

APPLICATION FOR AUTHORIZATION TO INJECT

SEP 15 '94

O. C. D.
ARTESIA OFFICE

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: SDX Resources, Inc.
Address: P.O. Box 5061 Midland, Tx. 79704
Contact party: Chuck Morgan Phone: (505) 748-9724
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? ☒ yes ☐ no
If yes, give the Division order number authorizing the project R-2405
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- * VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- * X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- * XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification
- I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- Name: Chuck Morgan Title: Engr.
Signature: Chuck Morgan Date: 8/31/94
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

APPLICATION FOR AUTHORIZATION TO INJECT

SDX RESOURCES, INC.
East Millman Unit #152
Unit A Sec. 22 T19S R28E
660' FNL & 660' FEL Eddy County

- I. SDX plans to convert this well back to injection in the Queen and Grayburg Formations.
- II. Operator: SDX Resources, Inc.
P. O. Box 5061
Midland, TX 79704

Chuck Morgan (505) 748-9724
- III. Injection into the East Millman #152 will be into the Queen and Grayburg formations through existing perforations. (See Well Bore Schematic.) The well was drilled and completed as a producer in 1959. It was converted to injection in 1964 and then back to production in 1981. The next deep oil or gas zone is the San Andres. The next shallow oil and gas zone is the 7-Rivers. For additional well bore data, see the attached Tabulation of wells data.
- IV. This is an expansion of the East Millman Unit waterflood project OCD order No. R-2405. The EMU #152 was originally named the Western Yates St. #152.
- V. See attached maps. Attachment A-1 and A-2.
- VI. Tabulation of wells within the area of review. See Attachment B.
- VII.
 1. Proposed average daily injection volume: 200 BWPD.
Maximum daily injection volume: 1,000 BWPD.
 2. This will be a closed system.

3. Proposed average injection pressure 1000#.
Proposed maximum injection pressure 1300#.
 4. Injected water will be produced water from the Queen and Grayburg formations. At a later date, Double Eagle fresh water may be added as supplemental make up water. Injection Fluid Analysis (Attachment C).
- VIII.
1. The proposed injection interval is the portion of the Queen and Grayburg formations consisting of porous sand and dolomite.
 2. Fresh water zones overlie the proposed injection zone at approximately 150'.
- IX. The proposed injection interval may be acidized with 15% HCL.
- X. Well logs and test data are on file at the OCD.
- XI. What appears to be an abandoned water well is located approximately 425' S.E. of the EMU #152. There are no records on this well. No other fresh water wells are located within a mile of the EMU #152.
- XII. Geological and engineering data have been examined and no evidence of open faults or any other hydrological connection between the injection zones and any underground fresh water aquifers has been found.
- XIII.
- A. There are no offset operators affected.
The surface owners are: Pardue Farms
126 N. Canyon
Carlsbad, NM 88220
(Notification Attached)
 - B. Copy of legal advertisement and affidavit of publication attached.

