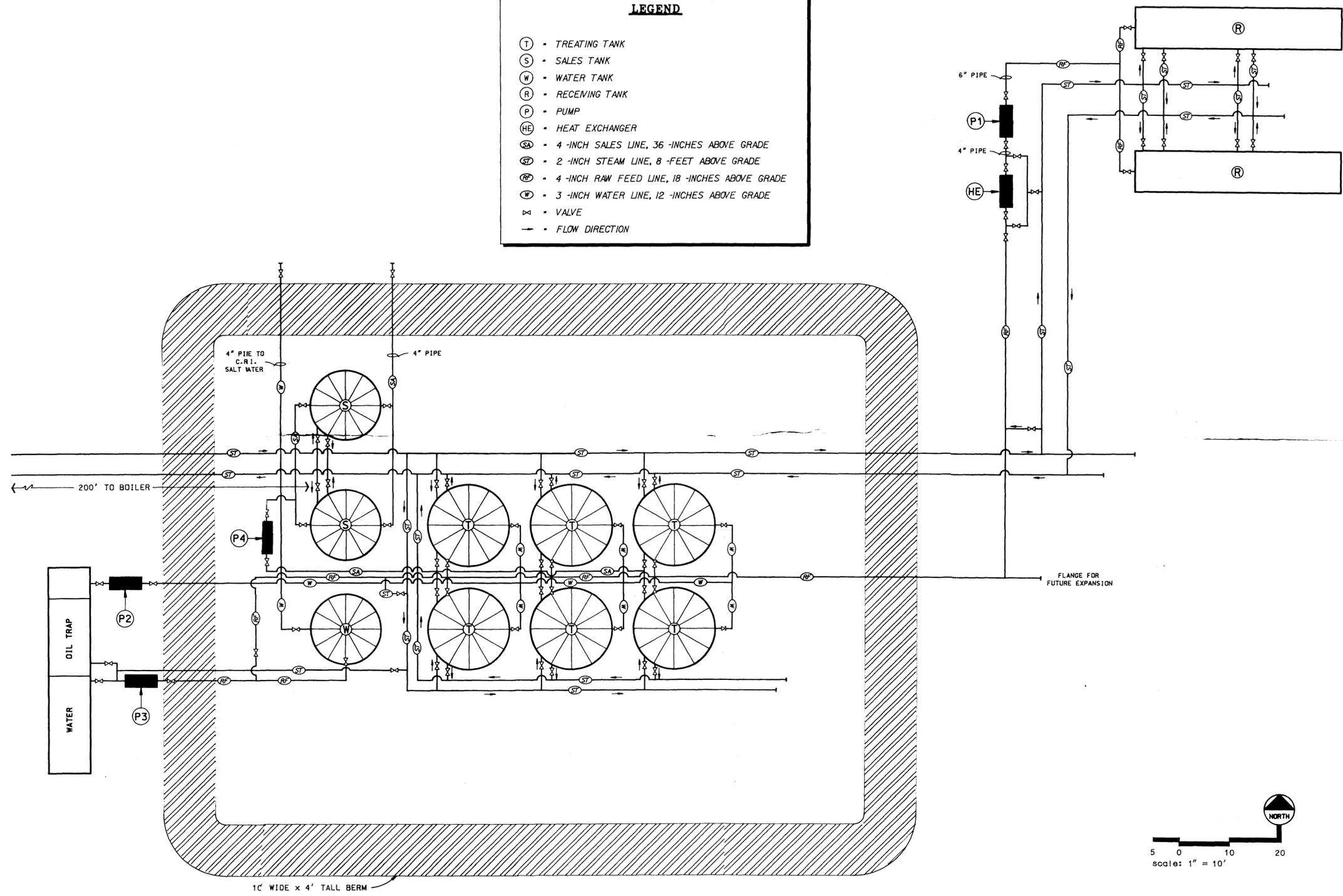
New Mexico Potash
Plantsite



WILLIAMS SINK, NEW MEXICO
PROVISIONAL EDITION J985

LEGEND

- (T) - TREATING TANK
- (S) - SALES TANK
- (W) - WATER TANK
- (R) - RECEIVING TANK
- (P) - PUMP
- (HE) - HEAT EXCHANGER
- (SA) - 4 -INCH SALES LINE, 36 -INCHES ABOVE GRADE
- (ST) - 2 -INCH STEAM LINE, 8 -FEET ABOVE GRADE
- (RF) - 4 -INCH RAW FEED LINE, 18 -INCHES ABOVE GRADE
- (W) - 3 -INCH WATER LINE, 12 -INCHES ABOVE GRADE
- (X) - VALVE
- - FLOW DIRECTION

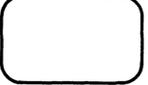


NO.	DATE	REVISIONS	BY

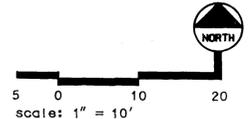
CONTROLLED RECOVERY, INC.
 HOBBS - NEW MEXICO

SITE PLAN AND EQUIPMENT LAYOUT

DATE:	7/29/93
DRAWN BY:	H.A.G.
INSTALLATION:	
SYSTEM ENGINEERING:	
PROJECT MANAGER:	
ELECTRICAL:	
PERMITTING:	



TransAmerican Environmental, Inc.
 8000 New Park Avenue
 Hollywood, Florida 33020



PROJECT NUMBER

SHEET
 1
 OF 1

CAMPBELL & BLACK. P.A.
LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
WILLIAM P. SLATTERY
PATRICIA A. MATTHEWS

JEFFERSON PLACE
SUITE 1 - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

March 20, 1990

HAND-DELIVERED

William J. LeMay, Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
State Land Office Building
Santa Fe, New Mexico 87503

M.S.

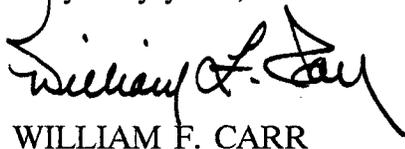
Re: Oil Conservation Division Case No. 9882:
Application of Controlled Recovery, Inc., for an Oil Treating Plant Permit,
for Surface Water Disposal, and an Exception to Order No. R-3221, Lea
County, New Mexico

Dear Mr. LeMay:

Controlled Recovery, Inc., hereby requests that the above-referenced case scheduled for hearing before a Division Examiner on March 21, 1990 be continued to the Examiner hearings scheduled for April 4, 1990.

Your attention to this request is appreciated.

Very truly yours,


WILLIAM F. CARR

WFC:mlh

cc: Mr. Ken Marsh
Controlled Recovery, Inc.

RECEIVED

MAR 20 1990

OIL CONSERVATION DIV.
SANTA FE

CAMPBELL & BLACK. P.A.
LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
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SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

March 30, 1990

HAND-DELIVERED

Mr. David G. Boyer, Chief
Environmental Bureau
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
State Land Office Building
Santa Fe, New Mexico 87503

RECEIVED
MAR 30 1990
OIL CONSERVATION DIVISION

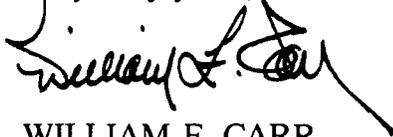
Re: Case 9882:
Application of Controlled Recovery, Inc. for an Oil Treating Plant Permit,
Surface Waste Disposal, and an Exception to Division Order R-3221, Lea
County, New Mexico

Dear Mr. Boyer:

Following our meeting on March 19, 1990, I contacted Ken Marsh, President of Controlled Recovery, Inc., concerning your questions about the above-referenced matter. Attached hereto is additional data which responds to certain of your questions. This information will be presented at the April 4, 1990 hearing on this application.

In addition to the enclosed, we will present additional information on the ownership of the lands in this area and the actual dimensions of the pits to be used. We will also present witnesses who can respond to any other questions you may have.

Very truly yours,



WILLIAM F. CARR
WFC:mlh
Enclosure

**OIL CONSERVATION DIVISION CASE NO. 9882
APPLICATION OF CONTROLLED RECOVERY, INC.
FOR AN OIL TREATING PLANT PERMIT, FOR
SURFACE WASTE DISPOSAL, AND AN
EXCEPTION TO ORDER NO. R-3221, AS AMENDED,
LEA COUNTY, NEW MEXICO**

HYDROLOGY:

1. Samples were taken from the No. 3 and No. 7 test holes and was analyzed by the City of Hobbs. Copies of these analyses are included with the material previously submitted to the Division. Due to the high bacterial content of the water which makes it unfit for human consumption, additional analyses were not performed. At your request, Controlled Recovery, Inc. is obtaining a full analyses of the water from these test holes.
2. The chlorides are correctly shown in the data previously submitted for the No. 2-A and No. 6 Wells. However, both wells produce very small quantities of water. To provide additional protection for the No. 2-A Well, Controlled Recovery, Inc. will switch the location of the pit proposed for disposal of liquids with the pit proposed for disposal of solids.
3. It is our opinion that underground migration of water disposed at either of the pits on this location would be toward the Laguna Toston. However, reversing the pits will assure that the underground migration of disposal water will be directly to the Laguna Toston.
4. There is very little opportunity to obtain additional water analyses on groundwater in this area for the two wells in Section 27 are dry as is the well in the NE/4 of Section 1. Reversing the disposal pits should make additional samples from the wells in Section 36 which, may be difficult to obtain, of little relevance.

GENERAL MATTERS:

1. A plat identifying all land owners in the area and identifying state, federal and fee lands will be presented at the April 4, 1990 hearing.
2. J.C. Estes owns grazing rights in this area and T. Bingham was a prior owner of one of the wells in our hydrologic study.

3. The actual footage dimensions of the pits will be set forth on revised exhibits presented at the time of hearing.
4. Closure Plan: All pits will be evaporated prior to closure, covered up, buried and mounted with sufficient soil so that water will not pond in this area.
5. Operation Plans: At the April 4th hearing, the times the facilities will be open and the procedures that will be utilized to monitor the pits and the disposal of fluids will be fully detailed. Switching the pits on the proposed site will provide greater control over use of and access to the liquid disposal pit.
6. Contingency Plans: Because of the disposal pit configuration (below grade), a spill is very unlikely to occur. The disposal (evaporation) pits will not be filled to capacity and should a 100 year rainfall happen, no over flow would occur. If a natural disaster should occur, earth moving equipment would be employed to contain the spill within the approved disposal (evaporation) area.

Berms will be constructed around the off loading area. This area will be constructed so the grade will be toward the evaporation pits. If a break should occur, vacuum trucks and centrifugal pumps would be employed to recover any fluids that would collect in depressions or away from approved disposal areas.

7. Product Treatment: Identify the chemicals to be used and provide appropriate MTS sheets on material safety. Incoming products will be discharged into gun barrel (wash) tanks. Any liquid petroleum produce will be discharged into a stock tank. If it should be necessary to further refine the liquid petroleum product prior to sale, it would be treated with a recommended chemical and run thru a heater treater in order to get the product ready for sale to purchaser.

The chemical used would be compatible with the EID and the EPA (see MTS sheets).



**UNICHEM
INTERNATIONAL**

TECHNI-BREAK 105

PRODUCT BULLETIN

DESCRIPTION:

TECHNI-BREAK 105 is a specially formulated solvent based solution of surface active agents designed to promote the separation of water in oil emulsions. TECHNI-BREAK 105 is especially effective in breaking acid emulsions. TECHNI-BREAK 105 will also control hydration of water sensitive clays.

USES:

TECHNI-BREAK 105 was originally formulated to demulsify tank bottoms, slop oil, and acid emulsions. However, TECHNI-BREAK 105 can also be used to dehydrate crude oil production.

APPLICATION:

TECHNI-BREAK 105 may be batch treated into stock tanks and treating vessels with agitation or rolling. TECHNI-BREAK 105 can also be injected continuously into the treating system at a point of turbulence to insure thorough mixing with the produced fluids. An emulsion breaker bottle test should be performed to determine the most effective demulsifier.

**TYPICAL
PROPERTIES:**

Specific Gravity @ 60°F	.90
Pounds Per Gallon @ 60°F	7.52
Pour Point	-40°F
Flash Point (TCC)	74°F

SOLUBILITIES:

Fresh Water	Dispersible
2% Brine	Dispersible
15% Brine	Dispersible
Crude Oil	Soluble
Appearance	Amber Liquid

HANDLING:

Warning! Flammable. Keep away from heat, sparks, and open flame. Keep container closed when not in use. Do not breathe vapors, use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Refer to material safety data sheet for additional information and first aid.

PACKAGING:

TECHNI-BREAK 105 is sold in 55 gallon drums and bulk.

12/83



MATERIAL SAFETY DATA SHEET

"Essentially Similar" to Form OSHA-20

Date Prepared 1/31/85

Supersedes Previous Sheet Dated New

I PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL
707 N. Leech / P. O. Box 1499 / Hobbs, New Mexico 88240

EMERGENCY TELEPHONE NO.
(505) 393-7751

PRODUCT NAME TECHNI-BREAK 105

TRADE NAME: DEMULSIFIER

CHEMICAL DESCRIPTION:

Proprietary blend of demethyl benzyl ammonium chloride in aromatic solvent.

II HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (UNITS)
Aromatic Solvent		8 hr. TWA 100 ppm
Dimethyl benzyl ammonium chloride	25%	recommended

III PHYSICAL DATA

BOILING POINT, 760 mm Hg	N/D	FREEZING POINT:	0°F
SPECIFIC GRAVITY (H ₂ O=1)	.90	VAPOR PRESSURE @	N/D
VAPOR DENSITY (AIR=1)	N/D	SOLUBILITY IN WATER	Insoluble
PERCENT VOLATILES BY WEIGHT	N/D	EVAPORATION RATE	N/D

APPEARANCE AND ODOR

Dark Amber liquid, aromatic odor.

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT
(TEST METHOD) 74°F (TCC)

FLAMMABLE LIMITS IN AIR, % BY VOLUME

LOWER

N/A

UPPER

N/A

EXTINGUISHING MEDIA Foam, dry chemical, CO₂, water spray or fog. Use a water spray to cool fire-exposed containers.

SPECIAL FIRE
FIGHTING PROCEDURES

Use self-contained breathing equipment for enclosed areas in a fire situation.

UNUSUAL FIRE AND
EXPLOSION HAZARDS

Vapors can flow along surfaces to distant ignition sources and flash back.

Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated.

*N/D - Not Determined

V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	TLV 100ppm (estimated--not established by ACGIH or OSHA)
EFFECTS OF OVEREXPOSURE	Inhalation of high vapor, concentrations may have results ranging from mild depression to convulsions and loss of consciousness. Concentrations over 100ppm may cause dizziness, nausea, and headache. Prolonged or repeated skin contact is irritating and will cause defatting and dermatitis. Eye contact may cause burning and irritation. Aspiration can be a hazard if material is swallowed.
EMERGENCY AND FIRST AID PROCEDURES	SKIN: Remove contaminated clothing; wash with soap and water. EYES: Flush eyes with lots of running water. INHALATION: Remove to fresh air. Restore breathing if necessary. Call a Physician. INGESTION: Do not induce vomiting. Give white mineral oil or edible oil. Call a physician.

VI REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	NONE
UNSTABLE	STABLE		
	XXXXXX		
INCOMPATIBILITY (MATERIALS TO AVOID)		Avoid oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS		Toxic fumes and gases including oxides and carbon and nitrogen.	
HAZARDOUS POLYMERIZATION MAY OCCUR		CONDITIONS TO AVOID	NONE
WILL NOT OCCUR	XXXXXXXXXX		

VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Remove all sources of ignition. Provide adequate ventilation. Contain and recover free liquid. Use vermiculite, sand, etc. to absorb residue on small spill. Scrape up and place in covered metal container. Prevent liquid from entering sewer or water course.
WASTE DISPOSAL METHOD	Dispose of by incineration or by depositing in an approved landfill under controlled conditions. Follow all Federal, State, and local regulations.

VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	Use respirators with organic solvent type canisters for short periods of nonroutine work at 100-2000ppm. Use self-contained breathing apparatus for higher or unknown vapor concentrations.			
VENTILATION	LOCAL EXHAUST	As needed to meet TLV requirements	SPECIAL	100 fpm face velocity for exhaust hoods.
	MECHANICAL (GENERAL)	As needed to meet TLV requirements	OTHER	
PROTECTIVE GLOVES	Buna-N rubber gloves and apron to prevent contact.	EYE PROTECTION	Safety glasses or goggles and/or face shield.	
OTHER PROTECTIVE EQUIPMENT	Eye wash stations should be readily accessible.			

IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store containers in clean, cool, well-ventilated, low fire-risk area away from oxidizing agents and ignition sources. Ground and electrically interconnect metal containers when dispensing. Use safety cans for small amounts.
OTHER PRECAUTIONS	NONE

CAMPBELL & BLACK. P.A.

LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
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TELEPHONE: (505) 988-4421
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March 30, 1990

HAND-DELIVERED

Mr. David G. Boyer, Chief
Environmental Bureau
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
State Land Office Building
Santa Fe, New Mexico 87503

RECEIVED
MAR 30 1990
OIL CONSERVATION DIVISION

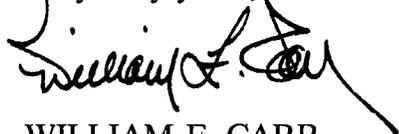
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WILLIAM F. CARR
WFC:mlh
Enclosure

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APPLICATION OF CONTROLLED RECOVERY, INC.
FOR AN OIL TREATING PLANT PERMIT, FOR
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**UNICHEM
INTERNATIONAL**

TECHNI-BREAK 105

PRODUCT BULLETIN

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APPLICATION:

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**TYPICAL
PROPERTIES:**

Specific Gravity @ 60°F	.90
Pounds Per Gallon @ 60°F	7.52
Pour Point	-40°F
Flash Point (TCC)	74°F
SOLUBILITIES:	
Fresh Water	Dispersible
2% Brine	Dispersible
15% Brine	Dispersible
Crude Oil	Soluble
Appearance	Amber Liquid

HANDLING:

Warning! Flammable. Keep away from heat, sparks, and open flame. Keep container closed when not in use. Do not breathe vapors, use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Refer to material safety data sheet for additional information and first aid.

PACKAGING:

TECHNI-BREAK 105 is sold in 55 gallon drums and bulk.

12/83



MATERIAL SAFETY DATA SHEET

"Essentially Similar" to Form OSHA-20

Date Prepared 1/31/85

Supersedes Previous Sheet Dated New

I PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL
707 N. Leech / P. O. Box 1499 / Hobbs, New Mexico 88240

EMERGENCY TELEPHONE NO.
(505) 393-7751

PRODUCT NAME **TECHNI-BREAK 105**

TRADE NAME: **DEMULSIFIER**

CHEMICAL DESCRIPTION:

Proprietary blend of demethyl benzyl ammonium chloride in aromatic solvent.

II HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (UNITS)
Aromatic Solvent		8 hr. TWA 100 ppm
Dimethyl benzyl ammonium chloride	25%	recommended

III PHYSICAL DATA

BOILING POINT, 760 mm Hg	N/D	FREEZING POINT:	0°F
SPECIFIC GRAVITY (H ₂ O=1)	.90	VAPOR PRESSURE @	N/D
VAPOR DENSITY (AIR=1)	N/D	SOLUBILITY IN WATER	Insoluble
PERCENT VOLATILES BY WEIGHT	N/D	EVAPORATION RATE	N/D

APPEARANCE AND ODOR

Dark Amber liquid, aromatic odor.

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT
(TEST METHOD) **74°F (TCC)**

FLAMMABLE LIMITS IN AIR, % BY VOLUME

LOWER

N/A

UPPER

N/A

EXTINGUISHING MEDIA Foam, dry chemical, CO₂, water spray or fog. Use a water spray to cool fire-exposed containers.

SPECIAL FIRE FIGHTING PROCEDURES

Use self-contained breathing equipment for enclosed areas in a fire situation.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Vapors can flow along surfaces to distant ignition sources and flash back.

Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated.

*N/D - Not Determined

SEC. 27, T20S, R32E, N.M.P.M.,

LEA COUNTY, NEW MEXICO

2273.68'

Proposed Well #2
Elev. (3527)

2983.86'
(not to scale)

WELL LOCATIONS

Fd. Brass Cap (Typ.)

Proposed Well #1
Elev. (3519)

60.4'

N

2119.76'

0 100 200 400
SCALE 1" = 400'

PROPERTY LINE

Well # 6
Elev. (3529)

853.00'

Proposed Well #3
Elev. (3522)

1133.76'

Well # 5
Elev. (3539)

1982.00'

Well # 3
Elev. (3542)

Elev. (3543)
Elev. (3530)
Col. Pit

27

Well # 2
Elev. (3546)

Northwest Well
Elev. (3527)
Center Well
Elev. (3527)

Well # 4
Elev. (3550)

Abd. Well
Elev. (3530)

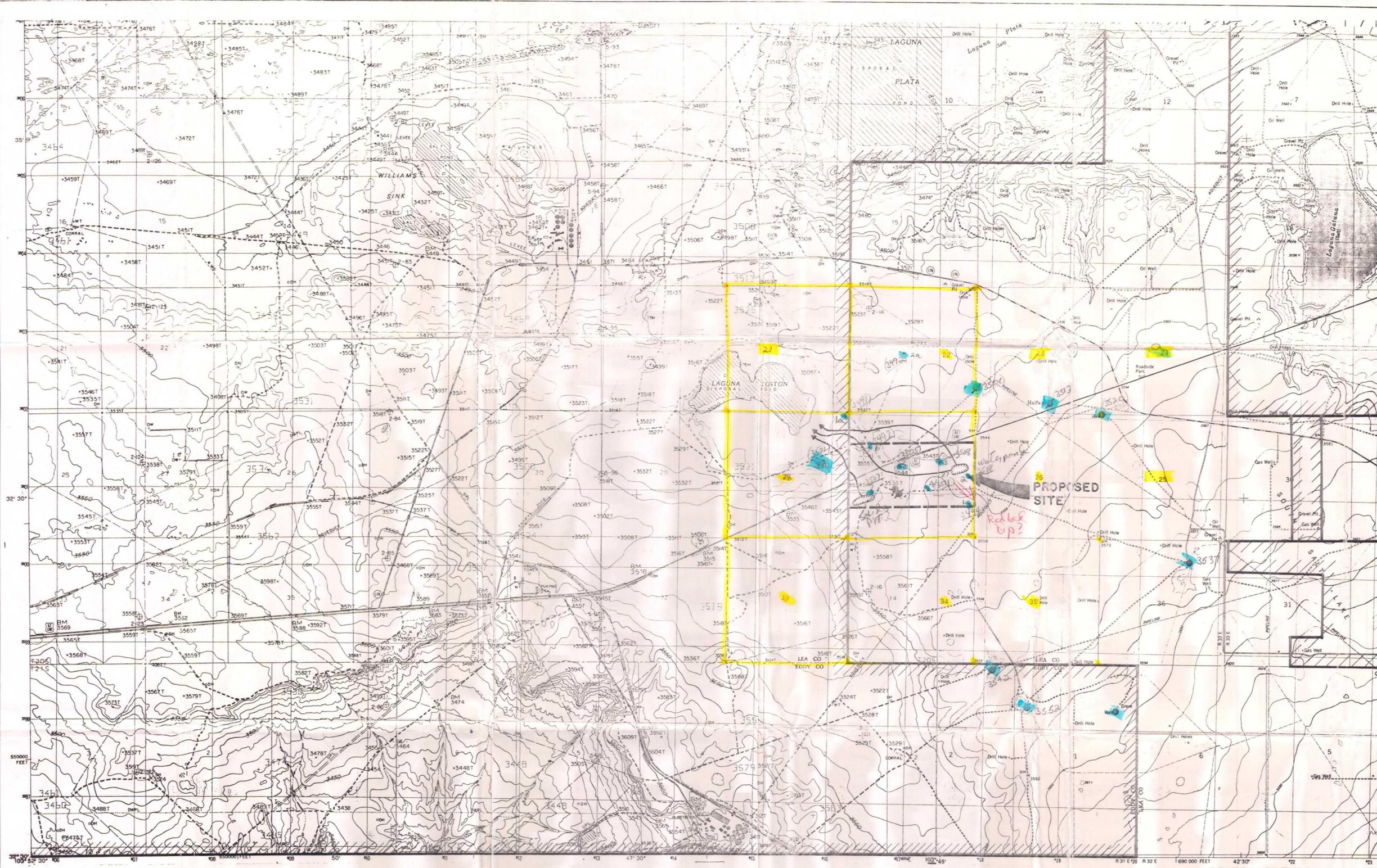
Well # 7
Elev. (3541)

Elev. (3541)
Col. Pit
Elev. (3532)

Well # 1
Elev. (3553)

KING SURVEYING	
4001 MAHAN DR. HOBBS, N.M. 88240	
SCALE: 1" = 400'	DRAWN BY: Maudie J.
DATE: 11/21/89	SHEET OF 1

FIGURE I



**PROPOSED DISPOSAL SITE LOCATION, AREAS PERMITTED FOR SURFACE DISPOSAL OF BRINE, LOCATION OF WATER WELLS AND TOPOGRAPHY
IN THE VICINITY OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 32 EAST, LEA COUNTY, NEW MEXICO - 1990**

JAMES I. WRIGHT
CONSULTING HYDROLOGIST
ROSWELL, NEW MEXICO

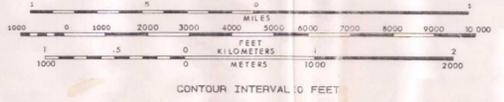


FIGURE II

- UNEQUIPPED WELL
- EQUIPPED WELL
- EXISTING GRAVEL PITS
- PROPOSED SITE
- AREAS PERMITTED FOR SURFACE DISPOSAL OF BRINE
- PATH OF SURFACE DRAINAGE

R. 32 E.

EXPLANATION

QUATERNARY

- Sand**
Thin cover of drift sand in most places; locally dunes 20-40 feet high
- Qal**
Alluvium
Sand and gravel along dry washes; silt and sand in lake beds; includes some wind-deposited sand around depressions
- To**
Ogallala formation
Chiefly sand, poorly to well-cemented with calcium carbonate; contains some clay, silt, and gravel; capped in most places by caliche

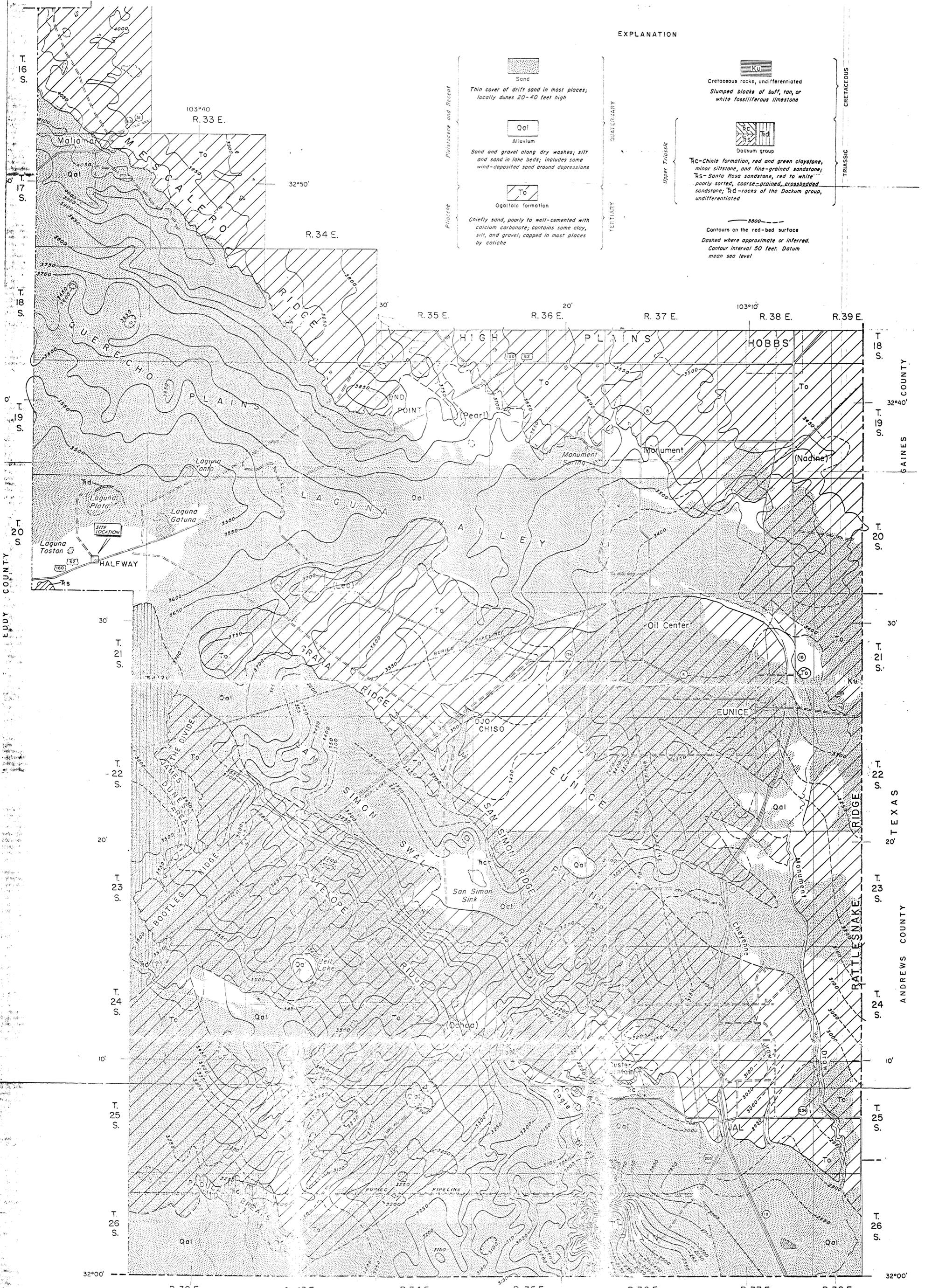
QUATERNARY

CRETACEOUS

- Ku**
Cretaceous rocks, undifferentiated
Slumped blocks of buff, tan, or white fossiliferous limestone
- Rd**
Dockum group
Rc-Chinle formation, red and green claystone, minor siltstone, and fine-grained sandstone; Rr-Santa Rosa sandstone, red to white, poorly sorted, coarse-grained, crossbedded sandstone; Rd-rocks of the Dockum group, undifferentiated

TRIASSIC

Contours on the red-bed surface
Dashed where approximate or inferred.
Contour interval 50 feet. Datum mean sea level



Base adapted from New Mexico State Highway Department, general highway map, 1941.

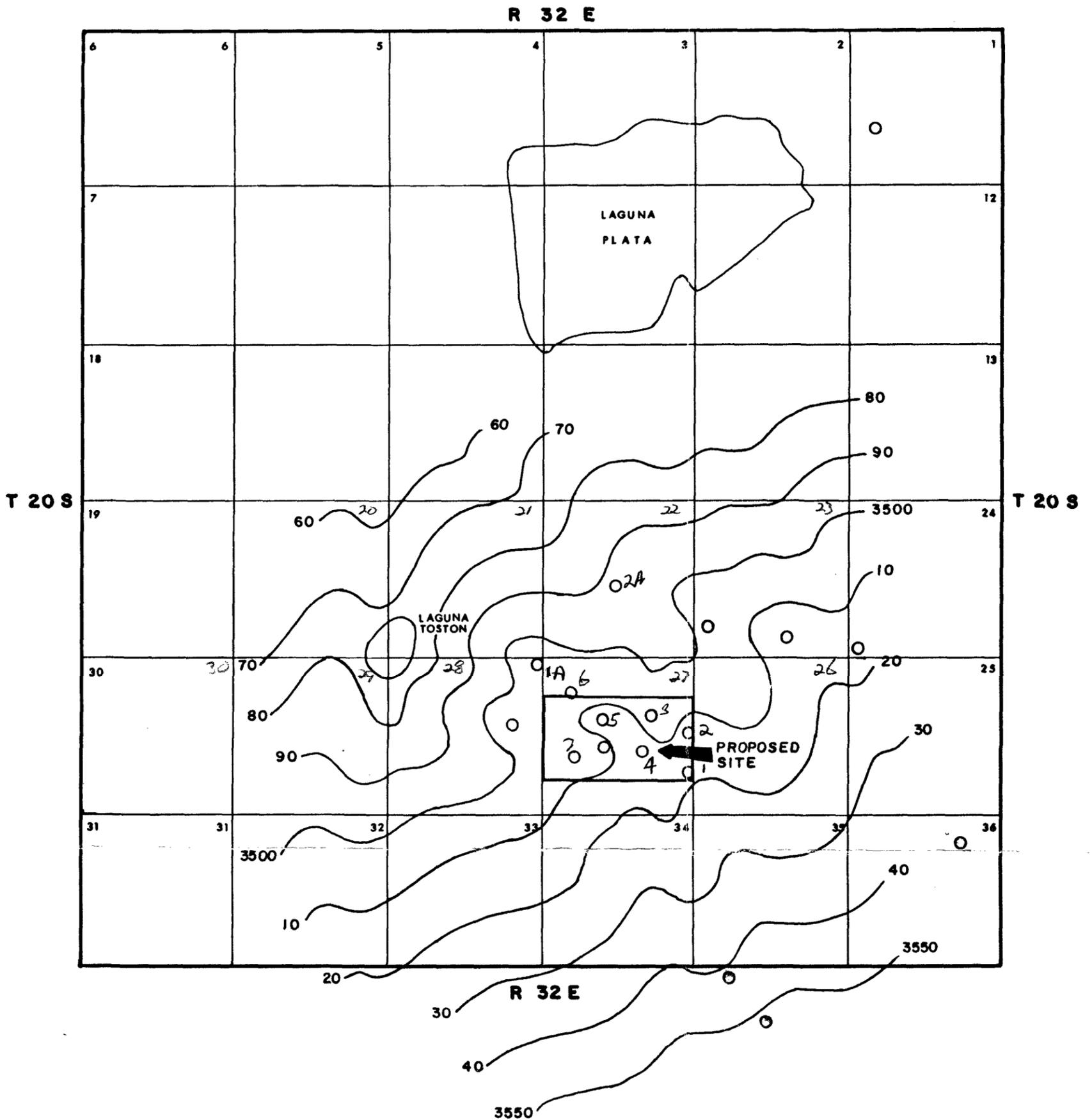
LOVING COUNTY

TEXAS
1 0 2 3 4 5 6 Miles

WINKLER COUNTY

Geology by Alexander Nicholson, Jr., 1953-4. Contours on buried red-bed surface compiled by Alexander Nicholson, Jr., Alfred Clebsch, Jr., and S.R. Ash from shot-hole logs, 1960.

FIGURE III



ALTITUDE AND CONFIGURATION OF WATER
TABLE IN THE VICINITY OF SECTION 27,
TOWNSHIP 20 SOUTH, RANGE 32 EAST,
N.M.P.M.

LEA COUNTY, NEW MEXICO - 1930

- - DRILL HOLE OR WELL
- ~ - CONTOUR INTERVAL IS 10 FEET

JAMES I. WRIGHT
CONSULTING HYDROLOGIST
ROSWELL, NEW MEXICO

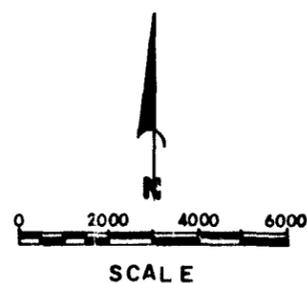


FIGURE IV



NEW MEXICO POTASH
C O R P O R A T I O N

March 15, 1990

Energy, Minerals and Natural Resources Department
Oil Conservation Division
Santa Fe, NM 87501

Attn: David R. Catanach, Examiner
or
Michael E. Stogner, Alternate Examiner

Re: Docket: March 21, 1990
Case 9882: Application of Controlled Recovery, Inc. for an
oil treating plant permit.

New Mexico Potash Corporation, which owns and operates a potash mine and refining facility adjacent to the requested permit area in Case 9882, requests the examiner or alternate examiner to consider the following items 1 thru 5 and the attached plat and make them part of the record in Case 9882.

- Item 1: New Mexico Potash Corporation was granted R-O-W No. NM12177 (see attached plat shown in yellow) for the disposal of clay-brine tailings from their potash refinery. The disposal of these tailings has been continuous since 1970 and will continue in the future.
- Item 2: New Mexico Potash Corporation has returned clear brine from the Laguna Toston area in the past and will in the future to its refinery for re-processing.
- Item 3: Clear brine returned to the plant for re-use must be free of oilfield related wastes.
- Item 4: A representative of New Mexico Potash Corporation has been in contact with a representative of Controlled Recovery, Inc. and it is New Mexico Potash Corporation's understanding that all oil treating

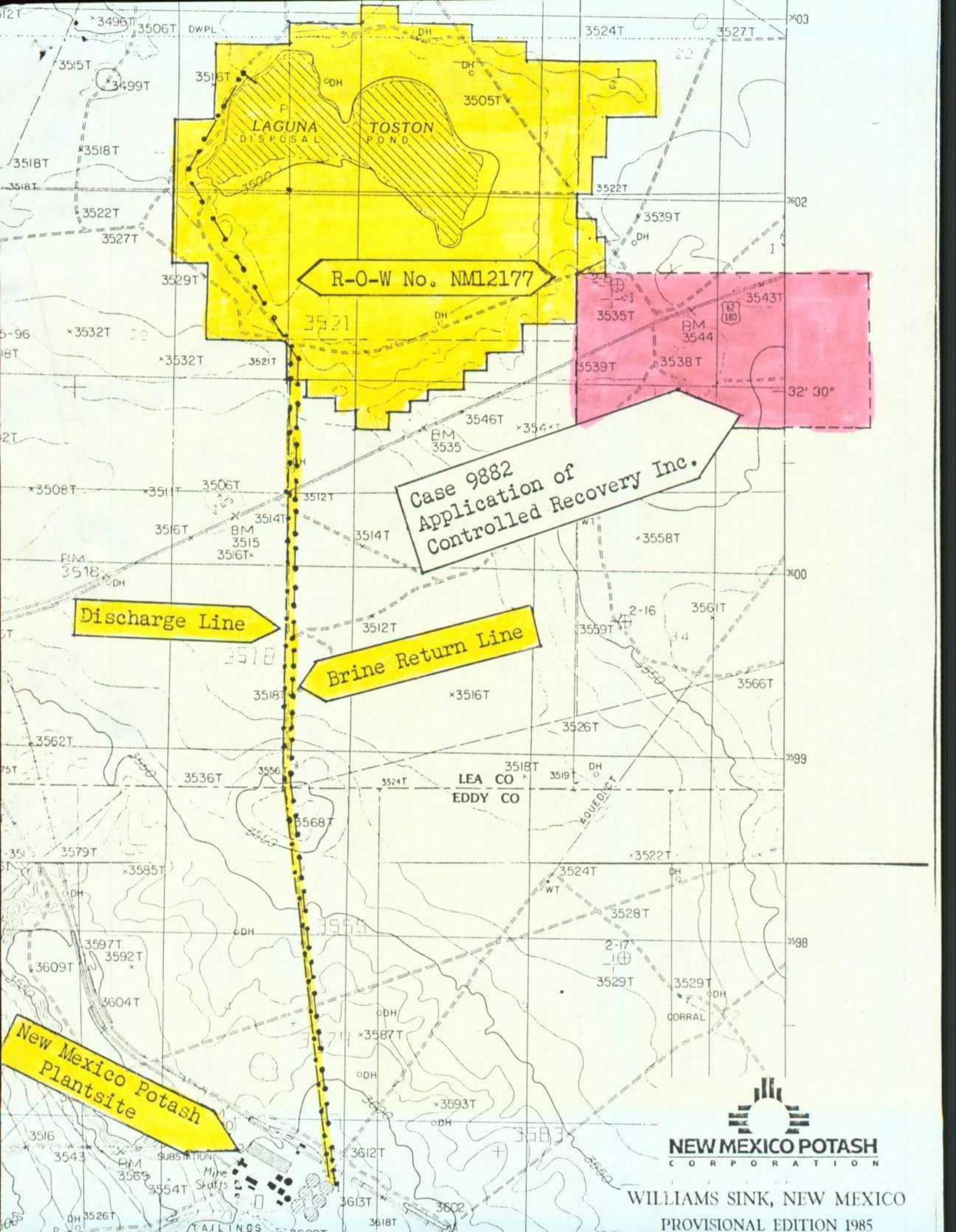
plant facilities will be located on the south side of highway 62-180 and the collection, disposal, evaporation or storage of produced water, drilling fluids, drill cuttings, completion fluids and other oilfield related waste will be in unlined surface pits without direct discharge by either pipeline, ditch, or natural surface drainage into the Laguna Toston area.

Item 5: New Mexico Potash Corporation has no objection to the approval of this application if Item 4 is generally correct and the approved permit has a stipulation containing "no direct discharge by pipeline, ditch, or natural surface drainage into the Laguna Toston area."

NEW MEXICO POTASH CORPORATION


W. S. Case, Jr.
General Manager

WSC/bt



R-O-W No. NM12177

Case 9882
Application of
Controlled Recovery Inc.

Discharge Line

Brine Return Line

New Mexico Potash
Plantsite



WILLIAMS SINK, NEW MEXICO
PROVISIONAL EDITION 1985

CAMPBELL & BLACK. P.A.

LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
WILLIAM P. SLATTERY
PATRICIA A. MATTHEWS

JEFFERSON PLACE
SUITE 1 - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

March 15, 1990

HAND-DELIVERED

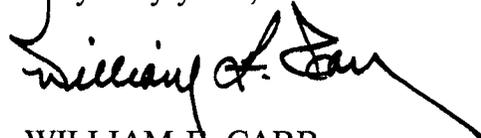
William J. LeMay, Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
State Land Office Building
Santa Fe, New Mexico 87503

Re: Application of Controlled Recovery, Inc. for an Oil Treating Plant Permit,
Surface Waste Disposal, and an Exception to Division Order R-3221, as
Amended, Lea County, New Mexico

Dear Mr. LeMay:

Enclosed are two copies of a report prepared by James I. Wright, Consulting Hydrologist, for Controlled Recovery, Inc. At the March 21, 1990 hearing we will present this report and those documents attached to the application we previously filed with the Division in this matter. A copy of this report has previously been provided to David Boyer for review by the Environmental Division. We do not anticipate presenting any additional exhibits, other than an affidavit concerning notice, at the time of the hearing.

Very truly yours,



WILLIAM F. CARR

WFC:mlh

Enclosures

cc w/o enclosures: Mr. Ken Marsh
Controlled Recovery Inc.

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

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 9882
Order No. R-9166

APPLICATION OF CONTROLLED RECOVERY INC.
FOR AN OIL TREATING PLANT PERMIT, SURFACE
WASTE DISPOSAL AND AN EXCEPTION TO ORDER
NO. R-3221, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April 4, 1990, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 27th day of April, 1990, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) Decretory Paragraph No. (3) of Division Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any water course, or in any other place or in any manner which would constitute a hazard to any fresh water supplies.

(3) The aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

CASE NO. 9882
Order No. R-9166
Page -2-

(4) The State Engineer has designated all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(5) The applicant, Controlled Recovery Inc., seeks authority to construct and operate a surface waste disposal facility and an oil treating plant for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation, or storage of produced water, drilling fluids, drill cuttings, completion fluids and other non-hazardous oilfield related waste in unlined surface pits at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico.

(6) The applicant proposes to install and operate an effective system, consisting of separating tanks, a water disposal pit, a solids disposal pit, and associated skimming, heat, and/or chemical separating equipment for the removal and reclamation of oil and basic sediments from the produced water to be disposed of, and a settling area to separate other solid waste.

(7) The proposed plant and method of processing will efficiently process, treat, and reclaim the aforementioned waste oil, thereby salvaging oil which would otherwise be unrecoverable.

(8) No interested party appeared at the hearing in opposition to the application.

(9) A naturally occurring salt lake (Laguna Toston) is located in the S/2 of Section 21 and the N/2 of Section 28, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico, and is approximately three-quarters of a mile from the proposed disposal area.

(10) The hydrogeologic evidence presented in this case establishes that:

- a) Triassic redbeds, comprised of the Chinle Shale, Santa Rosa sandstone, and the Dewey Lake formation, underlies both Laguna Toston and the proposed water disposal site;

CASE NO. 9882
Order No. R-9166
Page -3-

- b) Shales within the Triassic rebeds underlying the proposed waste disposal site and Laguna Toston are virtually impermeable and therefore prevent vertical seepage of the waters from the site and Laguna Toston into sand stringers within the rebeds which may contain fresh water;
- c) The surface of the Triassic rebeds is depressed in the vicinity of the waste disposal site and Laguna Toston thus creating a "collapse feature";
- d) The major flow of surface and subsurface water within the boundaries of the "collapse feature" is toward Laguna Toston;
- e) Seepage from the impoundments at the proposed waste disposal site will infiltrate into the subsurface and migrate toward Laguna Toston;
- f) After the seepage reaches Laguna Toston, practically all of the seepage will evaporate;
- g) There is no present or reasonably foreseeable beneficial use of the waters of Laguna Toston;
- h) There are no known sources of potable groundwater in sediments underlying the Triassic rebeds at Laguna Toston;
- i) The utilization of the proposed disposal site adjacent to Laguna Toston for the disposal of water produced in conjunction with the production of oil or gas, or both, and other non-hazardous oilfield waste products, including drill cuttings and drilling muds should not constitute a hazard to any fresh water supplies.

(11) The applicant should be authorized to utilize the unlined pits described in Finding Paragraph Nos. (5) and (6) above, for the disposal of water produced in conjunction with the production of oil or gas, or both, and other non-hazardous oilfield waste products, including drill cuttings and drilling muds.

(12) The maximum fill level in both of the above-described pits should be limited to a plane below the crest of the dikes surrounding the pits in order to preclude over-tapping of the dikes.

CASE NO. 9882
Order No. R-9166
Page -4-

(13) The proposed oil treating plant and disposal facility should be constructed in accordance with the engineering plat and topographic map presented as evidence in this case and in accordance with such additional conditions and requirements as may be directed by the Division Director, and should be operated and maintained in such a manner as to preclude spills and fires, and protect persons and livestock.

(14) Prior to initiating operations, the facility should be inspected by a representative of the Hobbs district office of the Division in order to determine the adequacy of fences, gates and cattleguards necessary to preclude livestock and unauthorized persons from entering and/or utilizing said facility, and also to determine the adequacy of dikes and berms needed to assure safe plant operation.

(15) The Director of the Division should be authorized to administratively grant approval for the expansion or modification of the proposed treating plant.

(16) Authority for operation of the treating plant and disposal facility should be suspended or rescinded whenever such suspension or rescission should appear necessary to protect human health or property, to protect fresh water supplies from contamination, to prevent waste, or for non-compliance with the terms and conditions of this order or Division Rules and Regulations.