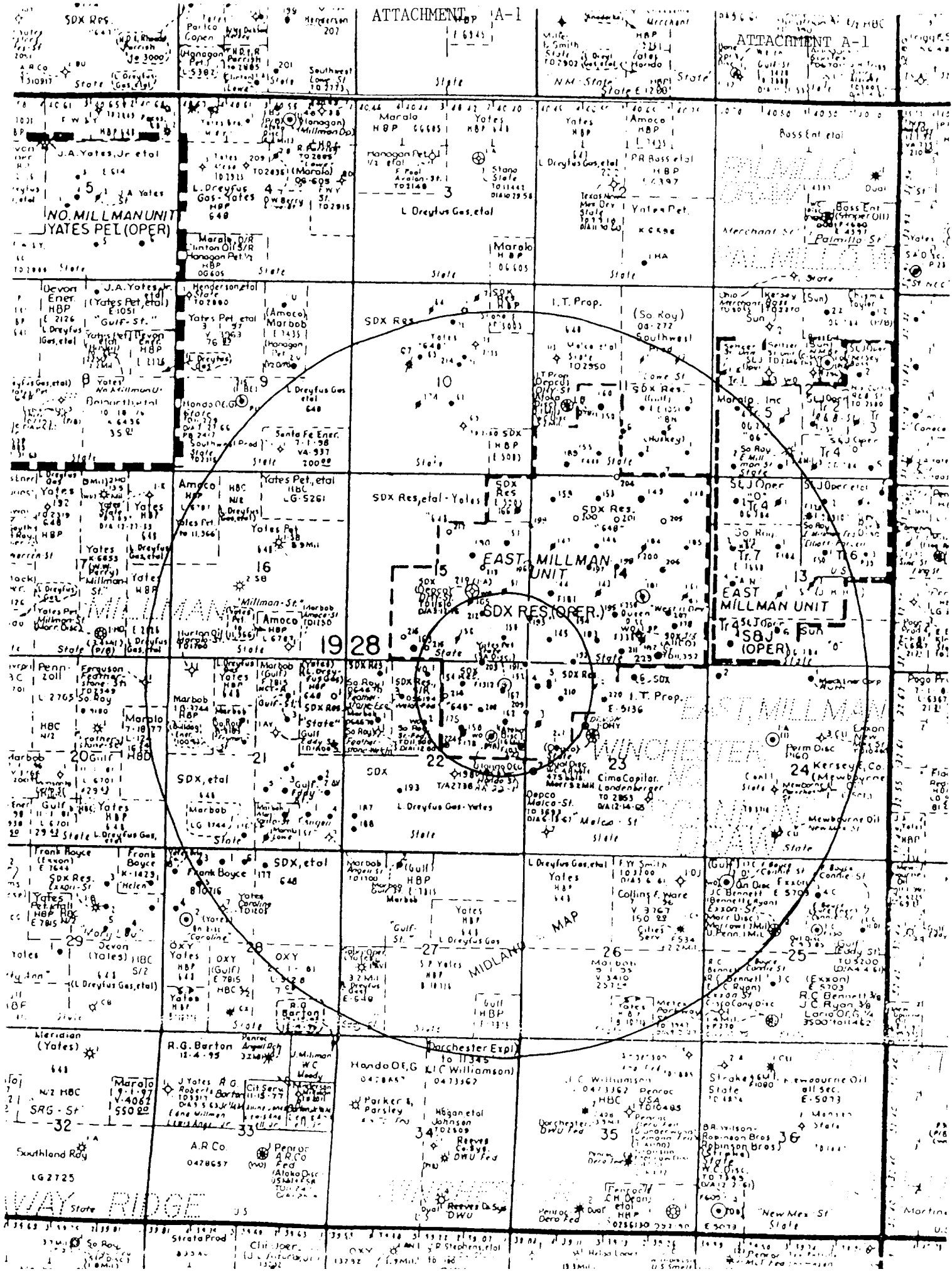
WELL BORE SCHEMATICS

[illegible]

ATTACHMENT A-1 AND A-2
MAPS

ATTACHMENT A-1

ATTACHMENT A-1



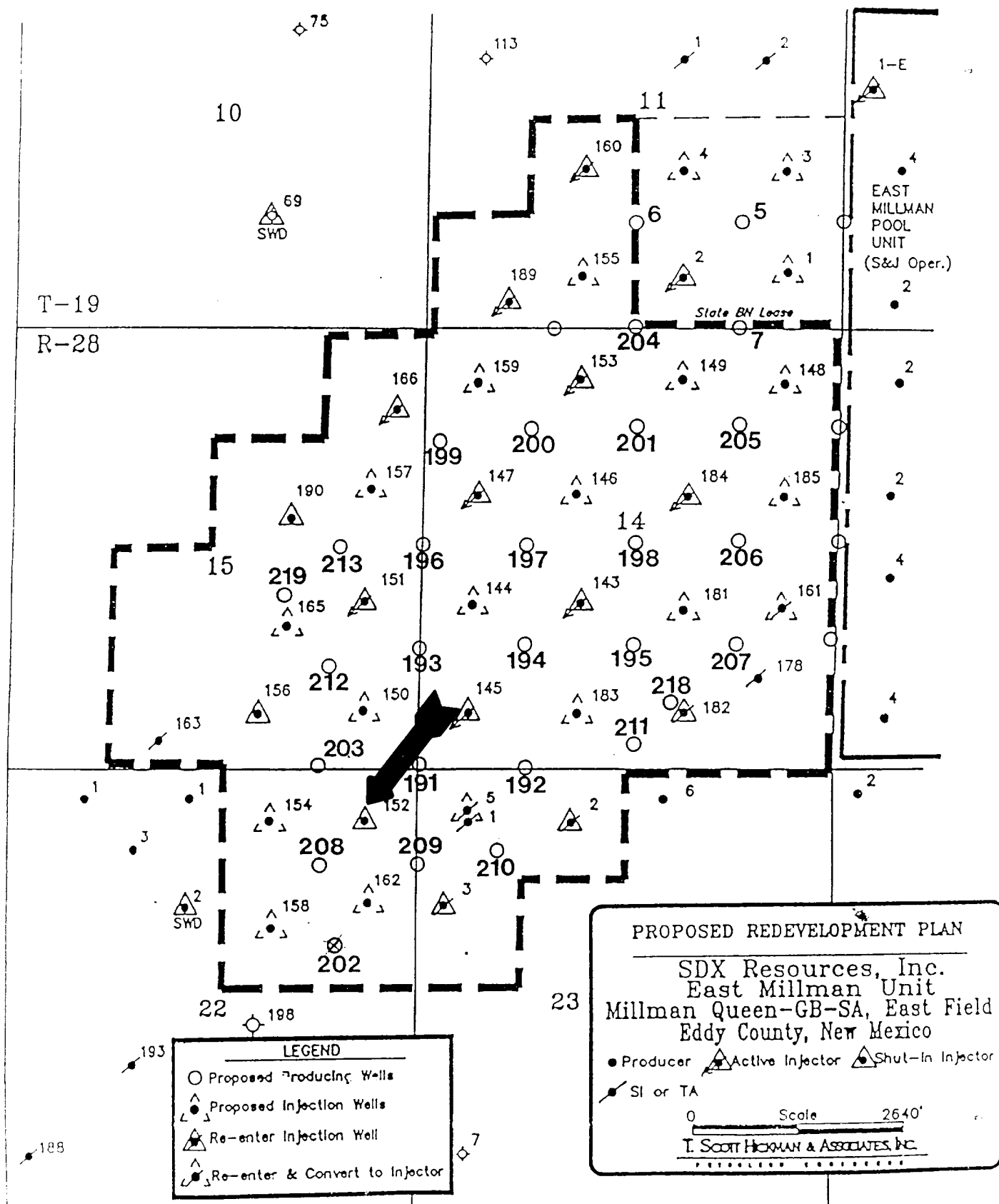


FIGURE 6

ATTACHMENT B

TABULATION OF WELLS WITHIN AREA OF REVIEW

TABULATION OF WELLS IN THE AREA OF REVIEW FOR EMU #152

Well Name	Operator	Type	Unit	Sec. T & R	T.D.	Spud Date	Compl. Date	SURFACE CASING				PRODUCTION CASING				T.O.C.	Method Used for T.O.C.		
								Size		Depth	Cement	Perfs	Completion						
								Hole	CSG					Hole	Size			CSG	
EMU # 152	SDX	oil	A	22 19S 28E	2663	6/6/59	7/26/59	12 1/2	10 3/4	465'	75	6 1/4	4 1/2	2542'	400 sks	2413-30	BP @ 2443 sqz 160 sks acidize & frac	700'	free pt.
EMU # 154	SDX	oil	B	22 19S 28E	2571	9/12/59	10/23/59	12	10 3/4	460'	75 sks	8	4 1/2	2220'	460 sks	1669-2178	acidize & frac	312'	75% calc.
EMU # 203	SDX	oil	B	22 19S 28E	2900	6/15/93	7/15/93	12 1/4	8 5/8	389'	350 sks	7 7/8	5 1/2	2900'	800 sks	1884-2180	acidize & frac	surf	witness
EMU # 191	SDX	oil	A	22 19S 28E	2625	2/8/93	2/23/93	12 1/4	8 5/8	359'	275 sks	7 7/8	5 1/2	2624'	685 sks	2495-1996	acidize & frac	surf	witness
EMU # 156	SDX	Inj																402'	75% calc.
EMU # 165	SDX	oil																1334'	75% calc.
EMU # 151	SDX	Inj																870'	75% calc.
EMU # 150	SDX	oil																814'	75% calr
EMU # 212	SDX	oil																450'	estimate
EMU # 193	SDX	oil																surf	witness
EMU # 145	SDX	Inj																921'	75% calc.
EMU # 192	SDX	oil																surf	witness
EMU # 210	SDX	oil																surf	witness
EMU # 221	SDX	oil																surf	witness
Devon St #1	SDX	oil																surf	witness
Devon St #2	SDX	oil																surf	witness
AR 22 St #1	SDX	oil																surf	witness
EMU # 222	SDX	oil																surf	witness
EMU # 202	SDX	oil																surf	witness
EMU # 162	SDX	oil																65'	75% calc.
EMU # 209	SDX	oil																surf	witness
EMU # 208	SDX	oil																surf	witness
EMU # 158	SDX	oil																surf	witness
EMU # 224	SDX	oil																65'	75% calc.
Welch Fed. #1	SDX	oil	C	22 19S 28E	2233	11/20/58	1/5/59	N.A.	8"	580'	50 sks	8"	5 1/2	2005'	100 sks	2015-2209	acidize & frac.	1467'	75% calc
Welch Fed. #2	SDX	Inj	F	22 19S 28E	2200	5/11/59	7/20/59	N.A.	8"	550'	50 sks	8"	7"	2196'	120 sks	1723-2178	acidize & frac.	743'	75% calc.
Malco # 1	SDX	oil	D	23 19S 28E	2533	3/2/59	4/21/59	12 1/2	10 3/4	284'	75 sks	10"+8'	4 1/2	1938'	250 sks	1763-1808	acidize & frac.	900'	75% calc.
Malco # 2	SDX	P&A	C	23 19S 28E	2566	3/18/59	4/22/59	12 1/2	10 3/4	390'	75 sks	10"+8"	4 1/2	2362'	250 sks	1132-46	BP @1250 sand jet acidize & frac.	1600'	75% calc.
Malco # 3	SDX	P&A	E	23 19S 28E	2620	9/18/60	10/26/60	12	10 3/4	353'	75 sks	6"	4 1/2	2475'	120 sks	1772-2286	acidize & frac.	1200'	free pt.
Malco # 5	SDX	oil	D	23 19S 28E	2295	N.A.	12/4/63	12 1/2	10 3/4	401'	100 sks	8"	4 1/2	2295'	300 sks	1687-2094	acidize & frac.	1049'	75% calc.
								Wells Not Penetrating Zone, but in area of Review											
Malco # 4	SDX				1210														
EMU # 167	SDX				1246														
EMU # 175	SDX				1214														