(17) Prior to constructing said facility, the applicant should be required to submit to the Santa Fe office of the Division a surety or cash bond in the amount of \$25,000 in a form approved by the Division.

(18) Authority for operation of the treating plant and disposal facility should be transferrable only upon written application and approval by the Division Director.

(19) The granting of this application should not endanger designated fresh water supplies, and will prevent waste by allowing the recovery of otherwise unrecoverable oil.

CASE NO. 9882
Order No. R-9166
Page -5-

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Controlled Recovery Inc., is hereby authorized to construct and operate a surface waste disposal facility complete with unlined surface pits and an oil treating plant at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East, NMPM, Lea County, New Mexico, for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation, or storage of produced water, drilling fluids, drill cuttings, completion fluids and other non-hazardous oilfield related waste.

PROVIDED HOWEVER THAT, the proposed oil treating plant and disposal facility shall be constructed in accordance with the engineering plat and topographic map presented as evidence in this case and in accordance with such additional conditions and requirements as may be directed by the Division Director, and shall be operated and maintained in such a manner as to preclude spills and fires, and protect persons and livestock.

PROVIDED FURTHER THAT, prior to initiating operations, the facility shall be inspected by a representative of the Hobbs district office of the Division in order to determine the adequacy of fences, gates and cattleguards necessary to preclude livestock and unauthorized persons from entering and/or utilizing said facility, and also to determine the adequacy of dikes and berms needed to assure safe plant operation.

(2) The maximum fill level in both of the proposed unlined surface pits shall be limited to a plane below the crest of the dikes surrounding the pits in order to preclude over-tapping of the dikes.

(3) The Director of the Division shall be authorized to administratively grant approval for the expansion or modification of the proposed treating plant.

(4) Authority for operation of the treating plant and disposal facility shall be suspended or rescinded whenever such suspension or rescission should appear necessary to protect human health or property, to protect fresh water supplies from contamination, to prevent waste, or for non-compliance with the terms and conditions of this order or Division Rules and Regulations.

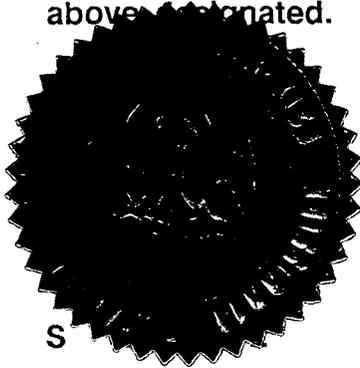
(5) Prior to constructing said facility, the applicant shall submit, to the Santa Fe office of the Division, a surety or cash bond in the amount of \$25,000 in a form approved by the Division.

CASE NO. 9882
Order No. R-9166
Page -6-

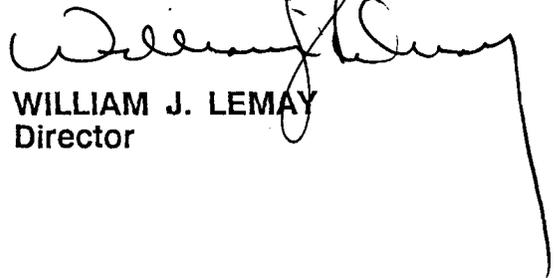
(6) Authority for operation of the treating plant and disposal facility shall be transferrable only upon written application and approval by the Division Director.

(7) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director

Dockets Nos. 10-90 and 11-90 are tentatively set for April 4 and 18, 1990. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 21, 1990

8:15 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Michael E. Stogner, Examiner, or David R. Catanach, Alternate Examiner:

CASE 9882: (Readvertised)

Application of Controlled Recovery, Inc. for an oil treating plant permit, for surface water disposal, and an exception to Order No. R-3221, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority for construction and operation of the surface waste disposal facility and an oil treating plant for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation or storage of produced water, drilling fluids, drill cuttings, completion fluids and other oil field related waste in unlined surface pits, at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East. This site is located on either side of U.S. Highway 62/180 at Mile Marker No. 66.

CASE 9880: (Continued from March 7, 1990, Examiner Hearing)

Application of Merrion Oil & Gas Corporation for a waterflood project, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks approval to institute a waterflood project on its Papers Wash Cooperative Agreement Unit Area underlying portions of Sections 15 and 16, Township 19 North, Range 5 West, by the injection of water into the Papers Wash-Entrada Oil Pool through the Navajo Alloted "15" Well No. 3 located 2310 feet from the South line and 2000 feet from the West line (Unit K) of said Section 15. Said project area is located approximately 22 miles northwest of San Luis, New Mexico.

CASE 9863: (Continued from February 21, 1990, Examiner Hearing)

Application of Hixon Development Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Basin-Fruitland Coal Gas Pool underlying Lots 1 through 4 and the E/2 W/2 of Section 7, Township 25 North, Range 12 West, forming a standard 317.28-acre gas spacing and proration unit for said pool, to be dedicated to a well to be drilled at a standard coal gas well location in the SW/4 of said Section 7. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 5 miles south-southwest of El Paso Natural Gas Company's Chaco Plant.

CASE 9887: Application of Hixon Development Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Basin-Fruitland Coal Gas Pool underlying the E/2 of Section 17, Township 25 North, Range 12 West, forming a standard 320-acre gas spacing and proration unit for said pool, to be dedicated to a well to be drilled at a standard coal gas well location 790 feet from the North and East lines (Unit A) of said Section 17. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 6 miles south by west of El Paso Natural Gas Company's Chaco Plant.

CASE 9888: Application of Conoco Inc. for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the North Dagger Draw-Upper Pennsylvanian Pool underlying the SE/4 of Section 36, Township 19 South, Range 24 East, forming a standard 160-acre oil spacing and proration unit for said pool, to be dedicated to its existing Dee State Well No. 1 located at a standard oil well location 1980 feet from the South and East lines (Unit J) of said Section 36 (said well is presently completed in the Cemetery-Morrow Gas Pool). Also to be considered will be the cost of re-entering, recompleting, equipping and operating said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in re-entering and recompleting said well. Said unit is located approximately 13 miles west by north of Seven Rivers, New Mexico.

CASE 9889: Application of Meridian Oil, Inc. for temporary well testing allowable for certain wells in the Parkway-Delaware Pool, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to conduct a special 90-day flow test on selected wells in the Parkway-Delaware Pool located in all or portions of Sections 26, 35, and 36, Township 19 South, Range 29 East, and Section 31, Township 19 South, Range 30 East, for the purpose of gathering data to determine the most efficient producing rate for said pool. This subject area is located approximately 14 miles south by west of Loco Hills, New Mexico.

- CASE 9890: Application of Bird Creek Resources, Inc. for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Delaware formation underlying the NE/4 NE/4 of Section 15, Township 23 South, Range 28 East, forming a standard 40-acre oil spacing and proration unit for any and all formations and/or pools developed on statewide 40-acre oil spacing within said vertical extent, which includes but is not necessarily limited to the Undesignated Loving-Cherry Canyon Pool and Undesignated East Loving-Delaware Pool. Said unit is to be dedicated to a well to be drilled at a standard location 535 feet from the North and East lines (Unit A) of said Section 15. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 2.5 miles northeast of Loving, New Mexico.
- CASE 9891: Application of Bird Creek Resources, Inc. for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface to the base of the Delaware formation underlying the NE/4 SE/4 of Section 15, Township 23 South, Range 28 East, forming a standard 40-acre oil spacing and proration unit for any and all formations and/or pools developed on statewide 40-acre oil spacing within said vertical extent, which includes but is not necessarily limited to the Undesignated Loving-Cherry Canyon Pool and Undesignated East Loving-Delaware Pool. Said unit is to be dedicated to a well to be drilled at a standard location 2105 feet from the South line and 560 feet from the East line (Unit I) of said Section 15. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 2 miles east-northeast of Loving, New Mexico.
- CASE 9892: Application of Pacific Enterprises Oil Company (USA) for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from a depth of 5000 feet down to the top of the Mississippian Chester Limestone formation, or to a depth of 11,200 feet, whichever is deeper, underlying the E/2 of Section 12, Township 17 South, Range 29 East, forming a standard 320-acre gas spacing and proration unit for any and all formations and/or pools developed on 320-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated Anderson-Pennsylvanian Gas Pool. Said unit is to be dedicated to a well to be drilled at a standard gas well location 2180 feet from the North line and 1980 feet from the East line (Unit G) of said Section 12. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 3.25 miles northwest of Loco Hills, New Mexico.
- CASE 9893: Application of Pacific Enterprises Oil Company (USA) for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Atoka and Morrow formations underlying the W/2 of Section 28, Township 18 South, Range 27 East, forming a standard 320-acre gas spacing and proration unit for any and all formations and/or pools developed on 320-acre spacing within said vertical extent, which presently includes but is not necessarily limited to either the Undesignated Red Lake-Pennsylvanian Gas Pool or the Undesignated Red Lake Atoka-Morrow Gas Pool. Said unit is to be dedicated to its Trigg "28" Federal Well No. 1 to be drilled at a standard gas well location 2030 feet from the North line and 1980 feet from the West line (Unit F) of said Section 28. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 4 miles west by north of the Old Illinois Oil Camp.
- CASE 9881: (Readvertised)
- Application of Richmond Petroleum, Inc. for unorthodox coal gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox coal gas well location for its Federal 31-4-32 Well No. 2 to be drilled 617 feet from the South line and 1939 feet from the West line (Unit N) of Section 32, Township 31 North, Range 4 West, Basin-Fruitland Coal Gas Pool, the W/2 of said Section 32 to be dedicated to said well to form a standard 320-acre gas spacing and proration unit for said pool. Said unit is located approximately 10 miles south of Mile Corner No. 233 located on the New Mexico/Colorado Stateline.
- CASE 9894: Application of Richmond Petroleum, Inc. for compulsory pooling, unorthodox coal gas well location, and a non-standard gas spacing and proration unit, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Basin-Fruitland Coal Gas Pool underlying Lots 1 through 4 and the S/2 N/2 of Irregular Section 11, Township 32 North, Range 6 West, forming a non-standard 232.80-acre gas spacing and proration unit for said pool, said unit to be dedicated to a well to be drilled at a non-standard coal gas well location 1130 feet from the North line and 760 feet from the West line (Unit E) of said Section 11. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is bounded to the north by the State of Colorado for one-half mile of either side of Astro-nomical Monument No. 8 located on the stateline.

- CASE 9895: Application of Richmond Petroleum, Inc. for compulsory pooling and an unorthodox coal gas well location, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Basin-Fruitland Coal Gas Pool underlying the S/2 of Irregular Section 11, Township 32 North, Range 6 West, forming a standard 320-acre gas spacing and proration unit for said pool, said unit to be dedicated to a well to be drilled at a non-standard coal gas well location 1800 feet from the South line and 230 feet from the West line (Unit L) of said Section 11. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located 1/2 mile south of Astronomical Monument No. 8 located on the Colorado/New Mexico State line.
- CASE 9896: Application of Siete Oil & Gas Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its Scottsdale Federal Lease underlying the NE/4 of Section 27, Township 18 South, Range 31 East, by the injection of water into the Shugart Yates-Seven Rivers-Queen-Grayburg Pool through the perforated interval from approximately 2475 feet to 3707 feet in its Scottsdale Federal Well No. 2 located 330 feet from the North line and 990 feet from the East line (Unit A) of said Section 27. Said well is located approximately 10 miles southeast of Loco Hills, New Mexico.
- CASE 9897: Application of Siete Oil & Gas Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its Sackett Federal Lease underlying the S/2 SW/4 and SW/4 SE/4 of Section 29, Township 17 South, Range 29 East, by the injection of water into the Grayburg Jackson Pool through the perforated interval from approximately 2300 feet to 3220 feet in its Sackett Federal Well No. 2 located 660 feet from the South line and 1650 feet from the West line (Unit N) of said Section 29. Said well is located approximately 7 miles west by south of Loco Hills, New Mexico.
- CASE 9898: Application of Doyle Hartman for compulsory pooling, a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool underlying the SE/4 SW/4 and SE/4 of Section 5 and the NE/4 NE/4 and NE/4 NW/4 of Section 8, all in Township 20 South, Range 37 East, forming a non-standard 280-acre gas spacing and proration unit for said pool. The applicant proposes to dedicate all production from the Eumont Gas Pool to the existing Britt-Laughlin Com. Well No. 5 (formerly the Oxy USA, Inc. Laughlin "B" Well No. 5) located 330 feet from the South line and 2310 feet from the East line (Unit O) of said Section 5 and to the existing Britt-Laughlin Com. Well No. 1 (formerly the Britt "B-8" Well No. 1) located 660 feet from the North line and 1980 feet from the West line (Unit C) of said Section 8 and to a third well to be drilled at an undetermined location in the SE/4 of said Section 5. Applicant further seeks to be designated operator of the non-standard gas proration unit so created and be entitled to recover out of the production therefrom his costs of drilling, completing and equipping a new infill well, plus a 200% risk factor for drilling, completing and equipping such new infill well, and an equitable and proper percentage of the value of the existing wellbores of applicant's Britt-Laughlin Com. Well Nos. 1 and 5, and all costs of supervision and operation of such non-standard gas proration unit, and that such order also provide for any other relief which may be deemed equitable and proper. The subject area is located approximately 2.25 miles south of Monument, New Mexico.
- CASE 9884: (Continued from March 7, 1990, Examiner Hearing)
- Application of OXY USA, Inc. for compulsory pooling, non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool underlying the SE/4 of Section 5 and the NE/4 NE/4 of Section 8, all in Township 20 South, Range 37 East, forming a non-standard 200-acre gas spacing and proration unit for said pool, said unit to be simultaneously dedicated to the existing Laughlin "B" Well No. 5 located 330 feet from the South line and 2310 feet from the East line (Unit O) of said Section 5, and to the plugged and abandoned Laughlin "B" Well No. 1 to be re-entered and recompleted in the Eumont Gas Pool at a standard gas well location 1980 feet from the South and East lines (Unit J) of said Section 5. Also to be considered will be the cost of re-entering and recompleting the Laughlin "B" Well No. 1 and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the unit and a charge for risk involved in the re-entering and recompletion of said well. Said unit is located approximately 2.25 miles south of Monument, New Mexico.

CASE 9885: (Continued from March 7, 1990, Examiner Hearing)

Application of Doyle Hartman for compulsory pooling, a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool underlying either the SE/4 SW/4 of Section 5 and the E/2 W/2 of Section 8, Township 20 South, Range 37 East, forming a non-standard 200-acre gas spacing and proration unit for said pool, or IN THE ALTERNATIVE, the SE/4 SW/4 of said Section 5 and the N/2 NE/4 and NE/4 NW/4 of said Section 8, forming a non-standard 160-acre gas spacing and proration unit for said pool. In either instance the applicant proposes to dedicate all production from the Eumont Gas Pool to the existing Britt "B-8" Well No. 1 located 660 feet from the North line and 1980 feet from the West line (Unit C) of said Section 8 and to a second well to be drilled at a standard gas well location within the applicable non-standard unit. Applicant further seeks to be designated operator of the non-standard gas proration unit so created and be entitled to recover out of the production therefrom its cost of drilling, completing and equipping a new infill well, plus a 200% risk factor for drilling, completing and equipping such infill well, plus an equitable and proper percentage of the value of the existing wellbore of said Britt "B-8" Well No. 1, and all costs of supervision and operation of such unit, and that such order also provide for any other relief which may be deemed equitable and proper. The subject area is located approximately 2.25 miles south of Monument, New Mexico.



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

GARREY CARRUTHERS
GOVERNOR

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

No. 1-90

MEMORANDUM

TO: All Operators

FROM: William J. LeMay, Director *WJL*

SUBJECT: Administrative Applications for Unorthodox Locations

DATE: March 21, 1990

Division Memorandum No. 3-89, dated March 24, 1989, advised the industry that the OCD would no longer automatically approve unopposed unorthodox location applications. Unorthodox locations can be approved administratively in accordance with the Rules and Regulations or applicable special pool rules if surface conditions truly prevent the use of a legal location and if directional drilling to a legal location is not feasible.

Topographic conditions which will be considered to justify an unorthodox location include such traditional factors as terrain features (steep slopes, arroyos, etc.) which make drilling impractical. In addition, approval may be given to avoid archeological sites which may not be disturbed without substantial mitigation, incompatible surface uses such as buildings, recreation areas, etc. Applications should fully document the reason an unorthodox location is required.

The attached guidelines state the minimum information which should be submitted with applications for administrative approval of unorthodox locations. Failure to provide the necessary information will probably result in processing delays.

If the surface of the proration unit or proposed drill site is controlled by a Federal Surface Management Agency, a copy of the application must be sent to the appropriate agency office.

If there are legal locations within the proration unit which are drillable, but the operator chooses not to drill those locations for geological reasons the application cannot be approved administratively and a hearing will be required.

NEW MEXICO OIL CONSERVATION DIVISION

SUBMITTAL GUIDELINES FOR ADMINISTRATIVE APPROVAL OF NON-STANDARD LOCATION APPLICATIONS

- I. If the well is located on Federal or Indian Lands, the Federal Surface Management Agency must be notified and an on-site inspection conducted prior to filing the application. If an Application for Permit to drill or a Notice of Staking has been prepared, a copy must be submitted.
- II. Completed C-102 showing the well location, proration unit, leases within the unit and other required information.
- III. Land plat showing offset operators and working interest owners and any offsetting wells producing from the same pool or formation.
 - A. This information may be shown on the topo map if it does not impair the readability of the map.
 - B. The operator should certify that the information is current and correct.
- IV. Original or clear copy of topographic map, preferably 7.5 minute quad, showing contours and other mapped features impacting the location, with the following information marked thereon (In order to be able to adequately show all of the necessary surface conditions it may be necessary to enlarge the relevant portion of the topo map to provide room for detail):
 - A. The proposed well location and proration unit;
 - B. An outline of the orthodox drilling windows as provided in the applicable rules for the subject application;
 - C. The location of any wells to any formation within the area of the proration unit and a statement as to whether an existing pad can be used to drill the proposed well;
- V. An enlargement of the topo map showing the subject area with the applicable additional information:
 - A. Terrain features not shown on the map which make an orthodox location unusable;
 - B. Proposed access roads and pipelines if they affect the location selection;
 - C. The location of any surface uses which prevent use of a legal location;

- D. The location of any archeological sites identified in the archeological survey;
- E. The location and nature of any other surface conditions which prevent the use of an orthodox location.
- VI. If archeological sites are a reason for the unorthodox location request, a copy of the archeological survey, or a summary, identifying sites which cannot be disturbed or which must have any disturbance mitigated. In addition, the location of such areas should be marked on the enlarged topo so they can be clearly identified.
- VII. A narrative report of any on-site inspection of the potential locations. If such on-site has resulted in elimination of legal locations due to surface conditions, such information should also be noted on the enlarged topo.
- VIII. A statement of why directional drilling to reach a legal bottom-hole location is not feasible.
- IX. An affidavit that notice has been sent to all parties entitled thereto, under the Divisions Rules and Regulations with return receipt cards showing date of receipt of notice.

Dockets Nos. 11-90 and 12-90 are tentatively set for April 18, 1990 and May 2, 1990. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 4, 1990
8:15 A.M. - OIL CONSERVATION DIVISION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

The following cases will be heard before David R. Catanach, Examiner, or Michael E. Stogner, Alternate Examiner:

- ALLOWABLE:**
- (1) Consideration of the allowable production of gas for May, 1990, from fourteen prorated gas pools in Lea, Eddy, and Chaves Counties, New Mexico.
 - (2) Consideration of the allowable production of gas for May, 1990, from four prorated gas pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 9899: Application of BTA Oil Producers for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox gas well location 330 feet from the North and East lines (Unit A) of Section 20, Township 22 South, Range 23 East, to test the Undesignated Indian Basin-Upper Pennsylvanian Gas Pool, all of said Section 20 to be dedicated to said well forming a standard 640-acre gas spacing and proration unit for the pool. Said well location is approximately 6.25 miles south-southwest of the Marathon Oil Company Indian Basin Gas Plant.

CASE 9900: Application of Santa Fe Energy Operating Partners, L.P. for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox gas well location 660 feet from the North and East lines (Unit A) of Section 10, Township 20 South, Range 24 East, to test the Undesignated Cemetery-Morrow Gas Pool, the E/2 of said Section 10 to be dedicated to said well forming a standard 320-acre gas spacing and proration unit for said pool. The proposed well site is located approximately 8 miles north of Marathon Oil Company's Indian Basin Gas Plant.

CASE 9888: (Continued from March 21, 1990, Examiner Hearing.)

Application of Conoco Inc. for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the North Dagger Draw-Upper Pennsylvanian Pool underlying the SE/4 of Section 36, Township 19 South, Range 24 East, forming a standard 160-acre oil spacing and proration unit for said pool, to be dedicated to its existing Dee State Well No. 1 located at a standard oil well location 1980 feet from the South and East lines (Unit J) of said Section 36 (said well is presently completed in the Cemetery-Morrow Gas Pool). Also to be considered will be the cost of re-entering, recompleting, equipping and operating said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in re-entering and recompleting said well. Said unit is located approximately 13 miles west by north of Seven Rivers, New Mexico.

CASE 9893: (Continued from March 21, 1990, Examiner Hearing.)

Application of Pacific Enterprises Oil Company (USA) for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Atoka and Morrow formations underlying the W/2 of Section 28, Township 18 South, Range 27 East, forming a standard 320-acre gas spacing and proration unit for any and all formations and/or pools developed on 320-acre spacing within said vertical extent, which presently includes but is not necessarily limited to either the Undesignated Red Lake-Pennsylvanian Gas Pool or the Undesignated Red Lake Atoka-Morrow Gas Pool. Said unit is to be dedicated to its Trigg "28" Federal Well No. 1 to be drilled at a standard gas well location 2030 feet from the North line and 1980 feet from the West line (Unit F) of said Section 28. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is approximately 4 miles west by north of Old Illinois Oil Camp.

CASE 9901: Application of Pacific Enterprises Oil Company (USA) for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the top of the Wolfcamp formation to the base of the Morrow formation underlying the W/2 of Section 21, Township 23 South, Range 26 East, forming a standard 320-acre gas spacing and proration unit for any and all formations and/or pools developed on 320-acre spacing within said vertical extent, which presently includes but is not necessarily limited to the Undesignated Frontier Hills-Strawn Gas Pool, Undesignated North Black River-Atoka Gas Pool, and Undesignated South Carlsbad-Morrow Gas Pool, said unit to be dedicated to a well to be drilled at a standard gas well location in the NW/4 of said Section 21. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located approximately 4 miles northeast by north of the Carlsbad Municipal Airport.

CASE 9881: (Continued from March 21, 1990, Examiner Hearing.)

Application of Richmond Petroleum, Inc. for unorthodox coal gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox coal gas well location for its Federal 31-4-32 Well No. 2 to be drilled 617 feet from the South line and 1939 feet from the West line (Unit N) of Section 32, Township 31 North, Range 4 West, Basin-Fruitland Coal Gas Pool, the W/2 of said Section 32 to be dedicated to said well to form a standard 320-acre gas spacing and proration unit for said pool. Said unit is located approximately 10 miles south of Mile Corner No. 233 located on the New Mexico/Colorado Stateline.

CASE 9894: (Continued from March 21, 1990, Examiner Hearing.)

Application of Richmond Petroleum, Inc. for compulsory pooling, unorthodox coal gas well location, and a non-standard gas spacing and proration unit, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Basin-Fruitland Coal Gas Pool underlying Lots 1 through 4 and the S/2 N/2 of Irregular Section 11, Township 32 North, Range 6 West, forming a non-standard 232.80-acre gas spacing and proration unit for said pool, said unit to be dedicated to a well to be drilled at a non-standard coal gas well location 1130 feet from the North line and 760 feet from the West line (Unit E) of said Section 11. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is bounded to the north by the State of Colorado for one-half mile of either side of Astronomical Monument No. 8 located on the Colorado/New Mexico stateline.

CASE 9895: (Continued from March 21, 1990, Examiner Hearing.)

Application of Richmond Petroleum, Inc. for compulsory pooling and an unorthodox coal gas well location, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Basin-Fruitland Coal Gas Pool underlying the S/2 of Irregular Section 11, Township 32 North, Range 6 West, forming a standard 320-acre gas spacing and proration unit for said pool, said unit to be dedicated to a well to be drilled at a non-standard coal gas well location 1800 feet from the South line and 230 feet from the West line (Unit L) of said Section 11. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well and a charge for risk involved in drilling said well. Said unit is located 1/2 mile south of Astronomical Monument No. 8 located on the Colorado/New Mexico stateline.

CASE 9902: Application of Hanson Operating Company for salt water disposal, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Diablo-San Andres Pool in the perforated interval from approximately 2034 feet to 2082 feet in its Hanlad "A" State Battery No. 1 Well No. 1 located 1650 feet from the South line and 330 feet from the East line (Unit I) of Section 28, Township 10 South, Range 27 East. Said well is located approximately 3/4 of a mile south-southwest of Mile Market No. 175 on U.S. Highway 380.

CASE 9882: (Continued from March 21, 1990, Examiner Hearing.)

Application of Controlled Recovery, Inc. for an oil treating plant permit, for surface waste disposal and an exception to Order No. R-3221, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority for construction and operation of the surface waste disposal facility and an oil treating plant for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation or storage of produced water, drilling fluids, drill cuttings, completion fluids and other oil field related waste in unlined surface pits, at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East. This site is located on either side of U.S. Highway 62/180 at Mile Marker No. 66.

CASE 9903: Application of Yates Petroleum Corporation for directional drilling and an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its proposed Gazelle "AHG" Federal Com. Well No. 1 at a surface location 1312 feet from the North line and 1844 feet from the West line (Unit C) of Section 15, Township 20 South, Range 29 East, wherein the applicant proposes to deviate said well to within 50 feet of the following targeted locations;

1. On the Strawn formation - 1980 feet from the South and East lines (Unit J) of said Section 15; wherein either the S/2 (320-acre unit) will be dedicated to the wellbore if the completed interval is determined to be within the East Burton Flat-Strawn Gas Pool or the NW/4 SE/4 (40-acre unit) would be dedicated if it is determined to be within the South Parkway-Strawn Pool; and,
2. In the Morrow formation - 1472 feet from the South line and 1540 feet from the East line (Unit J) of said Section 15 (which is an unorthodox gas well location), said well to be dedicated to the S/2 of said Section 15 forming a standard 320-acre gas spacing and proration unit for the Undesignated East Burton-Flat Morrow Gas Pool. Said well location is approximately 4 miles northwest of the junction of US Highway 62/180 and New Mexico State Highway 31.

CASE 9904: Application of Massau Resources, Inc. for unorthodox coal gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox coal gas well location 470 feet from the South line and 1190 feet from the East line (Unit P) of Irregular Section 12, Township 32 North, Range 4 West, to test the Basin-Fruitland Coal Gas Pool, all of said Section 12 to be dedicated to said well forming a 266.55-acre gas spacing and proration unit for said pool. Said drilling tract is located within the Carson National Forest and is bounded to the north by the State of Colorado at Mile Corner No. 229.

CASE 9905: Application of Massau Resources, Inc. for unorthodox coal gas well location, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for an unorthodox coal gas well location for its Carracas Unit "25-B" Well No. 3 to be drilled 920 feet from the North line and 1850 feet from the West line (Unit C) of Section 25, Township 32 North, Range 4 West, to test the Basin-Fruitland Coal Gas Pool, the N/2 of said Section 25 to be dedicated to said well forming a standard 320-acre gas spacing and proration unit for said pool. Said drilling tract is located on the Carson National Forest approximately 3 miles south of Mile Corner No. 229 located on the Colorado/New Mexico stateline.

CASE 9897: (Continued from March 21, 1990, Examiner Hearing.)

Application of Siete Oil & Gas Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its Sackett Federal Lease underlying the S/2 SW/4 and SW/4 SE/4 of Section 29, Township 17 South, Range 29 East, by the injection of water into the Grayburg Jackson Pool through the perforated interval from approximately 2300 feet to 3220 feet in its Sackett Federal Well No. 2 located 660 feet from the South line and 1650 feet from the West line (Unit M) of said Section 29. Said well is located approximately 7 miles west by south of Loco Hills, New Mexico.

CASE 9878: (Continued from March 21, 1990, Examiner Hearing.)

Application of Chevron USA Inc. for a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 160-acre non-standard gas proration unit comprising the W/2 NE/4, SE/4 NE/4, and SE/4 NW/4 of Section 8, Township 20 South, Range 37 East, Eumont Gas Pool. Said unit is to be simultaneously dedicated to the Bertie Whitmire Well Nos. 1 and 2 located at standard gas well locations 1980 feet from the North and East lines (Unit G) and 660 feet from the North line and 1980 feet from the East line (Unit B) of said Section 8, respectively. Said area is located approximately 2.25 miles south of Monument, New Mexico.

CASE 9885: (Continued from March 21, 1990, Examiner Hearing.)

Application of Doyle Hartman for compulsory pooling, a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool underlying either the SE/4 SW/4 of Section 5 and the E/2 W/2 of Section 8, Township 20 South, Range 37 East, forming a non-standard 200-acre gas spacing and proration unit for said pool, or IN THE ALTERNATIVE, the SE/4 SW/4 of said Section 5 and the W/2 NE/4 and NE/4 NW/4 of said Section 8, forming a non-standard 160-acre gas spacing and proration unit for said pool. In either instance the applicant proposes to dedicate all production from the Eumont Gas Pool to the existing Britt "B-8" Well No. 1 located 660 feet from the North line and 1980 feet from the West line (Unit C) of said Section 8 and to a second well to be drilled at a standard gas well location within the applicable non-standard unit. Applicant further seeks to be designated operator of the non-standard gas proration unit so created and be entitled to recover out of the production therefrom its cost of drilling, completing and equipping a new infill well, plus a 200% risk factor for drilling, completing and equipping such infill well, plus an equitable and proper percentage of the value of the existing wellbore of said Britt "B-8" Well No. 1, and all costs of supervision and operation of such unit, and that such order also provide for any other relief which may be deemed equitable and proper. The subject area is located approximately 2.25 miles south of Monument, New Mexico.

CASE 9898: (Continued from March 21, 1990, Examiner Hearing.)

Application of Doyle Hartman for compulsory pooling, a non-standard gas proration unit and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Eumont Gas Pool underlying the SE/4 SW/4 and SE/4 of Section 5 and the NE/4 NE/4 and NE/4 NW/4 of Section 8, all in Township 20 South, Range 37 East, forming a non-standard 280-acre gas spacing and proration unit for said pool. The applicant proposes to dedicate all production from the Eumont Gas Pool to the existing Britt-Laughlin Com. Well No. 5 (formerly the Oxy USA, Inc. Laughlin "B" Well No. 5) located 330 feet from the South line and 2310 feet from the East line (Unit O) of said Section 5 and to the existing Britt-Laughlin Com. Well No. 1 (formerly the Britt "B-8" Well No. 1) located 660 feet from the North line and 1980 feet from the West line (Unit C) of said Section 8 and to a third well to be drilled at an undetermined location in the SE/4 of said Section 5. Applicant further seeks to be designated operator of the non-standard gas proration unit so created and be entitled to recover out of the production therefrom his costs of drilling, completing and equipping a new infill well, plus a 200% risk factor for drilling, completing and equipping such new infill well, and an equitable and proper percentage of the value of the existing wellbores of applicant's Britt-Laughlin Com. Well Nos. 1 and 5, and all costs of supervision and operation of such non-standard gas proration unit, and that such order also provide for any other relief which may be deemed equitable and proper. The subject area is located approximately 2.25 miles south of Monument, New Mexico.

CASE 9906: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating and extending certain pools in Lea County, New Mexico.

- a. CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Yeso production and designated as the Humble City-Yeso Pool. The discovery well is the Yates Petroleum Corporation Humble City ADH Well No. 1 located in Unit O of Section 11, Township 17 South, Range 37 East, NMPM. Said pool would comprise:

TOWNSHIP 17 SOUTH, RANGE 37 EAST, NMPM
Section 11: SE/4

- b. EXTEND the South Corbin-Bone Spring Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM
Section 29: W/2
Section 32: NW/4

- c. EXTEND the West Corbin-Delaware Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 13: NE/4

- d. EXTEND the Denton-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 37 EAST, NMPM
Section 25: NW/4

e. EXTEND the South Flying M-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 32 EAST, NMPM
Section 14: SE/4

f. EXTEND the Flying M-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 33 EAST, NMPM
Section 4: SW/4
Section 5: SE/4
Section 9: NW/4

g. EXTEND the Gem-Bone Spring Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 33 EAST, NMPM
Section 31: SE/4
Section 32: S/2

h. EXTEND the Hat Mesa-Delaware Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 32 EAST, NMPM
Section 4: Lots 1, 2, 7 and 8

i. EXTEND the King-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 37 EAST, NMPM
Section 1: W/2

j. EXTEND the Lane-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 33 EAST, NMPM
Section 26: SE/4

k. EXTEND the Quail Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 34 EAST, NMPM
Section 6: N/2

l. EXTEND the Skaggs-Abo Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM
Section 15: S/2

m. EXTEND the Wantz-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM
Section 22: N/2
Section 23: NW/4

n. EXTEND the Young-Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 16: NE/4

NOTICE

NOTICE

NOTICE

COMMENTS IN CASE 9018 SCHEDULED TO BE HEARD BEFORE THE OIL CONSERVATION COMMISSION ON MAY 24, 1990, WILL BE ACCEPTED BY THE COMMISSION UNTIL THE TIME OF THE HEARING. TESTIMONY AND ORAL OR WRITTEN COMMENTS MAY BE PRESENTED AT THE HEARING. SAID CASE 9018 CONCERNS THE AMENDMENT OF RULE 11(b) OF ORDER NO. R-8170-A RELATING TO OVERPRODUCTION LIMITS.

Proposal for an Oil Treating Plant
Permit and Surface Waste Disposal
in Lea County, New Mexico

Prepared for

Controlled Recovery Inc.
Hobbs, New Mexico
February 1990

By

James I. Wright
Consulting Hydrologist
Roswell, New Mexico

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PROPOSAL FOR AN OIL TREATING PLANT PERMIT
AND SURFACE WATER DISPOSAL
IN LEA COUNTY, NEW MEXICO

INTRODUCTION

On September 22, 1989 I was contacted by Ken Marsh and asked to review existing hydrological reports covering western Lea County and evaluate the possibility of constructing a surface disposal system on land owned by him located in the N 1/2 S 1/2 and S 1/2 N 1/2 of Section 27, T. 20 S., R. 32 E.

After reviewing these reports and collecting as much basic geohydrological data that was available from the United States Geological Survey, the New Mexico State Engineer, the U.S. Bureau of Land Management and other minor sources, I advised Mr. Marsh that there was a possibility of getting a permit from the Oil Conservation Division, but that we would need to drill some exploratory holes in the immediate area in order to obtain sufficient data to do some detailed sub-surface mapping in order to determine the direction of ground water movement from the proposed site.

On October 31, 1989, seven exploratory holes were drilled by Larry's Drilling and Pump Co. of Hobbs, New Mexico on the property owned by Ken Marsh in Section 27, T. 20 S., R. 32 E. On January 26, 1990, three additional exploratory holes were drilled on U.S.B.L.M. land in the immediate vicinity of the Ken Marsh property. Larry's Drilling and Pump Co. of Hobbs also drilled these holes. Data collected from these holes as well as data collected from previously drilled holes and existing wells is shown in Table I of this report.

GENERAL GEOLOGY

The site is located in western Lea County in the southern portion of the Querecho Plains. A group of four playa lakes are located within the general area with the closest one being Laguna Toston, located about 1 mile northwest of the site. Laguna

Toston has a surface area of approximately 160 acres and is presently being used as a disposal pond by one of the potash companies.

A geologic map of southern Lea County taken from U.S. Bureau of Mines Ground-Water Report 6 is included in this report as Figure III. An inspection of this map shows that the surface geology consists of alluvial material in the vicinity of the proposed site.

LOCAL GEOLOGY

The area covered by this study includes most of Township 20 South, Range 32 East, with the principal area of interest being Section 27. The Quaternary alluvium in the immediate vicinity of Section 27 varies in thickness from 0 to 45 feet. The underlying Red Beds of Triassic and Permian age are approximately 800 feet thick. These formations consist predominantly of clays and siltstones, but some very fine grained sandstone may also be present. The upper part of these Red Beds is believed to be Chinle Formation and the lower portion Dewey Lake Red Beds. These formations are underlain by the Rustler Formation which is about 300 feet thick underneath the site area. The Rustler Formation consists primarily of anhydride or gypsum with some limestone and clays.

HYDROLOGY

The alluvium at the proposed site area is less than 45 feet thick with the thickness of the saturated sediments varying from 0 to 8 feet. Test hole #1a located in the NE 1/4 NE 1/4 NE 1/4 NE 1/4 of Section 28, T. 20 S., R. 32 E. has a saturated thickness of 13 feet. The ground water movement through the alluvium in the vicinity of the proposed site is toward the playa lakes (Laguna Toston and Laguna Plata). The water table gradient is approximately 15 feet per mile. Recharge to the aquifer is from rainfall which only averages about 9 inches per year in this area and consequently is not considered a significant source of recharge.

A bailing test ran on test hole #5 on November 9, 1989 by Ken Marsh indicates that the permeability of the water bearing formation is very low. Hole was bailed dry in 1 hour. Bailing test produced 2 gallons of water in 15 minutes or 0.13 gallons per minute. Test hole #3 was dry when completed on November 1, 1989. On November 9, 1989 the fluid level was 41.1 feet below land surface and on November 21, 1989 it was 32.56 feet below land surface. Test hole #7 had a fluid level of 49.07 feet below land surface on November 1, 1989, 38.25 feet on November 9, 1989, 33.31 feet on November 21, 1989 and 33.33 feet on January 26, 1990. The long period of time that it took the fluid to reach equilibrium in the holes is also an indicator of low permeability. Although there is some water in ground water storage underneath the proposed site, it is not economically feasible to produce this water due to the extremely low yields. Most of the ranches in this area of Lea County obtain their water from water transmission lines which deliver Ogallala water from wells in the Buckeye area to the potash mines located in western Eddy County.

QUALITY

Ken Marsh had water samples collected from all of the holes in the vicinity of the proposed site on February 6, 1990. These samples were analyzed by Rozanne Johnson, Bacteriologist for the City of Hobbs laboratory. According to Mr. Marsh, it was her opinion that the water was unfit for human or animal consumption. Copies of her analysis are included in this report.

SUMMARY AND CONCLUSIONS

The alluvium in the vicinity of Section 27, T. 20 S., R. 32 E. is thin and contains only minimal quantities of ground water. Production of this water from wells is not feasible due to the low well capacities. The only water wells presently being used are located over one mile east of the proposed site and are up gradient from the water table altitude at the proposed site. Microbiological water reports of the shallow ground water underlying the proposed site indicate that the water is not potable.

In my opinion the disposal of brine in surface disposal pits at the proposed site located in Section 27, T.20 S., R. 32 E. will not contaminate any fresh ground water supplies. Water from these pits will migrate downward until it reaches the base of the alluvium. Since the upper part of the Triassic is relatively impermeable the water will move laterally down gradient and eventually discharge into the playa lakes located to the north. The volume of the east pit shown on Figure I is approximately 368,000 barrels; and the volume of the west pit is approximately 336,000 barrels.

Down alluv-
- reached contact
until gw
reached then
down gradient

WELL-NUMBERING SYSTEM

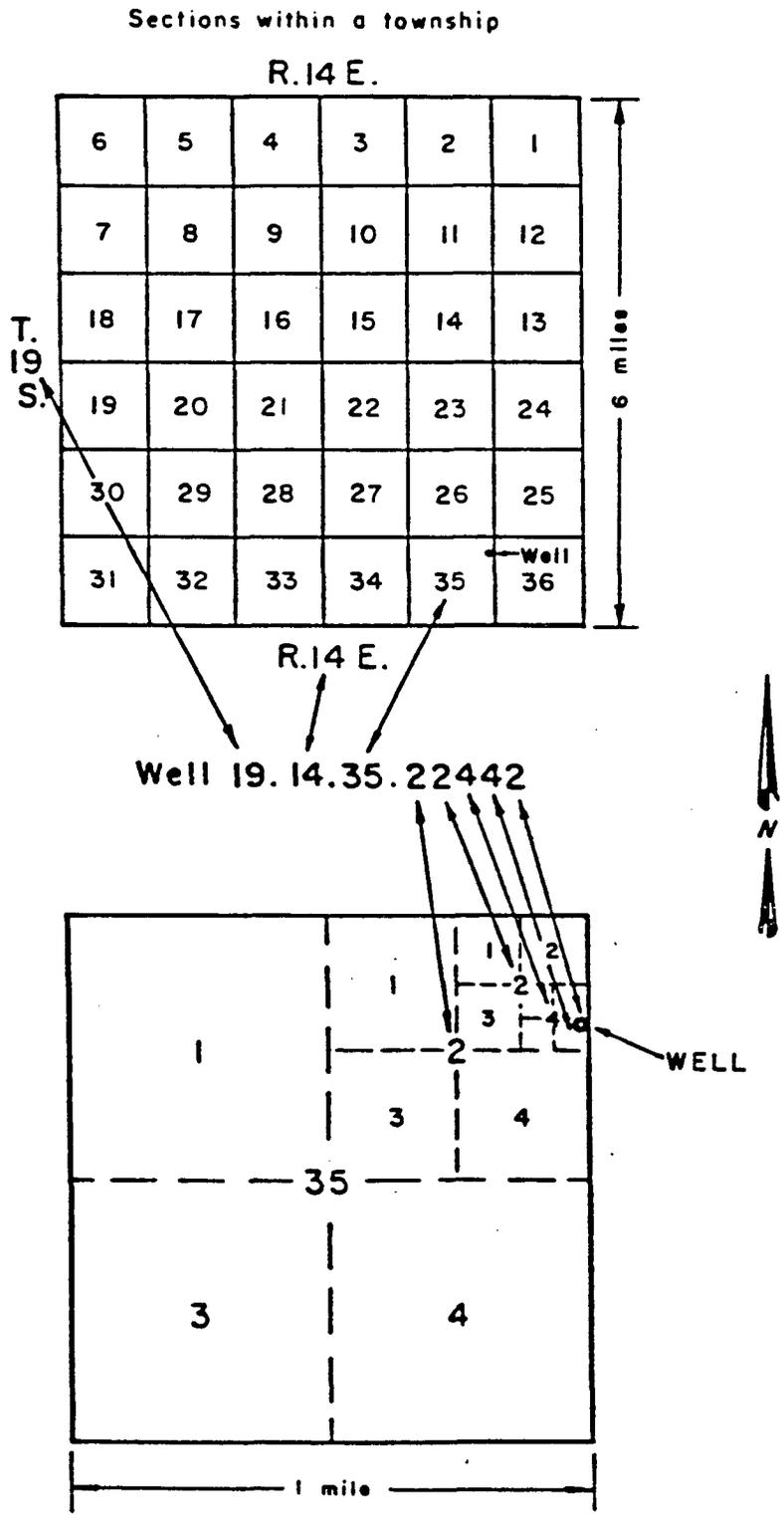
The system of numbering wells in New Mexico is based on the common subdivisions in sectionized land, and, by means of it, the well number, in addition to designating the well, locates its position to the nearest 0.625-acre tract in the land net. The number is divided into four segments by periods. The first segment denotes the township north or south of the New Mexico base line; the second denotes the range east or west of the New Mexico principal meridian; and the third denotes the section. An "N" is added to the first segment of the well number if the well is north of the base line, but no letter is added if the well is south of the base line. Similarly, where wells are located west of the meridian, a "W" is added to the second segment of the well number of those wells west of the meridian but no letter is added if the well is east of the meridian.

The fourth segment of the number, which consists of five digits, denotes the particular 0.625-acre tract in which the well is situated. For this purpose the section is divided into four quarters numbered 1, 2, 3, and 4, in the normal reading order, for the northwest, northeast, southwest, and southeast quarters, respectively. The first digit of the fourth segment gives the quarter section, which is a tract of 160 acres. Similarly, the quarter section is divided into four 40-acre tracts numbered in the same manner, and the second digit denotes the 40-acre tract. The 40-acre tract is divided into four 10-acre tracts and the third digit denotes the 10-acre tract. The 10-acre tract is divided into four 2.5-acre tracts and the fourth digit denotes the 2.5-acre tract. The 2.5-acre tract is divided into four tracts containing 0.625 acres each and the fifth digit determines this tract. Thus, well 12.36.24.12311 in Lea County is in the NW 1/4 NW 1/4 SW 1/4 NE 1/4 NW 1/4 Sec. 24, T. 12 S., R. 36 E. If a well cannot be located accurately to a 10-acre tract, a zero is used as the third digit, and if it cannot be located accurately within a 40-acre tract, zeros are used for both the second and third digits. If the well cannot be located more closely than the section, the fourth segment of the well number is omitted.

Letters a, b, c, - - - - - are added to the last segment to designate the second, third, fourth and succeeding wells in the same 0.625-acre tract.

The following diagram shows the method of numbering the tracts within a section:

Diagram: System of numbering wells in New Mexico.