ATTACHMENT C

INJECTION FLUID ANALYSIS

TRETOLITE[®]

Chemicals and Services

PETROLITE

16010 Barker's Point Lane • Houston, Texas 77079
713 558-5200 • Telex: 4620346 • FAX: 713 589-4737

Reply to: PO Box FF
Artesia, New Mexico 88210
(505) 746-3588 Phone
(505) 746-3580 Fax

ATTACHMENT C

WATER ANALYSIS REPORT

Company : SDX RESOURCES
Address : ARTESIA, NEW MEXICO
Lease : EAST MILLMAN UNIT
Well :
Sample Pt. : H2O UNIT

Date : 10/12/93
Date Sampled : 10/11/93
Analysis No. : 932

ANALYSIS		mg/L	* meq/L
-----		----	-----
1.	pH	7.1	
2.	H2S	200 PPM	
3.	Specific Gravity	1.055	
4.	Total Dissolved Solids	80041.9	
5.	Suspended Solids	NR	
6.	Dissolved Oxygen	NR	
7.	Dissolved CO2	120 PPM	
8.	Oil In Water	NR	
9.	Phenolphthalein Alkalinity (CaCO3)		
10.	Methyl Orange Alkalinity (CaCO3)	720.0	
11.	Bicarbonate	HCO3 878.4	HCO3 14.4
12.	Chloride	Cl 46368.6	Cl 1308.0
13.	Sulfate	SO4 2600.0	SO4 54.1
14.	Calcium	Ca 2060.1	Ca 102.8
15.	Magnesium	Mg 1288.4	Mg 106.0
16.	Sodium (calculated)	Na 26846.4	Na 1167.7
17.	Iron	Fe 0.0	
18.	Barium	Ba NR	
19.	Strontium	Sr NR	
20.	Total Hardness (CaCO3)	10449.4	

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter				Compound Equiv wt X meq/L = mg/L			
+-----+				+-----+			
103	*Ca <-----	*HCO3	14	Ca (HCO3) 2	81.0	14.4	1167
-----	/----->		-----	CaSO4	68.1	54.1	3685
106	*Mg ----->	*SO4	54	CaCl2	55.5	34.3	1901
-----	<-----/		-----	Mg (HCO3) 2	73.2		
1168	*Na ----->	*Cl	1308	MgSO4	60.2		
+-----+				MgCl2	47.6	106.0	5046
Saturation Values Dist. Water 20 C				NaHCO3	84.0		
CaCO3							

REMARKS:

----- S. HOLLINGER / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
ROZANNE JOHNSON

CERTIFIED NOTIFICATION

LEGAL NOTICE

SDX RESOURCES, INC.