Tracts within a section

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RECORD OF DRILL HOLES IN THE VICINITY OF SECTION 27 T20S R32E

LOCATION NUMBER	OWNER	AQUIFER	HOLE DEPTH	LAND SURFACE ELEVATION	WATER LEVEL	DATE MEASURED	WATER TABLE ELEVATION	WATER THICKNESS		RED BED ELEVATION	CASING SIZE	USE OF WATER	REMARKS
								OF ALLUVIUM	TO RED BED				
20.32.01.314114	V. N. SNYDER	ALLUVIUM	30	3510.0	21.77	07-01-54	3488	UNK	UNK	0	6"	STOCK	WELL DRY IN 1968
20.32.22.322142	KEN MARSH	ALLUVIUM	55	3527.0	35.40	01-26-90	3492	45	45	3482	3"	NONE	TEST HOLE #2a <i>568cl</i>
20.32.22.322142	KEN MARSH	ALLUVIUM	55	3527.0	35.00	02-05-90	3492	45	45	3482	3"	NONE	REPT. WATER LEVEL
20.32.22.322142	KEN MARSH	ALLUVIUM	55	3527.0	35.80	02-16-90	3491	45	45	3482	3"	NONE	JETTED DRY 2-5-90
20.32.23.33132	UNK	ALLUVIUM	UNK	3541.0	39.14	02-25-76	3502	UNK	UNK	0	7"	NONE	UNEQUIPPED WELL
20.32.23.33132	UNK	ALLUVIUM	UNK	3541.0	39.83	02-19-81	3501	UNK	UNK	0	7"	NONE	UNEQUIPPED WELL
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	39.40	05-29-68	3512	UNK	UNK	0	6"	STOCK	SUBMERSIBLE PUMP
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	37.46	02-02-71	3514	UNK	UNK	0	6"	STOCK	SUBMERSIBLE PUMP
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	36.78	02-19-81	3514	UNK	UNK	0	6"	NONE	WELL ABANDONED
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	38.42	03-25-86	3513	UNK	UNK	0	6"	NONE	WELL ABANDONED
20.32.23.43312A	BILL STANFORD	ALLUVIUM	UNK	3551.0	37.63	02-19-81	3513	UNK	UNK	0	6"	NONE	UNEQUIPPED
20.32.24.33333	G.H. BINGHAM	ALLUVIUM	65	3555.0	38.55	05-29-68	3516	UNK	UNK	0	6"	STOCK	WINDMILL
20.32.24.33333	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.59	02-02-71	3517	UNK	UNK	0	6"	STOCK	WINDMILL
20.32.24.33333	G.H. BINGHAM	ALLUVIUM	65	3555.0	35.33	02-24-76	3520	UNK	UNK	0	6"	STOCK	WINDMILL
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	38.04	05-29-68	3517	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.83	02-02-71	3517	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.42	09-11-72	3518	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	35.68	02-24-76	3519	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.69	02-19-81	3517	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	38.99	03-25-86	3516	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	23.91	11-01-89	3505	32	32	3497	3"	NONE	TEST HOLE #6
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	23.63	11-09-89	3505	32	32	3497	3"	NONE	REPT. WATER LEVEL
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	23.77	11-21-89	3505	32	32	3497	3"	NONE	TEST HOLE #6
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	24.50	02-16-90	3505	32	32	3497	3"	NONE	TEST HOLE #6
20.32.27.14332	JOEL FREY	ALLUVIUM	25	3539.0	23.32	09-18-72	3516	UNK	UNK	0	DUG	NONE	WINDMILL
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	25.91	11-01-89	3513	34	34	3505	3"	NONE	TEST HOLE #5
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	25.50	11-09-89	3514	34	34	3505	3"	NONE	REPT. WATER LEVEL
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	25.88	11-21-89	3513	34	34	3505	3"	NONE	TEST HOLE #5
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	26.44	02-16-90	3513	34	34	3505	3"	NONE	TEST HOLE #5
20.32.27.234210	KEN MARSH	NONE	50	3542.0	DRY	11-01-89	0	34	34	3508	3"	NONE	TEST HOLE #3
20.32.27.234210	KEN MARSH	ALLUVIUM	50	3542.0	41.10	11-09-89	3501	34	34	3508	3"	NONE	REPT. WATER LEVEL
20.32.27.234210	KEN MARSH	ALLUVIUM	50	3542.0	32.56	11-21-89	3509	34	34	3508	3"	NONE	TEST HOLE #3
20.32.27.234210	KEN MARSH	ALLUVIUM	50	3542.0	34.41	02-16-90	3508	34	34	3508	3"	NONE	JETTED DRY 2-5-90
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	49.07	11-01-89	3492	35	35	3506	3"	NONE	TESTHOLE #7
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	38.25	11-09-89	3503	35	35	3506	3"	NONE	REPT. WATER LEVEL
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	33.31	11-21-89	3508	35	35	3506	3"	NONE	TESTHOLE #7
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	33.33	02-16-90	3508	35	35	3506	3"	NONE	TESTHOLE #7
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	15.30	03-29-68	3512	UNK	UNK	0	6"	STOCK	PUMP SHUT OFF 34 MIN.
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	0.94	02-25-76	3526	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	15.33	02-19-81	3512	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	17.60	11-01-89	3509	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	17.53	11-21-89	3509	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	17.40	02-16-90	3510	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED

TABLE 1

2250 cl

37,275 cl

00

RECORD OF DRILL HOLES IN THE VICINITY OF SECTION 27 T20S R32E

LOCATION NUMBER	OWNER	AQUIFER	HOLE DEPTH	LAND SURFACE ELEVATION	WATER LEVEL	DATE MEASURED	WATER TABLE ELEVATION	THICKNESS OF ALLUVIUM		RED BED ELEVATION	RED BED ELEVATION	CASING SIZE	USE OF WATER	REMARKS
								DEPTH	TO					
20.32.27.322333	T. BINGHAM	ALLUVIUM	75	3530.0	16.55	02-02-71	3513	UNK	UNK	0	6 5/8"	STOCK	WINDMILL	
20.32.27.322333	T. BINGHAM	ALLUVIUM	75	3530.0	4.69	02-25-89	3525	UNK	UNK	0	6 5/8"	STOCK	WINDMILL	
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	11-01-89	0	39	3511	3511	3"	NONE	TEST HOLE #4	
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	11-09-89	0	39	3511	3511	3"	NONE	REPT. WATER LEVEL	
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	11-21-89	0	39	3511	3511	3"	NONE	TEST HOLE #4	
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	02-16-90	0	39	3511	3511	3"	NONE	TEST HOLE #4	
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	11-01-89	0	38	3508	3508	3"	NONE	TEST HOLE #2	
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	11-09-89	0	38	3508	3508	3"	NONE	REPT. WATER LEVEL	
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	11-21-89	0	38	3508	3508	3"	NONE	TEST HOLE #2	
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	02-16-90	0	38	3508	3508	3"	NONE	TEST HOLE #2	
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	11-01-89	0	39	3494	3494	3"	NONE	TEST HOLE #1	
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	11-09-89	0	39	3494	3494	3"	NONE	REPT. WATER LEVEL	
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	11-21-89	0	39	3494	3494	3"	NONE	TEST HOLE #1	
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	02-16-90	0	39	3494	3494	3"	NONE	TEST HOLE #1	
20.32.28.222224	KEN MARSH	ALLUVIUM	37	3519.0	14.76	01-26-90	3504	28	3491	3491	3"	NONE	TEST HOLE #1a	136,675
20.32.28.222224	KEN MARSH	ALLUVIUM	37	3519.0	14.00	02-05-90	3505	28	3491	3491	3"	NONE	REPT. WATER LEVEL	ll
20.32.28.222224	KEN MARSH	ALLUVIUM	37	3519.0	14.87	02-16-90	3504	28	3491	3491	3"	NONE	TEST HOLE #1a	
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	17.25	01-26-90	3505	20	3502	3502	3"	NONE	TEST HOLE #3a	95,850
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	15.20	02-05-90	3507	20	3502	3502	3"	NONE	REPT. WATER LEVEL	
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	15.95	02-13-90	3506	20	3502	3502	3"	NONE	REPT. WATER LEVEL	
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	17.32	02-16-90	3505	20	3502	3502	3"	NONE	REPT. WATER LEVEL	
20.32.36.21424	G.H. BINGHAM	ALLUVIUM	60	3585.0	46.60	06-06-55	3538	UNK	UNK	0	6 5/8"	DOM	PUMPED RECENTLY	
20.32.36.21442	G.H. BINGHAM	ALLUVIUM	50	3581.0	43.88	09-18-72	3537	UNK	UNK	0	DUG	DOM	WINDMILL	
20.32.36.22311	G.H. BINGHAM	ALLUVIUM	65	3586.0	44.51	05-29-68	3541	UNK	UNK	0	6"	STOCK	PUMPING	
20.32.36.22311	G.H. BINGHAM	ALLUVIUM	65	3586.0	46.01	02-03-71	3540	UNK	UNK	0	6"	STOCK	PUMPING	
20.32.36.22311	G.H. BINGHAM	ALLUVIUM	65	3586.0	41.26	02-25-76	3545	UNK	UNK	0	6"	STOCK	WINDMILL BROKEN	
20.32.36.22311	BILL SMITH	ALLUVIUM	65	3586.0	45.82	02-19-81	3540	UNK	UNK	0	6"	STOCK	WINDMILL	
21.31.01.13143	MIKE CAMPBELL	ALLUVIUM	36	3576.1	30.31	05-29-68	3546	UNK	UNK	0	10 3/4"	STOCK	WINDMILL	
21.31.01.13143	MIKE CAMPBELL	ALLUVIUM	36	3576.1	26.31	02-03-71	3550	UNK	UNK	0	10 3/4"	STOCK	WINDMILL	
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	20.80	09-18-72	3555	UNK	UNK	0	10 3/4"	STOCK	WINDMILL	
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	19.68	02-25-76	3556	UNK	UNK	0	10 3/4"	STOCK	WINDMILL	
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	24.34	12-28-76	3552	UNK	UNK	0	10 3/4"	STOCK	WINDMILL	
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	DRY	01-17-81	0	UNK	UNK	0	10 3/4"	NONE	WELL DRY	
21.31.02.22123	MIKE CAMPBELL	ALLUVIUM	35	3572.7	30.10	05-29-68	3543	UNK	UNK	0	UNK	STOCK	WINDMILL	
21.31.02.22123	MIKE CAMPBELL	ALLUVIUM	35	3572.7	30.59	02-02-71	3542	UNK	UNK	0	UNK	STOCK	WINDMILL	
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	29.80	09-18-72	3543	UNK	UNK	0	UNK	STOCK	WINDMILL	
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	28.67	02-25-76	3544	UNK	UNK	0	UNK	STOCK	WINDMILL	
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	30.26	12-28-76	3542	UNK	UNK	0	UNK	STOCK	WINDMILL	
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	DRY	10-14-81	0	UNK	UNK	0	UNK	NONE	WELL DRY	

TABLE 1 (continued)

21.31.01.241? Info.

A P P E N D I X " A "

LOGS OF SEISMIC HOLES

20.32.21.22222
LS ELEV. 3517

0- 25 CALICHE
25-150 SHALE & RED CLAY
150-160 RED BED

20.32.21.24112
LS ELEV. 3524

0- 25 CALICHE
25- 50 CLAY
50-100 SANDSTONE
100-140 CLAY & SHALE

20.32.21.343344
LS ELEV. 3502

0- 46 CALICHE-SANDY CLAY
46- 80 RED CLAY
80-150 SHALE & CLAY STREAKS

20.32.21.42424
LS ELEV. 3518

0- 20 SAND & CALICHE
20- 65 MIXED CLAY
65-150 RED CLAY & SHALE

20.32.21.434343
LS ELEV. 3508

0- 32 CALICHE
32- 88 RED CLAY
88-160 SHALE & RED CLAY
160-200 HARD SHALE

20.32.21.44444
LS ELEV. 3523

0- 20 CALICHE
20- 40 LOOSE ROCK
40-150 RED CLAY & SHALE

20.32.22.13311
LS ELEV. 3522

0- 36 CALICHE
36- 68 MIXED CLAY W/HARD STREAKS
68-150 RED BED & SHALE STREAKS

20.32.22.34343
LS ELEV. 3544

0- 15 CALICHE
15- 50 SANDY CLAY
50- 85 MIXED CLAY
85-150 RED BED & SHALE

20.32.22.43434
LS ELEV. 3542

0- 32 CALICHE
32- 90 MIXED CLAY
90-130 SHALE
130-150 RED CLAY

20.32.22.44444
LS ELEV. 3541

0- 20 CALICHE
20- 55 CLAY
55-105 RED CLAY
105-150 RED CLAY & SHALE

20.32.28.111134
LS ELEV. 3487

0- 20 CALICHE
20-350 RED BED & RED SHALE
W/ROCK LEDGES

20.32.28.242422
LS ELEV. 3531

0- 18 CALICHE
18- 30 GRAVEL
30-150 RED BED

20.32.28.424242
LS ELEV. 3542

0- 20 CALICHE
20- 30 GRAVEL
30-150 RED BED

Farmers 21-F

<u>From</u>	<u>To</u>	<u>Inter</u>	<u>Formation</u>
0'	20'	20'	Caliche - A little silty clay in the bottom 10'.
20'	40'	20'	Sand - Fine grained. Approx. 30% red shale in the lower 10'
40'	70'	30'	Shale - Brown and gray.
70'	160'	90'	Shale - Reddish brown.
160'	200'	40'	Siltstone - Red, some gray.
200'	220'	20'	Siltstone - Red to magenta, a little grey. Approx. 40% sandstone.
220'	280'	60'	Sandstone - Red. Approx. 20% red to magenta siltstone.
280'	300'	20'	Shale - Red, a little magenta and grey.
300'	310'	10'	Sandstone - Red. A little red and grey shale.
310'	330'	20'	Clay - Red, silty.
330'	360'	30'	Sandstone - Red. Approx. 15% red shale.
360'	380'	20'	Shale - Red to magenta.
380'	400'	20'	Clay - Red, silty.
400'	500'	100'	Shale - Red to magenta. Broken caliche pebbles.
500'	550'	50'	Shale - Brown, a little grey. Approx. 2% caliche.
550'	660'	110'	Shale - Brown, very little grey. Traces of caliche.
660'	720'	60'	Shale - Brown. Some red clay. Trace caliche.
720'	750'	30'	Shale - Brown, little grey. Trace caliche.
750'	810'	60'	Siltstone - Red. Some brown shale. Very little green shale.
810'	890'	80'	Shale - Red and brown, silty. Trace of caliche and green shale.
890'	900'	10'	Clay - Red, sandy. Trace of gypsum.
900'	960'	60'	Anhydrite - Grey, some gypsum. Approx. 20% red clay.
960'	1010'	50'	Anhydrite - Dark grey. A little brown and grey clay.
1010'	1080'	70'	Shale - Red. Approx. 20% gypsum and anhydrite.
1080'	1100'	20'	Shale - Red. Approx. 40% gypsum and anhydrite.
1100'	1110'	10'	Shale - Red. Approx. 10% gypsum and anhydrite.

Farmers 20-F

<u>From</u>	<u>To</u>	<u>Inter</u>	<u>Formation</u>
1110'	1130'	20'	Gypsum and anhydrite - Approx. 5% red shale.
1130'	1150'	20'	Anhydrite - Grey. Set casing at 1132' 10".
1150'	1170'	20'	Limestone - Tan. A little grey anhydrite. (Culebra).
1170'	1180'	10'	Clay - Red and grey.
1180'	1200'	20'	Halite - Approx. 20% brown clay.
1200'	1236'	36'	Halite - Approx. 4% brown clay.
	1236'		Start coring - 2-23-53.
1236' 0"	1239' 4"	3' 4"	Halite - Clear to faint orange. Occasional bleb of orange polyhalite. Approx. 2% brown clay.
1239' 4"	1240' 4"	1' 0"	Clay - Red, silty. Approx. 15% halite.
1240' 4"	1247' 6"	7' 2"	Halite - Clear, medium grained. Approx. 40% red siltstone.
1247' 6"	1251' 2"	3' 8"	Siltstone - Red. Approx. 5% halite.
1251' 2"	1253' 1"	1' 11"	Halite - Clear, medium grained. Approx. 40% red and grey siltstone.
1253' 1"	1257' 2"	4' 1"	Siltstone - Red. A few halite crystals, more prominent in the top 2'.
1257' 2"	1264' 4"	7' 2"	Clay - Red, silty. Occasional carnallite and halite bleb.
1264' 4"	1266' 4"	2' 0"	Siltstone - Brown. Numerous small carnallite blebs.
1266' 4"	1267' 2"	0' 10"	Anhydrite - Grey. A few small carnallite blebs. A few halite crystals.
1267' 2"	1268' 0"	0' 10"	Siltstone - Red. Numerous small carnallite blebs. A few halite crystals.
1268' 0"	1271' 2"	3' 2"	Anhydrite - Grey and grey clay. A few halite crystals. Red, silty clay seams at 1268' 4" and 1269' 8".
1271' 2"	1271' 6"	0' 4"	Clay - Red, silty. A few halite and carnallite blebs.
1271' 6"	1272' 5"	0' 11"	Clay - Brownish grey. Some grey anhydrite. A few halite and carnallite blebs.
1272' 5"	1272' 10"	0' 5"	Halite - and brown clay. Scattered carnallite blebs.
1272' 10"	1273' 1"	0' 3"	Clay - Green. A few halite and carnallite blebs. (12th ore zone).

LOGS OF EXPLORATORY HOLES
LARRY FELKINS, DRILLER

TEST HOLE #1
20.32.27.424443
LS ELEV. 3553
DRILLED: 10/31/89

0-12 CALICHE
12-24 SAND COARSE
24-28 SAND & GRAVEL
28-34 SAND FINE
34-39 SAND LIGHT
39-41 RED BED
41-44 GRAY ROCK
44-97 THIN LAYERS SAND & GRAVEL
RED SAND GRAY ROCK SANDY
YELLOW GRAY & BROWN CLAY
(DRY)

TEST HOLE #2
20.32.27.422221
LS ELEV. 3546
DRILLED: 10/31/89

0- 8 CALICHE
8-28 SAND
28-32 SAND & GRAVEL
32-36 GRAY ROCK
36-38 SAND & GRAVEL
38-50 RED BED
(DRY)

TEST HOLE #3
20.32.27.234210
LS ELEV. 3542
DRILLED: 10/31/89

0-12 CALICHE
12-34 SAND THIN LAYERS GRAVEL
34-50 RED BED
(DRY)

TEST HOLE #4
20.32.27.412333
LS ELEV. 3550
DRILLED: 10/31/89

0- 8 CALICHE
8-39 SAND & GRAVEL
39-42 RED BED
42-60 LAYERS RED, YELLOW, GRAY
SANDY CLAY WITH SOME
GRAVEL LAYER OF GRAY ROCK
(DRY)

TEST HOLE #5
20.32.27.144133
LS ELEV. 3539
DRILLED: 10/31/89

0- 2 CALICHE
2-24 SAND DAMP AT 18 DOWN
24-28 SAND & GRAVEL
28-34 SAND
34-36 GREEN CLAY
36-40 RED SAND & RED BED DAMP
40-44 RED BED DRY
44-46 GRAY CLAY
46-60 LAYERS OF RED BED GRAY
CLAY GREEN CLAY
(WATER AT 21 FT.)

TEST HOLE #6
20.32.27.132121
LS ELEV. 3529
DRILLED: 10/31/89

0-12 CALICHE
12-24 SAND THIN GRAVEL
24-32 SAND & GRAVEL WET
32-34 GRAY CLAY
34-36 RED BED
36-38 GREEN & GRAY CLAY
38-50 RED BED
(WATER AT 26 FT.)

TEST HOLE #7
20.32.27.314122
LS ELEV. 3541
DRILLED: 10/31/89

0- 9 CALICHE
9-28 SAND LIGHT
28-35 SAND DARK
35-37 RED BED
37-38 GRAY CLAY
38-40 SAND THIN LAYERS CLAY
40-50 RED BED THIN LAYERS GRAY
& GREEN CLAY
(WATER AT 47 FT.)

TEST HOLE #1a
20.32.28.222224
LS ELEV. 3519
DRILLED: 01/26/90

0- 8 CALICHE
8-24 SAND & CLAY
24-28 GRAVEL & SAND
28-34 CLAYS YELLOW & BROWN
34-37 RED BED
CASED 37 FT. PERFS 29 FT.

TEST HOLE #2a
20.32.22.322142
LS ELEV. 3527
DRILLED: 01/26/90

0- 6 CALICHE
6-10 SAND
10-20 SAND CLAY ROCK
20-35 RED CLAY & SAND
35-45 RED CLAY & GRAVEL
45-55 RED BED
CASED 50 FT. PERFS BOTTOM 30 FT.

TEST HOLE #3a
20.32.28.243123
LS ELEV. 3522
DRILLED: 01/26/90

0- 8 CALICHE
8-20 CALICHE SAND GRAVEL
20-45 DRY BROWN & RED CLAY
45-55 RED BED
CASED 55 FT. PERFS 40 FT.

LOGS OF EXPLORATORY HOLES
BASED ON INSPECTION OF DRILL CUTTINGS

TEST HOLE #1
20.32.27.424443
LS ELEV. 3553
DRILLED: 10/31/89

0- 5 CALICHE
5-10 CALICHE
10-15 CALICHE-FINE SAND
15-20 SAND CALICHE
20-25 SAND
25-30 SAND
30-35 NO SAMPLE
35-40 SAND GRAVEL
40-45 RED CLAY
45-50 RED BED
50-55 VERY FINE SILTY SAND
55-60 SILTY SAND-GREY SHALE
 -TRACE OF GRAVEL
60-65 SAND
65-70 GREY SILTSTONE
70-75 RED CLAY W/TRACE OF GRAVEL
75-80 RED SHALE
80-85 RED CLAY W/SOME SAND
85-90 RED CLAY
90-95 RED CLAY
95-99 NO SAMPLE

TEST HOLE #2
20.32.27.422221
LS ELEV. 3546
DRILLED: 10/31/89

0- 5 CALICHE
5-10 CALICHE
10-15 FINE SAND
15-20 FINE SAND W/SMALL GRAVEL
20-25 FINE SAND
25-30 FINE SAND
30-35 GREY SILTY SANDSTONE
35-40 RED BED W/TRACE OF GRAVEL
40-45 RED BED
45-50 RED BED

TEST HOLE #3
20.32.27.234210
LS ELEV. 3542
DRILLED: 10/31/89

0- 5 SAND AND CALICHE
5-10 CALICHE W/SOME SAND
10-15 CALICHE
15-20 SAND
20-25 CALICHE AND VERY FINE SAND
25-30 SAND-GRAVEL
30-35 RED SHALE W/TRACE OF GRAVEL
35-40 RED BED W/SOME GRAVEL
40-45 RED BED
45-50 RED BED

TEST HOLE #4
20.32.27.412333
LS ELEV. 3550
DRILLED: 10/31/89

0- 5 CALICHE
5-10 CALICHE
10-15 SAND W/SOME CALICHE
15-20 SAND & GRAVEL
 W/SOME CALICHE
20-25 SAND
25-30 SAND AND GRAVEL
30-35 BROWN SAND AND GRAVEL
35-40 CLAY AND SAND
40-45 RED AND GREY CLAY
45-50 GREY CLAYEY SAND
 W/SOME GREY SHALE
50-55 RED BED W/SOME GRAVEL
 (SILTSTONE)
55-60 GREY CLAY AND SAND
 W/SOME CHERT

TEST HOLE #5
20.32.27.144133
LS ELEV. 3539
DRILLED: 10/31/89

0-10 SOIL-CALICHE
10-20 CALICHE AND SAND
20-30 SAND AND GRAVEL
30-35 GREY SILTY SAND
35-40 GREY CLAY
40-45 RED CLAY
45-50 RED AND GREY CLAY
 W/SOME GRAVEL
50-55 RED BED
55-60 RED BED

TEST HOLE #6
20.32.27.132121
LS ELEV. 3529
DRILLED: 10/31/89

0-10 CALICHE
10-20 CALICHE SAND
 W/SOME GRAVEL
20-30 VERY FINE SAND
 W/SOME GRAVEL
30-40 RED BED W/SOME FINE SAND
 & TRACE OF GRAVEL
40-45 RED BED
45-50 RED BED

LOGS OF EXPLORATORY HOLES
BASED ON INSPECTION OF DRILL CUTTINGS

CONTINUED

TEST HOLE #7
20.32.27.314122
LS ELEV. 3541
DRILLED: 10/31/89

0-10 CALICHE
10-20 SAND
20-30 VERY FINE SAND
W/SOME RED CLAY
30-35 NO SAMPLE
35-40 RED BED
40-45 RED BED
45-50 RED SILT (LIGHT COLORED)

TEST HOLE #1a
20.32.28.222224
LS ELEV. 3519
DRILLED: 01/26/90

0- 5 CALICHE
5-10 CALICHE W/SOME SAND
10-15 SAND & CLAY
W/SOME SANDSTONE
15-20 SAND AND CLAY
W/SOME GRAVEL
20-25 GREY & YELLOW CLAY
25-30 BROWN SAND AND GRAVEL
30-35 RED BED
35-37 RED BED

TEST HOLE #2a
20.32.22.322142
LS ELEV. 3527
DRILLED: 01/26/90

0- 5 CALICHE
5-10 CALICHE W/TRACE OF SAND
10-15 CALICHE W/SOME SAND
15-20 RED CLAY
20-25 RED CLAY - CALICHE
25-30 RED CLAY
30-35 RED CLAY W/SOME SAND
35-40 SAND AND CLAY
40-45 SAND-GRAVEL RED CLAY
45-50 RED BED - DARK RED
50-55 RED BED - DARK RED

TEST HOLE #3a
20.32.28.243123
LS ELEV. 3522
DRILLED: 01/26/90

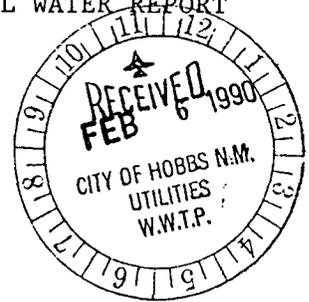
0- 5 CALICHE
5-10 SAND AND CALICHE
10-15 SAND GRAVEL W/SOME CLAY
15-20 SAND GRAVEL W/SOME CLAY
20-25 RED CLAY
25-30 RED CLAY
30-35 RED CLAY
35-40 RED CLAY W/TRACE OF GRAVEL
40-45 RED CLAY
45-50 DARK RED CLAY
50-55 NO SAMPLE

A P P E N D I X " B "



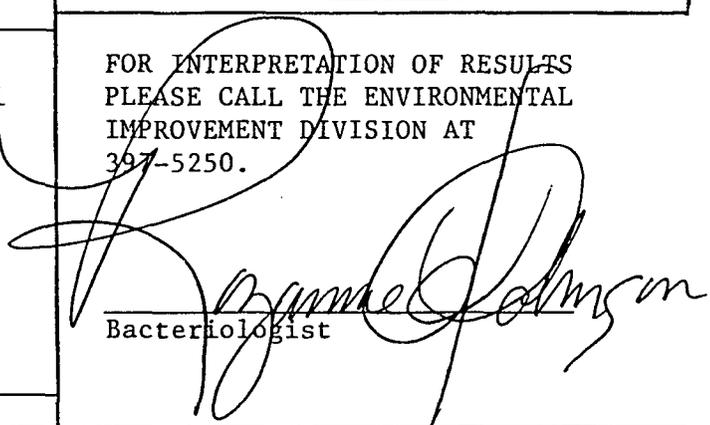
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90D-9</u>		County <u>LEA</u>	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr. <u>2-6-90</u>	Time Collected <u>9:00</u>	Collected By <u>Denny</u>	MPN			
Collection Point <u>At Well #2A</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
TESTING REQUIRED						
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING
 NAME Controlled Recovery Inc
 COMPANY _____
 ADDRESS Box 369
Hobbs, NM 88240

A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

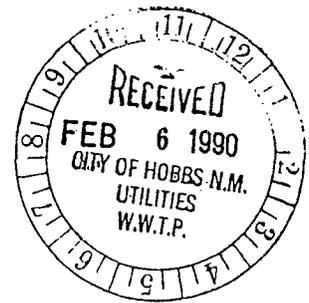
20.32.22.322142 Jdw

OFFICE USE ONLY



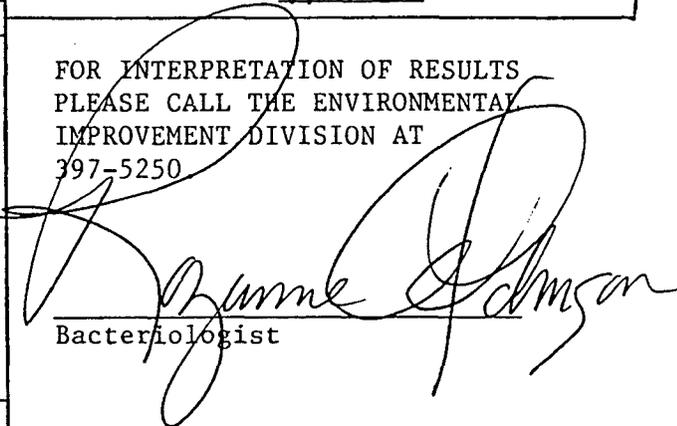
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D-12</u>	County LEA		Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>	WSS Code No.		TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	—		
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>10:15</u>	<u>Denny</u>				
Collection Point <u>At Well # 7 6</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc

COMPANY _____

ADDRESS Bx 369
Hobbs, NM 88240
20-1571

A FEE OF \$10.00 PLUS TAX IS
CHARGED FOR EACH TEST.

20.32.27 132121 J.D.

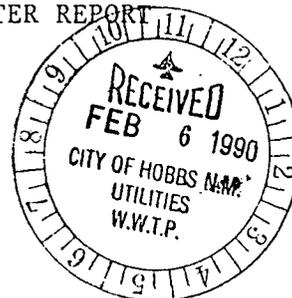
OFFICE USE ONLY

Account # _____



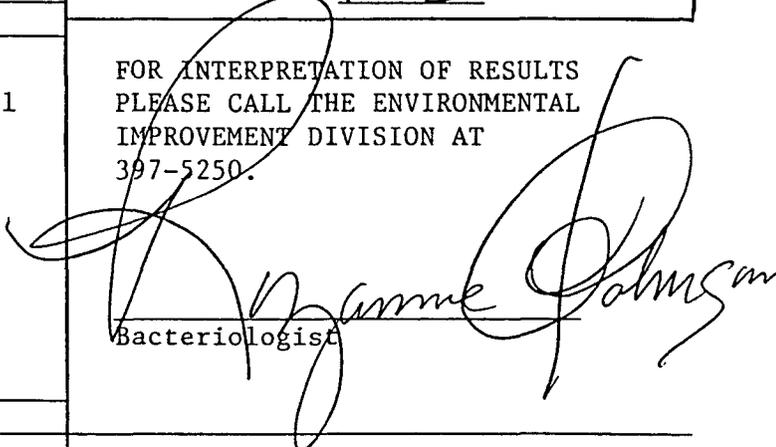
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D -13</u>		County <u>LEA</u>	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	—		
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>9:45</u>	<u>Denny</u>				
Collection Point <u>At Well #5</u>			Non-Coliform per 100 ml non-coliforms <u>TNTR</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Swimming Pool <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Monitor Sample			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
TESTING REQUIRED						
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME _____
 COMPANY Controlled Recovery, Inc
 ADDRESS Box 369
Hobbs, NM 88240
297-1571

A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

20.32.27.144133 *glw*

OFFICE USE ONLY

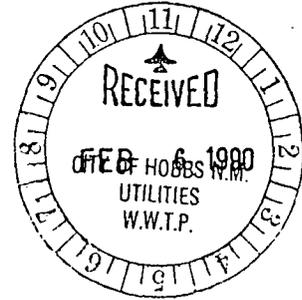


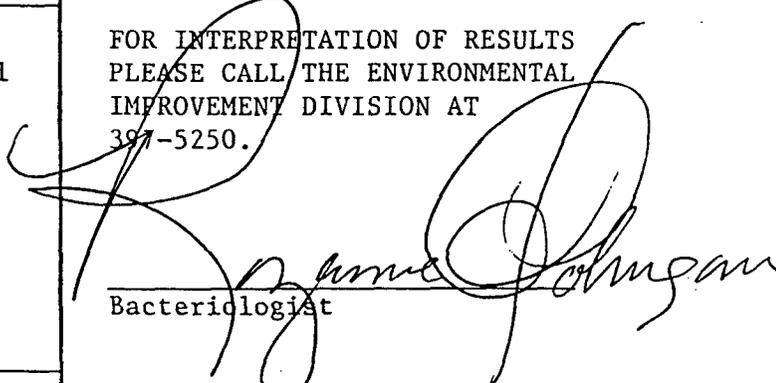
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT

Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990



SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90-0-11</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>37 miles Wd Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	—		
Date Collected Mo. Day Yr. <u>2-6-90</u>	Time Collected <u>9:30</u>	Collected By <u>Remy</u>	MPN			
Collection Point <u>At Well #3</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME _____
 COMPANY Controlled Recovery Inc
 ADDRESS Box 369
Hobbs, NM 88240

A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

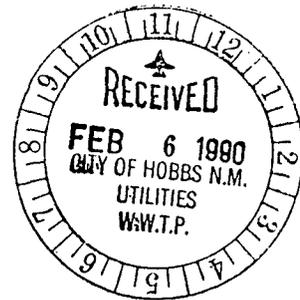
26.32.27.234210 JFW

OFFICE USE ONLY



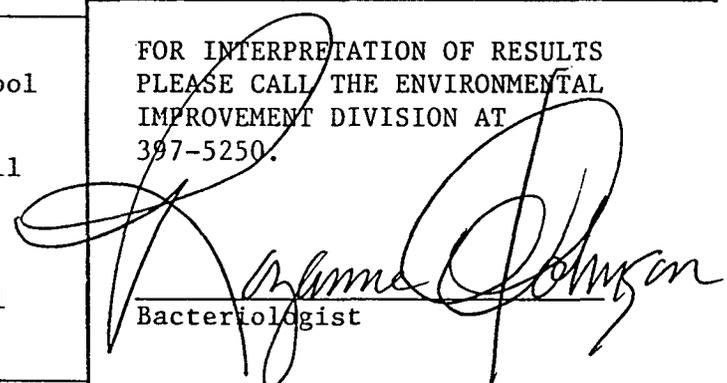
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D - 10</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on N 62-180</u>		WSS Code No. <u>62-180</u>	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr. <u>2-6-90</u>	Time Collected <u>10:00</u>	Collected By <u>Denny</u>	MPN			
Collection Point <u>At Well #7</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
TESTING REQUIRED						
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME _____
 COMPANY Controlled Recovery Inc
 ADDRESS Box 369
Hobbs, NM 88240
297-1521

A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

20.32.27. 3/4/22 JTW

OFFICE USE ONLY



City of Hobbs
300 N Turner
Hobbs, NM 88240

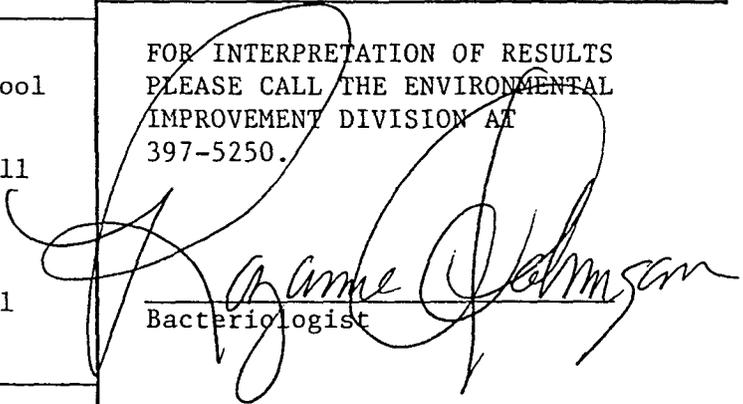
MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 15 1990

Time Test Ended 1:30 Date FEB 16 1990

Handwritten: FCB

SAMPLE IDENTIFICATION		RESULTS OF COLIFORM TESTING		
Quality Control No. <u>90C-96</u>	County LEA	Coliform per 100 ml		
Water Supply System Name <u>37 miles west of Hobbs ON 12-100</u>	WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs
COLLECTION INFORMATION		MF		Completed 48-72 hrs
Date Collected Mo. Day Yr. <u>2-14-90</u>	Time Collected <u>5:00pm</u>	MPN		
Collected By <u>Denny</u>		Non-Coliform per 100 ml		
Collection Point <u>At well #8</u>		non-coliforms <u>INTC</u> colonies		
TYPE OF SYSTEM		FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.		
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)		 Bacteriologist		
REASON FOR SAMPLING				
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample				
TESTING REQUIRED		<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____ _____		
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN				

SEND REPORT AND BILL TO THE FOLLOWING
 NAME Controlled Recovery Inc
 COMPANY _____
 ADDRESS Bx 369
Hobbs, NM 88240
 PHONE 397-6521

A FEE OF \$10.00 PLUS TAX IS CHARGED FOR EACH TEST.

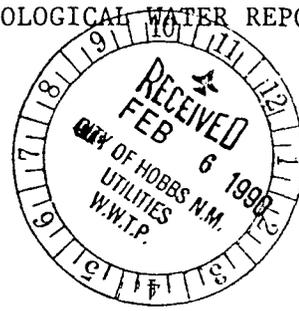
20.32.27, 321423

OFFICE USE ONLY



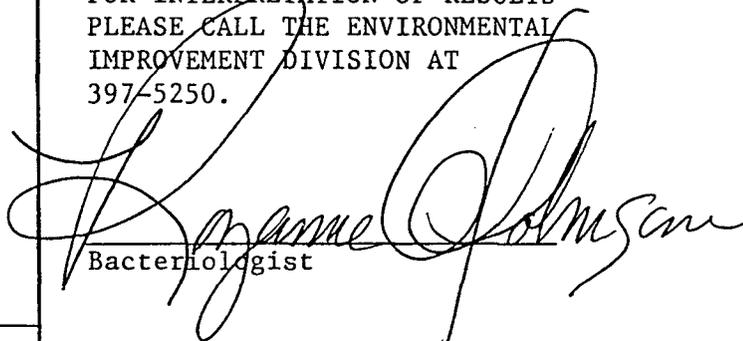
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90-D 8</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>37 miles west of Hobbs ON 62180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>8:45</u>	<u>Denny</u>	Non-Coliform per 100 ml			
Collection Point <u>At Well #1A</u>			non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample <hr/> <hr/> <hr/> <hr/>			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc

COMPANY _____

ADDRESS Bx369

Hobbs N.M. 88240

A FEE OF \$10.00 PLUS TAX IS
CHARGED FOR EACH TEST.

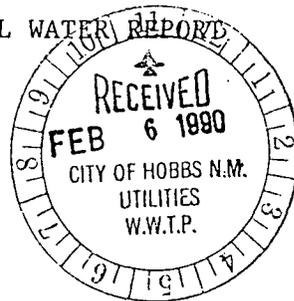
20, 32, 28, 222224 *JML*

OFFICE USE ONLY



City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D-14</u>	County <u>LEA</u>		Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs ON 62-180</u>	WSS Code No.		TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr. <u>2-6-90</u>	Time Collected <u>9:15</u>	Collected By <u>Denny</u>	MPN			
Collection Point <u>At Well #3A</u>			Non-Coliform per 100 ml			
TYPE OF SYSTEM			non-coliforms <u>TNTC</u> colonies			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250. Bacteriologist			
REASON FOR SAMPLING			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED						
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery, Inc

COMPANY _____

ADDRESS Rx 369

Hobbs, NM 88240

PHONE 397-1571

A FEE OF \$10.00 PLUS TAX IS CHARGED FOR EACH TEST.

20.32.28. 243/23 *Jew*

OFFICE USE ONLY

Account # _____

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 6
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Monitor Well DEPTH ? feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 2750 m/s
Total dissolved solids: 1925 PPM
Chlorides: 866.1 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 40 feet.
Top of water at 23 feet.
25 ml sample 142 x 6.1 titration = 866.1 ppm Cl
SC - metered 2750
TDS - calculated

20.32.27.132121

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 5
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Monitor well DEPTH ? feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 50,000+ m/h
Total dissolved solids: ?? PPM
Chlorides: 37,275 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 40 feet.
Top of water at 28 feet.
1 ml sample 3550 x 10.5 = 37,275 ppm Cl
SC - meter pegged out at 50,000+.

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 1A
LAND STATUS: STATE FEDERAL FEE
WELL LOCATION: Unit Letter Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION:
WELL TYPE: Monitor well DEPTH ? feet
WELL USE:

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 50,000+ m/h
Total dissolved solids: ?? PPM
Chlorides: 136,675 PPM
Sulfates: PPM
Ortho-phosphates: Very Low Low Med Hi
Sulfides: None Low Med Hi
OTHER:

DATE ANALYZED: 2/28/90 BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 35 feet.
Top of water at 20 feet.
1 ml sample 2550 x 38.5 titration = 136,675 ppm Cl
SC - meter pegged out at 50,000 plus.

20.32.28.222224

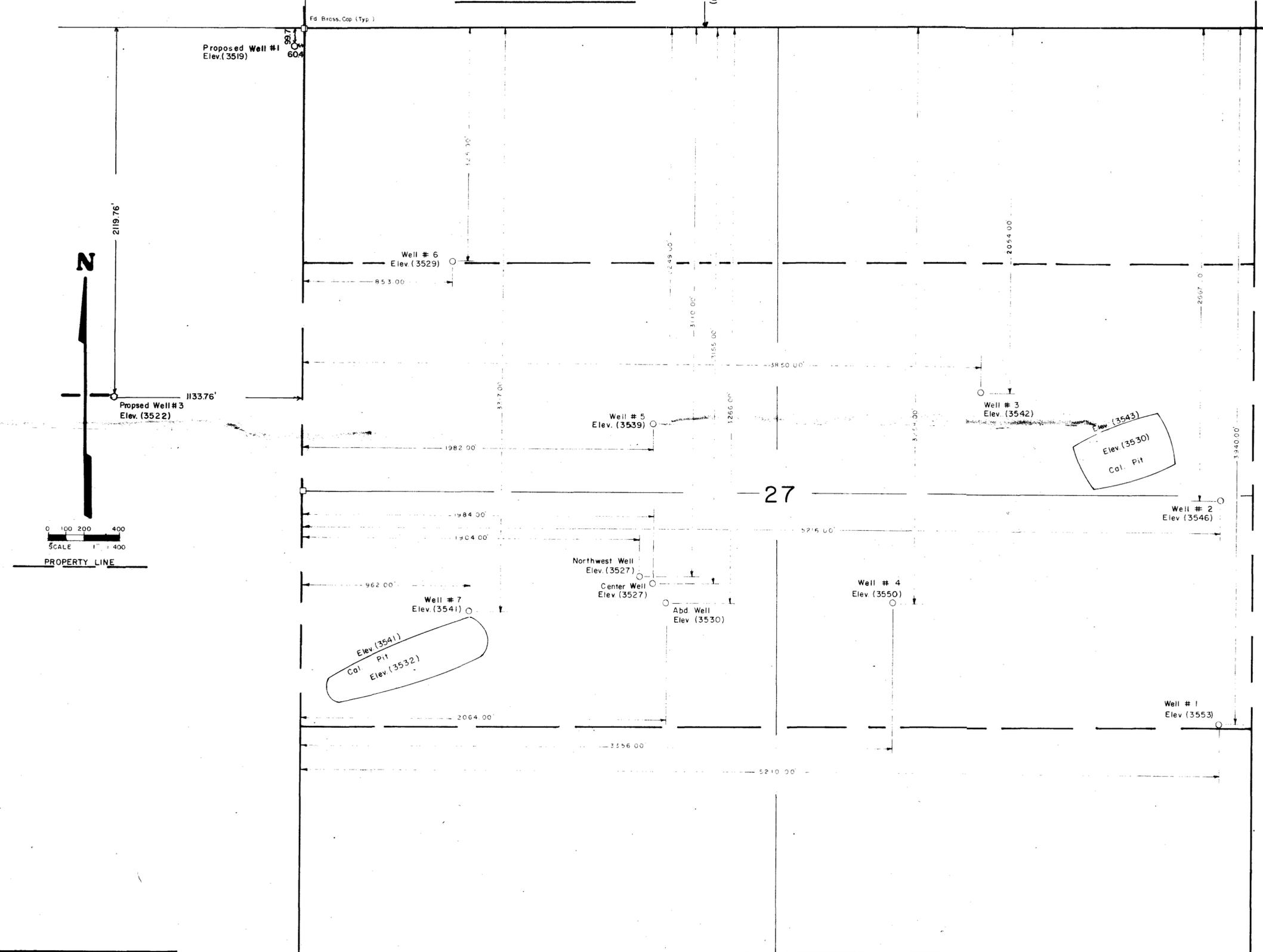
SEC. 27, T20S, R32E, N.M.P.M.,

LEA COUNTY, NEW MEXICO

2273.68'

Proposed Well #2
Elev. (3527)

WELL LOCATIONS



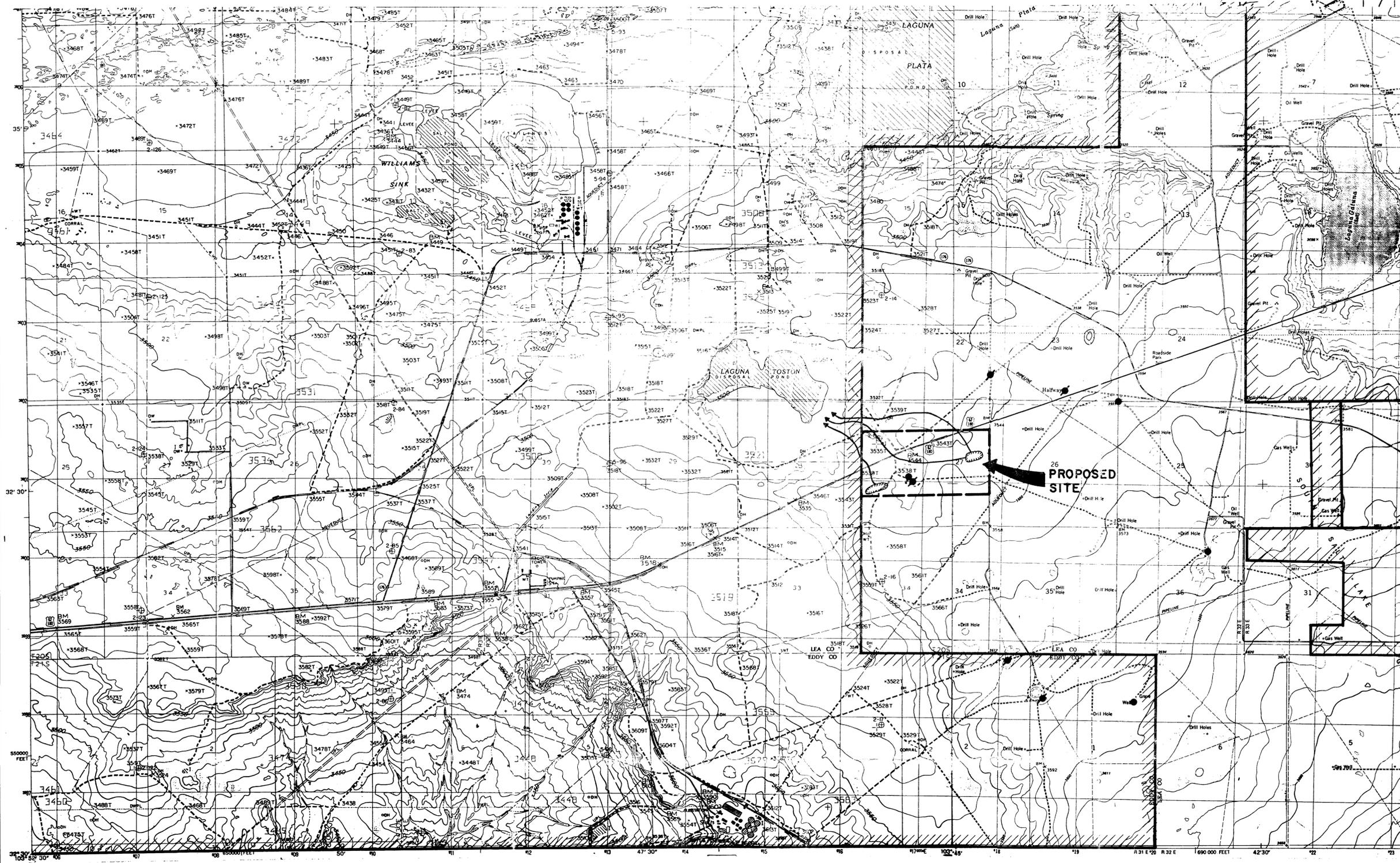
N

0 100 200 400
SCALE 1" = 400'

PROPERTY LINE

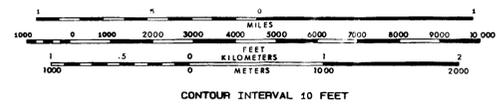
KING SURVEYING	
4001 MAHAN DR. HOBBS, N.M. 88240	
SCALE: 1" = 400'	DRAWN BY: Maudie J.
DATE: 11/21/99	SHEET: OF 1

FIGURE I



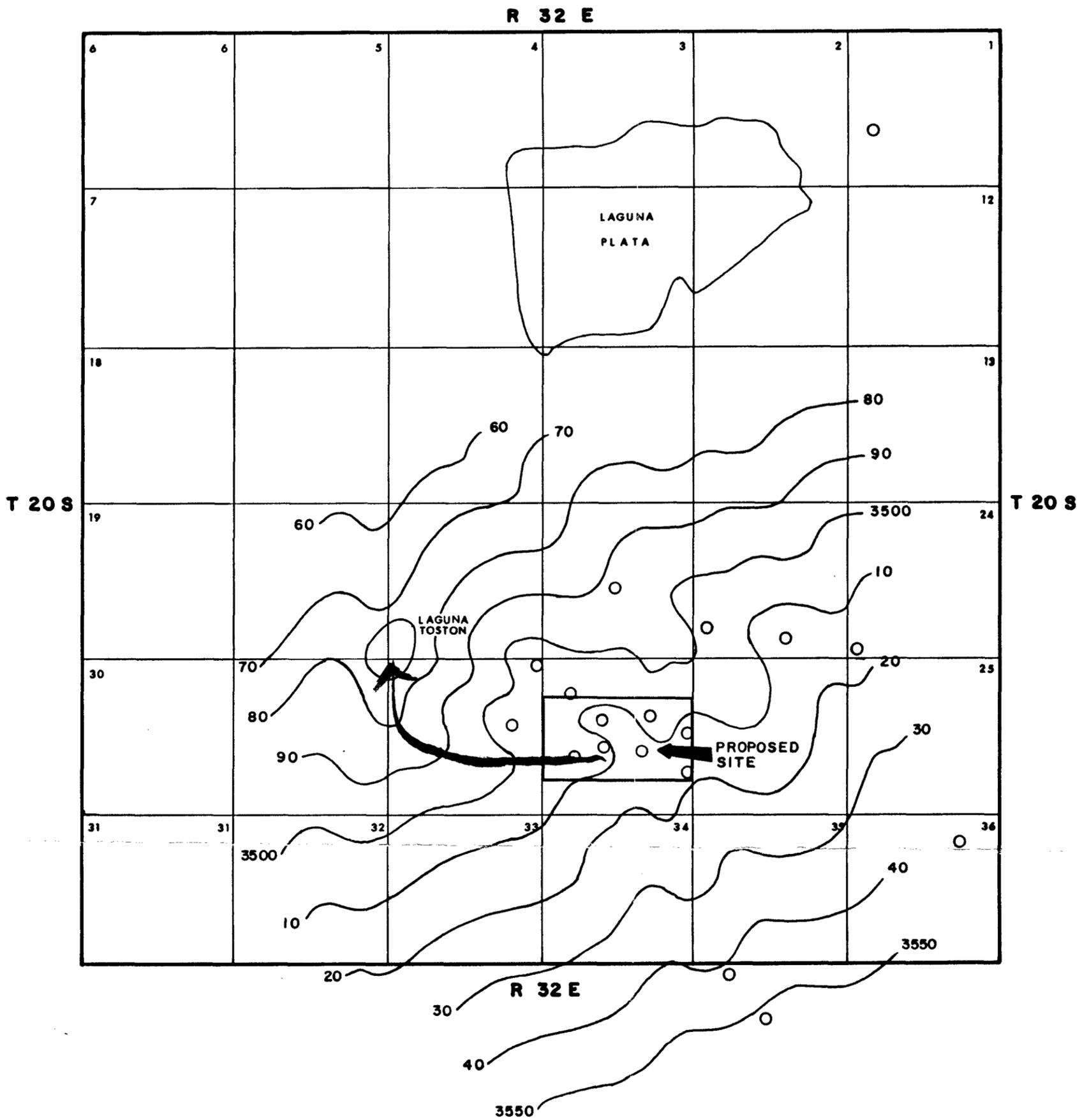
**PROPOSED DISPOSAL SITE LOCATION, AREAS PERMITTED FOR SURFACE DISPOSAL OF BRINE, LOCATION OF WATER WELLS AND TOPOGRAPHY
IN THE VICINITY OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 32 EAST, LEA COUNTY, NEW MEXICO - 1990**

JAMES I. WRIGHT
CONSULTING HYDROLOGIST
ROSWELL, NEW MEXICO



- — UNEQUIPPED WELL
- — EQUIPPED WELL
- — EXISTING GRAVEL PITS
- — PROPOSED SITE
- ▨ — AREAS PERMITTED FOR SURFACE DISPOSAL OF BRINE
- — PATH OF SURFACE DRAINAGE

FIGURE II



ALTITUDE AND CONFIGURATION OF WATER
 TABLE IN THE VICINITY OF SECTION 27,
 TOWNSHIP 20 SOUTH, RANGE 32 EAST,
 N.M.P.M.

LEA COUNTY, NEW MEXICO - 1990

- - DRILL HOLE OR WELL
- ~ - CONTOUR INTERVAL IS 10 FEET

JAMES I. WRIGHT
 CONSULTING HYDROLOGIST
 ROSWELL, NEW MEXICO

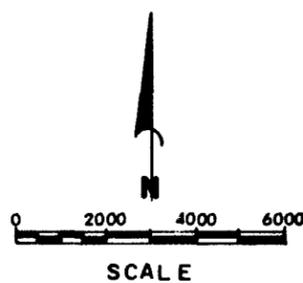


FIGURE IV

Proposal for an Oil Treating Plant
Permit and Surface Waste Disposal
in Lea County, New Mexico

Prepared for
Controlled Recovery Inc.
Hobbs, New Mexico
February 1990

BEFORE EXAMINER CATANACH OIL CONSERVATION DIVISION CONTROLLED REQUIRE EXHIBIT NO. <u>10</u> CASE NO: <u>9882</u>
--

By

James I. Wright
Consulting Hydrologist
Roswell, New Mexico

Proposal for an Oil Treating Plant
Permit and Surface Waste Disposal
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Prepared for
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February 1990

By
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Roswell, New Mexico

T A B L E O F C O N T E N T S

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Local Geology.		2
Hydrology.		2
Quality.		3
Summary and Conclusions.		4
Explanation of U.S. Geological Survey Well Location Numbering System		5
References		7

Tables

Table No. 1	"Record of Drill Holes in the Vicinity of Section 27, T. 20 S., R. 32 E."	8
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Appendices

Appendix "A"	Drill Hole Logs
Appendix "B"	Water Analyses

Figures

Figure I	"Land Survey of Site and Drill Holes" . . .	In Pocket
Figure II	"Proposed Disposal Site Location, Areas Permitted for Surface Disposal of Brine, Location of Water Wells and Topography in the Vicinity of Section 27, T. 20 S., R. 32 E."	In Pocket
Figure III	"Geologic Map of Southern Lea County" . . .	In Pocket
Figure IV	"Altitude and Configuration of Water Table in the Vicinity of Section 27, T. 20 S., R. 32 E."	In Pocket

PROPOSAL FOR AN OIL TREATING PLANT PERMIT
AND SURFACE WATER DISPOSAL
IN LEA COUNTY, NEW MEXICO

INTRODUCTION

On September 22, 1989 I was contacted by Ken Marsh and asked to review existing hydrological reports covering western Lea County and evaluate the possibility of constructing a surface disposal system on land owned by him located in the N 1/2 S 1/2 and S 1/2 N 1/2 of Section 27, T. 20 S., R. 32 E.

After reviewing these reports and collecting as much basic geohydrological data that was available from the United States Geological Survey, the New Mexico State Engineer, the U.S. Bureau of Land Management and other minor sources, I advised Mr. Marsh that there was a possibility of getting a permit from the Oil Conservation Division, but that we would need to drill some exploratory holes in the immediate area in order to obtain sufficient data to do some detailed sub-surface mapping in order to determine the direction of ground water movement from the proposed site.

On October 31, 1989, seven exploratory holes were drilled by Larry's Drilling and Pump Co. of Hobbs, New Mexico on the property owned by Ken Marsh in Section 27, T. 20 S., R. 32 E. On January 26, 1990, three additional exploratory holes were drilled on U.S.B.L.M. land in the immediate vicinity of the Ken Marsh property. Larry's Drilling and Pump Co. of Hobbs also drilled these holes. Data collected from these holes as well as data collected from previously drilled holes and existing wells is shown in Table I of this report.

GENERAL GEOLOGY

The site is located in western Lea County in the southern portion of the Querecho Plains. A group of four playa lakes are located within the general area with the closest one being Laguna Toston, located about 1 mile northwest of the site. Laguna

Toston has a surface area of approximately 160 acres and is presently being used as a disposal pond by one of the potash companies.

A geologic map of southern Lea County taken from U.S. Bureau of Mines Ground-Water Report 6 is included in this report as Figure III. An inspection of this map shows that the surface geology consists of alluvial material in the vicinity of the proposed site.

LOCAL GEOLOGY

The area covered by this study includes most of Township 20 South, Range 32 East, with the principal area of interest being Section 27. The Quaternary alluvium in the immediate vicinity of Section 27 varies in thickness from 0 to 45 feet. The underlying Red Beds of Triassic and Permian age are approximately 800 feet thick. These formations consist predominantly of clays and siltstones, but some very fine grained sandstone may also be present. The upper part of these Red Beds is believed to be Chinle Formation and the lower portion Dewey Lake Red Beds. These formations are underlain by the Rustler Formation which is about 300 feet thick underneath the site area. The Rustler Formation consists primarily of anhydride or gypsum with some limestone and clays.

HYDROLOGY

The alluvium at the proposed site area is less than 45 feet thick with the thickness of the saturated sediments varying from 0 to 8 feet. Test hole #1a located in the NE 1/4 NE 1/4 NE 1/4 NE 1/4 of Section 28, T. 20 S., R. 32 E. has a saturated thickness of 13 feet. The ground water movement through the alluvium in the vicinity of the proposed site is toward the playa lakes (Laguna Toston and Laguna Plata). The water table gradient is approximately 15 feet per mile. Recharge to the aquifer is from rainfall which only averages about 9 inches per year in this area and consequently is not considered a significant source of recharge.

A bailing test ran on test hole #5 on November 9, 1989 by Ken Marsh indicates that the permeability of the water bearing formation is very low. Hole was bailed dry in 1 hour. Bailing test produced 2 gallons of water in 15 minutes or 0.13 gallons per minute. Test hole #3 was dry when completed on November 1, 1989. On November 9, 1989 the fluid level was 41.1 feet below land surface and on November 21, 1989 it was 32.56 feet below land surface. Test hole #7 had a fluid level of 49.07 feet below land surface on November 1, 1989, 38.25 feet on November 9, 1989, 33.31 feet on November 21, 1989 and 33.33 feet on January 26, 1990. The long period of time that it took the fluid to reach equilibrium in the holes is also an indicator of low permeability. Although there is some water in ground water storage underneath the proposed site, it is not economically feasible to produce this water due to the extremely low yields. Most of the ranches in this area of Lea County obtain their water from water transmission lines which deliver Ogallala water from wells in the Buckeye area to the potash mines located in western Eddy County.

QUALITY

Ken Marsh had water samples collected from all of the holes in the vicinity of the proposed site on February 6, 1990. These samples were analyzed by Rozanne Johnson, Bacteriologist for the City of Hobbs laboratory. According to Mr. Marsh, it was her opinion that the water was unfit for human or animal consumption. Copies of her analysis are included in this report.

SUMMARY AND CONCLUSIONS

The alluvium in the vicinity of Section 27, T. 20 S., R. 32 E. is thin and contains only minimal quantities of ground water. Production of this water from wells is not feasible due to the low well capacities. The only water wells presently being used are located over one mile east of the proposed site and are up gradient from the water table altitude at the proposed site. Microbiological water reports of the shallow ground water underlying the proposed site indicate that the water is not potable.

In my opinion the disposal of brine in surface disposal pits at the proposed site located in Section 27, T.20 S., R. 32 E. will not contaminate any fresh ground water supplies. Water from these pits will migrate downward until it reaches the base of the alluvium. Since the upper part of the Triassic is relatively impermeable the water will move laterally down gradient and eventually discharge into the playa lakes located to the north. The volume of the east pit shown on Figure I is approximately 368,000 barrels; and the volume of the west pit is approximately 336,000 barrels.

WELL-NUMBERING SYSTEM

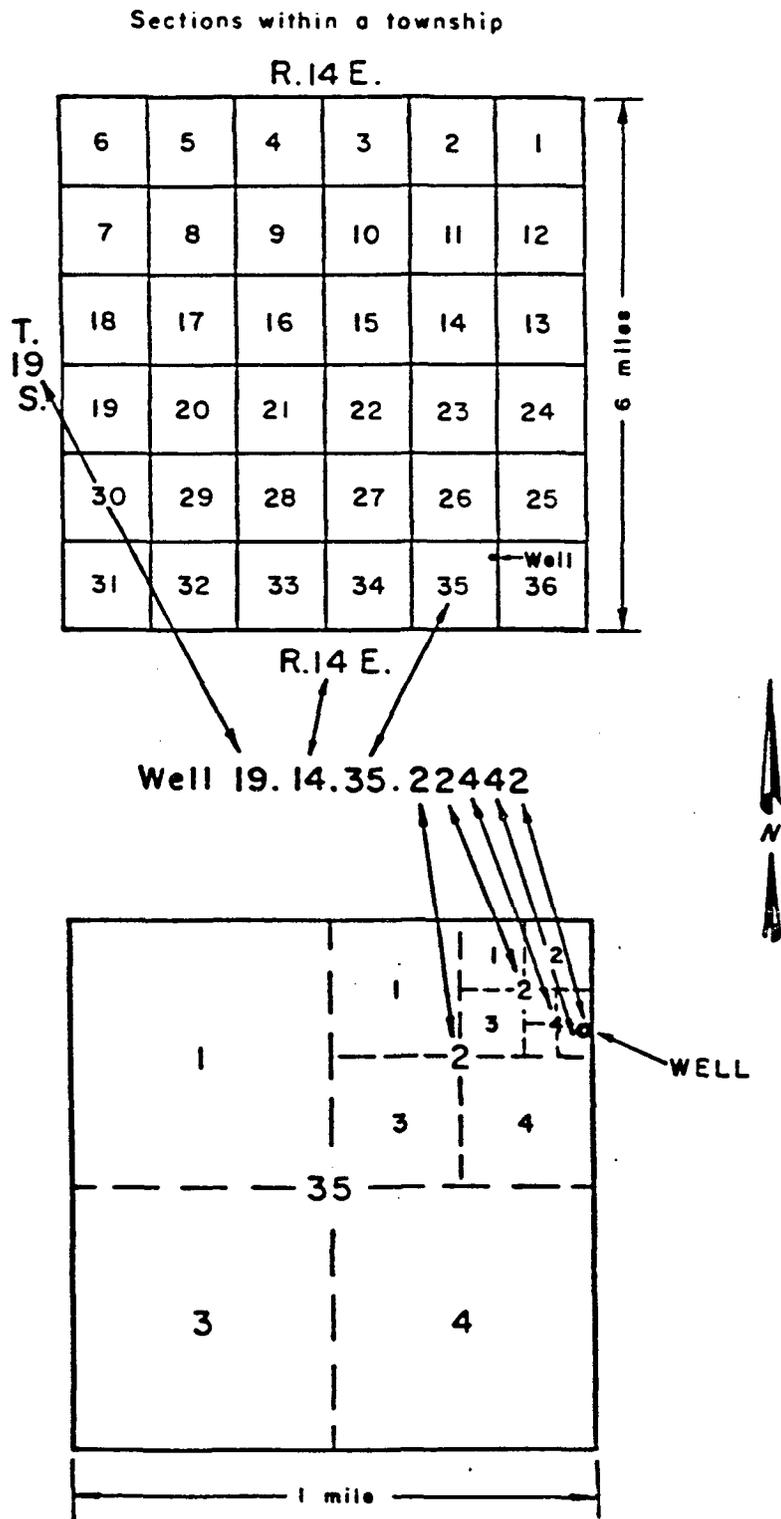
The system of numbering wells in New Mexico is based on the common subdivisions in sectionized land, and, by means of it, the well number, in addition to designating the well, locates its position to the nearest 0.625-acre tract in the land net. The number is divided into four segments by periods. The first segment denotes the township north or south of the New Mexico base line; the second denotes the range east or west of the New Mexico principal meridian; and the third denotes the section. An "N" is added to the first segment of the well number if the well is north of the base line, but no letter is added if the well is south of the base line. Similarly, where wells are located west of the meridian, a "W" is added to the second segment of the well number of those wells west of the meridian but no letter is added if the well is east of the meridian.

The fourth segment of the number, which consists of five digits, denotes the particular 0.625-acre tract in which the well is situated. For this purpose the section is divided into four quarters numbered 1, 2, 3, and 4, in the normal reading order, for the northwest, northeast, southwest, and southeast quarters, respectively. The first digit of the fourth segment gives the quarter section, which is a tract of 160 acres. Similarly, the quarter section is divided into four 40-acre tracts numbered in the same manner, and the second digit denotes the 40-acre tract. The 40-acre tract is divided into four 10-acre tracts and the third digit denotes the 10-acre tract. The 10-acre tract is divided into four 2.5-acre tracts and the fourth digit denotes the 2.5-acre tract. The 2.5-acre tract is divided into four tracts containing 0.625 acres each and the fifth digit determines this tract. Thus, well 12.36.24.12311 in Lea County is in the NW 1/4 NW 1/4 SW 1/4 NE 1/4 NW 1/4 Sec. 24, T. 12 S., R. 36 E. If a well cannot be located accurately to a 10-acre tract, a zero is used as the third digit, and if it cannot be located accurately within a 40-acre tract, zeros are used for both the second and third digits. If the well cannot be located more closely than the section, the fourth segment of the well number is omitted.

Letters a, b, c, - - - - - are added to the last segment to designate the second, third, fourth and succeeding wells in the same 0.625-acre tract.

The following diagram shows the method of numbering the tracts within a section:

Diagram: System of numbering wells in New Mexico.



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RECORD OF DRILL HOLES IN THE VICINITY OF SECTION 27 T20S R32E

LOCATION NUMBER	OWNER	AQUIFER	HOLE DEPTH	LAND SURFACE ELEVATION	WATER LEVEL	DATE MEASURED	WATER TABLE ELEVATION		RED BED ELEVATION	CASING SIZE	USE OF WATER	REMARKS
							THICKNESS OF ALLUVIUM	DEPTH TO RED BED				
20.32.01.314114	V. N. SNYDER	ALLUVIUM	30	3510.0	21.77	07-01-54	3488	UNK	0	6"	STOCK	WELL DRY IN 1968
20.32.22.322142	KEN MARSH	ALLUVIUM	55	3527.0	35.40	01-26-90	3492	45	3482	3"	NONE	TEST HOLE #2a
20.32.22.322142	KEN MARSH	ALLUVIUM	55	3527.0	35.00	02-05-90	3492	45	3482	3"	NONE	REPT. WATER LEVEL
20.32.22.322142	KEN MARSH	ALLUVIUM	55	3527.0	35.80	02-16-90	3491	45	3482	3"	NONE	JETTED DRY 2-5-90
20.32.23.33132	UNK	ALLUVIUM	UNK	3541.0	39.14	02-25-76	3502	UNK	0	7"	NONE	UNEQUIPPED WELL
20.32.23.33132	UNK	ALLUVIUM	UNK	3541.0	39.83	02-19-81	3501	UNK	0	7"	NONE	UNEQUIPPED WELL
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	39.40	05-29-68	3512	UNK	0	6"	STOCK	SUBMERSIBLE PUMP
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	37.46	02-02-71	3514	UNK	0	6"	STOCK	SUBMERSIBLE PUMP
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	36.78	02-19-81	3514	UNK	0	6"	NONE	WELL ABANDONED
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	38.42	03-25-86	3513	UNK	0	6"	NONE	WELL ABANDONED
20.32.23.43312A	BILL STANFORD	ALLUVIUM	UNK	3551.0	37.63	02-19-81	3513	UNK	0	6"	NONE	UNEQUIPPED
20.32.24.33333	G.H. BINGHAM	ALLUVIUM	65	3555.0	38.55	05-29-68	3516	UNK	0	6"	STOCK	WINDMILL
20.32.24.33333	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.59	02-02-71	3517	UNK	0	6"	STOCK	WINDMILL
20.32.24.33333	G.H. BINGHAM	ALLUVIUM	65	3555.0	35.33	02-24-76	3520	UNK	0	6"	STOCK	WINDMILL
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	38.04	05-29-68	3517	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.83	02-02-71	3517	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.42	09-11-72	3518	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	35.68	02-24-76	3519	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.69	02-19-81	3517	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	38.99	03-25-86	3516	UNK	0	6"	STOCK	PUMP JACK
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	23.91	11-01-89	3505	32	3497	3"	NONE	TEST HOLE #6
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	23.63	11-09-89	3505	32	3497	3"	NONE	REPT. WATER LEVEL
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	23.77	11-21-89	3505	32	3497	3"	NONE	TEST HOLE #6
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	24.50	02-16-90	3505	32	3497	3"	NONE	TEST HOLE #6
20.32.27.14332	JOEL FREY	ALLUVIUM	25	3539.0	23.32	09-18-72	3516	UNK	0	DUG	NONE	WINDMILL
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	25.91	11-01-89	3513	34	3505	3"	NONE	TEST HOLE #5
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	25.50	11-09-89	3514	34	3505	3"	NONE	REPT. WATER LEVEL
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	25.88	11-21-89	3513	34	3505	3"	NONE	TEST HOLE #5
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	26.44	02-16-90	3513	34	3505	3"	NONE	TEST HOLE #5
20.32.27.234210	KEN MARSH	NONE	50	3542.0	DRY	11-01-89	0	34	3508	3"	NONE	TEST HOLE #3
20.32.27.234210	KEN MARSH	ALLUVIUM	50	3542.0	41.10	11-09-89	3501	34	3508	3"	NONE	REPT. WATER LEVEL
20.32.27.234210	KEN MARSH	ALLUVIUM	50	3542.0	32.56	11-21-89	3509	34	3508	3"	NONE	TEST HOLE #3
20.32.27.234210	KEN MARSH	ALLUVIUM	50	3542.0	34.41	02-16-90	3508	34	3508	3"	NONE	JETTED DRY 2-5-90
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	49.07	11-01-89	3492	35	3506	3"	NONE	TESTHOLE #7
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	38.25	11-09-89	3503	35	3506	3"	NONE	REPT. WATER LEVEL
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	33.31	11-21-89	3508	35	3506	3"	NONE	TESTHOLE #7
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	33.33	02-16-90	3508	35	3506	3"	NONE	TESTHOLE #7
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	15.30	03-29-68	3512	UNK	0	6"	STOCK	PUMP SHUT OFF 34 MIN.
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	0.94	02-25-76	3526	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	15.33	02-19-81	3512	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	17.60	11-01-89	3509	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	17.53	11-21-89	3509	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	17.40	02-16-90	3510	UNK	0	6"	NONE	WELL UNEQUIPPED

TABLE 1

RECORD OF DRILL HOLES IN THE VICINITY OF SECTION 27 T20S R32E

LOCATION NUMBER	OWNER	AQUIFER	HOLE DEPTH	LAND SURFACE ELEVATION	WATER LEVEL	DATE MEASURED	WATER THICKNESS		RED BED ELEVATION	CASING SIZE	USE OF WATER	REMARKS
							TABLE ELEVATION	DEPTH TO RED BED				
20.32.27.322333	T. BINGHAM	ALLUVIUM	75	3530.0	16.55	02-02-71	UNK	UNK	0	6 5/8"	STOCK	WINDMILL
20.32.27.322333	T. BINGHAM	ALLUVIUM	75	3530.0	4.69	02-25-89	UNK	UNK	0	6 5/8"	STOCK	WINDMILL
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	11-01-89	39	3511	3511	3"	NONE	TEST HOLE #4
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	11-09-89	39	3511	3511	3"	NONE	REPT. WATER LEVEL
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	11-21-89	39	3511	3511	3"	NONE	TEST HOLE #4
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	02-16-90	39	3511	3511	3"	NONE	TEST HOLE #4
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	11-01-89	38	3508	3508	3"	NONE	TEST HOLE #2
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	11-09-89	38	3508	3508	3"	NONE	REPT. WATER LEVEL
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	11-21-89	38	3508	3508	3"	NONE	TEST HOLE #2
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	02-16-90	38	3508	3508	3"	NONE	TEST HOLE #2
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	11-01-89	39	3494	3494	3"	NONE	TEST HOLE #1
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	11-09-89	39	3494	3494	3"	NONE	REPT. WATER LEVEL
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	11-21-89	39	3494	3494	3"	NONE	TEST HOLE #1
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	02-16-90	39	3494	3494	3"	NONE	TEST HOLE #1
20.32.28.222224	KEN MARSH	ALLUVIUM	37	3519.0	14.76	01-26-90	28	3491	3491	3"	NONE	TEST HOLE #1a
20.32.28.222224	KEN MARSH	ALLUVIUM	37	3519.0	14.00	02-05-90	28	3491	3491	3"	NONE	REPT. WATER LEVEL
20.32.28.222224	KEN MARSH	ALLUVIUM	37	3519.0	14.87	02-16-90	20	3499	3499	3"	NONE	TEST HOLE #1a
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	17.25	01-26-90	20	3502	3502	3"	NONE	TEST HOLE #3a
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	15.20	02-05-90	20	3502	3502	3"	NONE	REPT. WATER LEVEL
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	15.95	02-13-90	20	3502	3502	3"	NONE	REPT. WATER LEVEL
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	17.32	02-16-90	20	3502	3502	3"	NONE	JETTED DRY 2-5-90
20.32.36.21424	G.H. BINGHAM	ALLUVIUM	60	3585.0	46.60	06-06-55	UNK	UNK	0	6 5/8"	DOM	PUMPED RECENTLY
20.32.36.21442	G.H. BINGHAM	ALLUVIUM	50	3581.0	43.88	09-18-72	UNK	UNK	0	DUG	DOM	WINDMILL
20.32.36.22311	G.H. BINGHAM	ALLUVIUM	65	3586.0	44.51	05-29-68	UNK	UNK	0	6"	STOCK	PUMPING
20.32.36.22311	G.H. BINGHAM	ALLUVIUM	65	3586.0	46.01	02-03-71	UNK	UNK	0	6"	STOCK	PUMPING
20.32.36.22311	G.H. BINGHAM	ALLUVIUM	65	3586.0	41.26	02-25-76	UNK	UNK	0	6"	STOCK	WINDMILL BROKEN
20.32.36.22311	BILL SMITH	ALLUVIUM	65	3586.0	45.82	02-19-81	UNK	UNK	0	6"	STOCK	WINDMILL
21.31.01.13143	MIKE CAMPBELL	ALLUVIUM	36	3576.1	30.31	05-29-68	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MIKE CAMPBELL	ALLUVIUM	36	3576.1	26.31	02-03-71	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	20.80	09-18-72	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	19.68	02-25-76	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	24.34	12-28-76	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	DRY	01-17-81	UNK	UNK	0	10 3/4"	NONE	WELL DRY
21.31.02.22123	MIKE CAMPBELL	ALLUVIUM	35	3572.7	30.10	05-29-68	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MIKE CAMPBELL	ALLUVIUM	35	3572.7	30.59	02-02-71	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	29.80	09-18-72	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	28.67	02-25-76	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	30.26	12-28-76	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	DRY	10-14-81	UNK	UNK	0	UNK	NONE	WELL DRY

TABLE 1 (continued)

A P P E N D I X " A "

LOGS OF SEISMIC HOLES

20.32.21.22222
LS ELEV. 3517

0- 25 CALICHE
25-150 SHALE & RED CLAY
150-160 RED BED

20.32.21.24112
LS ELEV. 3524

0- 25 CALICHE
25- 50 CLAY
50-100 SANDSTONE
100-140 CLAY & SHALE

20.32.21.343344
LS ELEV. 3502

0- 46 CALICHE-SANDY CLAY
46- 80 RED CLAY
80-150 SHALE & CLAY STREAKS

20.32.21.42424
LS ELEV. 3518

0- 20 SAND & CALICHE
20- 65 MIXED CLAY
65-150 RED CLAY & SHALE

20.32.21.434343
LS ELEV. 3508

0- 32 CALICHE
32- 88 RED CLAY
88-160 SHALE & RED CLAY
160-200 HARD SHALE

20.32.21.44444
LS ELEV. 3523

0- 20 CALICHE
20- 40 LOOSE ROCK
40-150 RED CLAY & SHALE

20.32.22.13311
LS ELEV. 3522

0- 36 CALICHE
36- 68 MIXED CLAY W/HARD STREAKS
68-150 RED BED & SHALE STREAKS

20.32.22.34343
LS ELEV. 3544

0- 15 CALICHE
15- 50 SANDY CLAY
50- 85 MIXED CLAY
85-150 RED BED & SHALE

20.32.22.43434
LS ELEV. 3542

0- 32 CALICHE
32- 90 MIXED CLAY
90-130 SHALE
130-150 RED CLAY

20.32.22.44444
LS ELEV. 3541

0- 20 CALICHE
20- 55 CLAY
55-105 RED CLAY
105-150 RED CLAY & SHALE

20.32.28.111134
LS ELEV. 3487

0- 20 CALICHE
20-350 RED BED & RED SHALE
W/ROCK LEDGES

20.32.28.242422
LS ELEV. 3531

0- 18 CALICHE
18- 30 GRAVEL
30-150 RED BED

20.32.28.424242
LS ELEV. 3542

0- 20 CALICHE
20- 30 GRAVEL
30-150 RED BED

Farmers 2D-F

<u>From</u>	<u>To</u>	<u>Inter</u>	<u>Formation</u>
0'	20'	20'	Caliche - A little silty clay in the bottom 10'.
20'	40'	20'	Sand - Fine grained. Approx. 30% red shale in the lower 10'
40'	70'	30'	Shale - Brown and gray.
70'	160'	90'	Shale - Reddish brown.
160'	200'	40'	Siltstone - Red, some gray.
200'	220'	20'	Siltstone - Red to magenta, a little grey. Approx. 40% sandstone.
220'	280'	60'	Sandstone - Red. Approx. 20% red to magenta siltstone.
280'	300'	20'	Shale - Red, a little magenta and gray.
300'	310'	10'	Sandstone - Red. A little red and gray shale.
310'	330'	20'	Clay - Red, silty.
330'	360'	30'	Sandstone - Red. Approx. 15% red shale.
360'	380'	20'	Shale - Red to magenta.
380'	400'	20'	Clay - Red, silty.
400'	500'	100'	Shale - Red to magenta. Broken caliche pebbles.
500'	550'	50'	Shale - Brown, a little grey. Approx. 2% caliche.
550'	660'	110'	Shale - Brown, very little grey. Traces of caliche.
660'	720'	60'	Shale - Brown. Some red clay. Trace caliche.
720'	750'	30'	Shale - Brown, little grey. Trace caliche.
750'	810'	60'	Siltstone - Red. Some brown shale. Very little green shale.
810'	890'	80'	Shale - Red and brown, silty. Trace of caliche and green shale.
890'	900'	10'	Clay - Red, sandy. Trace of gypsum.
900'	960'	60'	Anhydrite - Grey, some gypsum. Approx. 20% red clay.
960'	1010'	50'	Anhydrite - Dark grey. A little brown and grey clay.
1010'	1080'	70'	Shale - Red. Approx. 20% gypsum and anhydrite.
1080'	1100'	20'	Shale - Red. Approx. 40% gypsum and anhydrite.
1100'	1110'	10'	Shale - Red. Approx. 10% gypsum and anhydrite.

Farmers 20-^f

<u>From</u>	<u>To</u>	<u>Inter</u>	<u>Formation</u>
1110'	1130'	20'	Gypsum and anhydrite - Approx. 5% red shale.
1130'	1150'	20'	Anhydrite - Grey. Set casing at 1132' 10".
1150'	1170'	20'	Limestone - Tan. A little grey anhydrite. (Culebra).
1170'	1180'	10'	Clay - Red and grey.
1180'	1200'	20'	Halite - Approx. 20% brown clay.
1200'	1236'	36'	Halite - Approx. 4% brown clay.
	1236'		Start coring - 2-23-53.
1236' 0"	1239' 4"	3' 4"	Halite - Clear to faint orange. Occasional bleb of orange polyhalite. Approx. 2% brown clay.
1239' 4"	1240' 4"	1' 0"	Clay - Red, silty. Approx. 15% halite.
1240' 4"	1247' 6"	7' 2"	Halite - Clear, medium grained. Approx. 40% red siltstone.
1247' 6"	1251' 2"	3' 8"	Siltstone - Red. Approx. 5% halite.
1251' 2"	1253' 1"	1' 11"	Halite - Clear, medium grained. Approx. 40% red and grey siltstone.
1253' 1"	1257' 2"	4' 1"	Siltstone - Red. A few halite crystals, more prominent in the top 2'.
1257' 2"	1264' 4"	7' 2"	Clay - Red, silty. Occasional carnallite and halite bleb.
1264' 4"	1266' 4"	2' 0"	Siltstone - Brown. Numerous small carnallite blebs.
1266' 4"	1267' 2"	0' 10"	Anhydrite - Grey. A few small carnallite blebs. A few halite crystals.
1267' 2"	1268' 0"	0' 10"	Siltstone - Red. Numerous small carnallite blebs. A few halite crystals.
1268' 0"	1271' 2"	3' 2"	Anhydrite - Grey and grey clay. A few halite crystals. Red, silty clay seams at 1268' 4" and 1269' 8".
1271' 2"	1271' 6"	0' 4"	Clay - Red, silty. A few halite and carnallite blebs.
1271' 6"	1272' 5"	0' 11"	Clay - Brownish grey. Some grey anhydrite. A few halite and carnallite blebs.
1272' 5"	1272' 10"	0' 5"	Halite - and brown clay. Scattered carnallite blebs.
1272' 10"	1273' 1"	0' 3"	Clay - Green. A few halite and carnallite blebs. (12th ore zone).

LOGS OF EXPLORATORY HOLES
LARRY FELKINS, DRILLER

TEST HOLE #1
20.32.27.424443
LS ELEV. 3553
DRILLED: 10/31/89

0-12 CALICHE
12-24 SAND COARSE
24-28 SAND & GRAVEL
28-34 SAND FINE
34-39 SAND LIGHT
39-41 RED BED
41-44 GRAY ROCK
44-97 THIN LAYERS SAND & GRAVEL
RED SAND GRAY ROCK SANDY
YELLOW GRAY & BROWN CLAY
(DRY)

TEST HOLE #2
20.32.27.422221
LS ELEV. 3546
DRILLED: 10/31/89

0- 8 CALICHE
8-28 SAND
28-32 SAND & GRAVEL
32-36 GRAY ROCK
36-38 SAND & GRAVEL
38-50 RED BED
(DRY)

TEST HOLE #3
20.32.27.234210
LS ELEV. 3542
DRILLED: 10/31/89

0-12 CALICHE
12-34 SAND THIN LAYERS GRAVEL
34-50 RED BED
(DRY)

TEST HOLE #4
20.32.27.412333
LS ELEV. 3550
DRILLED: 10/31/89

0- 8 CALICHE
8-39 SAND & GRAVEL
39-42 RED BED
42-60 LAYERS RED, YELLOW, GRAY
SANDY CLAY WITH SOME
GRAVEL LAYER OF GRAY ROCK
(DRY)

TEST HOLE #5
20.32.27.144133
LS ELEV. 3539
DRILLED: 10/31/89

0- 2 CALICHE
2-24 SAND DAMP AT 18 DOWN
24-28 SAND & GRAVEL
28-34 SAND
34-36 GREEN CLAY
36-40 RED SAND & RED BED DAMP
40-44 RED BED DRY
44-46 GRAY CLAY
46-60 LAYERS OF RED BED GRAY
CLAY GREEN CLAY
(WATER AT 21 FT.)

TEST HOLE #6
20.32.27.132121
LS ELEV. 3529
DRILLED: 10/31/89

0-12 CALICHE
12-24 SAND THIN GRAVEL
24-32 SAND & GRAVEL WET
32-34 GRAY CLAY
34-36 RED BED
36-38 GREEN & GRAY CLAY
38-50 RED BED
(WATER AT 26 FT.)

TEST HOLE #7
20.32.27.314122
LS ELEV. 3541
DRILLED: 10/31/89

0- 9 CALICHE
9-28 SAND LIGHT
28-35 SAND DARK
35-37 RED BED
37-38 GRAY CLAY
38-40 SAND THIN LAYERS CLAY
40-50 RED BED THIN LAYERS GRAY
& GREEN CLAY
(WATER AT 47 FT.)

TEST HOLE #1a
20.32.28.222224
LS ELEV. 3519
DRILLED: 01/26/90

0- 8 CALICHE
8-24 SAND & CLAY
24-28 GRAVEL & SAND
28-34 CLAYS YELLOW & BROWN
34-37 RED BED
CASED 37 FT. PERFS 29 FT.

TEST HOLE #2a
20.32.22.322142
LS ELEV. 3527
DRILLED: 01/26/90

0- 6 CALICHE
6-10 SAND
10-20 SAND CLAY ROCK
20-35 RED CLAY & SAND
35-45 RED CLAY & GRAVEL
45-55 RED BED
CASED 50 FT. PERFS BOTTOM 30 FT.

TEST HOLE #3a
20.32.28.243123
LS ELEV. 3522
DRILLED: 01/26/90

0- 8 CALICHE
8-20 CALICHE SAND GRAVEL
20-45 DRY BROWN & RED CLAY
45-55 RED BED
CASED 55 FT. PERFS 40 FT.

LOGS OF EXPLORATORY HOLES
BASED ON INSPECTION OF DRILL CUTTINGS

TEST HOLE #1
20.32.27.424443
LS ELEV. 3553
DRILLED: 10/31/89

0- 5 CALICHE
5-10 CALICHE
10-15 CALICHE-FINE SAND
15-20 SAND CALICHE
20-25 SAND
25-30 SAND
30-35 NO SAMPLE
35-40 SAND GRAVEL
40-45 RED CLAY
45-50 RED BED
50-55 VERY FINE SILTY SAND
55-60 SILTY SAND-GREY SHALE
-TRACE OF GRAVEL
60-65 SAND
65-70 GREY SILTSTONE
70-75 RED CLAY W/TRACE OF GRAVEL
75-80 RED SHALE
80-85 RED CLAY W/SOME SAND
85-90 RED CLAY
90-95 RED CLAY
95-99 NO SAMPLE

TEST HOLE #2
20.32.27.422221
LS ELEV. 3546
DRILLED: 10/31/89

0- 5 CALICHE
5-10 CALICHE
10-15 FINE SAND
15-20 FINE SAND W/SMALL GRAVEL
20-25 FINE SAND
25-30 FINE SAND
30-35 GREY SILTY SANDSTONE
35-40 RED BED W/TRACE OF GRAVEL
40-45 RED BED
45-50 RED BED

TEST HOLE #3
20.32.27.234210
LS ELEV. 3542
DRILLED: 10/31/89

0- 5 SAND AND CALICHE
5-10 CALICHE W/SOME SAND
10-15 CALICHE
15-20 SAND
20-25 CALICHE AND VERY FINE SAND
25-30 SAND-GRAVEL
30-35 RED SHALE W/TRACE OF GRAVEL
35-40 RED BED W/SOME GRAVEL
40-45 RED BED
45-50 RED BED

TEST HOLE #4
20.32.27.412333
LS ELEV. 3550
DRILLED: 10/31/89

0- 5 CALICHE
5-10 CALICHE
10-15 SAND W/SOME CALICHE
15-20 SAND & GRAVEL
W/SOME CALICHE
20-25 SAND
25-30 SAND AND GRAVEL
30-35 BROWN SAND AND GRAVEL
35-40 CLAY AND SAND
40-45 RED AND GREY CLAY
45-50 GREY CLAYEY SAND
W/SOME GREY SHALE
50-55 RED BED W/SOME GRAVEL
(SILTSTONE)
55-60 GREY CLAY AND SAND
W/SOME CHERT

TEST HOLE #5
20.32.27.144133
LS ELEV. 3539
DRILLED: 10/31/89

0-10 SOIL-CALICHE
10-20 CALICHE AND SAND
20-30 SAND AND GRAVEL
30-35 GREY SILTY SAND
35-40 GREY CLAY
40-45 RED CLAY
45-50 RED AND GREY CLAY
W/SOME GRAVEL
50-55 RED BED
55-60 RED BED

TEST HOLE #6
20.32.27.132121
LS ELEV. 3529
DRILLED: 10/31/89

0-10 CALICHE
10-20 CALICHE SAND
W/SOME GRAVEL
20-30 VERY FINE SAND
W/SOME GRAVEL
30-40 RED BED W/SOME FINE SAND
& TRACE OF GRAVEL
40-45 RED BED
45-50 RED BED

LOGS OF EXPLORATORY HOLES
BASED ON INSPECTION OF DRILL CUTTINGS

CONTINUED

TEST HOLE #7
20.32.27.314122
LS ELEV. 3541
DRILLED: 10/31/89

0-10 CALICHE
10-20 SAND
20-30 VERY FINE SAND
W/SOME RED CLAY
30-35 NO SAMPLE
35-40 RED BED
40-45 RED BED
45-50 RED SILT (LIGHT COLORED)

TEST HOLE #1a
20.32.28.222224
LS ELEV. 3519
DRILLED: 01/26/90

0- 5 CALICHE
5-10 CALICHE W/SOME SAND
10-15 SAND & CLAY
W/SOME SANDSTONE
15-20 SAND AND CLAY
W/SOME GRAVEL
20-25 GREY & YELLOW CLAY
25-30 BROWN SAND AND GRAVEL
30-35 RED BED
35-37 RED BED

TEST HOLE #2a
20.32.22.322142
LS ELEV. 3527
DRILLED: 01/26/90

0- 5 CALICHE
5-10 CALICHE W/TRACE OF SAND
10-15 CALICHE W/SOME SAND
15-20 RED CLAY
20-25 RED CLAY - CALICHE
25-30 RED CLAY
30-35 RED CLAY W/SOME SAND
35-40 SAND AND CLAY
40-45 SAND-GRAVEL RED CLAY
45-50 RED BED - DARK RED
50-55 RED BED - DARK RED

TEST HOLE #3a
20.32.28.243123
LS ELEV. 3522
DRILLED: 01/26/90

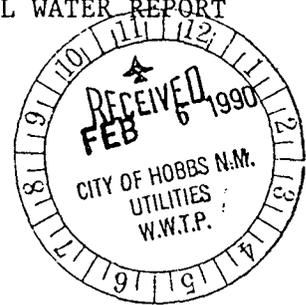
0- 5 CALICHE
5-10 SAND AND CALICHE
10-15 SAND GRAVEL W/SOME CLAY
15-20 SAND GRAVEL W/SOME CLAY
20-25 RED CLAY
25-30 RED CLAY
30-35 RED CLAY
35-40 RED CLAY W/TRACE OF GRAVEL
40-45 RED CLAY
45-50 DARK RED CLAY
50-55 NO SAMPLE

A P P E N D I X " B "



City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90D-9</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>9:00</u>	<u>Denny</u>				
Collection Point <u>At Well #2A</u>			Non-Coliform per 100 ml			
TYPE OF SYSTEM			non-coliforms <u>TNTC</u> colonies			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250. <u>Samuel Johnson</u> Bacteriologist			
REASON FOR SAMPLING			<input type="checkbox"/> Unsatisfactory Sample			
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample			_____			
TESTING REQUIRED			_____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN			_____			

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc

COMPANY _____

ADDRESS Bx 369

Hobbs, NM 88240

A FEE OF \$10.00 PLUS TAX IS
CHARGED FOR EACH TEST.

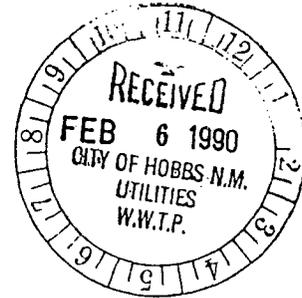
20.32.22.322142 JFW

OFFICE USE ONLY



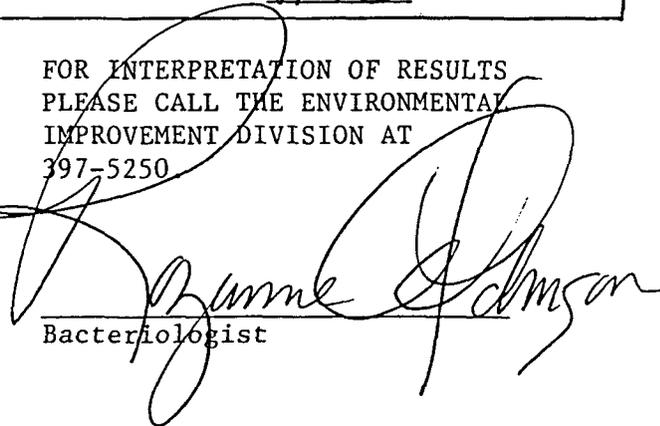
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D-12</u>		County <u>LEA</u>	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>10:15</u>	<u>Danny</u>				
Collection Point <u>At Well # 9 6</u>			Non-Coliform per 100 ml <u>non-coliforms TNTC colonies</u>			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc

COMPANY _____

ADDRESS Bx 369
Hobbs, NM 88240
207-1571

A FEE OF \$10.00 PLUS TAX IS
CHARGED FOR EACH TEST.

20.32.27 132.121 J.D.W.

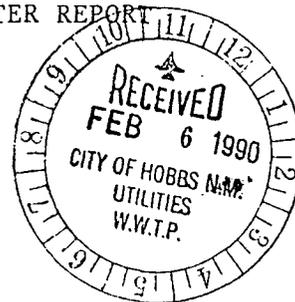
OFFICE USE ONLY

Account # _____



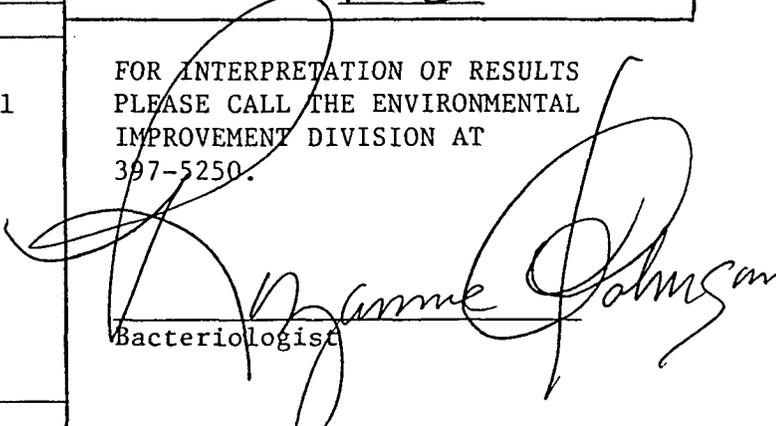
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D -13</u>	County LEA		Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>	WSS Code No.		TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	—		
Date Collected Mo. Day Yr. <u>2-6-90</u>	Time Collected <u>9:45</u>	Collected By <u>Denny</u>	MPN			
Collection Point <u>At Well #5</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
TESTING REQUIRED						
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME _____
 COMPANY Controlled Recovery, Inc
 ADDRESS Box 369
Hobbs, NM 88240
297-1571

A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

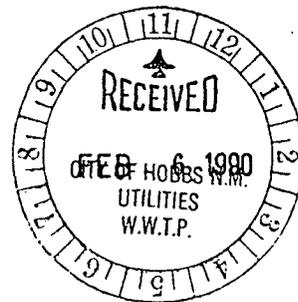
20.32.27.144133 *ju*

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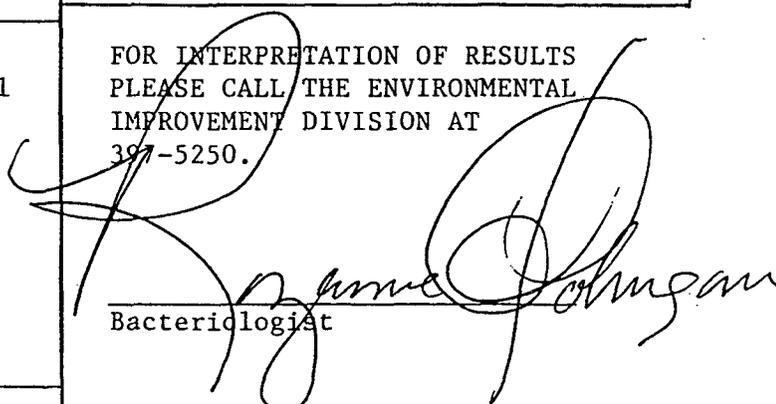
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90-0-11</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>37 miles Wd Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	-		
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>9:30</u>	<u>Remy</u>				
Collection Point <u>At well #3</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Swimming Pool <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME _____
 COMPANY Controlled Recovery, Inc
 ADDRESS Box 369
Hobbs, NM 88240

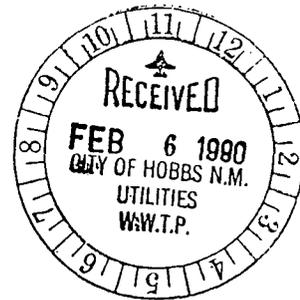
A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

26.32.27.234210 JFW
 OFFICE USE ONLY



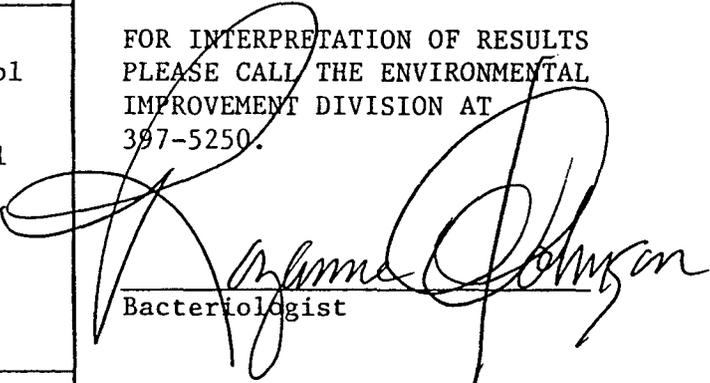
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D - 10</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>57 miles W of Hobbs on 62-100</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr. <u>2-6-90</u>	Time Collected <u>10:00</u>	Collected By <u>Denny</u>	MPN			
Collection Point <u>At Well #7</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME _____
 COMPANY Controlled Recovery Inc
 ADDRESS Box 369
Hobbs, NM 88240
297-1521

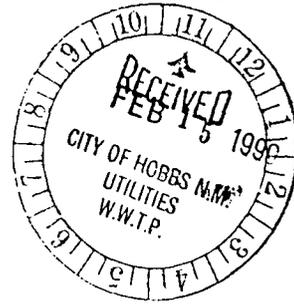
A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

20.32.27. 3/4/22 JJW
 OFFICE USE ONLY



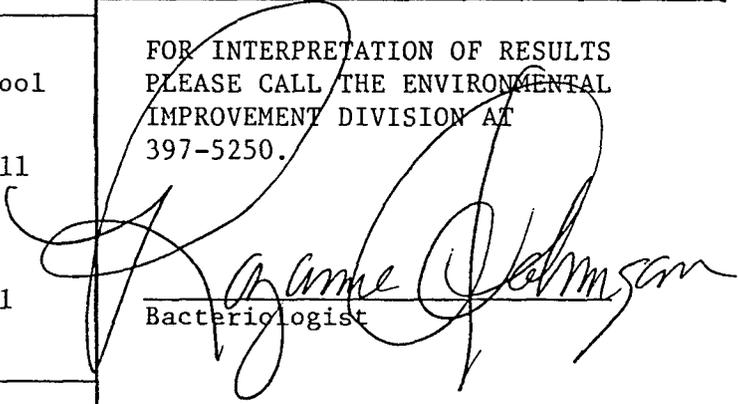
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 15 1990

Time Test Ended 1:30 Date FEB 16 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 C-96</u>	County LEA		Coliform per 100 ml			
Water Supply System Name <u>37 miles west of Hobbs ON 62100</u>	WSS Code No.		TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-14-90</u>	<u>5:00pm</u>	<u>Denny</u>				
Collection Point <u>At well #8</u>			Non-Coliform per 100 ml			
TYPE OF SYSTEM			non-coliforms <u>TNTC</u> colonies			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.  Bacteriologist			
REASON FOR SAMPLING			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED						
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc

COMPANY _____

ADDRESS Bx 369
Hobbs, NM 88240

PHONE 397-6521

A FEE OF \$10.00 PLUS TAX IS
CHARGED FOR EACH TEST.

20.32.27, 321423 *Jed*

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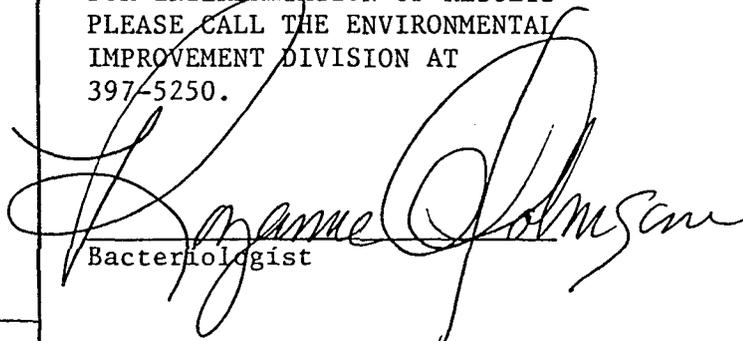
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90-D 8</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>37 miles west of Hobbs ^{DN} 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr. <u>2-6-90</u>	Time Collected <u>8:45</u>	Collected By <u>Denny</u>	MPN			
Collection Point <u>At Well #1A</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc
COMPANY _____
ADDRESS Bx369
Hobbs N.M. 88240

A FEE OF \$10.00 PLUS TAX IS
CHARGED FOR EACH TEST.

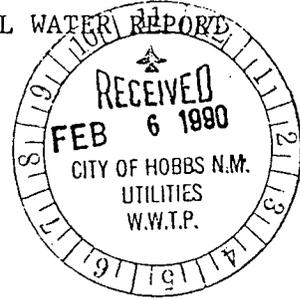
20,37,25, 222224 *Jub*

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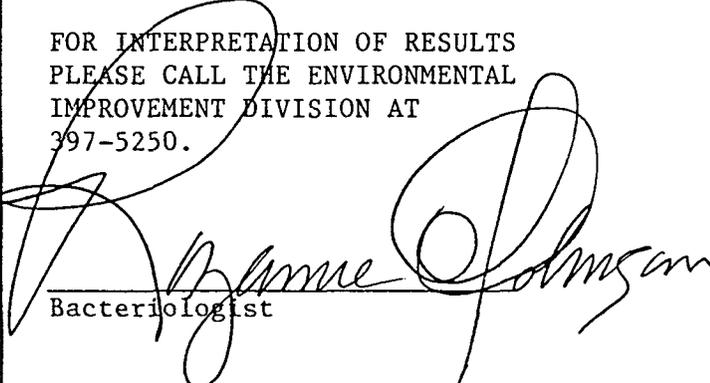
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 P-14</u>	County <u>LEA</u>		Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs ON 62-180</u>	WSS Code No. <u>62-180</u>		TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	<u>—</u>		
Date Collected Mo. Day Yr. <u>2-6-90</u>	Time Collected <u>9:15</u>	Collected By <u>Denny</u>	MPN			
Collection Point <u>At Well #3A</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING
 NAME Controlled Recovery, Inc
 COMPANY _____
 ADDRESS Px 369
Hobbs, NM 88240
 PHONE 397-1571

A FEE OF \$10.00 PLUS TAX IS CHARGED FOR EACH TEST.

20.32.28. 243123 JFW

OFFICE USE ONLY
 account # _____

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 2A
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Moniter well DEPTH ? feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 1700 m/h
Total dissolved solids: 1190 PPM
Chlorides: 568 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 44 feet.
Top of water at 38 feet.
5 ml sample 710 x .8 = 568 ppm Cl
SC - metered 1700
TDS - calculated

20.32.22, 322142

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 1A
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Moniter well DEPTH ? feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 50,000+ m/s
Total dissolved solids: ?? PPM
Chlorides: 136,675 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 35 feet.
Top of water at 20 feet.
1 ml sample 2550 x 38.5 titration = 136,675 ppm Cl
SC - meter pegged out at 50,000 plus.

20.32.28.222224

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 3A
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Moniter well DEPTH _____ feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 50,000+ m/h
Total dissolved solids: ?? PPM
Chlorides: 95,850 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 40 feet.
Top of water at 20 feet.
1 ml sample 3550 x 27 titration = 95,850 ppm Cl
SC - meter pegged out at 50,000 plus.

SEC. 27, T20S, R32E, N.M.P.M.,

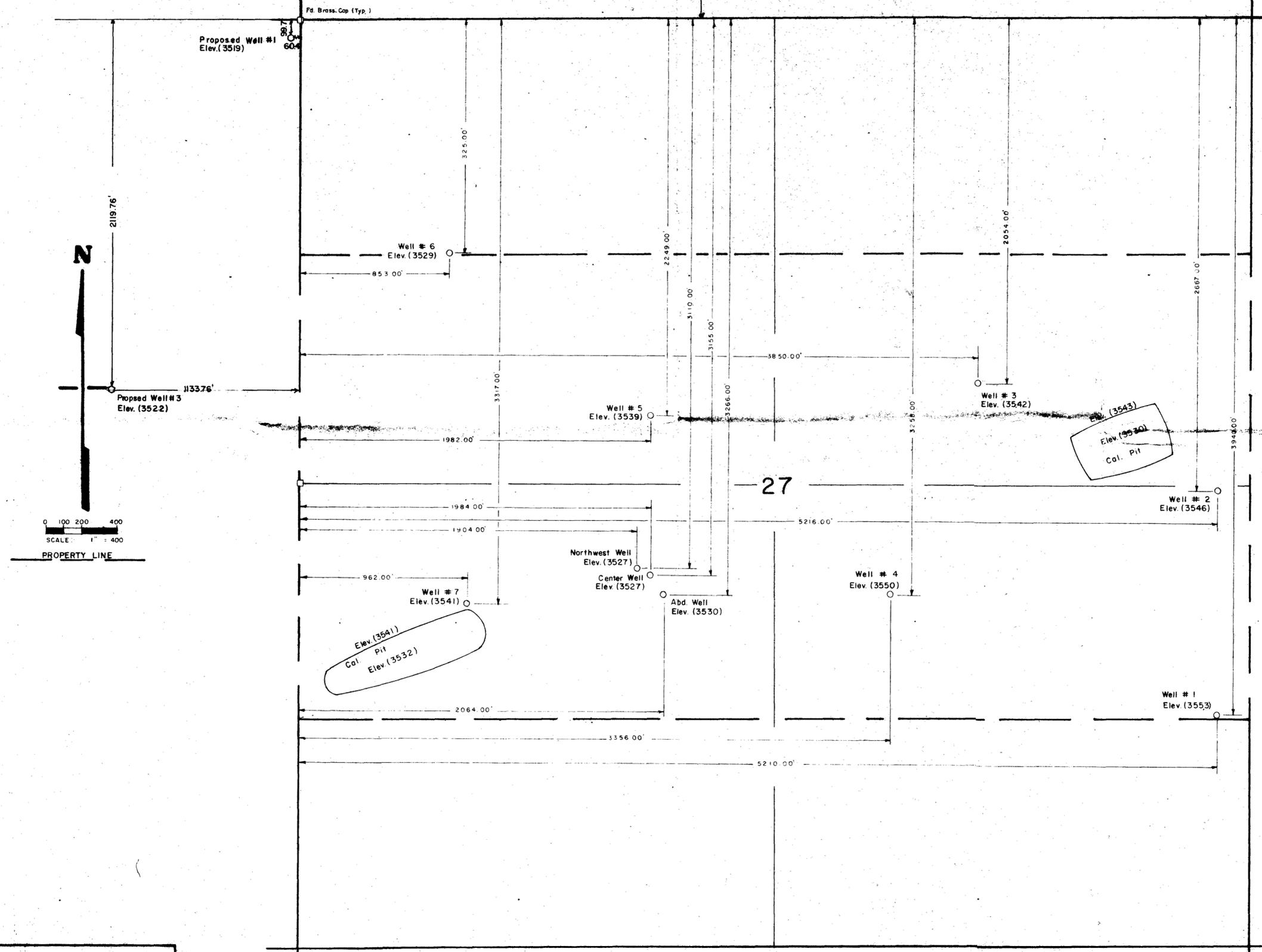
LEA COUNTY, NEW MEXICO

2273.68'

Proposed Well #2
Elev. (3527)

2883.85'
(not to scale)

WELL LOCATIONS



219.76'

Proposed Well #3
Elev. (3522)

Well # 6
Elev. (3529)

Well # 5
Elev. (3539)

Well # 3
Elev. (3542)

Elev. (3543)
Col. Pit

Well # 2
Elev. (3546)

Northwest Well
Elev. (3527)
Center Well
Elev. (3527)

Well # 4
Elev. (3550)

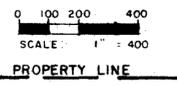
Abd. Well
Elev. (3530)

Well # 7
Elev. (3541)

Elev. (3541)
Col. Pit
Elev. (3532)

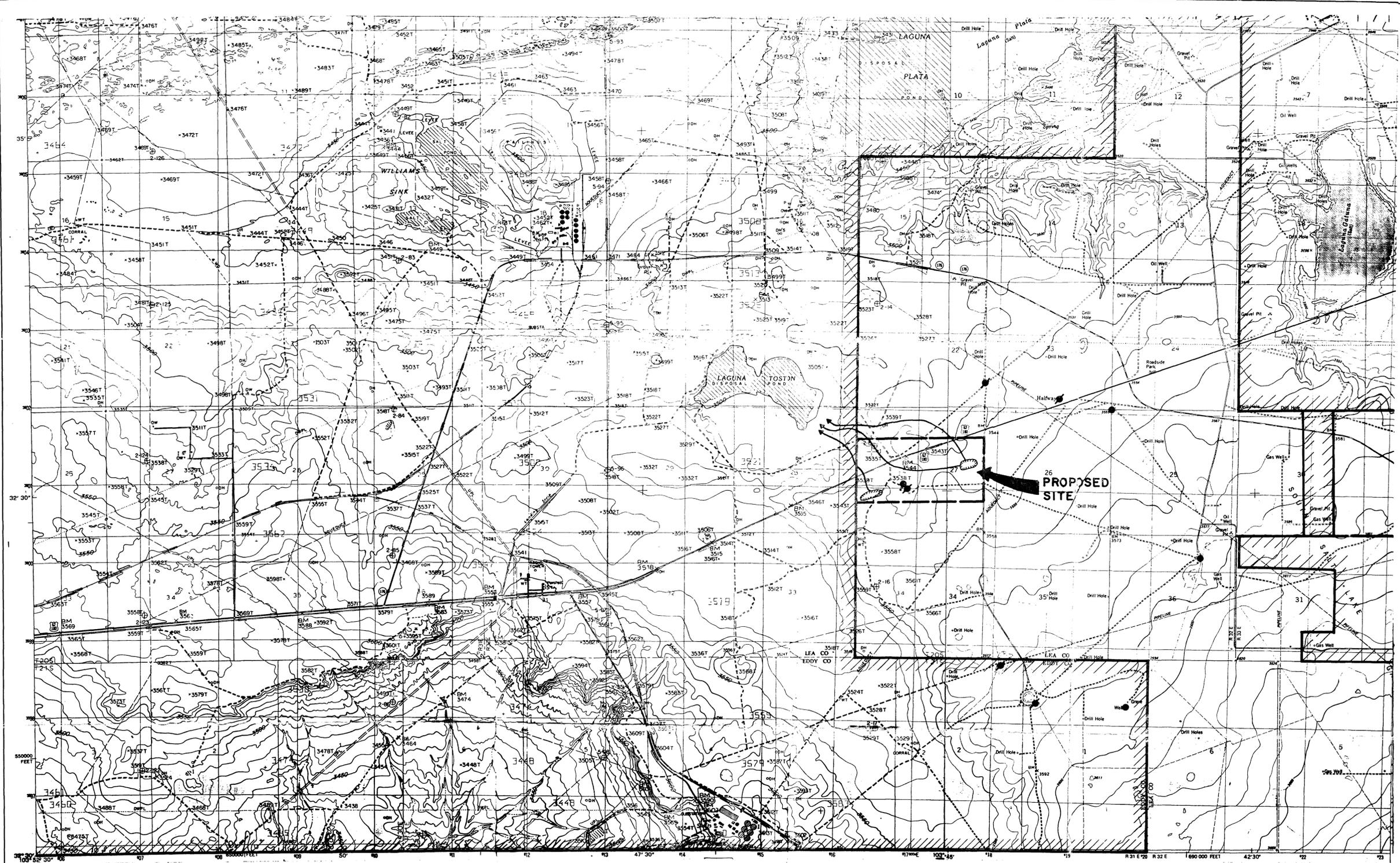
Well # 1
Elev. (3553)

27



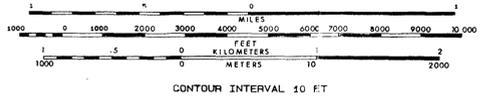
KING SURVEYING
4001 MAHAN DR. HOBBS, N.M. 88240
SCALE: 1" = 400' DRAWN BY: Maudie J.
DATE: 11/21/89 SHEET 1 OF 1

FIGURE I



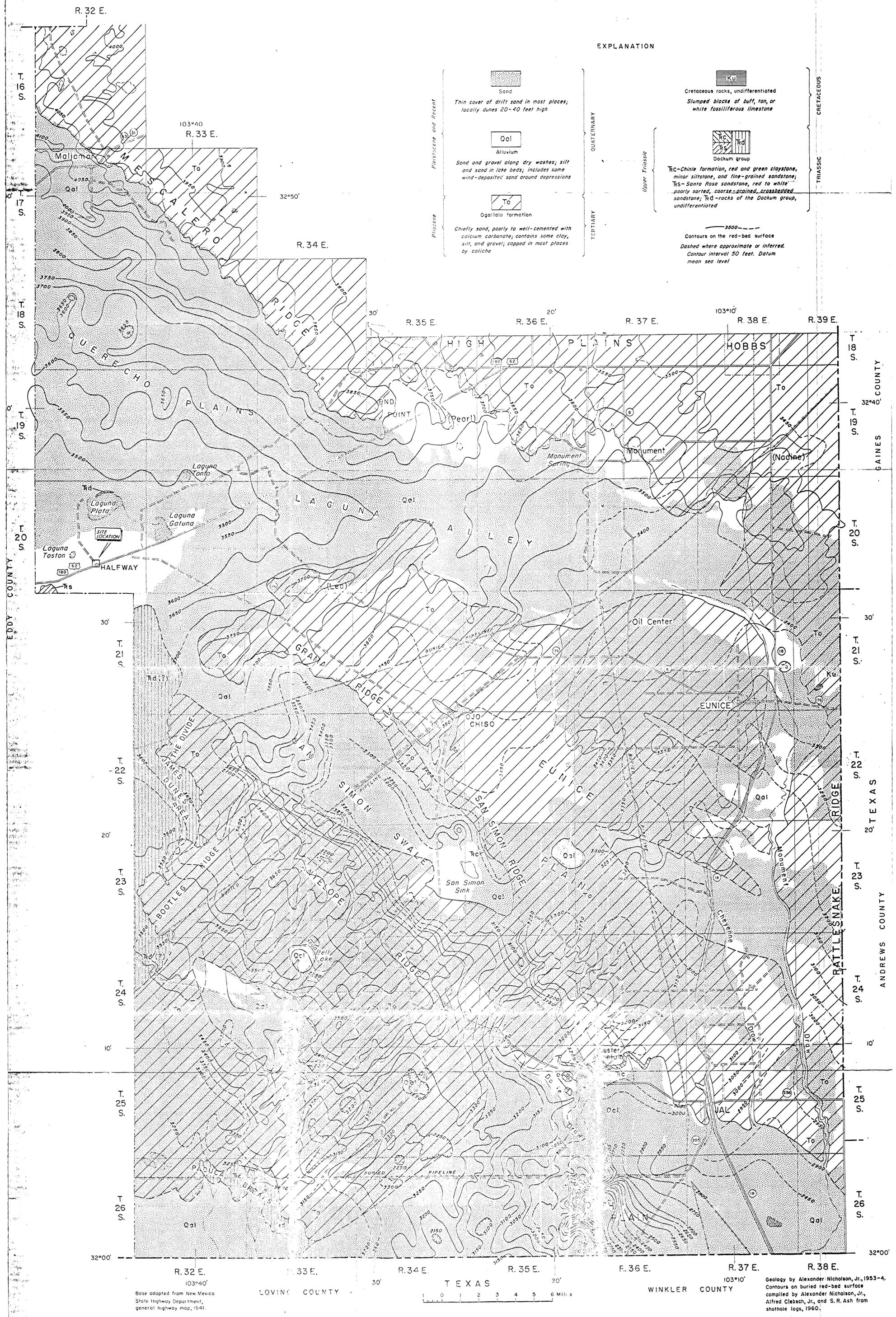
**PROPOSED DISPOSAL SITE LOCATION, AREAS PERMITTED FOR SURFACE DISPOSAL OF BRINE, LOCATION OF WATER WELLS AND TOPOGRAPHY
IN THE VICINITY OF SECTION 27, TOWNSHIP 20 SOUTH, RANGE 32 EAST, LEA COUNTY, NEW MEXICO - 1990**

JAMES I. WRIGHT
CONSULTING HYDROLOGIST
ROSWELL, NEW MEXICO



- — UNEQUIPPED WELL
- — EQUIPPED WELL
- ◊ — EXISTING GRAVEL PITS
- — PROPOSED SITE
- ▨ — AREAS PERMITTED FOR SURFACE DISPOSAL OF BRINE
- — — — — PATH OF SURFACE DRAINAGE

FIGURE II



EXPLANATION

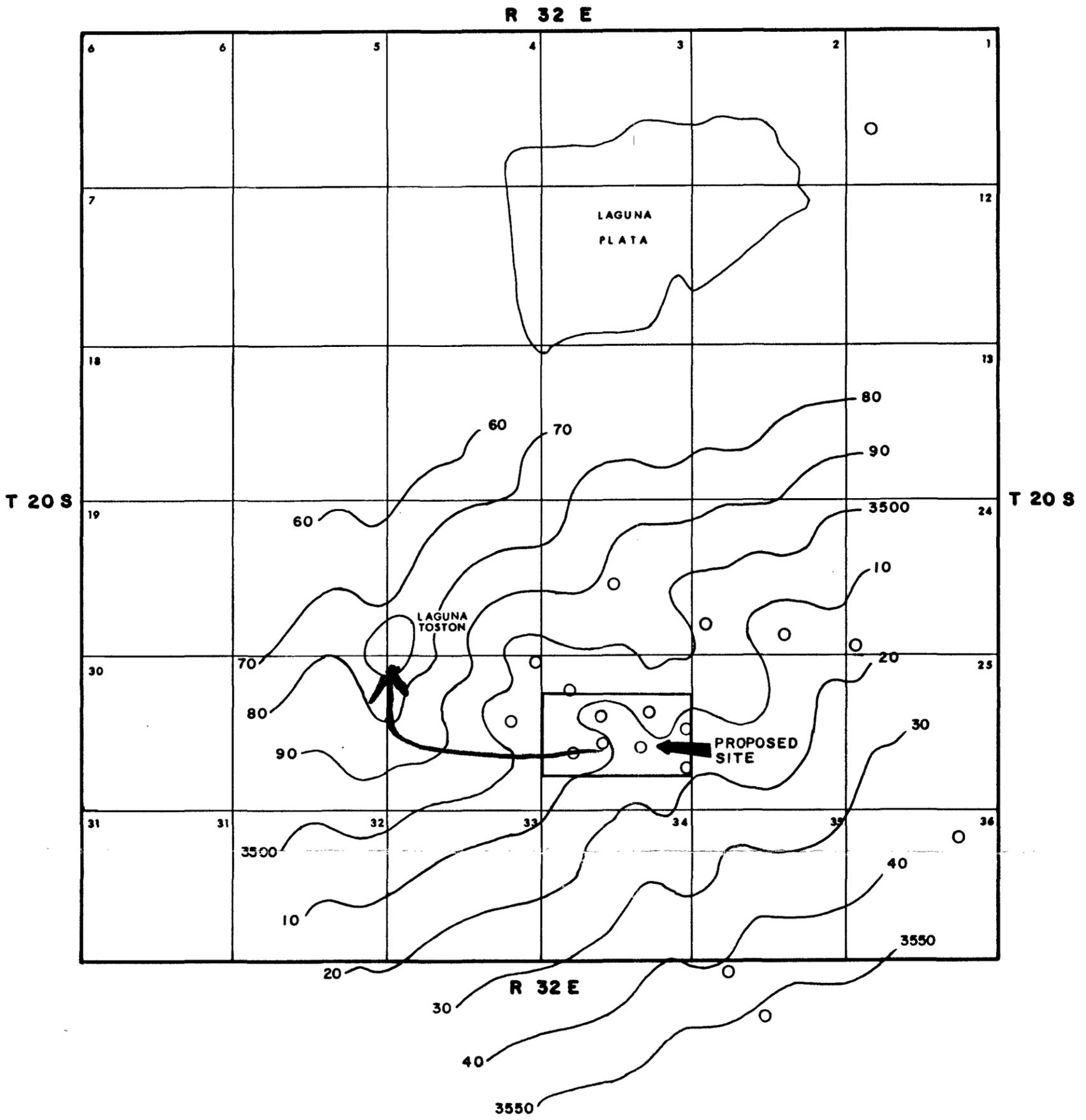
<p>Quaternary</p> <p>Pleistocene and Recent</p> <p>Pliocene</p>	<p>Tertiary</p> <p>Upper Triassic</p>	<p>CRETACEOUS</p> <p>TRIASSIC</p>
<p>Sand</p> <p><i>Thin cover of drift sand in most places; locally dunes 20-40 feet high</i></p> <p>Qal</p> <p>Alluvium</p> <p><i>Sand and gravel along dry washes; silt and sand in lake beds; includes some wind-deposited sand around depressions</i></p> <p>To</p> <p>Ogallala formation</p> <p><i>Chiefly sand, poorly to well-cemented with calcium carbonate; contains some clay, silt, and gravel; capped in most places by caliche</i></p>	<p>Ku</p> <p>Cretaceous rocks, undifferentiated</p> <p><i>Slumped blocks of buff, tan, or white fossiliferous limestone</i></p> <p>Rc Rd</p> <p>Dockum group</p> <p>Rc-Chinle formation, red and green claystone, minor siltstone, and fine-grained sandstone; Rs-Santa Rosa sandstone, red to white, poorly sorted, coarse-grained, crossbedded sandstone; Rd-racks of the Dockum group, undifferentiated</p>	<p>3500</p> <p>Contours on the red-bed surface</p> <p><i>Dashed where approximate or inferred.</i></p> <p>Contour interval 50 feet. Datum mean sea level</p>

Base adapted from New Mexico State Highway Department, general highway map, 1941.

0 1 2 3 4 5 6 Miles

Geology by Alexander Nicholson, Jr., 1953-4. Contours on buried red-bed surface compiled by Alexander Nicholson, Jr., Alfred Clebsch, Jr., and S.R. Ash from shothole logs, 1960.

FIGURE III



ALTITUDE AND CONFIGURATION OF WATER
 TABLE IN THE VICINITY OF SECTION 27,
 TOWNSHIP 20 SOUTH, RANGE 32 EAST,
 N.M.P.M.

LEA COUNTY, NEW MEXICO - 1990

- - DRILL HOLE OR WELL
- CONTOUR INTERVAL IS 10 FEET

JAMES I. WRIGHT
 CONSULTING HYDROLOGIST
 ROSWELL, NEW MEXICO

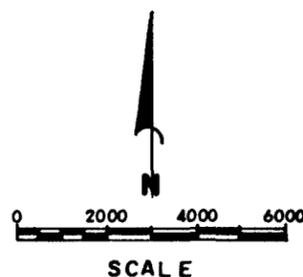
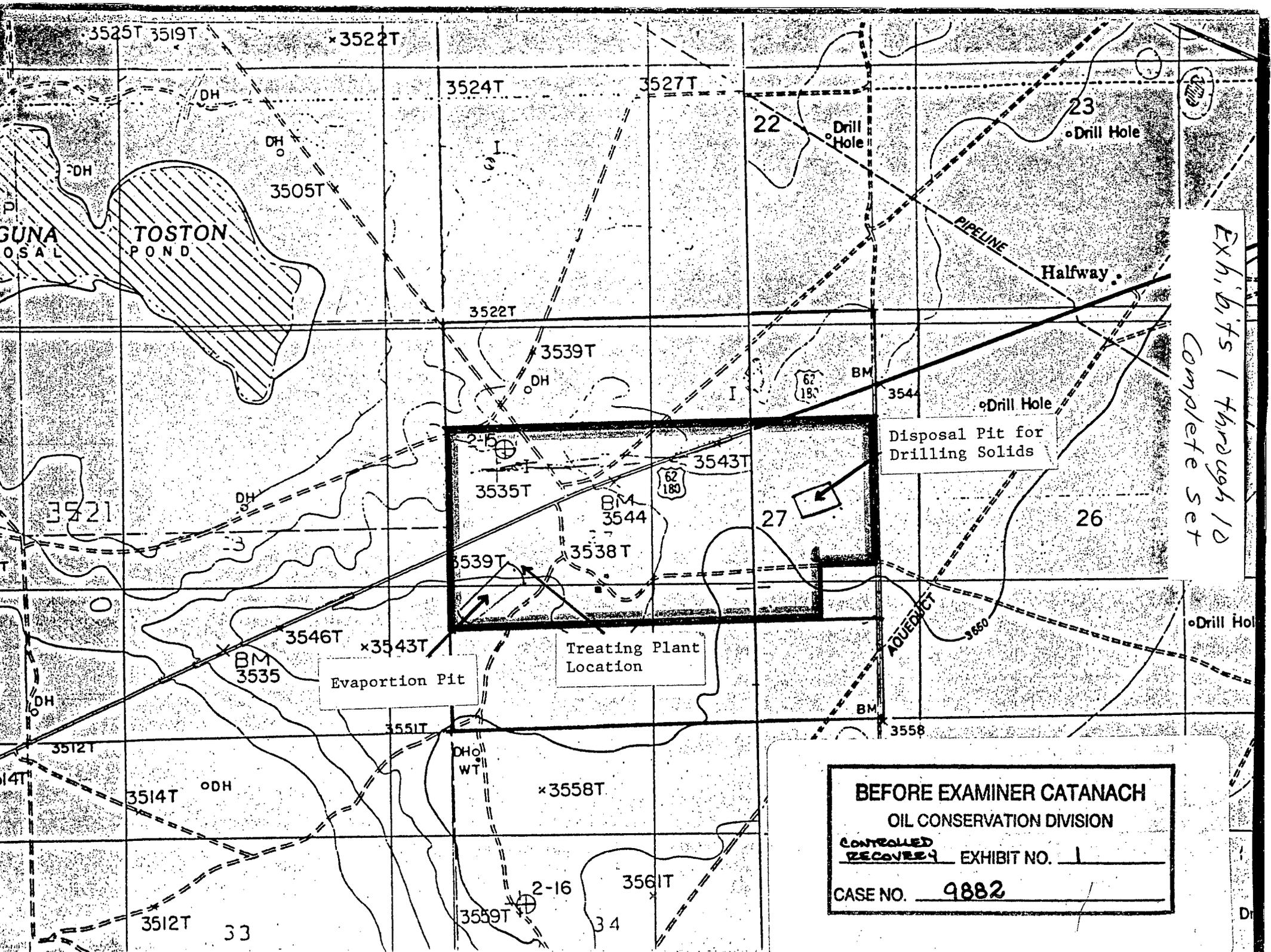
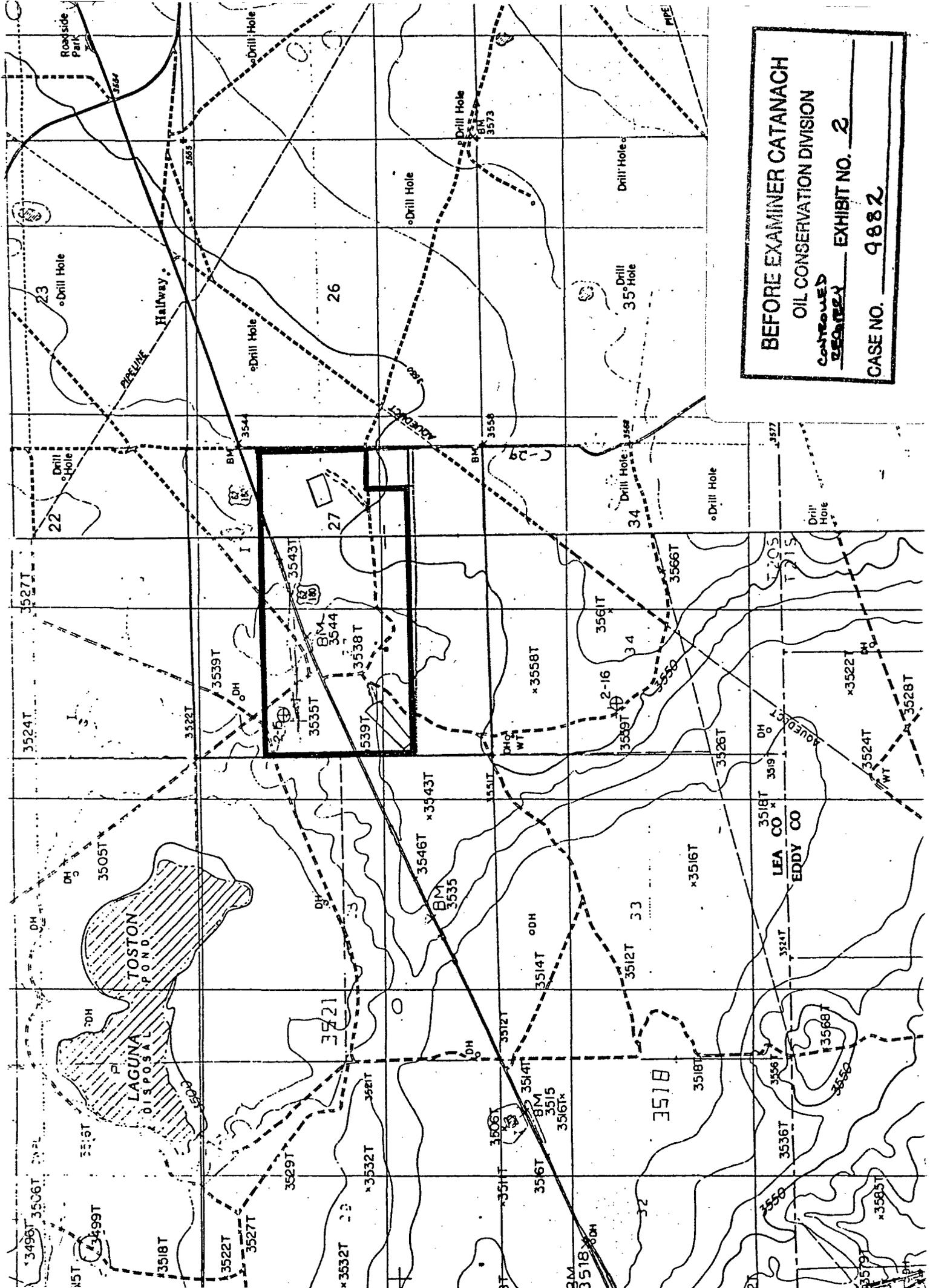


FIGURE IV



Exhibits 1 through 10
 Complete set

BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
 CONTROLLED
 RECOVERED EXHIBIT NO. 1
 CASE NO. 9882



BEFORE EXAMINER CATANACH
 OIL CONSERVATION DIVISION
 CONTROLLED 2501224 EXHIBIT NO. 2
 CASE NO. 988Z



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

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS NEW MEXICO 88241-1980
(505) 393-8161

MEMORANDUM: To Whom It May Concern
FROM: Jerry Sexton, District I Supervisor
DATE: February 23, 1990

Lea County has only one facility to handle oilfield waste such as tank bottoms, drilling mud, etc. This does present a problem in disposal of such matter in an environmentally safe manner at a reasonable cost due to hauling distance.

JS:jm

BEFORE EXAMINER CATANACH	
OIL CONSERVATION DIVISION	
CONTROLLED RECEIVED	EXHIBIT NO. <u>3</u>
CASE NO. <u>9882</u>	

BEFORE THE
OIL CONSERVATION DIVISION

NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION
OF CONTROLLED RECOVERY, INC. FOR
AN OIL TREATING PLANT PERMIT,
FOR SURFACE WASTE DISPOSAL AND AN
EXCEPTION TO ORDER NO. R-3221,
LEA COUNTY, NEW MEXICO.

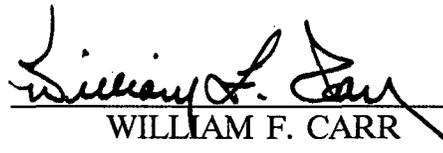
CASE NO. 9882

AFFIDAVIT

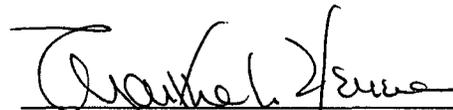
STATE OF NEW MEXICO)
)ss.
COUNTY OF SANTA FE)

BEFORE EXAMINER CATANACH	
OIL CONSERVATION DIVISION	
CONTROLLED RECOVERY	EXHIBIT NO. <u>4</u>
CASE NO.	<u>9882</u>

WILLIAM F. CARR, attorney in fact and authorized representative of Controlled Recovery, Inc., the Applicant herein, being first duly sworn, upon oath, states that the notice provisions of Rule 1207 of the New Mexico Oil Conservation Division have been complied with, that Applicant has caused to be conducted a good faith diligent effort to find the correct addresses of all interested persons entitled to receive notice, as shown by Exhibit "A" attached hereto, and that pursuant to Rule 1207, notice has been given at the correct addresses provided by such rule.


WILLIAM F. CARR

SUBSCRIBED AND SWORN to before me this 3rd day of April, 1990.


Notary Public



My Commission Expires:

August 19, 1991

EXHIBIT A

Bureau of Land Management
Post Office Box 1397
Roswell, New Mexico 88201

J.C. Estes
4332 Choctaw Road
Carlsbad, New Mexico 88220

CAMPBELL & BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
WILLIAM P. SLATTERY
PATRICIA A. MATTHEWS

JEFFERSON PLACE
SUITE 1 - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

February 14, 1990

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Bureau of Land Management
Post Office Box 1397
Roswell, New Mexico 88202

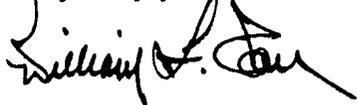
Re: Application of Controlled Recovery, Inc. for an Oil Treating Plant Permit
and for Surface Waste Disposal, Lea County, New Mexico

Gentlemen:

This letter is to notify you that Controlled Recovery, Inc. has filed an application with the New Mexico Oil Conservation Division seeking authority for construction and operation of a surface waste disposal facility and an oil treating plant for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation or storage of produced water, drilling fluids, drill cuttings, completion fluids and other oil field related waste in unlined surface pits, at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico.

This application has been set for hearing before a Division Examiner on March 7, 1990. You are not required to attend this hearing, but as an owner of a property interest that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the matter at a later date.

Very truly yours,



WILLIAM F. CARR
ATTORNEY FOR CONTROLLED RECOVERY, INC.
WFC:mlh

P-106 678 447

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

J.C. Estes
4332 Choctaw Road
Carlsbad, New Mexico 88220

Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 2.00
Postmark or Date	
FEB 14 1990	

PS Form 3800, June 1985

CAMPBELL & BLACK, P.A.

LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
WILLIAM P. SLATTERY
PATRICIA A. MATTHEWS

JEFFERSON PLACE
SUITE 1 - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

February 14, 1990

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

J.C. Estes
4332 Choctaw Road
Carlsbad, New Mexico 88220

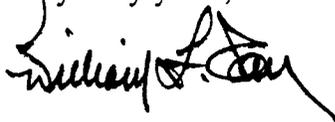
Re: Application of Controlled Recovery, Inc. for an Oil Treating Plant Permit
and for Surface Waste Disposal, Lea County, New Mexico

Dear Mr. Estes:

This letter is to notify you that Controlled Recovery, Inc. has filed an application with the New Mexico Oil Conservation Division seeking authority for construction and operation of a surface waste disposal facility and an oil treating plant for the purpose of treating and reclaiming sediment oil and for the collection, disposal, evaporation or storage of produced water, drilling fluids, drill cuttings, completion fluids and other oil field related waste in unlined surface pits, at a site in the S/2 N/2 and the N/2 S/2 of Section 27, Township 20 South, Range 32 East, N.M.P.M., Lea County, New Mexico.

This application has been set for hearing before a Division Examiner on March 7, 1990. You are not required to attend this hearing, but as an owner of a property interest that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the matter at a later date.

Very truly yours,



WILLIAM F. CARR
ATTORNEY FOR CONTROLLED RECOVERY, INC.
WFC:mlh

P-106 678 446

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

Bureau of Land Management
Post Office Box 1397
Roswell, New Mexico 88202

PS Form 3800, June 1985

Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 2.00
Postmark or Date	
FEB 14 1990	

BEFORE EXAMINER CATANACH

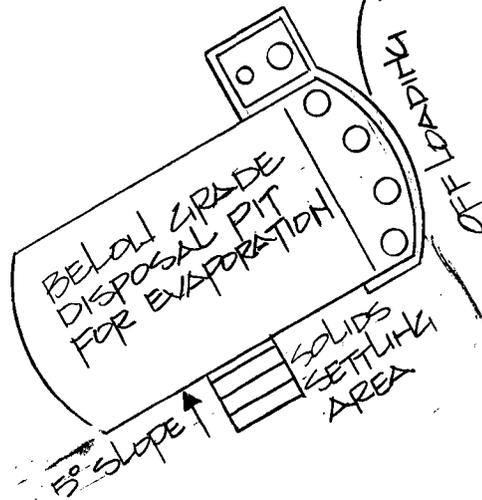
OIL CONSERVATION DIVISION

CONTROLLED
RECOVERY

EXHIBIT NO. 5

CASE NO. 9882

— L/S - 62 - 180 —





WELDED GUNBARREL PRODUCTION TANKS

RECEIVER
 or
 FLOW TANKS

SHOP WELDED

▶

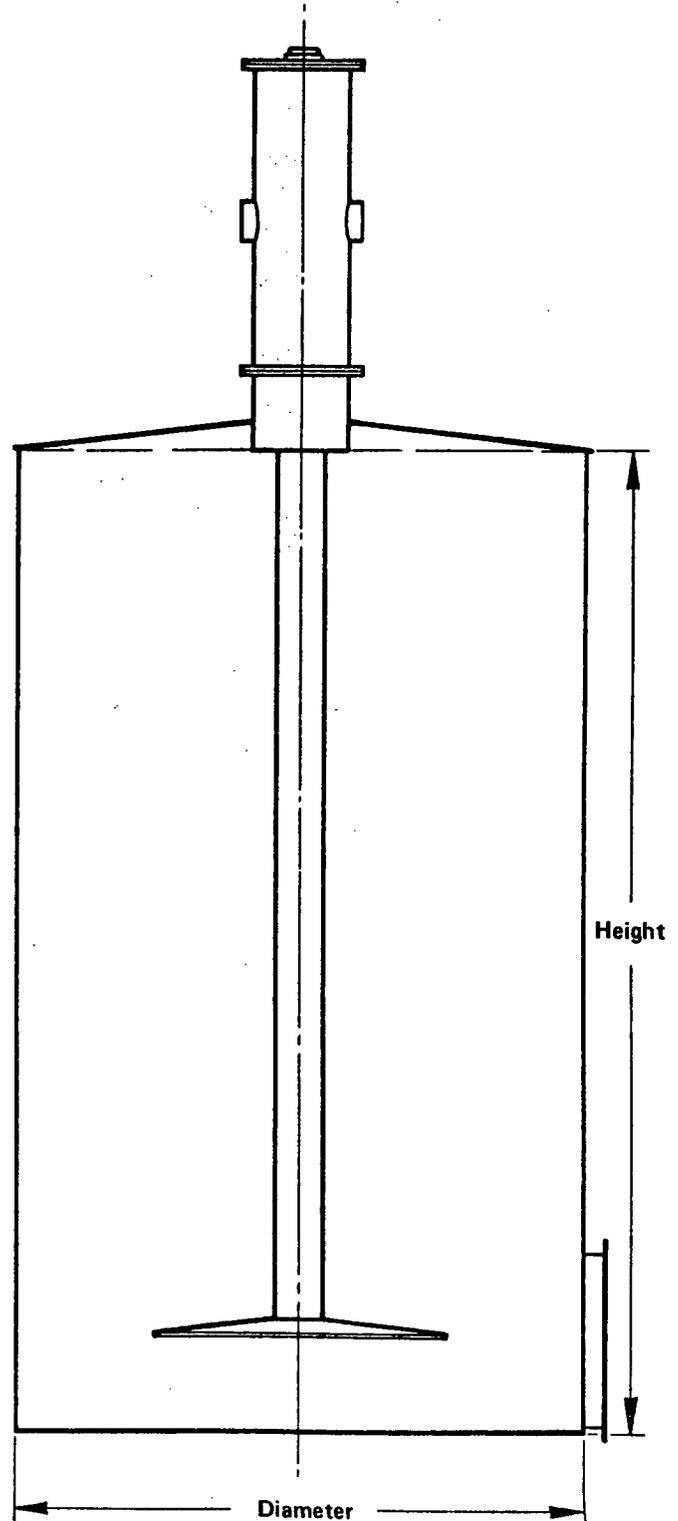
**14' DIAMETER
 and
 LARGER**

FLOW TANK SIZE (Dia. x Height)
15-1/2' x 16'
15-1/2' x 20'
15-1/2' x 24'
20' x 24'

Standard Gunbarrel Tanks include the following equipment:

- 1 — 8" Round Thief Valve
- 2 — 4" Inlets
- 2 — 4" Outlets
- 1 — 4" Siphon Connection
- 1 — 4" Dome Connection
- 1 — 4" Connection in Deck for Outside Equalizer
- 1 — 3" Side Drain
- 1 — 24" x 36" Cleanout Box
- 1 — Flume Stack
- 1 — Inside Flume
- 1 — Coned Distributor Plate
- Gauge Cock Connections
- Ladder Lugs
- Walkway Lugs

Gauge Cocks, Gauge Glasses, and Outside Ladders are EXTRA price items.



BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
 CONTROLLED
 RECOVERY EXHIBIT NO. 6
 CASE NO. 988Z



TECHNI-BREAK 100

**UNICHEM
INTERNATIONAL**

PRODUCT BULLETIN

DESCRIPTION:

TECHNI-BREAK 100 is a specially formulated solvent-based solution of surface active agents designed to promote the separation of water in oil emulsions. The incorporated wetting agents will effectively displace oil from iron sulfide, sand and other solids contained in the crude oil emulsion, and therefore aid the demulsification process.

USES:

TECHNI-BREAK 100 has been formulated primarily to demulsify "tank bottoms" and "slop oil." However, TECHNI-BREAK 100 can also be used to dehydrate crude oil production.

APPLICATION:

TECHNI-BREAK 100 may be batch treated into stock tanks and treating vessels with agitation or rolling. TECHNI-BREAK 100 can also be injected continuously into the treating system at a point of turbulence to insure thorough mixing with the produced fluids. An emulsion breaker bottle test should be performed to determine the most effective demulsifier.

**TYPICAL
PROPERTIES:**

Specific Gravity @ 60°F	.92
Pounds Per Gallon @ 60°F	7.64
Pour Point	-40°F
Flash Point (TCC)	66°F

SOLUBILITIES:

Fresh Water	Dispersible
2% Brine	Dispersible
15% Brine	Dispersible
Crude Oil	Soluble
Appearance	Amber Liquid

HANDLING:

Warning! Flammable. Keep away from heat, sparks and open flame. Keep container closed when not in use. Do not breathe vapors, use with adequate ventilation. Avoid contact with eyes, skin and clothing. Refer to material safety data sheet for additional information and first aid.

PACKAGING:

TECHNI-BREAK 100 is sold in 55 gallon drums and bulk.

BEFORE EXAMINER CATANACH
OIL CONSERVATION DIVISION
 CONTROLLED
 RECOVERED EXHIBIT NO. 7
 CASE NO. 9882

4/85



MATERIAL SAFETY DATA SHEET

"Essentially Similar" to Form OSHA-20,

Date Prepared, May 20, 1988

Supersedes Previous Sheet Dated July 1, 1986

I PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL
707 N. Leech / P. O. Box 1499 / Hobbs, New Mexico 88240

EMERGENCY TELEPHONE NO.
(505) 393-7751

PRODUCT NAME **TECHNI-BREAK 100**

TRADE NAME: **DEMULSIFIER**

CHEMICAL DESCRIPTION:

Proprietary blend of surfactants, organic amines and acid in aromatic solvent.

II HAZARDOUS INGREDIENTS

MATERIAL	TLV (UNITS)
TRADE SECRET	TWA 100 ppm recommended

III PHYSICAL DATA

BOILING POINT, 760 mm Hg	N/D	FREEZING POINT:	-40° F
SPECIFIC GRAVITY (H ₂ O=1)	.92	VAPOR PRESSURE @	N/D
VAPOR DENSITY (AIR=1)	N/D	SOLUBILITY IN WATER	Dispersible
PERCENT VOLATILES BY WEIGHT	N/D	EVAPORATION RATE	N/D

APPEARANCE AND ODOR **Dark Amber liquid, aromatic odor**

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT
(TEST METHOD) **66° F (TCC)**

FLAMMABLE LIMITS IN AIR, % BY VOLUME	LOWER	N/A	UPPER	N/A

EXTINGUISHING MEDIA **Foam, dry chemical, CO₂, water spray or fog. Use a water spray to cool fire-exposed containers.**

SPECIAL FIRE FIGHTING PROCEDURES **Use self-contained breathing equipment for enclosed areas in a fire situation.**

UNUSUAL FIRE AND EXPLOSION HAZARDS **Vapors can flow along surfaces to distant ignition sources and flash back.**

Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated.

*N/D - Not Determined

V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	TLV 100ppm (estimated--not established by ACGIH or OSHA)
EFFECTS OF OVEREXPOSURE	Inhalation of high vapor concentrations may have results ranging from mild depression to convulsions and loss of consciousness concentrations over 100 ppm may cause dizziness, nausea, and headache. Prolonged or repeated skin contact is irritating and will cause defatting and dermatitis. Eye contact may cause burning and irritation. Aspiration can be a hazard if material is swallowed.
EMERGENCY AND FIRST AID PROCEDURES	Skin: Remove contaminated clothing; wash with soap and water. Eyes: Flush eyes with lots of running water. INHALATION: Remove to fresh air. restore breathing if necessary. Call a physician.

VI REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	NONE
UNSTABLE	STABLE		
	XXXXXXXXXX		
INCOMPATIBILITY (MATERIALS TO AVOID)		Avoid oxidizing agents	
HAZARDOUS DECOMPOSITION PRODUCTS		Toxic fumes and gases including oxides and carbon and nitrogen.	
HAZARDOUS POLYMERIZATION MAY OCCUR		CONDITIONS TO AVOID	NONE
WILL NOT OCCUR	XXXXXXXXXXXXXX		

VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Remove all sources of ignition. Provide adequate ventilation. Contain and recover free liquid. Use vermiculite, sand, etc. to absorb residue or small spill. Scrape up and place in covered metal container. Prevent liquid from entering sewer or water course.
WASTE DISPOSAL METHOD	Dispose of by incineration or by depositing in an approved landfill under controlled conditions. Follow all Federal, State, and local regulations.

VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	Use respirators with organic solvent type canisters for short periods of nonroutine work at 100-200ppm. Use self-contained breathing apparatus for higher or unknown vapor concentrations.			
VENTILATION	LOCAL EXHAUST	As needed to meet TLV requirements	SPECIAL	100 lfm face velocity for exhaust hoods.
	MECHANICAL (GENERAL)	As needed to meet TLV requirements	OTHER	
PROTECTIVE GLOVES	Buna-N rubber gloves and apron to prevent contact.	EYE PROTECTION	safety glasses or goggles and/or face shield.	
OTHER PROTECTIVE EQUIPMENT	Eye wash stations should be readily accessible.			

IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store containers in clean, cool, well-ventilated, low fire-risk area away from oxidizing agents and ignition sources. Ground and electrically inter-connect metal containers when dispensing. Use safety cans for small amounts.
--	--

OTHER PRECAUTIONS



**UNICHEM
INTERNATIONAL**

TECHNI-BREAK 105

PRODUCT BULLETIN

DESCRIPTION:

TECHNI-BREAK 105 is a specially formulated solvent based solution of surface active agents designed to promote the separation of water in oil emulsions. TECHNI-BREAK 105 is especially effective in breaking acid emulsions. TECHNI-BREAK 105 will also control hydration of water sensitive clays.

USES:

TECHNI-BREAK 105 was originally formulated to demulsify tank bottoms, slop oil, and acid emulsions. However, TECHNI-BREAK 105 can also be used to dehydrate crude oil production.

APPLICATION:

TECHNI-BREAK 105 may be batch treated into stock tanks and treating vessels with agitation or rolling. TECHNI-BREAK 105 can also be injected continuously into the treating system at a point of turbulence to insure thorough mixing with the produced fluids. An emulsion breaker bottle test should be performed to determine the most effective demulsifier.

**TYPICAL
PROPERTIES:**

Specific Gravity @ 60°F	.90
Pounds Per Gallon @ 60°F	7.52
Pour Point	-40°F
Flash Point (TCC)	74°F

SOLUBILITIES:

Fresh Water	Dispersible
2% Brine	Dispersible
15% Brine	Dispersible
Crude Oil	Soluble
Appearance	Amber Liquid

HANDLING:

Warning! Flammable. Keep away from heat, sparks, and open flame. Keep container closed when not in use. Do not breathe vapors, use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Refer to material safety data sheet for additional information and first aid.

PACKAGING:

TECHNI-BREAK 105 is sold in 55 gallon drums and bulk.

12/83



MATERIAL SAFETY DATA SHEET

"Essentially Similar" to Form OSHA-20

Date Prepared 1/31/85

Supersedes Previous Sheet Dated New

I PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL
707 N. Leech / P. O. Box 1499 / Hobbs, New Mexico 88240

EMERGENCY TELEPHONE NO.
(505) 393-7751

PRODUCT NAME **TECHNI-BREAK 105**

TRADE NAME: **DEMULSIFIER**

CHEMICAL DESCRIPTION:

Proprietary blend of demethyl benzyl ammonium chloride in aromatic solvent.

II HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (UNITS)
Aromatic Solvent		8 hr. TWA 100 ppm
Dimethyl benzyl ammonium chloride	25%	recommended

III PHYSICAL DATA

BOILING POINT, 760 mm Hg	N/D	FREEZING POINT:	0°F
SPECIFIC GRAVITY (H ₂ O=1)	.90	VAPOR PRESSURE @	N/D
VAPOR DENSITY (AIR=1)	N/D	SOLUBILITY IN WATER	Insoluble
PERCENT VOLATILES BY WEIGHT	N/D	EVAPORATION RATE	N/D

APPEARANCE AND ODOR

Dark Amber liquid, aromatic odor.

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT
(TEST METHOD) 74°F (TCC)

FLAMMABLE LIMITS IN AIR, % BY VOLUME

LOWER

N/A

UPPER

N/A

EXTINGUISHING MEDIA Foam, dry chemical, CO₂, water spray or fog. Use a water spray to cool fire-exposed containers.

SPECIAL FIRE FIGHTING PROCEDURES

Use self-contained breathing equipment for enclosed areas in a fire situation.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Vapors can flow along surfaces to distant ignition sources and flash back.

Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated.

*N/D - Not Determined

V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	TLV 100ppm (estimated--not established by ACGIH or OSHA)
EFFECTS OF OVEREXPOSURE	Inhalation of high vapor, concentrations may have results ranging from mild depression to convulsions and loss of consciousness. Concentrations over 100ppm may cause dizziness, nausea, and headache. Prolonged or repeated skin contact is irritating and will cause defatting and dermatitis. Eye contact may cause burning and irritation. Aspiration can be a hazard if material is swallowed.
EMERGENCY AND FIRST AID PROCEDURES	SKIN: Remove contaminated clothing; wash with soap and water. EYES: Flush eyes with lots of running water. INHALATION: Remove to fresh air. Restore breathing if necessary. Call a Physician. INGESTION: Do not induce vomiting. Give white mineral oil or edible oil. Call a physician.

VI REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	NONE
UNSTABLE	STABLE		
	XXXXXX		
INCOMPATIBILITY (MATERIALS TO AVOID)		Avoid oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS		Toxic fumes and gases including oxides and carbon and nitrogen.	
HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID	NONE
MAY OCCUR	WILL NOT OCCUR		
	XXXXXXXXXX		

VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Remove all sources of ignition. Provide adequate ventilation. Contain and recover free liquid. Use vermiculite, sand, etc. to absorb residue or small spill. Scrape up and place in covered metal container. Prevent liquid from entering sewer or water course.
WASTE DISPOSAL METHOD	Dispose of by incineration or by depositing in an approved landfill under controlled conditions. Follow all Federal, State, and local regulations.

VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE)	Use respirators with organic solvent type canisters for short periods of nonroutine work at 100-2000ppm. Use self-contained breathing apparatus for higher or unknown vapor concentrations.			
VENTILATION	LOCAL EXHAUST	As needed to meet TLV requirements	SPECIAL	100 fpm face velocity for exhaust hoods.
	MECHANICAL (GENERAL)	As needed to meet TLV requirements	OTHER	
PROTECTIVE GLOVES	Buna-N rubber gloves and apron to prevent contact.		EYE PROTECTION	Safety glasses or goggles and/or face shield.
OTHER PROTECTIVE EQUIPMENT	Eye wash stations should be readily accessible.			

IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING	Store containers in clean, cool, well-ventilated, low fire-risk area away from oxidizing agents and ignition sources. Ground and electrically interconnect metal containers when dispensing. Use safety cans for small amounts.
OTHER PRECAUTIONS	NONE



TECHNI-BREAK 957

**UNICHEM
INTERNATIONAL**

PRODUCT BULLETIN

DESCRIPTION: TECHNI-BREAK 957 is a specially formulated solvent-based solution of surface active agents designed to promote the separation of water in oil emulsions.

USES: TECHNI-BREAK 957 has been found to be a highly effective broad spectrum crude oil emulsion breaker.

APPLICATION: TECHNI-BREAK 957 should be injected continuously into the system at a point of turbulence to insure thorough mixing with the produced fluids. Batch treatment may be used in stock tanks with agitation or rolling. A standard emulsion breaker bottle test should be performed in the field to determine the most effective demulsifier. Plant testing of the selected demulsifier should be conducted to determine the most cost effective use concentration.

**TYPICAL
PROPERTIES:**

Specific Gravity @ 60°F	.93
Pounds Per Gallon @ 60°F	7.75
Pour Point	-40°F
Flash Point (TCC)	79°F
SOLUBILITIES:	
Fresh Water	Dispersible
2% Brine	Dispersible
15% Brine	Dispersible
Crude Oil	Soluble
Appearance	Amber Liquid

HANDLING: Warning! Flammable. Keep away from heat, sparks and open flame. Keep container closed when not in use. Do not breathe vapors, use with adequate ventilation. Avoid contact with eyes, skin and clothing. Refer to material safety data sheet for additional information and first aid.

PACKAGING: TECHNI-BREAK 957 is sold in 55 gallon drums and bulk.

3/85

MATERIAL SAFETY DATA SHEET

"Essentially Similar" to Form OSHA-20

Date Prepared January 14, 1987

Supersedes Previous Sheet Dated 9-19-83



I PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL
707 N. Leech / P. O. Box 1499 / Hobbs, New Mexico 88240

EMERGENCY TELEPHONE NO.
(505) 393-7751

PRODUCT NAME TECHNI-BREAK 957

TRADE NAME: DEMULSIFIER

CHEMICAL DESCRIPTION: Proprietary blend of organic surfactants in aromatic solvent.

II HAZARDOUS INGREDIENTS

MATERIAL	TLV (UNITS)
Contains Aromatic Solvent	8 hr. TWA 100 ppm recommended

III PHYSICAL DATA

BOILING POINT, 760 mm Hg	N/D	FREEZING POINT:	-40°F
SPECIFIC GRAVITY (H ₂ O=1)	.93	VAPOR PRESSURE @	N/D
VAPOR DENSITY (AIR=1)	N/D	SOLUBILITY IN WATER	Dispersible
PERCENT VOLATILES BY WEIGHT	N/D	EVAPORATION RATE	N/D

APPEARANCE AND ODOR Clear Amber Liquid, Aromatic Odor

IV FIRE AND EXPLOSION HAZARD DATA

FLASH POINT
(TEST METHOD) 74°F (TCC)

FLAMMABLE LIMITS IN AIR, % BY VOLUME

LOWER	N/D	UPPER	N/D
-------	-----	-------	-----

EXTINGUISHING MEDIA Foam, dry chemical, CO₂, water spray or fog. Use a water spray to cool fire-exposed containers.

SPECIAL FIRE FIGHTING PROCEDURES Use self-contained breathing equipment for enclosed areas in a fire situation.

UNUSUAL FIRE AND EXPLOSION HAZARDS Vapors can flow along surfaces to distant ignition sources and flash back.

Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of any materials designated. *N/D - Not Determined

V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	TLV 100ppm (estimated--not established by ACGIH or OSHA)
EFFECTS OF OVEREXPOSURE	Inhalation of high vapor, concentrations may have results ranging from mild depression to convulsions and loss of consciousness. Concentrations over 100ppm may cause dizziness, nausea, and headache. Prolonged or repeated skin contact is irritating and will cause defatting and dermatitis. Eye contact may cause burning and irritation. Aspiration can be a hazard if material is swallowed.
EMERGENCY AND FIRST AID PROCEDURES	SKIN: Remove contaminated clothing; wash with soap and water. EYES: Flush eyes with lots of running water. INHALATION: Remove to fresh air. Restore breathing if necessary. Call a Physician. INGESTION: Do not induce vomiting. Give white mineral oil or edible oil. Call a physician.

VI REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	NONE
UNSTABLE	STABLE		
	XXXXXX		
INCOMPATIBILITY (MATERIALS TO AVOID)		Avoid oxidizing agents.	
HAZARDOUS DECOMPOSITION PRODUCTS		Toxic fumes and gases including oxides and carbon and nitrogen.	
HAZARDOUS POLYMERIZATION MAY OCCUR		CONDITIONS TO AVOID	NONE
WILL NOT OCCUR	XXXXXXXXXX		

VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Remove all sources of ignition. Provide adequate ventilation. Contain and recover free liquid. Use vermiculite, sand, etc. to absorb residue or small spill. Scrape up and place in covered metal container. Prevent liquid from entering sewer or water course.
WASTE DISPOSAL METHOD	Dispose of by incineration or by depositing in an approved landfill under controlled conditions. Follow all Federal, State, and local regulations.

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OTHER PRECAUTIONS



THE CITY OF
HOBBS, NEW MEXICO

(505) 397-3636

• 300 NORTH TURNER •

• HOBBS, NEW MEXICO 88240

March 19, 1990

MEMORANDUM

TO: ROBERT M. GALLAGHER, CITY MANAGER

FROM: RUSSELL DOSS, CITY ENGINEER

RE: FLOOD ZONE INVESTIGATION FOR STORAGE FACILITY TRACT

BEFORE EXAMINER CATANACH

OIL CONSERVATION DIVISION

CONTROLLED

RECOVERED

EXHIBIT NO. 8

CASE NO. 988Z

This memo is in response to your request for the Flood Zone location in relation to the tract described in the attached legal description. The tract is located south of US 62-180 near the Lea County West boundary line.

Lea County presently does not possess a flood zone map that determines the flood zone for county tracts. Also, the City of Hobbs Flood Mapping only includes areas within the City limits.

I have reviewed a copy of a Lea County map that covers the central portion of the county and shows a few of the major drainage courses throughout the area.

However, this map does not cover the area adjacent the West Boundary line of the County. At it's closest point this map is still approximately 12 miles away from the proposed site.

I have been in contact with the Eddy County Manager and he informed me that Eddy County does have Flood Zone maps that show the flood zones over to their East County Boundary line.

He stated that his maps reach to Township 20 South, Range 31 East which would be within four miles of the proposed storage facility tract.

His flood map shows that there are no flood zones in the Township adjacent the storage facility tract. In fact, he noted that the nearest flood zone to this area is over 20 miles to the West.

Hopefully, this information might be helpful for your use. If further information is needed, someone could obtain a copy of the United States Geological Survey (USGS) Quadrangle Map of the proposed storage facility area.

By reviewing the contours on the USGS map, the drainage areas could be delineated and the approximate flood hazard for the area could be roughly assessed.

Please let me know if you have any questions or need any further information.

Russell Doss

RESUME

BEFORE EXAMINER CATANACH	
OIL CONSERVATION DIVISION	
CONTROLLED RECOVERY	EXHIBIT NO. <u>9</u>
CASE NO. <u>9882</u>	

James I. Wright, 403 South Sycamore, Roswell, New Mexico 88201

Education: Bachelor of Science in Civil Engineering from New Mexico State University, 1952.

Registered as a Professional Engineer in New Mexico, License No. 3838

Professional Experience:

Portales Basin Supervisor: March 29, 1954 through March 1, 1956.

Work consisted primarily of water rights administration. Field work done in this position was measuring well discharges, computing pumping unit efficiencies, calculating irrigated acreage from aerial photography, plane table surveys and the collection of basic hydrological data.

Field Engineer: March 1, 1956 through May 31, 1986.

Work consisted of the supervision of several professional and non-professional personnel in the collection of basic hydrological data, interpretation of this data and the preparation of maps, charts and tabulation for water rights administration.

Most of my work has been in Lea, Roosevelt, Curry and Quay Counties, where quantities of ground water storage are determined by preparing a series of maps and interpreting the information needed from these maps. The maps prepared are as follows:

Altitude of the Base of the Shallow Aquifer

This involves determining the surface elevation of well logs (driller logs and electric logs), determining the base of the water bearing formation, plotting the data and contouring the information.

Altitude of the Water Table

This consists of measuring water levels in wells, determining the elevation of the wells, calculating the elevation of the water table, plotting the data and contouring the information.

Thickness of Saturated Sediments

This map is prepared by isopaching the base of the shallow aquifer and the water table map.

Pumping tests were run to determine the hydraulic coefficients of the aquifer in each of these areas and then calculations were run to determine the

demands of existing water rights on ground water in storage.

Other work performed in southeastern New Mexico involved determining chemical quality of ground water in certain areas and preparing reports. Investigation of ground water contamination was conducted by drilling a series of test holes for information regarding geological, hydrological and quality data. This data was evaluated in an effort to determine the source of contamination.

I also advised water users and other interested people in regard to well construction and gave technical advice on where to locate wells to get maximum yields and maximum life expectancies, when requested to do so. In addition to this, I supervised the construction of wells to ascertain that the proposed casing and cementing programs were adequate to insure protection of all fresh water zones.

Another major function of the Field Engineer is the preparation of exhibits for hearings or court cases and testifying as an expert witness on ground water hydrology and related matters.

Wright Consulting: July 1, 1986 - -

Retired from New Mexico State Engineer Office on May 31, 1986. Opened consulting business on July 1, 1986. Consulting business has been limited to hydrological investigations and related work; mostly in Lea County.

PARTIAL LIST OF REPORTS BY J.I. WRIGHT

Wright, 1955, Determining Horsepower from the Line Load: New Mexico State Engineer

Wright, 1957, Oil Field Pollution of W.H. Ellison's Water Supply in the Vicinity of Hobbs, New Mexico: New Mexico State Engineer

Galloway and Wright, 1958, Suggestions Relative to the Drilling and Development of a Municipal Water Well: New Mexico State Engineer

Wright, 1961, Status of Ground-Water Development in the Lea County Underground Water Basin, Lea, Chaves, and Eddy Counties, New Mexico: New Mexico State Engineer

Wright, 1963, Ground-Water Development in the Curry County Ground-Water Basin, Curry and Roosevelt Counties, New Mexico: New Mexico State Engineer

Wright, 1965, Disposal of Salt Water in the South Lane Pennsylvanian Pool: New Mexico State Engineer

Wright, 1965, Contamination of Fresh Water by the Oil Industry on the Fields Ranch in Lea County: New Mexico State Engineer

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Galloway and Wright, 1968, Administration of Water Rights Portales Valley Underground Water Basin, New Mexico: New Mexico State Engineer

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Wright, 1974, Estimate of Normal Consumptive Irrigation Water Requirements for Crops in Vicinity of Mayhill, Otero County, New Mexico, Based on Average Climatic Conditions Observed at Mayhill Ranger Station from 1917 - 1973: New Mexico State Engineer

Wright, 1974, Estimate of Normal Consumptive Irrigation Water Requirements for Crops in Vicinity of Elk, Otero County, New Mexico, Based on Average Climatic Conditions Observed at Elk Weather Station from 1904 - 1973: New Mexico State Engineer

Wright, 1979, Estimated Life Expectancy, in Years, of Shallow Ground-Water Supply in the Clovis - Portales Area of New Mexico, as of January, 1979: New Mexico State Engineer

Wright, 1979, Contamination of Fresh Ground-Water Supplies in Southeastern New Mexico: New Mexico State Engineer

Wright, 1986, Contamination of Fresh Ground-Water Supplies in Southeastern New Mexico: New Mexico State Engineer

Proposal for an Oil Treating Plant
Permit and Surface Waste Disposal
in Lea County, New Mexico

Prepared for
Controlled Recovery Inc.
Hobbs, New Mexico
February 1990

BEFORE EXAMINER CATANACH	
OIL CONSERVATION DIVISION	
CONTROLLED RECOVERY	EXHIBIT NO. <u>10</u>
CASE NO.	<u>9882</u>

By

James I. Wright
Consulting Hydrologist
Roswell, New Mexico

Proposal for an Oil Treating Plant
Permit and Surface Waste Disposal
in Lea County, New Mexico

Prepared for
Controlled Recovery Inc.
Hobbs, New Mexico
February 1990

By
James I. Wright
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Roswell, New Mexico

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Tables

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Appendices

Appendix "A"	Drill Hole Logs
Appendix "B"	Water Analyses

Figures

Figure I	"Land Survey of Site and Drill Holes" . . .	In Pocket
Figure II	"Proposed Disposal Site Location, Areas Permitted for Surface Disposal of Brine, Location of Water Wells and Topography in the Vicinity of Section 27, T. 20 S., R. 32 E."	In Pocket
Figure III	"Geologic Map of Southern Lea County" . . .	In Pocket
Figure IV	"Altitude and Configuration of Water Table in the Vicinity of Section 27, T. 20 S., R. 32 E."	In Pocket

PROPOSAL FOR AN OIL TREATING PLANT PERMIT
AND SURFACE WATER DISPOSAL
IN LEA COUNTY, NEW MEXICO

INTRODUCTION

On September 22, 1989 I was contacted by Ken Marsh and asked to review existing hydrological reports covering western Lea County and evaluate the possibility of constructing a surface disposal system on land owned by him located in the N 1/2 S 1/2 and S 1/2 N 1/2 of Section 27, T. 20 S., R. 32 E.

After reviewing these reports and collecting as much basic geohydrological data that was available from the United States Geological Survey, the New Mexico State Engineer, the U.S. Bureau of Land Management and other minor sources, I advised Mr. Marsh that there was a possibility of getting a permit from the Oil Conservation Division, but that we would need to drill some exploratory holes in the immediate area in order to obtain sufficient data to do some detailed sub-surface mapping in order to determine the direction of ground water movement from the proposed site.

On October 31, 1989, seven exploratory holes were drilled by Larry's Drilling and Pump Co. of Hobbs, New Mexico on the property owned by Ken Marsh in Section 27, T. 20 S., R. 32 E. On January 26, 1990, three additional exploratory holes were drilled on U.S.B.L.M. land in the immediate vicinity of the Ken Marsh property. Larry's Drilling and Pump Co. of Hobbs also drilled these holes. Data collected from these holes as well as data collected from previously drilled holes and existing wells is shown in Table I of this report.

GENERAL GEOLOGY

The site is located in western Lea County in the southern portion of the Querecho Plains. A group of four playa lakes are located within the general area with the closest one being Laguna Toston, located about 1 mile northwest of the site. Laguna

Toston has a surface area of approximately 160 acres and is presently being used as a disposal pond by one of the potash companies.

A geologic map of southern Lea County taken from U.S. Bureau of Mines Ground-Water Report 6 is included in this report as Figure III. An inspection of this map shows that the surface geology consists of alluvial material in the vicinity of the proposed site.

LOCAL GEOLOGY

The area covered by this study includes most of Township 20 South, Range 32 East, with the principal area of interest being Section 27. The Quaternary alluvium in the immediate vicinity of Section 27 varies in thickness from 0 to 45 feet. The underlying Red Beds of Triassic and Permian age are approximately 800 feet thick. These formations consist predominantly of clays and siltstones, but some very fine grained sandstone may also be present. The upper part of these Red Beds is believed to be Chinle Formation and the lower portion Dewey Lake Red Beds. These formations are underlain by the Rustler Formation which is about 300 feet thick underneath the site area. The Rustler Formation consists primarily of anhydride or gypsum with some limestone and clays.

HYDROLOGY

The alluvium at the proposed site area is less than 45 feet thick with the thickness of the saturated sediments varying from 0 to 8 feet. Test hole #1a located in the NE 1/4 NE 1/4 NE 1/4 NE 1/4 of Section 28, T. 20 S., R. 32 E. has a saturated thickness of 13 feet. The ground water movement through the alluvium in the vicinity of the proposed site is toward the playa lakes (Laguna Toston and Laguna Plata). The water table gradient is approximately 15 feet per mile. Recharge to the aquifer is from rainfall which only averages about 9 inches per year in this area and consequently is not considered a significant source of recharge.

A bailing test ran on test hole #5 on November 9, 1989 by Ken Marsh indicates that the permeability of the water bearing formation is very low. Hole was bailed dry in 1 hour. Bailing test produced 2 gallons of water in 15 minutes or 0.13 gallons per minute. Test hole #3 was dry when completed on November 1, 1989. On November 9, 1989 the fluid level was 41.1 feet below land surface and on November 21, 1989 it was 32.56 feet below land surface. Test hole #7 had a fluid level of 49.07 feet below land surface on November 1, 1989, 38.25 feet on November 9, 1989, 33.31 feet on November 21, 1989 and 33.33 feet on January 26, 1990. The long period of time that it took the fluid to reach equilibrium in the holes is also an indicator of low permeability. Although there is some water in ground water storage underneath the proposed site, it is not economically feasible to produce this water due to the extremely low yields. Most of the ranches in this area of Lea County obtain their water from water transmission lines which deliver Ogallala water from wells in the Buckeye area to the potash mines located in western Eddy County.

QUALITY

Ken Marsh had water samples collected from all of the holes in the vicinity of the proposed site on February 6, 1990. These samples were analyzed by Rozanne Johnson, Bacteriologist for the City of Hobbs laboratory. According to Mr. Marsh, it was her opinion that the water was unfit for human or animal consumption. Copies of her analysis are included in this report.

SUMMARY AND CONCLUSIONS

The alluvium in the vicinity of Section 27, T. 20 S., R. 32 E. is thin and contains only minimal quantities of ground water. Production of this water from wells is not feasible due to the low well capacities. The only water wells presently being used are located over one mile east of the proposed site and are up gradient from the water table altitude at the proposed site. Microbiological water reports of the shallow ground water underlying the proposed site indicate that the water is not potable.

In my opinion the disposal of brine in surface disposal pits at the proposed site located in Section 27, T.20 S., R. 32 E. will not contaminate any fresh ground water supplies. Water from these pits will migrate downward until it reaches the base of the alluvium. Since the upper part of the Triassic is relatively impermeable the water will move laterally down gradient and eventually discharge into the playa lakes located to the north. The volume of the east pit shown on Figure I is approximately 368,000 barrels; and the volume of the west pit is approximately 336,000 barrels.

WELL-NUMBERING SYSTEM

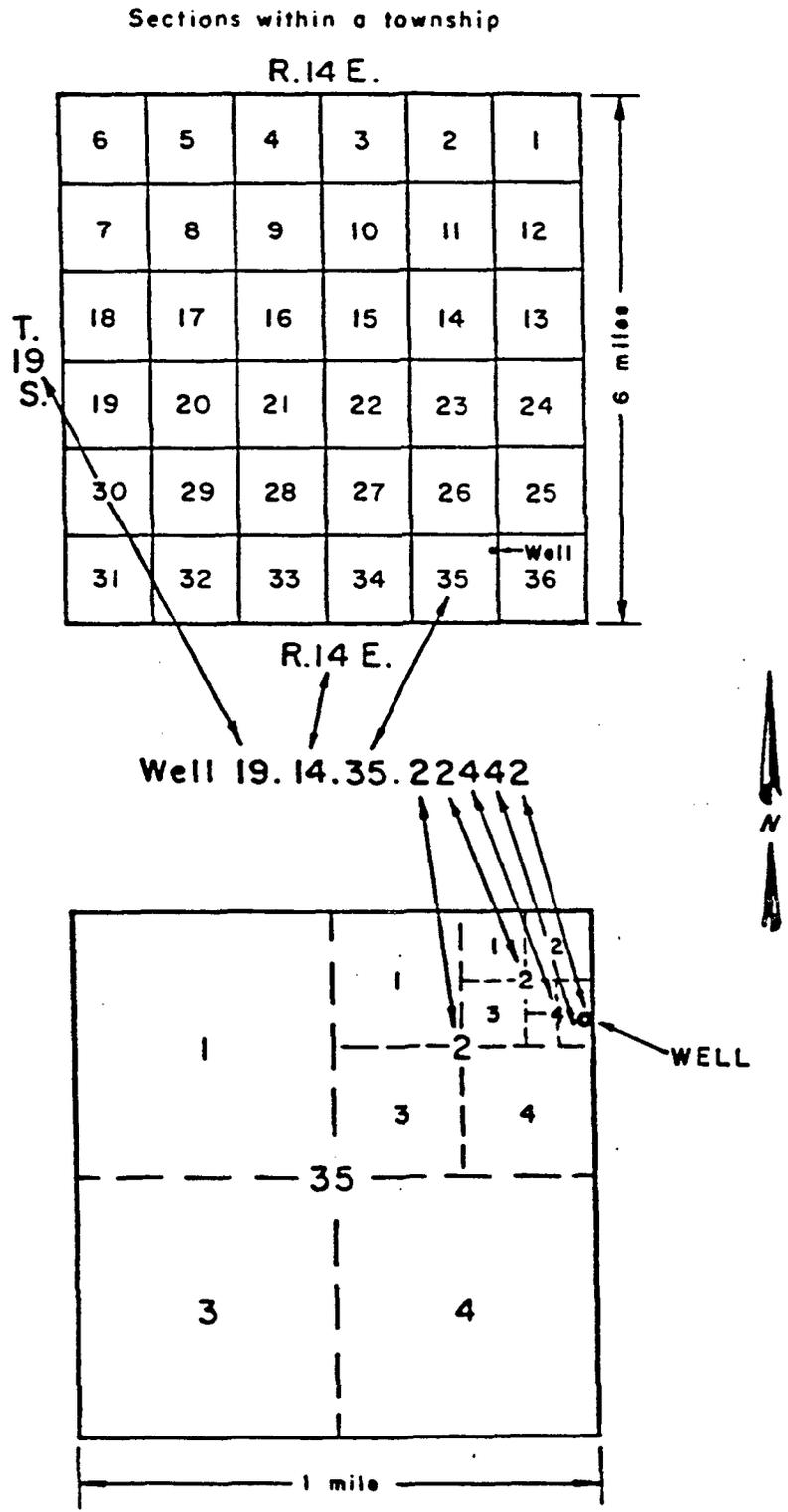
The system of numbering wells in New Mexico is based on the common subdivisions in sectionized land, and, by means of it, the well number, in addition to designating the well, locates its position to the nearest 0.625-acre tract in the land net. The number is divided into four segments by periods. The first segment denotes the township north or south of the New Mexico base line; the second denotes the range east or west of the New Mexico principal meridian; and the third denotes the section. An "N" is added to the first segment of the well number if the well is north of the base line, but no letter is added if the well is south of the base line. Similarly, where wells are located west of the meridian, a "W" is added to the second segment of the well number of those wells west of the meridian but no letter is added if the well is east of the meridian.

The fourth segment of the number, which consists of five digits, denotes the particular 0.625-acre tract in which the well is situated. For this purpose the section is divided into four quarters numbered 1, 2, 3, and 4, in the normal reading order, for the northwest, northeast, southwest, and southeast quarters, respectively. The first digit of the fourth segment gives the quarter section, which is a tract of 160 acres. Similarly, the quarter section is divided into four 40-acre tracts numbered in the same manner, and the second digit denotes the 40-acre tract. The 40-acre tract is divided into four 10-acre tracts and the third digit denotes the 10-acre tract. The 10-acre tract is divided into four 2.5-acre tracts and the fourth digit denotes the 2.5-acre tract. The 2.5-acre tract is divided into four tracts containing 0.625 acres each and the fifth digit determines this tract. Thus, well 12.36.24.12311 in Lea County is in the NW 1/4 NW 1/4 SW 1/4 NE 1/4 NW 1/4 Sec. 24, T. 12 S., R. 36 E. If a well cannot be located accurately to a 10-acre tract, a zero is used as the third digit, and if it cannot be located accurately within a 40-acre tract, zeros are used for both the second and third digits. If the well cannot be located more closely than the section, the fourth segment of the well number is omitted.

Letters a, b, c, - - - - - are added to the last segment to designate the second, third, fourth and succeeding wells in the same 0.625-acre tract.

The following diagram shows the method of numbering the tracts within a section:

Diagram: System of numbering wells in New Mexico.



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Nicholson, Alexander, Jr., and Clebsch, Alfred, Jr., 1961, Geology and Ground-Water Conditions in Southern Lea County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Ground-Water Report 6, 123 p.

Reed, Ed L., and Associates Inc., March 1983, Proposal for Surface Salt Water Disposal, Lea County, New Mexico: Consultants Report prepared for Wallen Production Company, 7 p.

RECORD OF DRILL HOLES IN THE VICINITY OF SECTION 27 T20S R32E

LOCATION NUMBER	OWNER	AQUIFER	HOLE DEPTH	LAND SURFACE ELEVATION	WATER LEVEL	DATE MEASURED	WATER TABLE ELEVATION	THICKNESS OF ALLUVIUM	DEPTH TO RED BED	RED BED ELEVATION	CASING SIZE	USE OF WATER	REMARKS
20.32.01.314114	V. N. SNYDER	ALLUVIUM	30	3510.0	21.77	07-01-54	3488	UNK	UNK	0	6"	STOCK	WELL DRY IN 1968
20.32.22.322142	KEN MARSH	ALLUVIUM	55	3527.0	35.40	01-26-90	3492	45	45	3482	3"	NONE	TEST HOLE #2a
20.32.22.322142	KEN MARSH	ALLUVIUM	55	3527.0	35.00	02-05-90	3492	45	45	3482	3"	NONE	REPT. WATER LEVEL
20.32.22.322142	KEN MARSH	ALLUVIUM	55	3527.0	35.80	02-16-90	3491	45	45	3482	3"	NONE	JETTED DRY 2-5-90
20.32.23.33132	UNK	ALLUVIUM	UNK	3541.0	39.14	02-25-76	3502	UNK	UNK	0	7"	NONE	UNEQUIPPED WELL
20.32.23.33132	UNK	ALLUVIUM	UNK	3541.0	39.83	02-19-81	3501	UNK	UNK	0	7"	NONE	UNEQUIPPED WELL
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	39.40	05-29-68	3512	UNK	UNK	0	6"	STOCK	SUBMERSIBLE PUMP
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	37.46	02-02-71	3514	UNK	UNK	0	6"	STOCK	SUBMERSIBLE PUMP
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	36.78	02-19-81	3514	UNK	UNK	0	6"	NONE	WELL ABANDONED
20.32.23.43312	BILL STANFORD	ALLUVIUM	78	3551.0	38.42	03-25-86	3513	UNK	UNK	0	6"	NONE	WELL ABANDONED
20.32.23.43312A	BILL STANFORD	ALLUVIUM	UNK	3551.0	37.63	02-19-81	3513	UNK	UNK	0	6"	NONE	UNEQUIPPED
20.32.24.33333	G.H. BINGHAM	ALLUVIUM	65	3555.0	38.55	05-29-68	3516	UNK	UNK	0	6"	STOCK	WINDMILL
20.32.24.33333	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.59	02-02-71	3517	UNK	UNK	0	6"	STOCK	WINDMILL
20.32.24.33333	G.H. BINGHAM	ALLUVIUM	65	3555.0	35.33	02-24-76	3520	UNK	UNK	0	6"	STOCK	WINDMILL
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	38.04	05-29-68	3517	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.83	02-02-71	3517	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.42	09-11-72	3518	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	35.68	02-24-76	3519	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	37.69	02-19-81	3517	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.24.33333A	G.H. BINGHAM	ALLUVIUM	65	3555.0	38.99	03-25-86	3516	UNK	UNK	0	6"	STOCK	PUMP JACK
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	23.91	11-01-89	3505	32	32	3497	3"	NONE	TEST HOLE #6
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	23.63	11-09-89	3505	32	32	3497	3"	NONE	REPT. WATER LEVEL
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	23.77	11-21-89	3505	32	32	3497	3"	NONE	TEST HOLE #6
20.32.27.132121	KEN MARSH	ALLUVIUM	50	3529.0	24.50	02-16-90	3505	32	32	3497	3"	NONE	TEST HOLE #6
20.32.27.14332	JOEL FREY	ALLUVIUM	25	3539.0	23.32	09-18-72	3516	UNK	UNK	0	DUG	NONE	WINDMILL
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	25.91	11-01-89	3513	34	34	3505	3"	NONE	TEST HOLE #5
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	25.50	11-09-89	3514	34	34	3505	3"	NONE	REPT. WATER LEVEL
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	25.88	11-21-89	3513	34	34	3505	3"	NONE	TEST HOLE #5
20.32.27.144133	KEN MARSH	ALLUVIUM	60	3539.0	26.44	02-16-90	3513	34	34	3505	3"	NONE	TEST HOLE #5
20.32.27.234210	KEN MARSH	NONE	50	3542.0	DRY	11-01-89	0	34	34	3508	3"	NONE	TEST HOLE #3
20.32.27.234210	KEN MARSH	ALLUVIUM	50	3542.0	41.10	11-09-89	3501	34	34	3508	3"	NONE	REPT. WATER LEVEL
20.32.27.234210	KEN MARSH	ALLUVIUM	50	3542.0	32.56	11-21-89	3509	34	34	3508	3"	NONE	TEST HOLE #3
20.32.27.234210	KEN MARSH	ALLUVIUM	50	3542.0	34.41	02-16-90	3508	34	34	3508	3"	NONE	JETTED DRY 2-5-90
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	49.07	11-01-89	3492	35	35	3506	3"	NONE	TESTHOLE #7
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	38.25	11-09-89	3503	35	35	3506	3"	NONE	REPT. WATER LEVEL
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	33.31	11-21-89	3508	35	35	3506	3"	NONE	TESTHOLE #7
20.32.27.314122	KEN MARSH	ALLUVIUM	50	3541.0	33.33	02-16-90	3508	35	35	3506	3"	NONE	TESTHOLE #7
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	15.30	03-29-68	3512	UNK	UNK	0	6"	STOCK	PUMP SHUT OFF 34 MIN.
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	0.94	02-25-76	3526	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	15.33	02-19-81	3512	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	17.60	11-01-89	3509	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	17.53	11-21-89	3509	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED
20.32.27.322331	KEN MARSH	ALLUVIUM	UNK	3527.0	17.40	02-16-90	3510	UNK	UNK	0	6"	NONE	WELL UNEQUIPPED

TABLE 1

RECORD OF DRILL HOLES IN THE VICINITY OF SECTION 27 T20S R32E

LOCATION NUMBER	OWNER	AQUIFER	HOLE DEPTH	LAND SURFACE ELEVATION	WATER LEVEL	DATE MEASURED	WATER TABLE ELEVATION	THICKNESS OF ALLUVIUM		RED BED ELEVATION	CASING SIZE	USE OF WATER	REMARKS
								DEPTH	TO RED BED				
20.32.27.322333	T. BINGHAM	ALLUVIUM	75	3530.0	16.55	02-02-71	3513	UNK	UNK	0	6 5/8"	STOCK	WINDMILL
20.32.27.322333	T. BINGHAM	ALLUVIUM	75	3530.0	4.69	02-25-89	3525	UNK	UNK	0	6 5/8"	STOCK	WINDMILL
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	11-01-89	0	39	39	3511	3"	NONE	TEST HOLE #4
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	11-09-89	0	39	39	3511	3"	NONE	REPT. WATER LEVEL
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	11-21-89	0	39	39	3511	3"	NONE	TEST HOLE #4
20.32.27.412333	KEN MARSH	NONE	60	3550.0	DRY	02-16-90	0	39	39	3511	3"	NONE	TEST HOLE #4
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	11-01-89	0	38	38	3508	3"	NONE	TEST HOLE #2
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	11-09-89	0	38	38	3508	3"	NONE	REPT. WATER LEVEL
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	11-21-89	0	38	38	3508	3"	NONE	TEST HOLE #2
20.32.27.422221	KEN MARSH	NONE	50	3546.0	DRY	02-16-90	0	38	38	3508	3"	NONE	TEST HOLE #2
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	11-01-89	0	39	39	3494	3"	NONE	TEST HOLE #1
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	11-09-89	0	39	39	3494	3"	NONE	REPT. WATER LEVEL
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	11-21-89	0	39	39	3494	3"	NONE	TEST HOLE #1
20.32.27.424443	KEN MARSH	NONE	99	3533.0	DRY	02-16-90	0	39	39	3494	3"	NONE	TEST HOLE #1
20.32.28.222224	KEN MARSH	ALLUVIUM	37	3519.0	14.76	01-26-90	3504	28	28	3491	3"	NONE	TEST HOLE #1a
20.32.28.222224	KEN MARSH	ALLUVIUM	37	3519.0	14.00	02-05-90	3505	28	28	3491	3"	NONE	REPT. WATER LEVEL
20.32.28.222224	KEN MARSH	ALLUVIUM	37	3519.0	14.87	02-16-90	3504	20	20	3499	3"	NONE	TEST HOLE #1a
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	17.25	01-26-90	3505	20	20	3502	3"	NONE	TEST HOLE #3a
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	15.20	02-05-90	3507	20	20	3502	3"	NONE	REPT. WATER LEVEL
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	15.95	02-13-90	3506	20	20	3502	3"	NONE	REPT. WATER LEVEL
20.32.28.243123	KEN MARSH	ALLUVIUM	55	3522.0	17.32	02-16-90	3505	20	20	3502	3"	NONE	JETTED DRY 2-5-90
20.32.36.21424	G.H. BINGHAM	ALLUVIUM	60	3585.0	46.60	06-06-55	3538	UNK	UNK	0	6 5/8"	DOM	PUMPED RECENTLY
20.32.36.21442	G.H. BINGHAM	ALLUVIUM	50	3581.0	43.88	09-18-72	3537	UNK	UNK	0	DUG	DOM	WINDMILL
20.32.36.22311	G.H. BINGHAM	ALLUVIUM	65	3586.0	44.51	05-29-68	3541	UNK	UNK	0	6"	STOCK	PUMPING
20.32.36.22311	G.H. BINGHAM	ALLUVIUM	65	3586.0	46.01	02-03-71	3540	UNK	UNK	0	6"	STOCK	PUMPING
20.32.36.22311	G.H. BINGHAM	ALLUVIUM	65	3586.0	41.26	02-25-76	3545	UNK	UNK	0	6"	STOCK	WINDMILL BROKEN
20.32.36.22311	BILL SMITH	ALLUVIUM	65	3586.0	45.82	02-19-81	3540	UNK	UNK	0	6"	STOCK	WINDMILL
21.31.01.13143	MIKE CAMPBELL	ALLUVIUM	36	3576.1	30.31	05-29-68	3546	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MIKE CAMPBELL	ALLUVIUM	36	3576.1	26.31	02-03-71	3550	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	20.80	09-18-72	3555	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	19.68	02-25-76	3556	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	24.34	12-28-76	3552	UNK	UNK	0	10 3/4"	STOCK	WINDMILL
21.31.01.13143	MATTHEWS	ALLUVIUM	36	3576.1	DRY	01-17-81	0	UNK	UNK	0	10 3/4"	NONE	WELL DRY
21.31.02.22123	MIKE CAMPBELL	ALLUVIUM	35	3572.7	30.10	05-29-68	3543	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MIKE CAMPBELL	ALLUVIUM	35	3572.7	30.59	02-02-71	3542	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	29.80	09-18-72	3543	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	28.67	02-25-76	3544	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	30.26	12-28-76	3542	UNK	UNK	0	UNK	STOCK	WINDMILL
21.31.02.22123	MATTHEWS	ALLUVIUM	35	3572.7	DRY	10-14-81	0	UNK	UNK	0	UNK	NONE	WELL DRY

TABLE 1 (continued)

A P P E N D I X " A "

LOGS OF SEISMIC HOLES

20.32.21.22222
LS ELEV. 3517

0- 25 CALICHE
25-150 SHALE & RED CLAY
150-160 RED BED

20.32.21.24112
LS ELEV. 3524

0- 25 CALICHE
25- 50 CLAY
50-100 SANDSTONE
100-140 CLAY & SHALE

20.32.21.34344
LS ELEV. 3502

0- 46 CALICHE-SANDY CLAY
46- 80 RED CLAY
80-150 SHALE & CLAY STREAKS

20.32.21.42424
LS ELEV. 3518

0- 20 SAND & CALICHE
20- 65 MIXED CLAY
65-150 RED CLAY & SHALE

20.32.21.434343
LS ELEV. 3508

0- 32 CALICHE
32- 88 RED CLAY
88-160 SHALE & RED CLAY
160-200 HARD SHALE

20.32.21.44444
LS ELEV. 3523

0- 20 CALICHE
20- 40 LOOSE ROCK
40-150 RED CLAY & SHALE

20.32.22.13311
LS ELEV. 3522

0- 36 CALICHE
36- 68 MIXED CLAY W/HARD STREAKS
68-150 RED BED & SHALE STREAKS

20.32.22.34343
LS ELEV. 3544

0- 15 CALICHE
15- 50 SANDY CLAY
50- 85 MIXED CLAY
85-150 RED BED & SHALE

20.32.22.43434
LS ELEV. 3542

0- 32 CALICHE
32- 90 MIXED CLAY
90-130 SHALE
130-150 RED CLAY

20.32.22.44444
LS ELEV. 3541

0- 20 CALICHE
20- 55 CLAY
55-105 RED CLAY
105-150 RED CLAY & SHALE

20.32.28.111134
LS ELEV. 3487

0- 20 CALICHE
20-350 RED BED & RED SHALE
W/ROCK LEDGES

20.32.28.242422
LS ELEV. 3531

0- 18 CALICHE
18- 30 GRAVEL
30-150 RED BED

20.32.28.424242
LS ELEV. 3542

0- 20 CALICHE
20- 30 GRAVEL
30-150 RED BED

Farmers 21-5

<u>From</u>	<u>To</u>	<u>Inter</u>	<u>Formation</u>
0'	20'	20'	Caliche - A little silty clay in the bottom 10'.
20'	40'	20'	Sand - Fine grained. Approx. 30% red shale in the lower 10'
40'	70'	30'	Shale - Brown and grey.
70'	160'	90'	Shale - Reddish brown.
160'	200'	40'	Siltstone - Red, some grey.
200'	220'	20'	Siltstone - Red to magenta, a little grey. Approx. 40% sandstone.
220'	280'	60'	Sandstone - Red. Approx. 20% red to magenta siltstone.
280'	300'	20'	Shale - Red, a little magenta and grey.
300'	310'	10'	Sandstone - Red. A little red and grey shale.
310'	330'	20'	Clay - Red, silty.
330'	360'	30'	Sandstone - Red. Approx. 15% red shale.
360'	380'	20'	Shale - Red to magenta.
380'	400'	20'	Clay - Red, silty.
400'	500'	100'	Shale - Red to magenta. Broken caliche pebbles.
500'	550'	50'	Shale - Brown, a little grey. Approx. 2% caliche.
550'	660'	110'	Shale - Brown, very little grey. Traces of caliche.
660'	720'	60'	Shale - Brown. Some red clay. Trace caliche.
720'	750'	30'	Shale - Brown, little grey. Trace caliche.
750'	810'	60'	Siltstone - Red. Some brown shale. Very little green shale.
810'	890'	80'	Shale - Red and brown, silty. Trace of caliche and green shale.
890'	900'	10'	Clay - Red, sandy. Trace of gypsum.
900'	960'	60'	Anhydrite - Grey, some gypsum. Approx. 20% red clay.
960'	1010'	50'	Anhydrite - Dark grey. A little brown and grey clay.
1010'	1080'	70'	Shale - Red. Approx. 20% gypsum and anhydrite.
1080'	1100'	20'	Shale - Red. Approx. 40% gypsum and anhydrite.
1100'	1110'	10'	Shale - Red. Approx. 10% gypsum and anhydrite.

Farmers 20-1'

<u>From</u>	<u>To</u>	<u>Inter</u>	<u>Formation</u>
1110'	1130'	20'	Gypsum and anhydrite - Approx. 5% red shale.
1130'	1150'	20'	Anhydrite - Grey. Set casing at 1132' 10".
1150'	1170'	20'	Limestone - Tan. A little grey anhydrite. (Culebra).
1170'	1180'	10'	Clay - Red and grey.
1180'	1200'	20'	Halite - Approx. 20% brown clay.
1200'	1236'	36'	Halite - Approx. 4% brown clay.
	1236'		Start coring - 2-23-53.
1236' 0"	1239' 4"	3' 4"	Halite - Clear to faint orange. Occasional bleb of orange polyhalite. Approx. 2% brown clay.
1239' 4"	1240' 4"	1' 0"	Clay - Red, silty. Approx. 15% halite.
1240' 4"	1247' 6"	7' 2"	Halite - Clear, medium grained. Approx. 40% red siltstone.
1247' 6"	1251' 2"	3' 8"	Siltstone - Red. Approx. 5% halite.
1251' 2"	1253' 1"	1' 11"	Halite - Clear, medium grained. Approx. 40% red and grey siltstone.
1253' 1"	1257' 2"	4' 1"	Siltstone - Red. A few halite crystals, more prominent in the top 2'.
1257' 2"	1264' 4"	7' 2"	Clay - Red, silty. Occasional carnallite and halite bleb.
1264' 4"	1266' 4"	2' 0"	Siltstone - Brown. Numerous small carnallite blebs.
1266' 4"	1267' 2"	0' 10"	Anhydrite - Grey. A few small carnallite blebs. A few halite crystals.
1267' 2"	1268' 0"	0' 10"	Siltstone - Red. Numerous small carnallite blebs. A few halite crystals.
1268' 0"	1271' 2"	3' 2"	Anhydrite - Grey and grey clay. A few halite crystals. Red, silty clay seams at 1268' 4" and 1269' 8".
1271' 2"	1271' 6"	0' 4"	Clay - Red, silty. A few halite and carnallite blebs.
1271' 6"	1272' 5"	0' 11"	Clay - Brownish grey. Some grey anhydrite. A few halite and carnallite blebs.
1272' 5"	1272' 10"	0' 5"	Halite - and brown clay. Scattered carnallite blebs.
1272' 10"	1273' 1"	0' 3"	Clay - Green. A few halite and carnallite blebs. (12th ore zone).

LOGS OF EXPLORATORY HOLES
LARRY FELKINS, DRILLER

TEST HOLE #1
20.32.27.424443
LS ELEV. 3553
DRILLED: 10/31/89

0-12 CALICHE
12-24 SAND COARSE
24-28 SAND & GRAVEL
28-34 SAND FINE
34-39 SAND LIGHT
39-41 RED BED
41-44 GRAY ROCK
44-97 THIN LAYERS SAND & GRAVEL
RED SAND GRAY ROCK SANDY
YELLOW GRAY & BROWN CLAY
(DRY)

TEST HOLE #2
20.32.27.422221
LS ELEV. 3546
DRILLED: 10/31/89

0- 8 CALICHE
8-28 SAND
28-32 SAND & GRAVEL
32-36 GRAY ROCK
36-38 SAND & GRAVEL
38-50 RED BED
(DRY)

TEST HOLE #3
20.32.27.234210
LS ELEV. 3542
DRILLED: 10/31/89

0-12 CALICHE
12-34 SAND THIN LAYERS GRAVEL
34-50 RED BED
(DRY)

TEST HOLE #4
20.32.27.412333
LS ELEV. 3550
DRILLED: 10/31/89

0- 8 CALICHE
8-39 SAND & GRAVEL
39-42 RED BED
42-60 LAYERS RED, YELLOW, GRAY
SANDY CLAY WITH SOME
GRAVEL LAYER OF GRAY ROCK
(DRY)

TEST HOLE #5
20.32.27.144133
LS ELEV. 3539
DRILLED: 10/31/89

0- 2 CALICHE
2-24 SAND DAMP AT 18 DOWN
24-28 SAND & GRAVEL
28-34 SAND
34-36 GREEN CLAY
36-40 RED SAND & RED BED DAMP
40-44 RED BED DRY
44-46 GRAY CLAY
46-60 LAYERS OF RED BED GRAY
CLAY GREEN CLAY
(WATER AT 21 FT.)

TEST HOLE #6
20.32.27.132121
LS ELEV. 3529
DRILLED: 10/31/89

0-12 CALICHE
12-24 SAND THIN GRAVEL
24-32 SAND & GRAVEL WET
32-34 GRAY CLAY
34-36 RED BED
36-38 GREEN & GRAY CLAY
38-50 RED BED
(WATER AT 26 FT.)

TEST HOLE #7
20.32.27.314122
LS ELEV. 3541
DRILLED: 10/31/89

0- 9 CALICHE
9-28 SAND LIGHT
28-35 SAND DARK
35-37 RED BED
37-38 GRAY CLAY
38-40 SAND THIN LAYERS CLAY
40-50 RED BED THIN LAYERS GRAY
& GREEN CLAY
(WATER AT 47 FT.)

TEST HOLE #1a
20.32.28.222224
LS ELEV. 3519
DRILLED: 01/26/90

0- 8 CALICHE
8-24 SAND & CLAY
24-28 GRAVEL & SAND
28-34 CLAYS YELLOW & BROWN
34-37 RED BED
CASED 37 FT. PERFS 29 FT.

TEST HOLE #2a
20.32.22.322142
LS ELEV. 3527
DRILLED: 01/26/90

0- 6 CALICHE
6-10 SAND
10-20 SAND CLAY ROCK
20-35 RED CLAY & SAND
35-45 RED CLAY & GRAVEL
45-55 RED BED
CASED 50 FT. PERFS BOTTOM 30 FT.

TEST HOLE #3a
20.32.28.243123
LS ELEV. 3522
DRILLED: 01/26/90

0- 8 CALICHE
8-20 CALICHE SAND GRAVEL
20-45 DRY BROWN & RED CLAY
45-55 RED BED
CASED 55 FT. PERFS 40 FT.

LOGS OF EXPLORATORY HOLES
BASED ON INSPECTION OF DRILL CUTTINGS

TEST HOLE #1
20.32.27.424443
LS ELEV. 3553
DRILLED: 10/31/89

0- 5 CALICHE
5-10 CALICHE
10-15 CALICHE-FINE SAND
15-20 SAND CALICHE
20-25 SAND
25-30 SAND
30-35 NO SAMPLE
35-40 SAND GRAVEL
40-45 RED CLAY
45-50 RED BED
50-55 VERY FINE SILTY SAND
55-60 SILTY SAND-GREY SHALE
 -TRACE OF GRAVEL
60-65 SAND
65-70 GREY SILTSTONE
70-75 RED CLAY W/TRACE OF GRAVEL
75-80 RED SHALE
80-85 RED CLAY W/SOME SAND
85-90 RED CLAY
90-95 RED CLAY
95-99 NO SAMPLE

TEST HOLE #2
20.32.27.422221
LS ELEV. 3546
DRILLED: 10/31/89

0- 5 CALICHE
5-10 CALICHE
10-15 FINE SAND
15-20 FINE SAND W/SMALL GRAVEL
20-25 FINE SAND
25-30 FINE SAND
30-35 GREY SILTY SANDSTONE
35-40 RED BED W/TRACE OF GRAVEL
40-45 RED BED
45-50 RED BED

TEST HOLE #3
20.32.27.234210
LS ELEV. 3542
DRILLED: 10/31/89

0- 5 SAND AND CALICHE
5-10 CALICHE W/SOME SAND
10-15 CALICHE
15-20 SAND
20-25 CALICHE AND VERY FINE SAND
25-30 SAND-GRAVEL
30-35 RED SHALE W/TRACE OF GRAVEL
35-40 RED BED W/SOME GRAVEL
40-45 RED BED
45-50 RED BED

TEST HOLE #4
20.32.27.412333
LS ELEV. 3550
DRILLED: 10/31/89

0- 5 CALICHE
5-10 CALICHE
10-15 SAND W/SOME CALICHE
15-20 SAND & GRAVEL
 W/SOME CALICHE
20-25 SAND
25-30 SAND AND GRAVEL
30-35 BROWN SAND AND GRAVEL
35-40 CLAY AND SAND
40-45 RED AND GREY CLAY
45-50 GREY CLAYEY SAND
 W/SOME GREY SHALE
50-55 RED BED W/SOME GRAVEL
 (SILTSTONE)
55-60 GREY CLAY AND SAND
 W/SOME CHERT

TEST HOLE #5
20.32.27.144133
LS ELEV. 3539
DRILLED: 10/31/89

0-10 SOIL-CALICHE
10-20 CALICHE AND SAND
20-30 SAND AND GRAVEL
30-35 GREY SILTY SAND
35-40 GREY CLAY
40-45 RED CLAY
45-50 RED AND GREY CLAY
 W/SOME GRAVEL
50-55 RED BED
55-60 RED BED

TEST HOLE #6
20.32.27.132121
LS ELEV. 3529
DRILLED: 10/31/89

0-10 CALICHE
10-20 CALICHE SAND
 W/SOME GRAVEL
20-30 VERY FINE SAND
 W/SOME GRAVEL
30-40 RED BED W/SOME FINE SAND
 & TRACE OF GRAVEL
40-45 RED BED
45-50 RED BED

LOGS OF EXPLORATORY HOLES
BASED ON INSPECTION OF DRILL CUTTINGS

CONTINUED

TEST HOLE #7
20.32.27.314122
LS ELEV. 3541
DRILLED: 10/31/89

0-10 CALICHE
10-20 SAND
20-30 VERY FINE SAND
W/SOME RED CLAY
30-35 NO SAMPLE
35-40 RED BED
40-45 RED BED
45-50 RED SILT (LIGHT COLORED)

TEST HOLE #1a
20.32.28.222224
LS ELEV. 3519
DRILLED: 01/26/90

0- 5 CALICHE
5-10 CALICHE W/SOME SAND
10-15 SAND & CLAY
W/SOME SANDSTONE
15-20 SAND AND CLAY
W/SOME GRAVEL
20-25 GREY & YELLOW CLAY
25-30 BROWN SAND AND GRAVEL
30-35 RED BED
35-37 RED BED

TEST HOLE #2a
20.32.22.322142
LS ELEV. 3527
DRILLED: 01/26/90

0- 5 CALICHE
5-10 CALICHE W/TRACE OF SAND
10-15 CALICHE W/SOME SAND
15-20 RED CLAY
20-25 RED CLAY - CALICHE
25-30 RED CLAY
30-35 RED CLAY W/SOME SAND
35-40 SAND AND CLAY
40-45 SAND-GRAVEL RED CLAY
45-50 RED BED - DARK RED
50-55 RED BED - DARK RED

TEST HOLE #3a
20.32.28.243123
LS ELEV. 3522
DRILLED: 01/26/90

0- 5 CALICHE
5-10 SAND AND CALICHE
10-15 SAND GRAVEL W/SOME CLAY
15-20 SAND GRAVEL W/SOME CLAY
20-25 RED CLAY
25-30 RED CLAY
30-35 RED CLAY
35-40 RED CLAY W/TRACE OF GRAVEL
40-45 RED CLAY
45-50 DARK RED CLAY
50-55 NO SAMPLE

A P P E N D I X " B "

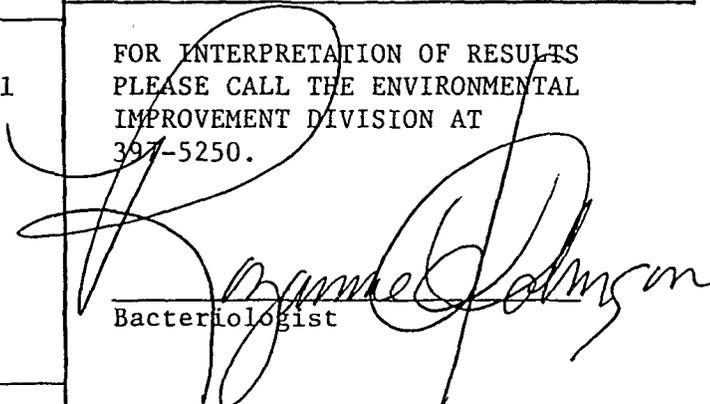


City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990
Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90D-9</u>		County <u>LEA</u>	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>9:00</u>	<u>Denny</u>				
Collection Point <u>At Well #2A</u>			Non-Coliform per 100 ml			
			non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____ _____			

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc
COMPANY _____
ADDRESS Bx 369
Hobbs, NM 88240

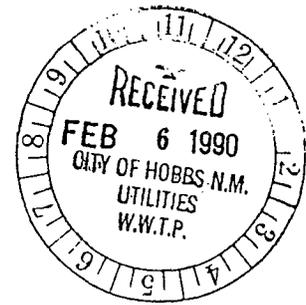
A FEE OF \$10.00 PLUS TAX IS
CHARGED FOR EACH TEST.

20.32.22.322142 JFW
OFFICE USE ONLY



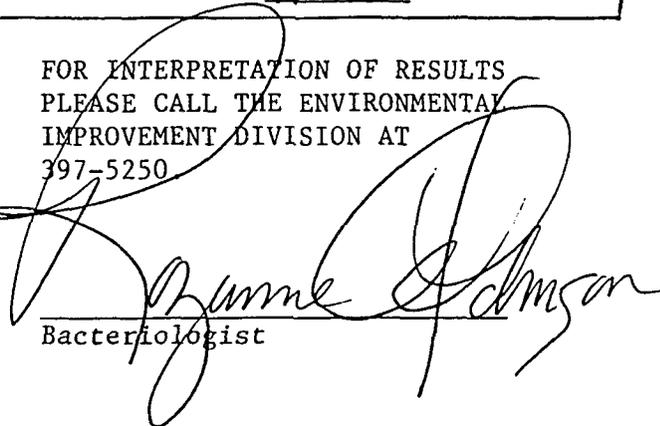
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D-12</u>		County <u>LEA</u>	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	—		
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>10:15</u>	<u>Danny</u>				
Collection Point <u>At Well # 7 6</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc

COMPANY _____

ADDRESS Bx 369
Hobbs, NM 88240
207-1571

A FEE OF \$10.00 PLUS TAX IS CHARGED FOR EACH TEST.

20.32.27 132121 J.D.

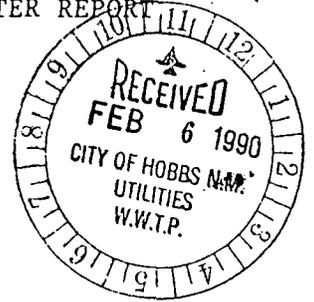
OFFICE USE ONLY

account # _____



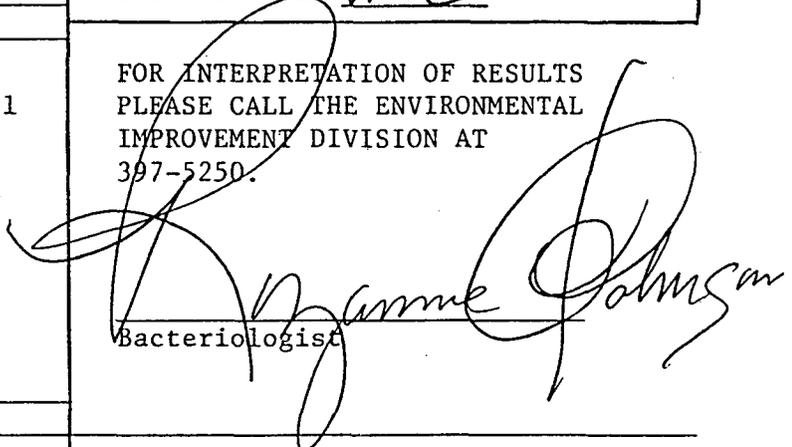
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D -13</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	—		
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>9:45</u>	<u>Denny</u>				
Collection Point <u>At Well #5</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Monitor Sample			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
TESTING REQUIRED						
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME _____
 COMPANY Controlled Recovery, Inc
 ADDRESS Box 369
Hobbs, NM 88240
297-1571

A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

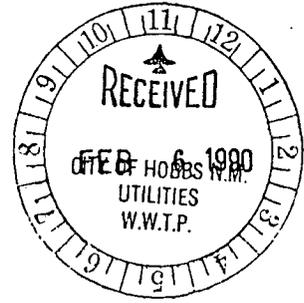
20.32.27.144133 *glw*

OFFICE USE ONLY



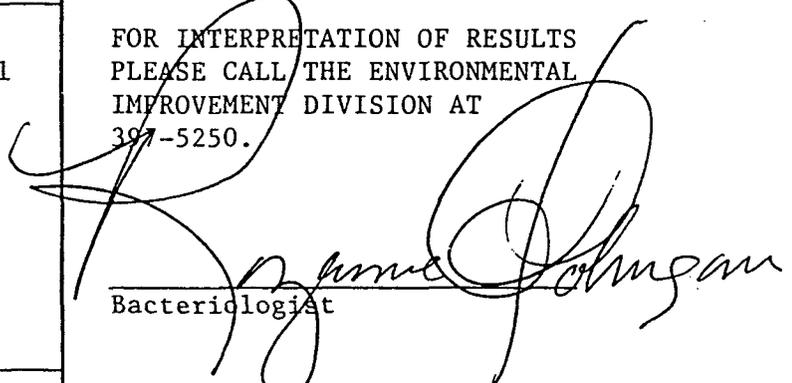
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90-0-11</u>		County <u>LEA</u>	Coliform per 100 ml			
Water Supply System Name <u>37 miles Wd Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	<u>—</u>		
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>9:30</u>	<u>Remy</u>				
Collection Point <u>At Well #3</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
TESTING REQUIRED						
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME _____
 COMPANY Controlled Recovery Inc
 ADDRESS Box 369
Hobbs, NM 88240

A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

26.32.27.234210 JRW

OFFICE USE ONLY



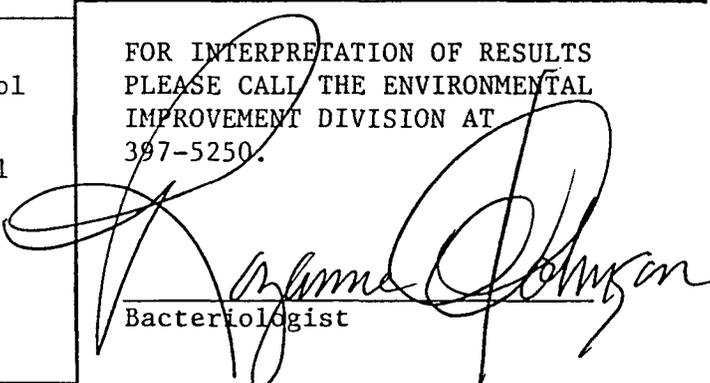
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 D - 10</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>10:00</u>	<u>Denny</u>				
Collection Point <u>At Well #7</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME _____
 COMPANY Controlled Recovery Inc
 ADDRESS Box 369
Hobbs, NM 88240
29m. 1.521

A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

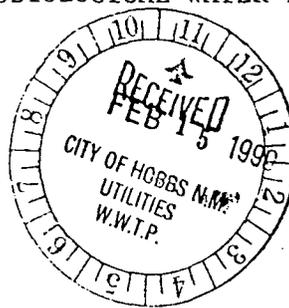
20.32.27.314/22 Jsu

OFFICE USE ONLY



City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 15 1990

Time Test Ended 1:30 Date FEB 16 1990

LEA

SAMPLE IDENTIFICATION		RESULTS OF COLIFORM TESTING		
Quality Control No. <u>90 C-96</u>	County <u>LEA</u>	Coliform per 100 ml		
Water Supply System Name <u>37 miles west of Hobbs ON 62180</u>	WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs
COLLECTION INFORMATION		MF		Completed 48-72 hrs
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN	
<u>2-14-90</u>	<u>5:00pm</u>	<u>Denny</u>		
Collection Point <u>Ab well #8</u>		Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies		
TYPE OF SYSTEM		FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.		
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)		<i>[Signature]</i> Bacteriologist		
REASON FOR SAMPLING		[] Unsatisfactory Sample		
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Monitor Sample		_____		
TESTING REQUIRED		_____		
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN		_____		

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc

COMPANY _____

ADDRESS Bx 369
Hobbs, NM 88240

PHONE 397-6521

A FEE OF \$10.00 PLUS TAX IS CHARGED FOR EACH TEST.

20.32.27, 321423 *JW*

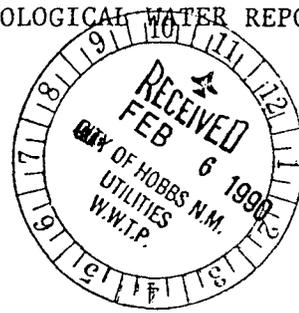
OFFICE USE ONLY

Account # _____



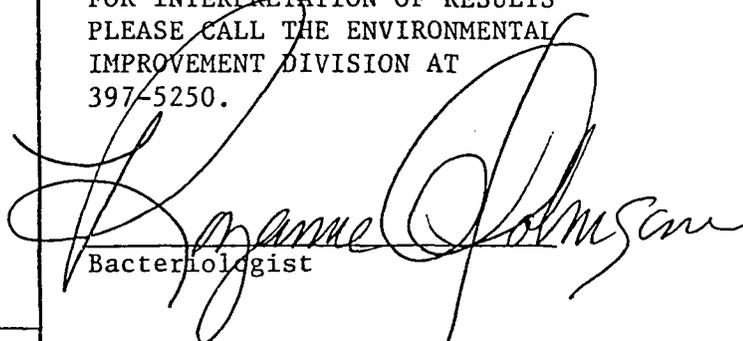
City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90-D 8</u>		County LEA	Coliform per 100 ml			
Water Supply System Name <u>37 miles west of Hobbs ^{ON} 62180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF			
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>8:45</u>	<u>Denny</u>				
Collection Point <u>At Well #1A</u>			Non-Coliform per 100 ml non-coliforms <u>TNTC</u> colonies			
TYPE OF SYSTEM			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250.			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Swimming Pool <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			 Bacteriologist			
REASON FOR SAMPLING						
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Special Sample <input type="checkbox"/> Check Sample <input type="checkbox"/> Monitor Sample						
TESTING REQUIRED			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc
 COMPANY _____
 ADDRESS Bx369
Hobbs N.M. 88240

A FEE OF \$10.00 PLUS TAX IS
 CHARGED FOR EACH TEST.

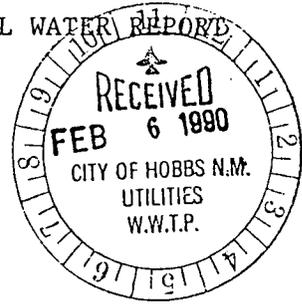
20,32,28,222224 *JW*

OFFICE USE ONLY



City of Hobbs
300 N Turner
Hobbs, NM 88240

MICROBIOLOGICAL WATER REPORT



Time Test Started 1:30 Date FEB 6 1990

Time Test Ended 1:30 Date FEB 7 1990

SAMPLE IDENTIFICATION			RESULTS OF COLIFORM TESTING			
Quality Control No. <u>90 P-14</u>		County <u>LEA</u>	Coliform per 100 ml			
Water Supply System Name <u>37 miles W of Hobbs on 62-180</u>		WSS Code No.	TEST	Presumptive 24 hrs	Confirmed 48 hrs	Completed 48-72 hrs
COLLECTION INFORMATION			MF	<u>—</u>		
Date Collected Mo. Day Yr.	Time Collected	Collected By	MPN			
<u>2-6-90</u>	<u>9:15</u>	<u>Denny</u>				
Collection Point <u>At Well #3A</u>			Non-Coliform per 100 ml			
TYPE OF SYSTEM			non-coliforms <u>TNTC</u> colonies			
Check One <input type="checkbox"/> Public Non-Community <input type="checkbox"/> Public Community <input checked="" type="checkbox"/> Private Well Disinfected <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Residual: _____ mg/l (required for fecal test)			FOR INTERPRETATION OF RESULTS PLEASE CALL THE ENVIRONMENTAL IMPROVEMENT DIVISION AT 397-5250. <i>[Signature]</i> Bacteriologist			
REASON FOR SAMPLING			<input type="checkbox"/> Unsatisfactory Sample _____ _____ _____			
Check One <input checked="" type="checkbox"/> Routine Sample <input type="checkbox"/> Check Sample						
TESTING REQUIRED						
Check One <input checked="" type="checkbox"/> Potability (MF)-Sample required for Safe Drinking Water Act <input type="checkbox"/> MPN						

SEND REPORT AND BILL TO THE FOLLOWING

NAME Controlled Recovery Inc

COMPANY _____

ADDRESS Rx 369
Hobbs, NM 88240

PHONE 297-1571

A FEE OF \$10.00 PLUS TAX IS CHARGED FOR EACH TEST.

20.32.28.24312.3 *[initials]*

OFFICE USE ONLY

Account # _____

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 2A
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Monitor well DEPTH ? feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 1700 m/s
Total dissolved solids: 1190 PPM
Chlorides: 568 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 44 feet.
Top of water at 38 feet.
5 ml sample 710 x .8 = 568 ppm Cl
SC - metered 1700
TDS - calculated

20.32.22.322142

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 6
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Monitor Well DEPTH ? feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 2750 m/s
Total dissolved solids: 1925 PPM
Chlorides: 866.1 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 40 feet.
Top of water at 23 feet.

25 ml sample 142 x 6.1 titration = 866.1 ppm Cl

SC - metered 2750

TDS - calculated

20.32.27. / 32 / 21

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 5
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Moniter well DEPTH ? feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 50,000+ m/h
Total dissolved solids: ?? PPM
Chlorides: 37,275 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 40 feet.
Top of water at 28 feet.
1 ml sample 3550 x 10.5 = 37,275 ppm Cl
SC - meter pegged out at 50,000+.

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 1A
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Moniter well DEPTH ? feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 50,000+ m/h
Total dissolved solids: ?? PPM
Chlorides: 136,675 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 35 feet.
Top of water at 20 feet.
1 ml sample 2550 x 38.5 titration = 136,675 ppm Cl
SC - meter pegged out at 50,000 plus.

20.32.28.222224

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS REPORT FORM

WELL OWNERSHIP: Controlled Recovery Inc. WELL #: 3A
LAND STATUS: STATE _____ FEDERAL _____ FEE _____
WELL LOCATION: Unit Letter _____ Section 27 Township 20 Range 32
QUARTER/QUARTER - FOOTAGE LOCATION: _____
WELL TYPE: Moniter well DEPTH _____ feet
WELL USE: _____

SAMPLE NUMBER: 1 TAKEN BY: Eddie Seay & Ken Marsh
DATE: 2/27/90

Specific Conductance: 50,000+ m/h
Total dissolved solids: ?? PPM
Chlorides: 95,850 PPM
Sulfates: _____ PPM
Ortho-phosphates: Very Low _____ Low _____ Med _____ Hi _____
Sulfides: None _____ Low _____ Med _____ Hi _____
OTHER: _____

DATE ANALYZED: 2/28/90

BY: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie W. Seay

REMARKS: Sample taken at 40 feet.
Top of water at 20 feet.
1 ml sample 3550 x 27 titration = 95,850 ppm Cl
SC - meter pegged out at 50,000 plus.

OCD FILES

35MM DRAWINGS

NM1-6

FILE NUMBER

ENFORCEMENT

DOCUMENT TYPE

1990

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NO OF DWGS

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BOX

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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
CASE 9882

EXAMINER HEARING

IN THE MATTER OF:

Application of Controlled Recovery, Inc., for an
Oil Treating Plant Permit, for Surface Waste
Disposal and an Exception to Order No. R-3221,
Lea County, New Mexico

TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
April 4, 1990

ORIGINAL

A P P E A R A N C E S

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FOR THE DIVISION:

ROBERT G. STOVALL
Attorney at Law
Legal Counsel to the Division
State Land Office Building
Santa Fe, New Mexico

FOR CONTROLLED RECOVERY, INC.:

CAMPBELL & BLACK, P.A.
Attorneys at Law
By: WILLIAM F. CARR
Suite 1 - 110 N. Guadalupe
P.O. Box 2208
Santa Fe, New Mexico
87504-2208

* * *

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1 WHEREUPON, the following proceedings were had
2 at 3:09 p.m.:

3 EXAMINER CATANACH: At this time we'll call
4 Case 9882.

5 MR. STOVALL: Application of Controlled
6 Recovery, Inc., for an oil treating plant permit, for
7 surface waste disposal and an exception to Order Number
8 R-3221, Lea County, New Mexico.

9 EXAMINER CATANACH: Appearances in this case?

10 MR. CARR: May it please the Examiner, my
11 name is William F. Carr with the law firm Campbell and
12 Black, P.A., of Santa Fe. We represent Controlled
13 Recovery, Inc., and I have three witnesses.

14 EXAMINER CATANACH: Any other appearances?
15 Will the witnesses please stand to be sworn
16 in at this time?

17 (Thereupon, the witnesses were sworn.)

18 (Off the record)

19 KENNETH R. MARSH,

20 the witness herein, after having been first duly sworn
21 upon his oath, was examined and testified as follows:

22 EXAMINATION

23 BY MR. CARR:

24 Q. Will you state your full name and place of
25 residence?

1 A. Kenneth Ray Marsh, Hobbs, New Mexico.

2 Q. Mr. Marsh, by whom are you employed and in
3 what capacity?

4 A. I'm the President of Controlled Recovery,
5 Inc., and the President of M&M Rental Tools, Inc.

6 Q. Have you previously testified before the Oil
7 Conservation Division and had your credentials accepted
8 and made a matter of record?

9 A. No, I haven't.

10 Q. Would you briefly summarize for Mr. Catanach
11 your educational background and then briefly review
12 your work experience?

13 A. I have a BA degree from the University of New
14 Mexico.

15 I've been in the oil and gas industry for 35
16 years in various fields from service companies through
17 drilling and production.

18 I've attended various industry schools and
19 blowout schools.

20 Q. What is the nature of M&M?

21 A. M&M Rental Tools is a service company.

22 Q. Are you familiar with the Application filed
23 in this case?

24 A. Yes, I am.

25 MR. CARR: Are the witness's qualifications

1 acceptable?

2 EXAMINER CATANACH: Yes.

3 Q. (By Mr. Carr) Mr. Marsh, would you briefly
4 state what Controlled Recovery, Inc., seeks with this
5 Application?

6 A. Yes, we seek an exception to OCD order R-3221
7 to permit disposal of produced waters in an unlined
8 surface pit and a treating-plant permit and disposal of
9 oilfield waste.

10 Q. Where is the proposed facility located?

11 A. The south half of the north half and the
12 north half of the south half of Section 27, Township 20
13 South, Range 32 East, except for a 20-acre tract in the
14 northeast quarter of the southeast quarter, of Lea
15 County, New Mexico.

16 Q. And that tract is described in the written
17 Application that we filed --

18 A. Yes.

19 Q. -- with the Division?

20 A. That's correct.

21 Q. It's a complicated land description, and for
22 that reason we haven't tried to recite it to you now,
23 but there are 20 acres in the extreme southeastern
24 portion of this tract which are not included.

25 Is that fee land?

1 A. Yes, it is.

2 Q. What is the character of all of the
3 offsetting acreage?

4 A. It belongs to the Bureau of Land Management,
5 the Department of the Interior.

6 Q. Would you refer to what has been marked as
7 Controlled Recovery Exhibit Number 1, identify that and
8 review it for the Examiner?

9 A. This is a surface map of the site and the
10 surrounding area.

11 Q. Does this show the location of the -- of pits
12 on the proposed disposal facility?

13 A. Yes, it does.

14 Q. At the time the Application was filed,
15 Controlled Recovery, Inc., was proposing disposal of
16 liquids in an evaporation pit located in the eastern
17 portion of the facility, indicated by the block on
18 Exhibit 1 that is now marked, "Disposal Pit for
19 Drilling Solids"; is that correct?

20 A. That's correct.

21 Q. And you've reversed the location of the pits
22 for drilling solids and the evaporation pit for liquids
23 at the request of the Oil Conservation Division?

24 A. That's correct.

25 Q. Does this plat also show the location of the

1 Laguna Toston?

2 A. Yes, it does.

3 Q. And that is approximately how far from your
4 disposal facility?

5 A. Probably less than a quarter mile.

6 Q. Are any water wells that may be in the area
7 indicated on this exhibit?

8 A. Yes, they are.

9 Q. And is U.S. Highway 62/180 shown on this
10 plat?

11 A. Yes, it is.

12 Q. Because of the location of U.S. Highway
13 62/180, will any rights-of-way have to be acquired by
14 you as part of your effort to implement this proposal?

15 A. No, no right-of-ways will be required.

16 Q. Could you briefly identify Exhibit Number 2?

17 A. Exhibit Number 2 is another map of the area
18 with the site defined on it.

19 Q. And this simply gives a larger geographical
20 orientation where the location is?

21 A. Yes, it's just a larger-scale map than the
22 other one.

23 Q. Okay. Could you generally summarize for Mr.
24 Catanach how you propose to operate this disposal
25 facility?

1 A. This will be a commercial facility. The
2 incoming liquids will be placed in settling tanks, and
3 we'll have a gravity separation through a wash tank or
4 a gunbarrel as -- The product will be treated with
5 chemicals if necessary. We'll also have a heater
6 treater to further treat the oil and break the water
7 out of it.

8 The free water with -- after the hydrocarbons
9 have been removed, will be put into evaporation pits
10 and the oil will be placed in storage tanks, and the
11 solids will be placed in a separate pit.

12 Q. Now, will the details of each of these
13 aspects of your operation be provided by an engineering
14 witness that we will subsequently call?

15 A. That's correct.

16 Q. Have you reviewed your proposal for this
17 facility with the Oil Conservation Division in Hobbs?

18 A. Yes, with Mr. Jerry Sexton.

19 Q. Would you identify what has been marked as
20 Exhibit Number 3?

21 A. Yes, this is a letter from Mr. Sexton that I
22 requested that -- It's To Whom It May Concern. It
23 indicates that there's only one facility in Lea County
24 to handle oilfield waste and tank bottoms, et cetera,
25 and that there is a problem in the disposal because of

1 the distance required to get to another facility.

2 Q. Are you familiar with Oil Conservation
3 Division Rules and Regulations governing treating
4 plants and disposal of produced waters?

5 A. Yes, I am.

6 Q. Are you prepared to comply with all of those
7 rules and provisions?

8 A. Yes.

9 Q. Will you keep all records and make all
10 reports and otherwise fully comply with the Division
11 Rules and Regulations governing the operation of a
12 facility of this nature?

13 A. Yes, I will.

14 Q. How soon do you propose to commence your
15 operations?

16 A. We would propose to commence construction
17 within 30 days of the issuance of the permit.

18 Q. What hours do you propose to have your
19 facility open?

20 A. We plan to be open eight to five, five days a
21 week, and on special request.

22 Q. Will there be a person on the location at all
23 times?

24 A. Yes, any -- We'll have a person, anytime
25 there will be any incoming or outgoing traffic we'll

1 have somebody on location. The gates will be locked at
2 all times.

3 Q. What methods of monitoring this facility do
4 you propose?

5 A. We'll have visual monitoring of the complete
6 facility daily.

7 Q. Now, you indicated the gates would be locked.
8 Is the facility fenced?

9 A. The facility is fenced now, and we will fence
10 the individual -- The whole facility is fenced now, and
11 we will fence the individual parts as the construction
12 is finished.

13 Q. And will there be only one entrance to each
14 of these fenced areas?

15 A. Yes.

16 Q. What is the status of your efforts to obtain
17 a treating-plant pond?

18 A. We have filled out the necessary paperwork
19 and submitted it to the bonding company, and we'll have
20 that in place before we take any product.

21 Q. Do you believe that approval of this
22 Application would allow recovery of hydrocarbons that
23 otherwise may not be recovered?

24 A. Yes.

25 Q. How close is the nearest offsetting oil or

1 Q. And --

2 A. -- it shows here.

3 Q. And who is T. Bingham?

4 A. T. Bingham is the former owner of the
5 property.

6 Q. Were Exhibits 1 through 4 either prepared by
7 you or compiled under your direction?

8 A. Yes.

9 MR. CARR: At this time we would offer
10 Exhibits 1 through 4.

11 EXAMINER CATANACH: Exhibits 1 through 4 will
12 be admitted as evidence.

13 Q. (By Mr. Carr) And Mr. Marsh, you also intend
14 to call a witness who can testify to the hydrology of
15 the area; is that correct?

16 A. That's correct.

17 MR. CARR: I have nothing further of Mr.
18 Marsh.

19 EXAMINATION

20 BY MR. STOVALL:

21 Q. Mr. Marsh, how do you propose to dispose of
22 the solids or bottoms from the treating tanks?

23 A. Say again?

24 Q. How do you propose to dispose of the solids
25 or bottoms from the treating tanks?

1 gas production to the proposed facility?

2 A. To my knowledge, the closest well is about
3 two-and-a-half to three miles.

4 Q. Would this proposal have any adverse effect
5 on the rights of any oil and gas operator?

6 A. None.

7 Q. Could you identify what has been marked as
8 Oil Conservation -- or as Controlled Recovery Exhibit
9 Number 4 and review that, or identify that for the
10 Examiner?

11 A. This is an affidavit.

12 Q. Does that show that notice --

13 A. Yes.

14 Q. -- has been provided to the landowner and the
15 offsetting operators as required by -- or offsetting
16 owners, as required by Division Rules?

17 A. Yes, it does.

18 Q. Mr. Marsh, in conversations with the Oil
19 Conservation Division, questions were asked about a
20 couple of individuals. Could you just for the purposes
21 of the record identify who J.C. Estes is?

22 A. J.C. Estes is a rancher who -- who owns or
23 has grazing rights to the BLM that surrounds this site.

24 Q. And notice was provided to him?

25 A. Yes --

1 A. We plan to treat those to the extent that --
2 to reduce them in volume as much as possible, and after
3 that point we will treat them as the OCD Rules describe
4 to us.

5 We understand that there are some changes
6 coming up, and we will comply with whatever guidelines
7 are put down.

8 MR. STOVALL: I have nothing further.

9 EXAMINER CATANACH: Mr. Carr, will your next
10 witness go into specific details of operation?

11 MR. CARR: Mr. Catanach, we will call an
12 engineering witness who will review exactly how the
13 facility is going to be operated, the engineering
14 details. And then we will call a hydrologist who will
15 talk about the effect of placing water in these pits
16 and the migration of that water and potential
17 beneficial uses of the water, things of that nature.

18 But Mr. Marsh is the President of Controlled
19 Recovery. He's the man who will be responsible, and
20 he's acquiring a bond and will be attempting to comply
21 with the Rules, and we thought it appropriate that he
22 testify first.

23 EXAMINATION

24 BY EXAMINER CATANACH:

25 Q. Mr. Marsh, is this your first attempt at

1 the -- this type of operation?

2 A. This is my first attempt at this type of
3 operation, yes.

4 Q. Do you foresee any problem getting the bond
5 for this facility?

6 A. No.

7 EXAMINER CATANACH: I believe that's all I
8 have of the witness at this time.

9 THE WITNESS: Thank you.

10 MR. CARR: At this time I would call Mr. Joe
11 Janica, J-a-n-i-c-a.

12 JOSEPH T. JANICA,

13 the witness herein, after having been first duly sworn
14 upon his oath, was examined and testified as follows:

15 EXAMINATION

16 BY MR. CARR:

17 Q. Would you state your full name and place of
18 residence?

19 A. My name is Joseph T. Janica, and I live in
20 Hobbs, New Mexico.

21 Q. Mr. Janica, by whom are you employed and in
22 what capacity?

23 A. I'm a self-employed consultant and at this
24 time, in this case, I'm employed by Controlled
25 Recovery, Inc.

1 Q. And are you a petroleum engineer?

2 A. I'm a geological engineer.

3 Q. Have you previously testified before this
4 Division and had your credentials as a geological
5 engineer accepted and made a matter of record?

6 A. Yes, I have.

7 Q. Are you familiar with the Application filed
8 in this case on behalf of Controlled Recovery, Inc.?

9 A. Yes, I am.

10 Q. Have you performed a review of the subject
11 area and are prepared to make recommendations --

12 A. I have.

13 Q. -- concerning the facility?

14 A. Yes, I have.

15 MR. CARR: Are the witness's qualifications
16 acceptable?

17 EXAMINER CATANACH: They are.

18 Q. (By Mr. Carr) Mr. Janica, when were you
19 employed to work on this project?

20 A. About 60 or 90 days ago.

21 Q. And who contacted you?

22 A. Mr. Ken Marsh.

23 Q. What were you asked to do?

24 A. I was asked to develop a plan to treat
25 produced oilfield fluids, to recover hydrocarbons and

1 treat them and dispose of water in surface pits.

2 Q. Could you refer to what has been marked as
3 Controlled Recovery Exhibit Number 5 and just identify
4 that?

5 A. Yes, this is a plat of the area, or of the
6 pits that will be used to dispose of produced water
7 after it's gone -- after it's gone through some
8 gunbarrel tanks and settling tanks.

9 Q. Mr. Janica, could you refer back to Exhibit
10 Number 1? Are we talking about the pit that is in the
11 southwest corner of the plat of the disposal facility?

12 A. Yes, we are.

13 Q. All right. Why don't we start and just
14 follow product through this facility and start with the
15 incoming liquids. Where will they be delivered?

16 A. Okay, they will be delivered to the west pit,
17 and at that point they'll be offloaded through settling
18 tanks and a gunbarrel tank. And at that point the
19 water will be disposed of in the evaporation pit, the
20 hydrocarbons will be put in a storage tank, and when
21 that storage tank reaches a half capacity, or plus or
22 minus, they will be checked for -- if they were ready
23 for sale, if they would be ready for sale.

24 If they were acceptable by a purchaser, they
25 would be sold at that point. If not, they would be run

1 through a heater treater and treated with chemicals,
2 and then they would be put in a storage tank for the
3 sale.

4 Q. Now, if we look at the eastern side of the
5 plat --

6 A. Yes.

7 Q. -- next to the offloading area, there are
8 four tanks. What is the capacity of those tanks?

9 A. Those tanks will -- I think in the
10 Application we said 400-barrel tanks, but they will
11 probably be larger, 500- to 750-barrel tanks.

12 Q. Now, how many of those tanks will actually be
13 used for settling, or how many will be gunbarrel tanks,
14 as you describe them?

15 A. To begin with, we'll have one gunbarrel tank.
16 And if the volume so dictates, we will add another.

17 Q. And then you will have -- One of those tanks
18 will be simply for receiving the product?

19 A. Yes.

20 Q. Then you will move it into one -- Initially
21 that will be a gunbarrel tank, and then the other two
22 tanks are for what purpose?

23 A. They're for oil storage.

24 Q. And then after you look at the product,
25 you'll have to make a determination whether you can

1 market it, and if you have to improve the quality then
2 you will run it through the heater treater and treat it
3 with chemicals?

4 A. Yes, sir.

5 Q. All of the product incoming to the facility
6 will not necessarily have to go through the heater
7 treater or receive chemical treatment?

8 A. No.

9 Q. Next to these tanks is a description of a
10 pit. Will any hydrocarbons be discharged into this
11 pit?

12 A. No.

13 Q. Is the pit above or below grade?

14 A. It's below grade.

15 Q. Are you proposing the placement of dikes
16 around any of this facility?

17 A. Yes, we are. We're proposing a dike around
18 the offloading area and then a separate enclosure for
19 the heater treater and storage tank.

20 Q. Okay, what will be the general grade of the
21 facility?

22 A. The grade will be sloping toward the disposal
23 pit.

24 Q. Are there drying ramps in this area?

25 A. Yes, there are.

1 Q. And where are they indicated?

2 A. They're on the south side of the disposal
3 pit.

4 Q. And they again slope into the pit?

5 A. They slope into the pit, and this is the area
6 where drilling solids will be offloaded, and it will be
7 a slope and a maze that they will have to go through.

8 The water being drained off heavier solids
9 will be falling down to the bottom, and the grade will
10 be such that it won't be taking solids into this pit.
11 And what doesn't drain off, it will evaporate.

12 And when this area gets enough solids in it,
13 it will be removed by a front-end loader or some means
14 of transportation to take them off of this settling
15 area and dispose of in the solids pit.

16 (Off the record)

17 Q. And when the solids are removed, they will be
18 placed in the disposal pit?

19 A. On the east side of the facility, of the
20 tract of land.

21 Q. Could you identify for me what has been
22 marked as Controlled Recovery Exhibit Number 6?

23 A. This is a typical CE Natco gunbarrel tank.
24 As we can see, it can be of any size you desire. You
25 can have it custom made.

1 Q. And basically how does that work?

2 A. Fluids are discharged into the vertical
3 standpipe, discharged at the bottom of the umbrella
4 system here, and hydrocarbons gravitate toward the top.

5 And the shroud, when it gets -- hydrocarbons
6 get to a certain level, they would be discharged into a
7 storage tank. And as the water gets to a certain
8 height, as in a heater treater, they would be disposed
9 of into the settling pit.

10 Q. Now, if chemicals are used, what chemicals in
11 fact do you propose to utilize?

12 A. There's a trade-name chemical with Unichem
13 International, and there are several. But I have
14 copies of the Techni-Break 100, Techni-Break 105, and I
15 think Techni-Break 957.

16 Q. And this is the name for the chemicals that
17 you will use?

18 A. Yes, this is what we propose to use.

19 Q. And is Exhibit 7 copies of the MTS sheets for
20 each of these?

21 A. Yes, it is.

22 Q. And do these chemicals comply with EPA and
23 EID standards?

24 A. Yes, they do.

25 Q. What fire-control measures will be undertaken

1 by Controlled Recovery?

2 A. We'll have -- Of course we'll have separate
3 tanks, we'll have a fire extinguisher located over the
4 offloading area near the tanks and hole. We'll have --
5 The heater treater will be at least a hundred feet, as
6 is standard, away from any of the storage tanks. And
7 there will be only one place that there will be a fire,
8 and that would be in the heater treater.

9 We'll have the 500-barrel tank with water on
10 location. It's a near-water transmission line to the
11 potash company, about a quarter of a mile away. And we
12 could tie into that if necessary.

13 But if any fire would occur, it would be at
14 least a hundred feet from any storage tank. And the
15 valve arrangement would be such, we could cut off the
16 gas and the oil that goes to the heater treater, to
17 keep it to a bare minimum.

18 The only way that I can see that maybe a fire
19 would occur would be maybe a lightning strike or
20 something like that.

21 Q. What is the capacity of the facility?

22 A. The capacity -- The solids pit is
23 approximately 368 barrels [sic], and the liquid
24 disposal, probably about 336,000 barrels.

25 Q. The west pit is 336,000 barrels?

1 A. Yes.

2 Q. And the east pit would be 368,000?

3 A. Right.

4 Q. And what quantity would you anticipate being
5 in the facility at any particular time?

6 A. Oh, I wouldn't think it would be over a third
7 full at any time.

8 Q. What are the actual dimensions of these pits?

9 A. These pits are 925 feet -- I think -- Let's
10 see, the -- Where the solids would be disposed of is
11 925 by 225, I think. Well, let me see here.

12 The east pit is 540 feet wide, 300 feet long,
13 and the west pit is 225 feet wide and 950 feet long.

14 Q. Will these pits be netted?

15 A. They will be netted to -- as required to
16 protect wildlife, according to the OCD and the
17 Environmental Protective Agency, wildlife people.

18 Q. Is there any danger of flooding in the area
19 of the pits?

20 A. No, there's a -- It's in a no-flood area, and
21 the chance of it flooding a hundred-year flood here is
22 about 100 years, and I don't think there's any chance
23 of any floods in this area.

24 There's a -- Let's see.

25 Q. Is Exhibit Number 8 a letter from, I guess,

1 the City of Hobbs --

2 A. The City of Hobbs.

3 Q. -- indicating that this is not in a flood
4 plain?

5 A. Yes, it is. And it's the city engineer that
6 wrote this letter.

7 Q. Mr. Marsh indicated the facility was going to
8 be fenced. Will all the signs required by the OCD be
9 maintained at the location?

10 A. Yes, they will be maintained in legible and
11 readable order.

12 Q. Where will the H₂S detection facility or
13 equipment be located?

14 A. It will be located near the settling tanks
15 and right at the offloading ramp where the trucks will
16 pull in, and then it also will be around the heater
17 treater and the storage tanks.

18 Q. Do you anticipate any problems with the
19 accumulation of salt or other substances that could
20 impair the effectiveness of the project?

21 A. No, I do not.

22 Q. What is going to be the source of the water
23 disposed of in this facility and the other oilfield
24 waste?

25 A. It will be waters that is produced by oil

1 wells and collected at a central point, and then it
2 will be trucked into the facility.

3 Q. It's going to basically include all oilfield-
4 related waste material, is it not?

5 A. Yes, it will. Yes.

6 Q. Is there going to be any disposal of water of
7 any kind directly into the Laguna Toston or into any
8 other Playa Lake?

9 A. No, there will not be.

10 Q. Is all of the disposal going to be confined
11 within the limits of the property owned by Mr. Marsh?

12 A. Yes, it will.

13 Q. In addition to fire-control methods that
14 you've outlined, what other safety measures will be
15 undertaken?

16 A. Well, the permanent person there will be
17 trained in H₂S safety training, he'll have some fire
18 training. The facility, as we've mentioned before,
19 will be fenced. We have dikes around the offloading
20 area, and we'll have a facility manager on the location
21 all the time that it is open.

22 Q. So anytime it's open there will be a manager
23 on the property?

24 A. Yes, there will.

25 Q. Does Controlled Recovery have any particular

1 contingency plan, should a break or a spill occur?

2 A. It would be very unlikely that a spill would
3 occur because they're below-grade pits, number one.
4 Should any spill occur within the offloading area, it
5 would drain into the pit. But any hydrocarbon or
6 anything that would puddle or anything would be picked
7 up by vacuum truck or use a centrifugal pump to pick
8 them up.

9 Q. Could you describe briefly the closure plan
10 that Controlled Recovery proposes to utilize when that
11 is appropriate?

12 A. When it's the appropriate time to close the
13 pits, they will be covered with an impermeable clay and
14 mounded in a turtleback so that no water would collect
15 on top of it and seep through and contaminate anything.
16 It would be contained within the pits themselves.

17 Q. And prior to doing that closure work, the
18 pits would be evaporated completely?

19 A. Yes, yes, they would be.

20 Q. Were Exhibits 1 through 8 either compiled by
21 you or prepared under your direction?

22 A. Yes, they were.

23 Q. Can you testify as to the accuracy of these
24 exhibits?

25 A. Yes.

1 MR. CARR: At this time we would move the
2 admission of Controlled Recovery Exhibits 5 through 8.

3 EXAMINER CATANACH: Exhibits 5 through 8 will
4 be admitted as evidence.

5 MR. CARR: That concludes my direct
6 examination of Mr. Janica.

7 EXAMINATION

8 BY MR. STOVALL:

9 Q. Can you tell me what the depth of the pits
10 will be?

11 A. They vary from probably one foot, where it
12 starts sloping off, to probably about 10 or 15 feet.

13 (Off the record)

14 Q. Are you aware that there are some wastes
15 which are classified as hazardous wastes under RCRA,
16 that come out of oilfield service companies that they
17 would be --

18 A. Yes, I am.

19 Q. What method do you propose to insure that no
20 such hazardous wastes for which there is not an
21 exemption will get into your facility?

22 A. The only way that we have -- if we -- It will
23 be hard to police, because it would be commercial and
24 it would bring them in, in tank bottoms, et cetera, the
25 wastes that you're talking about.

1 If we got those wastes, we would treat them
2 -- And I'm not that familiar with the case at this
3 time, but we would treat them according to the EPA
4 standards and the EID people.

5 (Off the record)

6 Q. Is it your intention to become a RCRA
7 hazardous-waste treatment facility?

8 A. No, it's not. No, it's not. In the case
9 that you would get them -- You can't tell what is being
10 brought in at times. People will bring other things,
11 other than produced water and hydrocarbons in,
12 unbeknowing to us, or probably to them.

13 But there are people that will try to do
14 that. If we run into them, we won't let them dispose
15 of their liquids there.

16 Q. Okay. So it's your intention to --

17 A. -- police --

18 Q. Well, let me back up a second and ask you.
19 You're saying that if somebody attempts to bring
20 hazardous wastes, whether they're trying to slip it by
21 you or unknown to them, you will not accept hazardous
22 waste of any kind --

23 A. That's right.

24 Q. -- is that correct?

25 A. That's correct.

1 Q. What procedures do you have for determining
2 whether or not, in fact, these tank bottoms are -- what
3 is being brought to you is not hazardous waste? Will
4 you have some testing ability or some method?

5 A. We will -- If it's required, we will have the
6 testing ability. And as we've said, we'll have a man
7 on location at all times that will be able to perform
8 these tests.

9 MR. CARR: Mr. Stovall, I can assure that,
10 having met with Controlled Recovery, the intention is
11 not to start becoming a facility for disposal of
12 hazardous wastes. We are more than anxious to want to
13 avoid that and to work with the Oil Conservation
14 Division, or anyone, to assure that we don't get those
15 products into the facility.

16 MR. STOVALL: And that's my question. I'm
17 not --

18 MR. CARR: It's not our intention, and as
19 this -- Frankly, every time we turn around there seems
20 to be something new we need to comply with, and we're
21 willing to do that.

22 And I just want it understood that it isn't
23 our intention to receive those, one. And, two,
24 whatever monitoring we can install or anything
25 additional that would be -- that would assure that it

1 stays out, we're willing to do that.

2 If it gets in, then we're immediately going
3 to attempt to dispose of it and pull ourselves quickly
4 into line with appropriate environmental standards and
5 regulations. We're sensitive to that.

6 We recognize that this is, one, we think a
7 needed facility but that it comes up in sort of a
8 multiple regulatory kind of environment, not just the
9 Oil Conservation Division as it used to be, but that
10 there are legitimate environmental concerns, and we're
11 anxious to meet those as well.

12 MR. STOVALL: All right, Mr. Carr. I
13 appreciate your comments, and I think it's clear -- I'm
14 sure you're well aware, but as long as we're in the
15 record on this issue, I think that we are very cautious
16 and careful about this issue, because quite frankly we
17 have been able to maintain OCD jurisdiction over this
18 type of facility so long as it does not accept
19 hazardous waste and does not become, either
20 intentionally or unintentionally, a depository for
21 hazardous wastes.

22 And in order for us to continue to do our job
23 properly in that area, we've got to be absolutely sure
24 that you have the methodology to protect yourselves
25 from that -- from that harm, and that's why we go into

1 that.

2 MR. MARSH: We want the OCD to be in control
3 of it at all times too, believe me, and we'll do
4 everything possible to prevent that from happening.

5 MR. CARR: And I think the obvious thing --
6 Or I hope the obvious thing is that we're attempting to
7 obtain approval for a commercial facility. And to have
8 a successful commercial facility we have to comply with
9 the -- and not after the fact discover we have
10 hazardous wastes in our facility.

11 And so we're interested in --

12 MR. STOVALL: You're quite --

13 MR. CARR: -- and we'll remain that way.

14 MR. STOVALL: Yes, if I'm not mistaken, too
15 -- I think my technical people here can correct me if
16 I'm wrong, but I think the greater risk is that you'll
17 receive it accidentally rather than somebody trying
18 to --

19 MR. CARR: That's right.

20 MR. STOVALL: -- to dump it on you, you know,
21 as a way to dispose of it without complying with all
22 the rules. So I think that's the risk that we're
23 concerned and hope that you're able to prevent --

24 THE WITNESS: Right.

25 MR. STOVALL: -- for your sake as well as the

1 industry's.

2 THE WITNESS: Well, I think that we will be
3 cognizant of the fact that that's what happens. But
4 we'll know most of the people that do use this facility
5 and most of them are pretty reputable people.

6 (Off the record)

7 MR. STOVALL: I have no further questions of
8 this witness, Mr. Examiner.

9 EXAMINER CATANACH: Just one, Mr. Janica.

10 EXAMINATION

11 BY EXAMINER CATANACH:

12 Q. Besides produced water, what type of fluids
13 will you be accepting?

14 A. Well, in the case, somewhere we have a
15 waterflow in drilling a well, as we had at Buckeye here
16 in the past, of course, that water would be brought to
17 that facility.

18 Then, of course, drilling solids would be
19 brought in and disposed of in this settling area here.

20 Q. Okay. Now, it's my understanding that you've
21 been in contact with our technical people involving
22 this facility and that you have come to an agreement on
23 the facility itself and what should be in it and what
24 not should be in it?

25 A. Yes.

1 Q. So that's pretty much in compliance with what
2 we require?

3 A. Yes, it is.

4 EXAMINER CATANACH: I don't want to waste any
5 time going back all over that.

6 MR. CARR: Mr. Catanach, I think -- I don't
7 want to sit here and say we've reached an agreement,
8 but we have discussed it, we're providing additional
9 data, and at this time we don't see any insurmountable
10 problems. And we remain -- I think it's a continuing
11 process, and I can assure you we're going to be
12 following up on monitoring methods for hazardous waste.

13 MR. STOVALL: Mr. Carr, I think that brings
14 up a good point at this time. I believe, to the best
15 of my knowledge, that this is the first application for
16 this type of facility which has actually gone through
17 the hearing process, at least with the staff that we
18 currently have, which leaves us in a procedurally
19 unique position because normally these applications are
20 processed in a give-and-take, supplement-the-
21 information type of setting.

22 What we've got today is -- I know you've been
23 going through that with our environmental bureau up to
24 this point, but I think we need to watch -- If we close
25 the record on this as a hearing case, I think we have a

1 problem with supplementing that record. So bear that
2 in mind at the end. Both the environmental staff and
3 you may wish to keep the record open so that we can
4 supplement what's needed.

5 EXAMINER CATANACH: If I can suggest that
6 maybe we do leave the record open until such time as
7 we, say, get a green light from our people, saying
8 that, okay, we've got everything worked out.

9 MR. CARR: I certainly have no objection to
10 that. I would like to do that as quickly as possible
11 because we're anxious to get this started.

12 And if you would like to leave the record
13 open at the conclusion of the hearing, we certainly
14 would be happy to try and establish even in writing to
15 the satisfaction of your Environmental Division that we
16 will be taking all reasonable precautions to assure
17 that we don't accept hazardous materials.

18 Whatever you desire, we're certainly anxious
19 to do that because, one, we want the permit, in fact,
20 and two, we're trying to do it right.

21 MR. STOVALL: And three, you don't want the
22 liability of a hazardous-waste facility, I assume?

23 MR. CARR: And after the fact, we do not want
24 the liability.

25 EXAMINER CATANACH: Okay. Well, let me go

1 off the record for a minute.

2 (Off the record)

3 EXAMINER CATANACH: I believe that's all the
4 questions we have of Mr. Janica at this time. You may
5 be excused.

6 MR. CARR: At this time we would call Mr.
7 Wright.

8 JAMES I. WRIGHT,
9 the witness herein, after having been first duly sworn
10 upon his oath, was examined and testified as follows:

11 EXAMINATION

12 BY MR. CARR:

13 Q. Would you state your full name?

14 A. James I. Wright.

15 Q. Mr. Wright, where do you reside?

16 A. I live in Roswell, New Mexico.

17 Q. And by whom are you employed?

18 A. I'm a self-employed consulting hydrologist.

19 Q. Could you review your educational background
20 for Mr. Catanach?

21 A. I have a BS degree in civil engineering, New
22 Mexico State University, which I obtained in 1952.

23 Q. Would you summarize for the Examiner your
24 work experience in the field of hydrology?

25 A. Most of my experience has been with the State

1 Engineer's Office. I was employed by them on the 1st
2 of March, 1956, went to work as a Portales Basin
3 supervisor. That work consisted primarily of water-
4 rights administration.

5 There was some engineering work involved like
6 measuring well discharges, surveying tracts of land and
7 that kind of thing.

8 Q. Did you also work as a field engineer for the
9 State Engineer's Office?

10 A. Yes, sir. I think I gave the wrong date on
11 when I went to work. It was March the 29th, 1954, and
12 I served as the Portales Basin supervisor till the 1st
13 of March, 1956.

14 At that time I was named the field engineer
15 for the State Engineer, and my work at that time
16 consisted of doing hydrologic investigations of --
17 primarily in southeastern New Mexico, for the Assistant
18 of Water Rights Administration for the State Engineer's
19 Office.

20 This work consisted of collecting and
21 interpreting hydrological data and preparing the
22 exhibits for court cases and litigation.

23 And then I retired from the State Engineer's
24 Office July the 1st, 198- -- May the 31st, 1986, and I
25 opened a consulting business on July the 1st, 1986.

1 And my consulting business has been limited
2 to hydrological investigations and related work. Most
3 of it's been in Lea County.

4 Q. Have you previously testified on hydrology
5 and related matters in court?

6 A. Yes, I have.

7 Q. Are you registered as a professional engineer
8 in the State of New Mexico?

9 A. Yes, sir.

10 Q. Is what has been marked Exhibit Number 9 a
11 copy of your resume?

12 A. Yes, sir.

13 Q. Attached to that resume, Mr. Wright, is there
14 a list of reports that you have prepared on water-
15 related issues in New Mexico?

16 A. Yes, sir, there is a partial list of the
17 reports that I've done.

18 Q. Are you generally familiar with what
19 Controlled Recovery, Inc., is seeking with this
20 Application?

21 A. Yes, in general.

22 Q. Have you reviewed the hydrological aspects of
23 it?

24 A. Yes, I have.

25 Q. Are you familiar with the subject area?

1 A. Yes, sir.

2 Q. When were you first contacted about this
3 matter, approximately?

4 A. I was contacted by Mr. Marsh in September of
5 1989.

6 Q. And what did he ask you to do?

7 A. He asked me to review the hydrological
8 reports that covered the area and to look at any other
9 information that I could and advise him on whether or
10 not he had a chance of getting a surface disposal
11 permit from the OCD, and --

12 Q. And what did you review?

13 A. Oh, I reviewed all of the reports that's been
14 put out on the area by the State Engineer's Office, the
15 New Mexico School of Mines, the United States
16 Geological Survey.

17 Q. When you reviewed this data, in your opinion
18 did you have sufficient information available to you to
19 make the evaluation that was necessary concerning this
20 proposed facility?

21 A. No, I didn't have enough data.

22 Q. And what did you recommend be done?

23 A. I recommended to Mr. Marsh that we drill some
24 test holes on his property so that we could determine
25 which way the water would move if he stored it in a

1 disposal pit in that area.

2 Q. And were these holes, test holes, actually
3 drilled?

4 A. Yes, sir, we drilled -- Let's see. Nine, I
5 believe. No, seven. We drilled seven on Mr. Marsh's
6 land, and then at a later date we drilled three more on
7 BLM land.

8 Q. With this data, have you been able to
9 complete your hydrological evaluation concerning
10 construction of the surface disposal facility on Mr.
11 Marsh's property?

12 A. Yes, sir.

13 Q. And is that information contained in a report
14 which has been marked as Exhibit Number 10?

15 A. Yes, it is.

16 Q. I would like you now to go to Exhibit Number
17 10, and I would direct your attention to Table 1 which
18 is at page 8 of the report, and I would ask you to
19 review the information on this exhibit for the
20 Examiner.

21 A. Okay, what this is, is a summary of data that
22 I collected, old existing data as well as data that we
23 generated from the test holes we drilled. It's
24 entitled, "Record of Drill Holes in the Vicinity of
25 Section 27, Township 20 South, Range 32 East."

1 It gives the location of the holes or the
2 wells, the owner, the aquifer if one exists, you get
3 the hole depth, the land surface elevation at the site,
4 the water level, the date the water level was measured,
5 the elevation of the water table, the thickness of the
6 alluvium if known, the depth to Red Bed if known, and
7 the Red Bed elevation if we were able to calculate it.

8 It also gives a casing size, the use of the
9 water if it was a well, and then in Remarks it gives
10 information like which test hole it was. If it's a
11 reported water level, it means it's one that Mr. Marsh
12 submitted to me. I didn't actually measure those. If
13 there's no notation there, the water level was actually
14 measured either by myself or it's a water level that
15 was measured by the State Engineer's Office or the U.S.
16 Geological Survey.

17 Q. Does this exhibit also indicate dry holes in
18 the area?

19 A. Yes, sir, it indicates the wells that were
20 dry when we attempted to measure them and also the test
21 holes that were dry when they were drilled.

22 Q. And that's indicated under the column
23 entitled Water Level?

24 A. If the hole was dry, yes, it's indicated
25 under Water Level. And also, under Aquifer it would

1 have the word "none."

2 Q. Okay. What did you do with this information,
3 Mr. Wright?

4 A. This information was used to construct a
5 water-table map.

6 Q. And is that what has been marked Figure 4?

7 A. Yes, sir.

8 Q. And that's contained in the envelope in the
9 back of this report?

10 A. Yes, sir, it is. This is a water-table map
11 of a portion of Township 20 South, Range 32 East, in
12 the vicinity of the proposed site. It's entitled
13 "Altitude and Configuration of Water Table in the
14 Vicinity of Section 27, Township 20 South, Range 32
15 East, New Mexico Prime Meridian, Lea County, New
16 Mexico, 1990."

17 Q. Are these contours on the top of the water?
18 Is that where they would be?

19 A. This would be where the water -- the
20 elevation of the water surface as it stands in a
21 drilled hole.

22 Q. Now, on this exhibit you have drawn a red
23 line. What does that red line indicate?

24 A. The red line indicates the direction that the
25 groundwater will move in the subsurface.

1 Q. And this line starts at the approximate
2 location of the liquids evaporation pit?

3 A. Actually, the way it's drawn on here, it
4 started a little bit back east of the liquid
5 evaporation pit, but it pretty much comes through where
6 the pit would be.

7 Q. Mr. Wright, what happens? The water is put
8 in the pit, and then what would happen to that water?

9 A. Okay, well, some of it will evaporate and
10 some of it will percolate down by the force of gravity
11 until it intercepts the Red Bed formation. And at that
12 point it will move laterally along the subsurface
13 drainage, and in this case will eventually discharge
14 into Laguna Toston.

15 Q. Now, the contours are on the top of the
16 water. How would these contours compare to the slope
17 of the Red Beds in this area?

18 A. Well, in an area where you have thin zones of
19 saturation like we do here, the water-table map and the
20 contours on the top of the Red Beds are almost the
21 same. The gradients might be slightly different, but
22 the configuration will be very similar.

23 Q. And the Red Beds would slope in the same
24 direction as the contours indicated on Table 4?

25 A. That's correct.

1 Q. And what is the general gradient in this area
2 for the slope?

3 A. It's about 15 feet per mile.

4 Q. Anything else you would like to point out
5 with Exhibit Number 4?

6 A. There's only one thing. The circles shown on
7 the map are the control points which were used in the
8 drawing of this water-table map --

9 Q. Mr. Wright, do you --

10 A. -- and the values are given in Table 1.

11 Q. Do you believe that you have sufficient
12 control information to satisfy you that this accurately
13 depicts the direction of the subsurface migration of
14 fluids in the area?

15 A. Yes, sir.

16 Q. If we could, let's now go to Figure Number I
17 in the back of this packet. Could you identify Figure
18 Number I, please?

19 A. Figure Number I is a survey plat which was
20 done by King Surveying, which shows the location of the
21 drill holes, the surface elevation at those drill
22 holes. It also shows the pits which were on the
23 property, and it also shows schematically the wells
24 that were drilled off of the Marsh property. It just
25 gives footage from the corners.

1 So those three wells that are not in Section
2 27 are not scaled. They're not -- Actually, it just
3 gives the footage to where they would be. In other
4 words, they're just schematic locations; they're not
5 really there. It's a scale.

6 Q. And this plat was prepared by a licensed
7 surveyor?

8 A. Yes, sir, this was prepared by a licensed
9 surveyor.

10 Q. And the reason for that was to assure the
11 accuracy of the descriptions?

12 A. Yes, sir. We wanted to be sure that we had
13 the correct surface elevations and the correct
14 locations so that we could do a detailed map.

15 Q. And you used this information to determine
16 the elevation at the test hole; is that correct?

17 A. Yes, sir.

18 Q. And this also shows the exact location of the
19 two pits on the site?

20 A. Yes, sir.

21 Q. Okay.

22 A. And it -- it also shows the -- It doesn't
23 really show the depth of the pit, but you can see what
24 it is because there's an elevation given at the land
25 surface and one at the bottom of the pit. The east

1 pit's 13 foot deep, and the west pit is 11 foot -- No,
2 that isn't it. Nine foot deep.

3 Q. Let's now go to Figure Number II.

4 A. Figure Number II is a map entitled, "Proposed
5 Disposal Site Location, Areas Permitted for Surface
6 Disposal of Brine, Location of Water Wells and
7 Topography in the Vicinity of Section 27, Township 20
8 South, Range 32 East, Lea County, New Mexico - 1990."

9 Q. Was this map prepared by you?

10 A. Yes, sir, it was. The solid circle with a
11 slash through it is an unequipped well. The solid
12 circle is an equipped well. The gravel pits are shown
13 with hachures on the inside of them. This also shows
14 the -- The proposed site is outlined, and the areas
15 that have been exempt from Order R-3221 are shown by
16 hachures.

17 Q. So the acreage west of the hachured lines is
18 the exempted area?

19 A. On the west side of the property, yes.

20 Q. Okay.

21 A. There's also exempted property -- exempted
22 areas to the east, about two -- about two miles east of
23 the Ken Marsh property, there's some tracks that are
24 exempted from Order R- -- There's no pit order.

25 Q. How close to the R-3221 area is the

1 evaporation pit, in your judgment?

2 A. Oh, it's about 100 feet, maybe 150 feet, from
3 the line.

4 Q. Now, if we go to the proposed disposal site,
5 there are some arrows that you have drawn on this
6 exhibit. Could you explain what those show?

7 A. These show the -- the direction that water
8 would move on the surface. It's really the surface
9 drainage.

10 Q. And again, that is toward the Laguna Toston?

11 A. That would be towards Laguna Toston.

12 Q. Is there anything else you would like to say
13 in regard to Figure Number II?

14 A. I don't believe so.

15 Q. All right. Let's go to Figure Number III.

16 (Off the record)

17 MR. STOVALL: Go ahead, Mr. Carr.

18 Q. (By Mr. Carr) Mr. Wright, would you identify
19 what has been marked as Figure Number III in Exhibit
20 10?

21 A. Okay, Figure Number III is a map showing the
22 surface geology and the structure on the Red Bed
23 surface. It's a map that was taken from a report
24 prepared by Nicholson and Clebsch. It's New Mexico
25 Bureau of Mines, Ground Water Report Number 6. This is

1 the same map except that I have added the figure number
2 down at the bottom and I've shown the approximate site
3 location near halfway.

4 Q. And that's on the extreme left-hand side of
5 the exhibit?

6 A. Yes, sir. That's in 20 South, Range 32 East.

7 Q. Basically what does this show?

8 A. Basically it shows what the surface geology
9 is, which is alluvial material in our area. It shows
10 the Red Bed contours around the Playa Lakes in the
11 western part of Lea County, west central part of Lea
12 County.

13 You'll notice on this map that the contours
14 have a tendency to circle the laguna. And probably if
15 he had had sufficient data, he would have went ahead
16 and closed these contours around these lakes, these
17 water tables.

18 Q. Have other commentators and hydrologists
19 studying this area commented on whether or not the
20 contours in the Red Bed close around the Playa Lakes?

21 A. Yes, that's the opinion of most of the
22 hydrologists. Ed Reed said they closed in his report
23 that he did for Wallen.

24 Q. Is that cited in your report?

25 A. That's cited as one of my references.

1 Q. In your opinion, with sufficient data is it
2 probable that the contours close around the area of the
3 Playa Lakes?

4 A. I'm sure they will.

5 Q. Now, if we look at the map, on the map we see
6 the Laguna Toston. How large is Laguna Toston?

7 A. It's approximately 160 acres surface area.

8 Q. And what is the current use being made of
9 this lake?

10 A. At the present time it's being used by one of
11 the potash mines to dispose of brine.

12 Q. If we look generally at the geology of the
13 area, particularly surrounding Section 27, how thick is
14 the alluvium in the immediate area?

15 A. Based on the holes that we drilled and the
16 seismograph hole that we had, it was from -- It ran
17 from zero to 45 feet thick.

18 Q. And how thick were the Red Beds in this
19 particular area?

20 A. The Red Beds underneath the site are about
21 800 foot thick.

22 Q. What would be the thickness of the saturated
23 sediments on Mr. Marsh's property, based on your work?

24 A. Okay, the saturation runs from zero to eight
25 feet.

1 A. And what direction would the ground water in
2 this area migrate?

3 A. It will migrate towards Laguna Toston.

4 Q. In your opinion, is the permeability of the
5 water-bearing formation in this area low or high, or
6 how would you characterize it?

7 A. Well, the permeability is real low in this
8 area, primarily because it's -- the alluvial material
9 is reworked Triassic material, and several of the holes
10 that we drilled didn't have any water in them when we
11 completed them. We had to wait a couple of weeks for
12 them to reach equilibrium in the holes, which would
13 indicate that the formation was tight.

14 I also had Mr. Marsh run a bailing test on
15 the hole, and it's recited in the report. I forget now
16 what it was. Something like a tenth of a gallon a
17 minute was all it made.

18 Q. And these are low volumes for producing water
19 wells in the area?

20 A. Yes. You can't economically pump water if
21 you don't have any more than that.

22 Q. Is there ranching activity in the area?

23 A. Yes, sir, there's several ranches.

24 Q. And what is the source of the water for these
25 ranches?

1 A. Most of them get their water from a
2 transmission line that goes from the Buckeye area over
3 to the potash mines. Most of them, when they come
4 across their property, got an easement. When the
5 potash companies got an easement, they got an
6 authorization to tap the line. So that's where most of
7 them are getting their water.

8 Q. What is the quality of the water in the area?
9 Is it potable water?

10 A. Mr. Marsh collected samples from all of the
11 wells and had these run by the City of Hobbs'
12 bacteriologist, and she said that none of them are fit
13 for human or animal consumption.

14 Q. And that was because of the high bacterial
15 content?

16 A. That was because of the high bacteria
17 content.

18 Q. What do the chlorides look in these wells?
19 What kinds of concentrations do we have?

20 A. Oh, they vary from -- I forget exactly what
21 they are. They're in the report, but -- I think they
22 go like from about 150 up to 15,000 or something like
23 that.

24 Q. Would that --

25 A. I'd have to look it up to be sure.

1 Q. Are all of the analyses in your report?

2 A. The analyses are in the Appendix B, I believe
3 it is.

4 Q. And are all ---

5 A. Appendix B.

6 Q. And that also contains a bacterial report
7 obtained from the City of Hobbs?

8 A. Yes, that's -- They're in there.

9 Q. Now, Mr. Wright, regardless of the quality of
10 the chloride content of the water, in your opinion is
11 the water supply of insufficient volume to provide a
12 reliable water supply for beneficial use, either for
13 domestic or stock purposes?

14 A. Yes, there's not enough water out there to
15 make it economically feasible to beneficially use the
16 water.

17 Q. Now, you have been on the site, have you not?

18 A. Yes, sir, I've been on there several times.

19 Q. Been to Laguna Toston?

20 A. Yes, sir.

21 Q. Could you describe the quality of the water
22 in the Laguna Toston generally?

23 A. Well, it's obviously high in salt content,
24 because you have salt precipitation around the edges of
25 the lake.

1 Q. In your opinion, is there any recreational,
2 industrial or other beneficial use that could be made
3 of this water?

4 A. None that I can think of.

5 Q. Do you think it would be fit for agricultural
6 purposes, watering livestock, things of that nature?

7 A. No, sir, it wouldn't be usable in that
8 respect.

9 Q. Is there any stream system in southern Lea
10 County?

11 A. Not in this area.

12 Q. Now, in your opinion, does the water that
13 goes into the Laguna Toston ever migrate out of that
14 lake?

15 A. No, it will move into the -- to the Laguna
16 Toston, and then it will evaporate.

17 Q. What conclusions generally have you reached
18 about this area, based on your study?

19 A. Well, I don't -- I don't see any possibility
20 of the water going anywhere but into the Laguna Toston.
21 The slope is towards the Laguna, and there's just no
22 other place really that it can go.

23 Q. Do you believe that the surface disposal of
24 produced liquids as proposed by Controlled Recovery, do
25 you believe this disposal will contaminate ground water

1 supplies in the area?

2 A. I don't think so.

3 Q. Do you believe that the proposed site is a
4 satisfactory disposal site for oilfield liquids and
5 solids?

6 A. I think it's just about as good a place as
7 you could find in Lea County.

8 Q. Do you believe that because of the low
9 volumes of water in the area that it is not practicable
10 to apply this to any beneficial use?

11 A. Yes, that's my opinion.

12 Q. In your opinion, based on the study that
13 you've made of the area, the data that you have
14 reviewed and the information you've been able to
15 accumulate, either by going to government offices or
16 actual drilling test holes and reviewing samples of the
17 water, in your opinion is any additional data necessary
18 to support the conclusions that you've reached?

19 A. No, I think that we've obtained sufficient
20 data to draw the conclusions which we've drawn. If I
21 didn't think so, we would still be out there.

22 Q. Were Exhibits 9 and 10 prepared by you?

23 A. Yes, sir.

24 MR. CARR: At this time I would move the
25 admission of Controlled Recovery Exhibits 9 and 10.

1 EXAMINER CATANACH: Exhibits 9 and 10 will be
2 admitted as evidence.

3 MR. CARR: That concludes my direct
4 examination of Mr. Wright.

5 EXAMINATION

6 BY MR. STOVALL:

7 Q. I just have one short series of questions
8 here. If I look back at your Figure IV, I believe you
9 testified that is the top of the water table, and then
10 that's a sea-level elevation, correct?

11 A. That's right, that's the altitude -- That's
12 sea-level elevation.

13 Q. And then so it's sloping downward to the
14 northwest if I read this map correctly; is that
15 correct?

16 A. That's correct.

17 Q. And you testified that the -- it is your
18 opinion that the Red Beds, the contour of the Red Beds
19 which are shown on -- well, you showed them on that big
20 map, Figure III, I believe it was.

21 A. Figure III, right.

22 Q. And it was your opinion that while that map
23 didn't have sufficient data, you believe that those Red
24 Beds closed around the Playas?

25 A. They closed around the Playas, that's --

1 Q. Now, if I understand what you mean by
2 closure, if I'm correct, in effect they form a basin
3 around those Playas right there?

4 A. That's right.

5 Q. The higher the Playas, the low point in the
6 Red Bed; is that correct?

7 A. In other words, water will discharge from all
8 directions into the Playa Lakes.

9 Q. Okay. It could be could a question, because
10 I look at Figure IV, and that appears not to be
11 consistent with that conclusion. It appears to me that
12 with the contours you've drawn on Exhibit 4 -- or
13 Figure IV -- they continue to descend to the northeast
14 and there is no closure.

15 Would not the closure of the Red Bed in fact
16 close the water table as well?

17 A. Probably, if I contoured a big area instead
18 of just this little area, you would see closures on the
19 water table also.

20 Q. So you would expect, then, if you went
21 further, to go -- start seeing an increase in elevation
22 in the water table is what you're saying?

23 A. Yes, you're going to see closures on the
24 water tables just like you do the Red Bed, when you get
25 into the big area, when you get into area like is shown

1 on Figure III.

2 Q. So when you're talking about the closure
3 around the Playas, it's not within that, say, 160
4 acres, for example, that --

5 A. No, I didn't mean to imply that. The
6 closures are around the complex of the four Playa
7 Lakes, as far as the Red Beds are concerned.

8 (Off the record)

9 MR. STOVALL: I have no further questions.

10 EXAMINER CATANACH: I have no questions of
11 the witness.

12 MR. CARR: Then I'd like to recall Mr. Marsh
13 for just a couple of follow-up questions --

14 EXAMINER CATANACH: Okay.

15 MR. CARR: -- if I might.

16 KENNETH R. MARSH,

17 the witness herein, having been previously duly sworn
18 upon his oath, was examined and testified as follows:

19 EXAMINATION

20 BY MR. CARR:

21 Q. Mr. Marsh, you were present a few minutes ago
22 when the questions were raised concerning what would
23 happen if hazardous-waste materials got into the
24 facility?

25 A. That's correct.

1 Q. Could you explain to the Examiner what
2 efforts you have undertaken at this time to assure that
3 hazardous material does not get into the facility and,
4 if it should, what actions will be taken to deal with
5 that situation?

6 A. Well, number one, we have on our payroll a
7 man who is considered an expert in hazardous-waste
8 transportation and management. He is the HAZMAT
9 coordinator for the State of Utah, has been. He is
10 well known in transportation and hazardous-waste
11 circles. He is on our payroll to administer the
12 overseeing of this.

13 Myself and Mr. Cope, who is an associate,
14 just completed a hazardous waste incident analysis
15 course at the State Fire Academy to learn how to deal
16 with hazardous wastes and recognize them.

17 We will take samples of each load. Anything
18 that's unloaded at the facility, we'll have a sample of
19 it taken and retained.

20 The oil companies that we intend to work for,
21 nearly all of them require an inspection by their
22 environmental people to come to the facility and
23 evaluate it before they will use that facility, so we
24 anticipate -- We don't anticipate; we know we will meet
25 their criteria for all these things and their testing

1 procedures or else they won't use our facility.

2 Q. What is the name of the man that's on your
3 payroll?

4 A. His name is Bill Shearer, S-h-e-a-r-e-r.

5 Q. Do you have anything to add as it relates to
6 disposal of hazardous-waste material?

7 A. We don't anticipate taking any hazardous
8 waste. The only way we would get any would be an
9 accident. If we should -- We had a discussion earlier
10 today with some of the staff, and we indicated to them
11 that if we should get ourself in the position that some
12 of the treated material would turn into something that
13 could be construed hazardous waste, we will treat that
14 accordingly, with the rules and the regs.

15 We also indicated to the staff that because
16 of some of the changes in the Federal Register, that we
17 would -- that we would be asking for their help and
18 guidelines on how to meet these contingencies.

19 Q. Any other rule changes that may come along
20 like -- or imposing new requirements for handling, say,
21 tank bottoms?

22 A. If any new proposals come out or are
23 suggested by the OCD as methods to handle the tank
24 bottoms, we will conform with them. It's our intention
25 to have this environmentally safe as well as an

1 economically feasible facility.

2 Q. Do you have anything further to add to your
3 testimony?

4 A. No.

5 Q. Are there any questions of Mr. Wright?

6 MR. STOVALL: No, I think you've addressed
7 more fully the questions we had earlier.

8 MR. CARR: That concludes our presentation in
9 this case.

10 MR. STOVALL: Mr. Carr, I'd like to just take
11 a few minutes, Mr. Examiner, to discuss with the
12 technical people if we need anything further or if we
13 need to make provisions for keeping the record open for
14 any additional information.

15 MR. CARR: In that regard, Mr. Marsh, I
16 think, feels like when he walked into me he walked into
17 a tar baby. He cannot get this thing through and over
18 with, and so I do feel duty-bound to tell you that we
19 would be interested in closing the record if, in the
20 judgment of your technical people, that is appropriate.

21 If not, we certainly would like to leave it
22 open for as short a time as possible and for as limited
23 a purpose as possible.

24 MR. STOVALL: Maybe that's the advantage of
25 coming through the hearing process on this, is there's

1 definite closure to the case.

2 MR. CARR: It may be.

3 MR. STOVALL: Let me just check with them a
4 minute and see if we need to do anything.

5 (Off the record)

6 MR. STOVALL: Mr. Carr, Mr. Marsh and Mr.
7 Examiner, you'll be most happy to know that our
8 technical staff is satisfied with the information
9 that's been presented and for the purposes of
10 considering the Application don't see any reason to
11 keep the record open.

12 However, I will make one suggestion, that
13 looking at the water-table map, our hydrologist feels
14 that that could be improved to include more data, to be
15 more complete and accurate as to what really exists out
16 there as to the water table; is that correct? Showing
17 the closure.

18 Get that information in, and they would
19 appreciate it if it would be possible to come up with a
20 water-table map that showed more of the closure to do
21 that, but that is not a requirement, and we're not
22 going to keep the record open to do that.

23 MR. CARR: All right. Well, we will attempt
24 to get together as quickly as we can whatever we can in
25 that regard.

1 MR. STOVALL: And that -- I think our
2 anticipation is if there should be future problems,
3 having that information available would be most
4 helpful.

5 MR. CARR: Yes, sir. With that, we would
6 request the case be taken under advisement.

7 EXAMINER CATANACH: Case 9882 is hereby taken
8 under advisement.

9 This hearing is adjourned.

10 (Thereupon, these proceedings were concluded
11 at 4:31 p.m.)

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I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 9882,
heard by me on April 4 1990.

David M. Catanch, Examiner
Oil Conservation Division

1 CERTIFICATE OF REPORTER

2

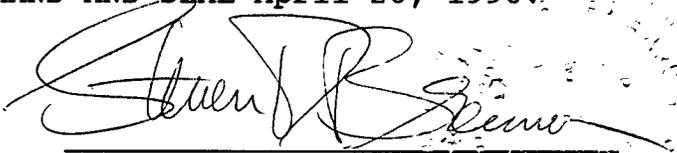
3 STATE OF NEW MEXICO)
) SS.
 4 COUNTY OF SANTA FE)

5

6 I, Steven T. Brenner, Certified Shorthand
 7 Reporter and Notary Public, HEREBY CERTIFY that the
 8 foregoing transcript of proceedings before the Oil
 9 Conservation Division was reported by me; that I
 10 transcribed my notes; and that the foregoing is a true
 11 and accurate record of the proceedings.

12 I FURTHER CERTIFY that I am not a relative or
 13 employee of any of the parties or attorneys involved in
 14 this matter and that I have no personal interest in the
 15 final disposition of this matter.

16 WITNESS MY HAND AND SEAL April 20, 1990.

17 
 18 STEVEN T. BRENNER
 19 CSR No. 106

20 My commission expires: October 14, 1990

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