P.O. BOX 5061

MIDLAND, TEXAS 79704

915/685-1761

September 9, 1994

CERTIFIED RETURN RECEIPT

Pardue Farms
126 North Canyon
Carlsbad, NM 88220

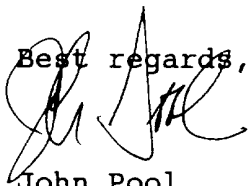
RE: Application for Authority
to Inject
Sec. 22, T19S, R28E
Eddy County, New Mexico

Gentlemen:

Enclosed please find a copy of Form C-108 (Application for Authorization to Inject) for SDX's East Millman Unit #152 located in Unit A, Section 22, Township 19 South, Range 20 East of Eddy County, New Mexico.

Should you have any questions, please contact us at the letterhead address or call (915) 685-1761. Thank you for your consideration in this matter.

Best regards,



John Pool
Vice President

JP:an
Enclosures

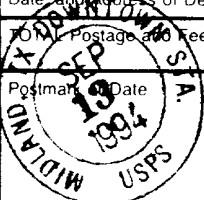
P 555 987 033

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

U.S.G.P.O. 1989-234-555

PS Form 3800, June 1985

Sent to PARDUE FARMS	
Street and No 126 NORTH CANYON	
P.O. State and ZIP Code CARLSBAD, NM 88220	
Postage	\$ 1.00
Certified Fee	1.00
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.00
Return Receipt showing to whom Date and Address of Delivery	
Total Postage and Fees	\$ 3.00
Postmark or Date 	

Legal Notice

SDX Resources, Inc. P. O. Box 5061 Midland, TX 79704 has filed form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for an injection well. The proposed well the "East Millman Unit #152" located 660' FNL & FEL of Sec. 22 T19S R28E in Eddy County, New Mexico will be used to re-inject produced waters from the Queen and Grayburg formations back into the same formations. Injection will be at a depth of 1669' - 2178' with a maximum pressure of 1300 psi and a maximum rate of 1000 BWPD.

All interested parties opposing the aforementioned must file objections or requests for a hearing with the Oil Conservation Division, P. O. Box 2088 Santa Fe, New Mexico 87501, within 15 days.

Submit 3 Copies
to Appropriate
District Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-103
Revised 1-1-89

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

WELL API NO.	30-015-02287
5. Indicate Type of Lease	STATE ☒ FEE ☐
6. State Oil & Gas Lease No.	
7. Lease Name or Unit Agreement Name	MILLMAN UNIT, EAST
8. Well No.	152
9. Pool name or Wildcat	MILLMAN-QUEEN-GRAYBURG-SAN ANDRES

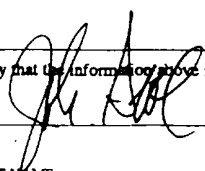
SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)	
1. Type of Well: OIL WELL ☒ GAS WELL ☐ OTHER ☐	
2. Name of Operator SDX RESOURCES, INC.	
3. Address of Operator P.O. BOX 5061 MIDLAND, TX 79704	
4. Well Location Unit Letter A : 660 Feet From The NORTH Line and 660 Feet From The EAST Line Section 22 Township 19S Range 28E NMPM EDDY County	
10. Elevation (Show whether DF, RKB, RT, GR, etc.) 3419' GR	

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data	
NOTICE OF INTENTION TO:	SUBSEQUENT REPORT OF:
PERFORM REMEDIAL WORK ☐	REMEDIAL WORK ☐
TEMPORARILY ABANDON ☐	ALTERING CASING ☐
PULL OR ALTER CASING ☐	COMMENCE DRILLING OPNS. ☐
OTHER: CONVERT TO INJECTOR ☒	PLUG AND ABANDONMENT ☐
	CASING TEST AND CEMENT JOB ☐
	OTHER: ☐

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

PROPOSE TO CONVERT TO WATER INJECTOR THRU EXISTING PERFORATIONS AT 1669'-2178' IN QUEEN AND GRAYBURG FORMATIONS USING 2 3/8" PLASTIC COATED TUBING AT APPROXIMATELY 1650' WITH PLASTIC COATED R-4 PACKER.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE  TITLE VICE-PRESIDENT DATE 8/31/94

TYPE OR PRINT NAME TELEPHONE NO.

(This space for State Use)

APPROVED BY TITLE DATE

CONDITIONS OF APPROVAL, IF ANY: