

SDX RESOURCES, INC.

P.O. BOX 5061  
MIDLAND, TEXAS 79704  
(915) 685-1761

100-5061  
100-5061  
100-5061

September 20, 1994

Oil Conservation Division  
P. O. Box 2088  
Santa Fe, NM 87504-2088

Gentlemen:

Enclosed is Form C-108 Application for Authorization to Inject for our East Millman Unit No. 152.

As soon as we receive the affidavit of publication for the legal notice, we will forward a copy for your files.

Please let me know if any further information is required.  
Thank you for your prompt consideration in this matter.

Sincerely,

*Ana Natividad*

Ana Natividad

Enclosures

## APPLICATION FOR AUTHORIZATION TO INJECT

- 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.

## 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.

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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.

## CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS

Operator: SDX Resources, Inc. Well: 445- Howard UNIT Well No. 152

Contact: Chuck Morgan Title: ENGINEER Phone: 505-748-9724

DATE IN 9-22-94 RELEASE DATE 10-6-94 DATE OUT 11-1-94

Proposed Injection Application is for: ☒ WATERFLOOD ☒ Expansion ☐ Initial

Original Order: R- 2405 ☒ Secondary Recovery ☐ Pressure Maintenance

SENSITIVE AREAS

☐ SALT WATER DISPOSAL

☐ WIPP ☒ Capitan Reef ☐ Commercial Operation

Data is complete for proposed well(s)? ☐ Additional Data \_\_\_\_\_

AREA of REVIEW WELL'S

29 Total # of AOR

2 # of Plugged Wells

445 Tabulation Complete

445 Schematics of P & A's

445 Cement Tops Adequate

N/A AOR Repair Required

INJECTION INFORMATION

Injection Formation(s) BROWN / GRAYBURG 1669 - 2178

Source of Water AREA PRODUCED OILS Compatible 445

PROOF OF NOTICE

445 Copy of Legal Notice

☐ Information Printed Correctly

☒ Correct Operators

☐ Copies of Certified Mail Receipts

☐ Objection Received

☐ Set to Hearing \_\_\_\_\_ Date

NOTES: \_\_\_\_\_

APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL 445

COMMUNICATION WITH CONTACT PERSON:

1st Contact:	<input type="checkbox"/> Telephoned	<input type="checkbox"/> Letter	_____	Date	_____	Nature of Discussion	_____
2nd Contact:	<input type="checkbox"/> Telephoned	<input type="checkbox"/> Letter	_____	Date	_____	Nature of Discussion	_____
3rd Contact:	<input type="checkbox"/> Telephoned	<input type="checkbox"/> Letter	_____	Date	_____	Nature of Discussion	_____

**APPLICATION FOR AUTHORIZATION TO INJECT**

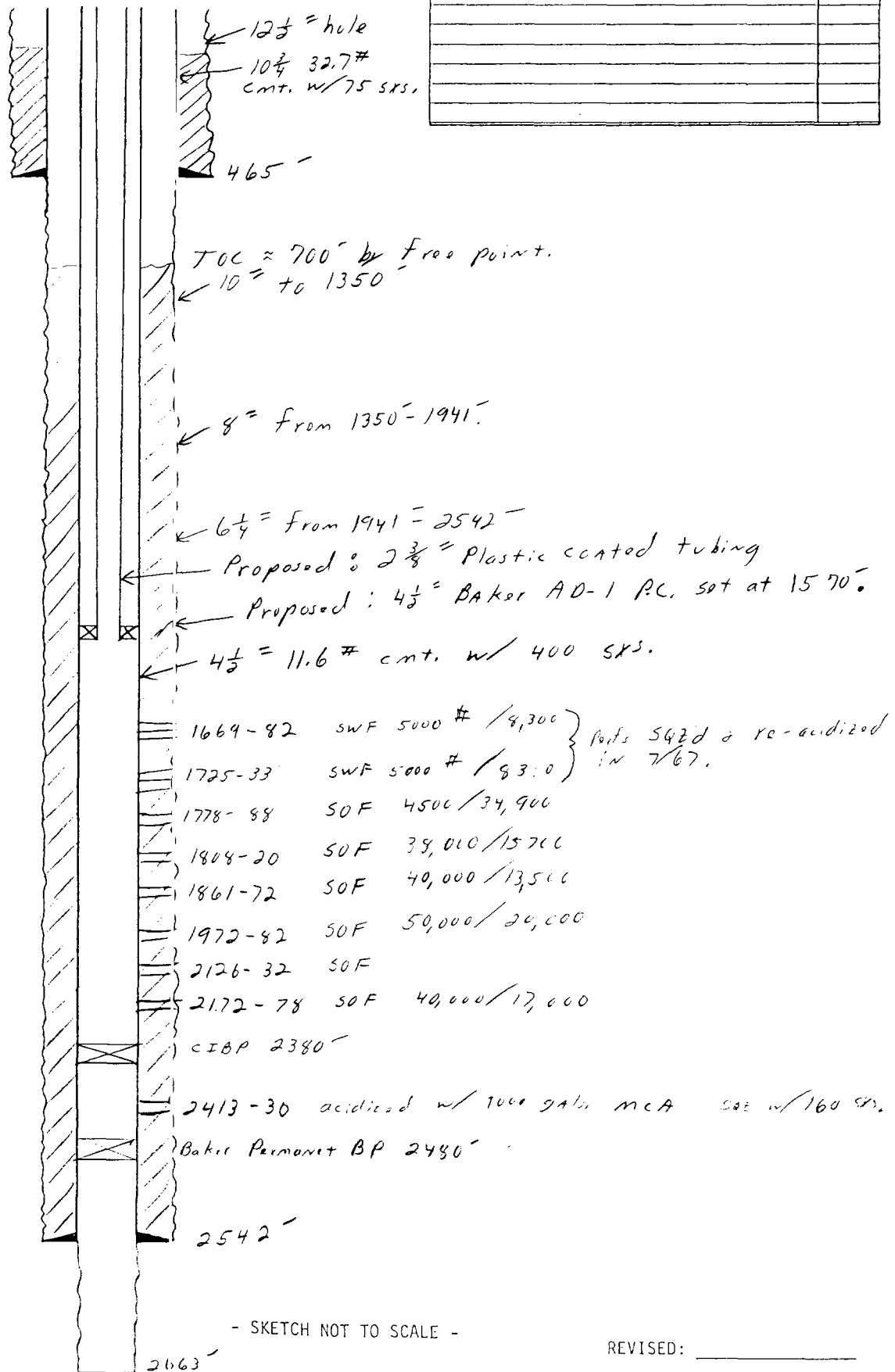
**SDX RESOURCES, INC.  
East Millman Unit #152  
Unit A Sec. 22 T19S R28E  
660' FNL & 660' FEL Eddy County**

- 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 overlies 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

CASING PROGRAM:

[illegible]

- SKETCH NOT TO SCALE -

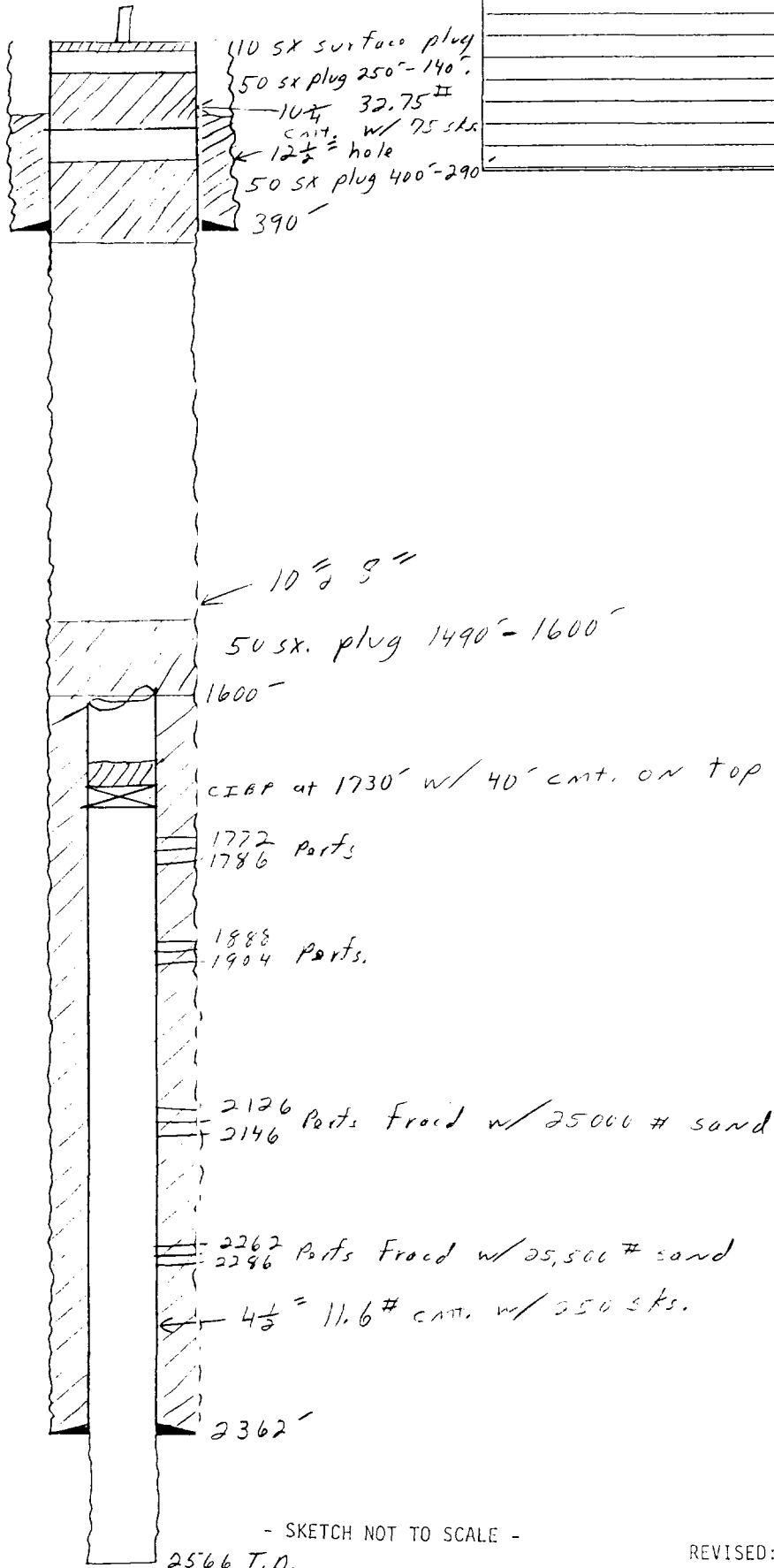
REVISSED:



WELL NAME: Malco Sit. #2 FIELD AREA: East Millman  
 LOCATION: Unit C Sec. 23 T19S R28E 660 FNL & 1980 FNL  
 GL: 3405 ZERO: 3407 ' AGL:        '  
 KB: 2 ' ORIG. DRLG./COMPL. DATE: 4/22/59  
 COMMENTS: P2A 4/23/75  
wa: once an injector

CASING PROGRAM:

SIZE/WT./GR./CONN.	DEPTH SET

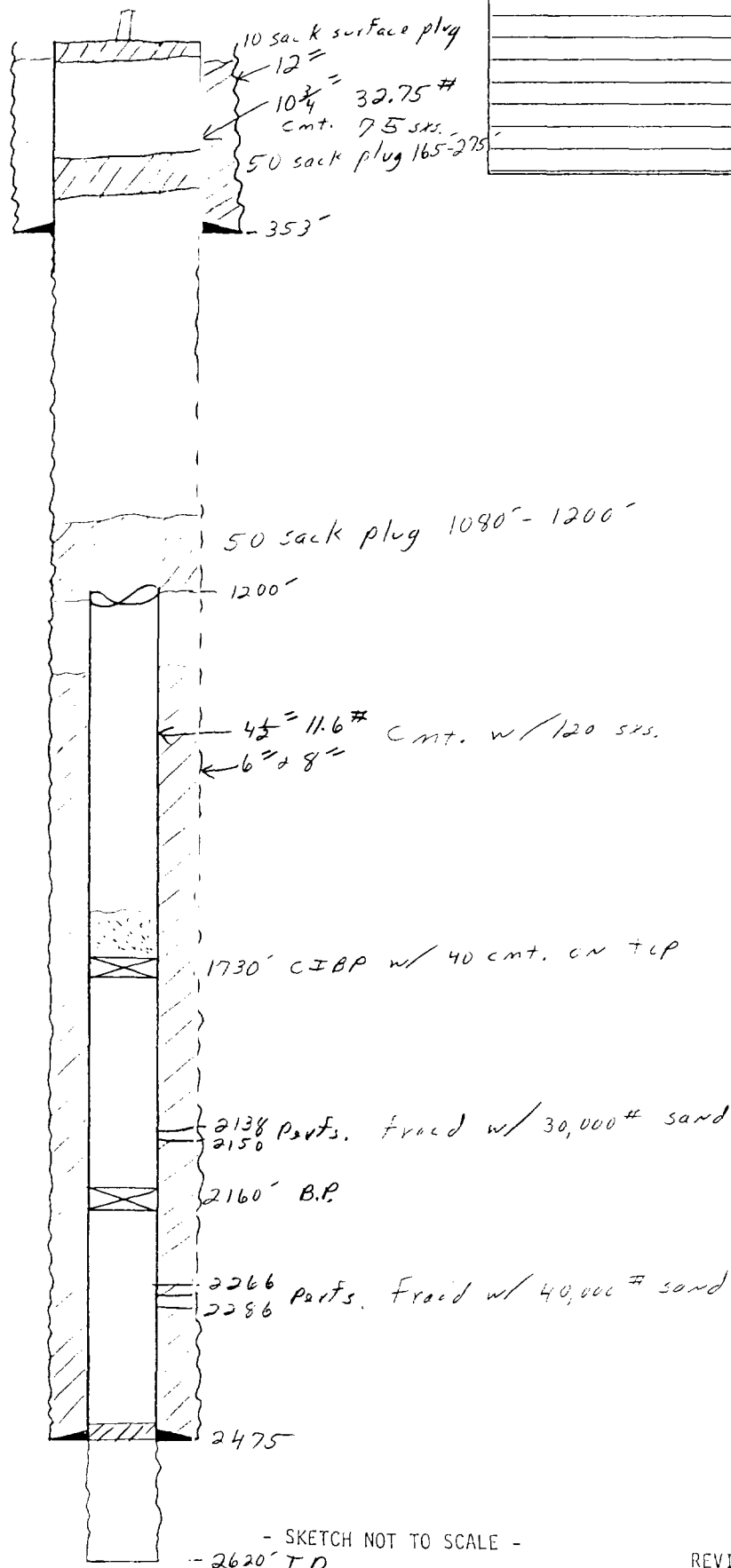


- SKETCH NOT TO SCALE -

2566 T.D.

REVISED: \_\_\_\_\_

CASING PROGRAM:

[illegible]

- SKETCH NOT TO SCALE -  
- 2620' T.D.

REVISÉD:

**ATTACHMENT   A-1   AND   A-2**  
**MAPS**



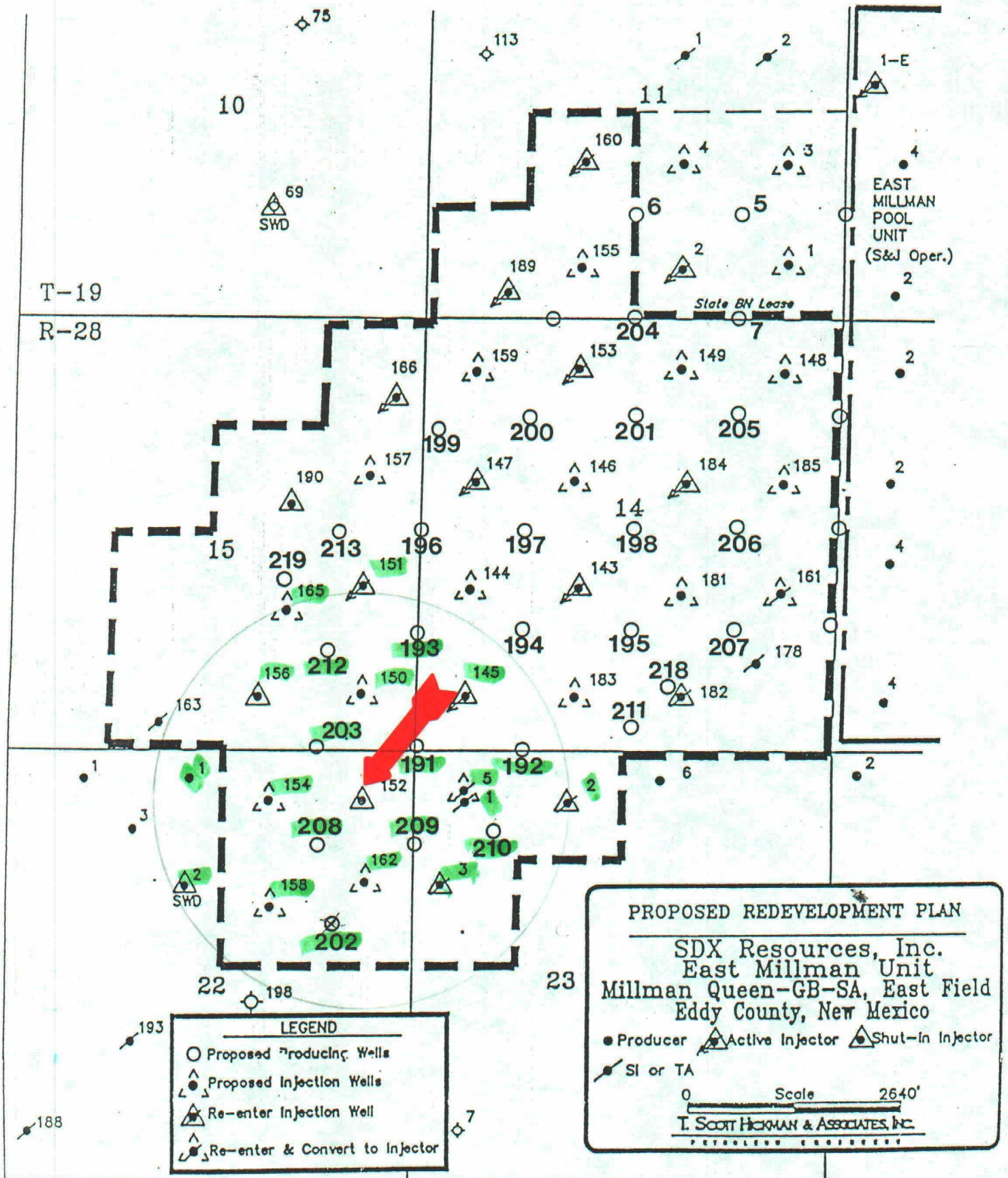


FIGURE 6

**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 ft.	Cement	Perfs	Completion							
								Hole	CSG					Hole	CSG	Depth ft.			Cement	Perfs
EMU # 152	SDX	oil	A	22 19S 28E	2663	06/06/59	07/26/59	12 1/2	10 3/4	465	75 sks		6 1/4	4 1/2	2542	400 sks	2413-30 1669-2178	BP @ 2443 sqz 160 sks acidize & frac	700'	free pt.
EMU # 154	SDX	oil	B	22 19S 28E	2571	09/12/59	10/23/59	12	10 3/4	460	75 sks		8	4 1/2	2220	460 sks	2118-1738	acidize & frac	312'	75% calc.
EMU # 203	SDX	oil	B	22 19S 28E	2900	06/15/93	07/15/93	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	02/08/93	02/23/93	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	O	15 19S 28E	2273	N/A	10/27/59	10 3/4	8 5/8	357	N/A		8	4 1/2	2273	N/A	1820-2006	acidize & frac	402'	75% calc.
EMU # 165	SDX	oil	J	15 19S 28E	1855	11/26/60	03/04/80	12	7	436	150 sks		8	4 1/2	1853	125 sks	1814-1824	acidize & frac	1334'	75% calc.
EMU # 151	SDX	Inj	I	15 19S 28E	2141	05/30/59	06/24/59	12	10 3/4	287	pulled		8	4 1/2	2115	300 sks	1773-2105	acidize & frac	870'	75% calc.
EMU # 150	SDX	oil	P	15 19S 28E	2271	04/27/59	05/25/59	12	10 3/4	281	75		8	4 1/2	2267	350 sks	2030-2048	acidize & frac	814'	75% calc.
EMU # 212	SDX	oil	P	15 19S 28E	2650	07/26/93	09/15/93	12 1/4	8 5/8	373	350 sks		7 7/8	5 1/2	2647	950 sks	1920-2283	acidize & frac	450'	estimate
EMU # 193	SDX	oil	M	14 19S 28E	2650	02/27/93	03/19/93	12 1/4	8 5/8	389	350 sks		7 7/8	5 1/2	2649	835 sks	2062-3441	acidize & frac	surf	witness
EMU # 145	SDX	Inj	M	14 19S 28E	2500	12/20/58	01/24/59	12	10 3/4	300	75 sks		8	4 1/2	2500	325 sks	2032-2080	acidize & frac	921'	75% calc.
EMU # 192	SDX	oil	N	14 19S 28E	2640	02/20/93	04/12/94	12 1/4	8 5/8	350	300 sks		7 7/8	5 1/2	2600	500 sks	2374-2380	acidize & frac	surf	witness
EMU # 210	SDX	oil	O	23 19S 28E	2990	09/29/93	10/16/93	12 1/4	8 5/8	385	350 sks		7 7/8	5 1/2	2985	975 sks	2164-2416	acidize & frac	surf	witness
EMU # 221	SDX	oil	E	23 19S 28E	2660	11/23/93	12/07/93	8 5/8	8 5/8	386	350 sks		7 7/8	5 1/2	2649	800 sks	2190-2470	acidize & frac	surf	witness
Devon St #1	SDX	oil	F	23 19S 28E	2755	12/05/93	12/20/93	12 1/4	8 5/8	350	300 sks		7 7/8	5 1/2	2950	300 sks	2200-2496	acidize & frac	surf	witness
Devon St #2	SDX	oil	L	23 19S 28E	2755	12/05/93	12/20/93	12 1/4	8 5/8	380	300 sks		7 7/8	5 1/2	3200	500 sks	2206-2964	acidize & frac	surf	witness
AR 22 St #1	SDX	oil	I	22 19S 28E	2750	01/06/94	02/04/94	12 1/4	8 5/8	388	350 sks		7 7/8	5 1/2	2746	475 sks	2163-2558	acidize & frac	surf	witness
EMU # 222	SDX	oil	H	22 19S 28E	2725	12/18/93	05/18/94	12 1/4	8 5/8	388	300 sks		7 7/8	5 1/2	2900	500 sks	2173-2542	acidize & frac	surf	witness
EMU # 202	SDX	oil	H	22 19S 28E	11315	09/02/77	12/07/77	17 1/2	13 3/8	403	340 sks		12 1/4	9 5/8	2820	1400 sks	2078-2448	acidize & frac	surf	witness
EMU # 162	SDX	oil	H	22 19S 28E	N/A	07/05/60	08/11/60	10 3/4	32.75	453	0 sks		4 1/2	11.6	2290	0 sks	1740-2208	acidize & frac	65'	75% calc.
EMU # 209	SDX	oil	H	22 19S 28E	2650	07/18/93	08/09/93	12 1/4	8 5/8	378	350 sks		7 7/8	5 1/2	2650	775 sks	2190-2560	acidize & frac	surf	witness
EMU # 208	SDX	oil	H	22 19S 28E	2650	07/05/93	07/27/93	12 1/4	8 5/8	377	350sk		7 7/8	5 1/2	2650	750 sks	1682-2290	acidize & frac	surf	witness
EMU # 158	SDX	oil	G	22 19S 28E	2594	N/A	10/10/93	N/A	8 5/8	380	350sk		NA	4 1/2	2594	1400 sks	2021-2178	acidize & frac	surf	75% calc.
EMU # 224	SDX	oil	G	22 19S 28E	2650	05/15/94	WOC	12 1/4	8 5/8	380	300sk		7 7/8	5 1/2	2900	500 sks	WOC	WOC	surf	witness
Welch Fed. #1	SDX	oil	C	22 19S 28E	2233	11/20/58	01/05/59	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	05/11/59	07/20/59	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	03/02/59	04/21/59	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	03/18/59	04/22/59	12 1/2	10 3/4	390	75 sks		10"+8"	4 1/2	2362	250 sks	1132-46 1772-2286	BP @1250 sand jet acidize & frac.	1600'	free pt.
Malco #3	SDX	P&A	E	23 19S 28E	2620	09/18/60	10/26/60	12	10 3/4	353	75 sks		6"	4 1/2	2475	120 sks	2138-2286	acidize & frac.	1200'	free pt.
Malco #5	SDX	oil	D	23 19S 28E	2295	N/A	12/04/63	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		A	22 19S 28E	1246	12/29/60	01/10/61	8	7	428	100 sks		6 3/8	4 1/2	1246	100 sks	1130-1174	NA		
EMU # 175	SDX		G	22 19S 28E	1214	09/07/61	09/14/61	9 5/8	7	481	75 sks		6 5/8	4 1/2	1214	50 sks	1147-1100	acidize & frac		

**ATTACHMENT C**

**INJECTION FLUID ANALYSIS**



# TRETOLITE<sup>®</sup>

Chemicals and Services

ATTACHMENT C

PETROLITE

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

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

## 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	Ca (HCO3) 2	81.0	14.4	1167
----- /----->	CaSO4	68.1	54.1	3685
106 *Mg -----> *SO4	CaCl2	55.5	34.3	1901
----- <----- /	Mg (HCO3) 2	73.2		
1168 *Na -----> *Cl	MgSO4	60.2		
-----	MgCl2	47.6	106.0	5046
Saturation Values Dist. Water 20 C	NaHCO3	84.0		
CaCO3 13 mg/L	Na2SO4	71.0		
CaSO4 * 2H2O 2090 mg/L	NaCl	58.4	1167.7	68243
BaSO4 2.4 mg/L				

## 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

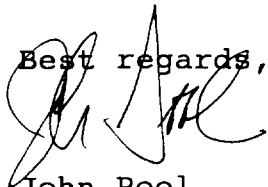
**RE:** Application for Authority  
to Inject  
Sec. 22, T19S, R28E  
Eddy County, New Mexico

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

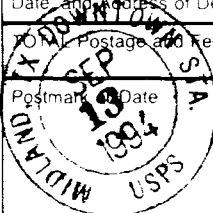
RECEIPT FOR CERTIFIED MAIL

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 and 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 <input checked="" type="checkbox"/> FEE <input type="checkbox"/>	
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	

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b> (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 <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER	
2. Name of Operator SDX RESOURCES, INC.	
3. Address of Operator P.O. BOX 5061 MIDLAND, TX 79704	
4. Well Location Unit Letter <u>A</u> : <u>660</u> Feet From The <u>NORTH</u> Line and <u>660</u> Feet From The <u>EAST</u> Line Section <u>22</u> Township <u>19S</u> Range <u>28E</u> 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 <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>		CASING TEST AND CEMENT JOB <input type="checkbox"/>	
OTHER: CONVERT TO INJECTOR <input checked="" type="checkbox"/>		OTHER: <input type="checkbox"/>	

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 [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:

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION OF NEW MEXICO FOR  
THE PURPOSE OF CONSIDERING:

CASE No. 2656  
Order No. R-2405

APPLICATION OF WESTERN DEVELOPMENT  
COMPANY FOR A SECONDARY RECOVERY  
PROJECT, EAST MILLMAN QUEEN-GRAYBURG  
FIELD, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 10, 1962, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 31st day of December, 1962, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Western Development Company of Delaware, hereinafter referred to as Western Development Company, proposes to institute a secondary recovery project in the East Millman Queen-Grayburg Pool by the injection of water into the Queen and Grayburg formations through 13 injection wells located in Sections 14, 15, 22, and 23, Township 19 South, Range 28 East, NMPM, Eddy County, New Mexico.

(3) That the applicant proposes that said project be classified as a pressure maintenance project and further that the Secretary-Director of the Commission be authorized to re-classify said project as a bona fide waterflood project at such time as the extrapolated production decline curve indicates that the producing capacity of the wells in the project area are in an advanced state of depletion and can properly be classified as "stripper" wells were it not for the water injection occurring during the pressure maintenance phase of the secondary recovery program.

(4) That special rules and regulations for the operation of the Western Development Company East Millman Queen-Grayburg Pressure Maintenance Project should be promulgated and, for operational convenience, such rules should include certain flexibility in authorizing the production of the project allowable from any well or wells in the project in any proportion, provided that no well in the project area which directly or diagonally offsets a well outside the project area producing from the same common source of supply and belonging to any other operator should be allowed to produce in excess of top unit allowable for the East Millman Queen-Grayburg Pool until such time as the well has experienced a substantial response from water injection. When such response has occurred, the well should be permitted to produce up to two times top unit allowable for the East Millman Queen-Grayburg Pool. Production of such well at a higher rate should be authorized only after notice and hearing.

(5) That the productivity of wells in the subject area has declined to the point where reasonable accuracy may be expected in extrapolation of the production decline curve; that said extrapolation indicates that the subject area, without benefit of pressure maintenance, will reach an advanced state of depletion on or about September 1, 1963.

(6) That approval of said project will neither cause waste nor impair correlative rights, but will result in the recovery of oil which otherwise might not be recovered.

(7) That the proposed pressure maintenance project and the proposed procedure for reclassification of said project to a water-flood should be approved.

IT IS THEREFORE ORDERED:

(I) That the applicant, Western Development Company, is hereby authorized to institute a pressure maintenance project in the East Millman Queen-Grayburg Pool, Eddy County, New Mexico, by the injection of water into the Queen and Grayburg formations through the following-described wells:

Western Yates State 648 Well No. 143, Unit K, Section 14;  
Western Yates State 648 Well No. 145, Unit M, Section 14;  
Western Yates State 648 Well No. 147, Unit E, Section 14;  
Western Yates State 648 Well No. 151, Unit I, Section 15;  
Western Yates State 648 Well No. 152, Unit A, Section 22;  
Western Yates State 648 Well No. 153, Unit C, Section 14;  
Western Yates State 648 Well No. 156, Unit O, Section 15;  
Western Yates State 648 Well No. 158, Unit G, Section 22;  
Western Yates State 648 Well No. 182, Unit O, Section 14;  
Western Yates State 648 Well No. 184, Unit G, Section 14;



Western Yates Malco-State Well No. 2, Unit C, Section 23;  
Western Yates Malco-State Well No. 3, Unit E, Section 23;  
Western Yates State E-5003 Well No. 1, Unit A, Section 15;

all in Township 19 South, Range 28 East, NMPM.

(II) That Special Rules and Regulations governing the operation of the Western Development Company East Millman Queen-Grayburg Pressure Maintenance Project, Eddy County, New Mexico, are hereby promulgated as follows, effective January 1, 1963.

SPECIAL RULES AND REGULATIONS  
FOR THE WESTERN DEVELOPMENT COMPANY  
EAST MILLMAN QUEEN-GRAYBURG PRESSURE MAINTENANCE PROJECT

RULE 1. The project area of the Western Development Company East Millman Queen-Grayburg Pressure Maintenance Project, hereinafter referred to as the project, Eddy County, New Mexico, shall comprise that area described as follows:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM

Section 14: SW/4 NE/4, NW/4, SW/4, W/2 SE/4

Section 15: E/2 NE/4, SE/4 SW/4, SE/4

Section 22: NE/4

Section 23: N/2 NW/4, SW/4 NW/4

RULE 2. The allowable for the project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

RULE 3. Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the project, are shut-in or curtailed because of high gas-oil ratio or are shut-in for any of the following reasons: pressure regulation, control of pattern or sweep efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

RULE 4. The allowable assigned to any well which is shut-in or which is curtailed in accordance with the provisions of Rule 3, which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test prescribed by Rule 6, below, or greater than the current top unit allowable for the pool during the month of transfer, whichever is less.

RULE 5. The allowable assigned to any injection well on an 80-acre proration unit shall be top unit allowable for the East Millman Queen-Grayburg Pool.

RULE 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3, shall be determined by a 24-hour test at a stabilized rate of production, which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Commission Rule 502 I (a) and the limiting gas-oil ratio (2,000 to 1) for the East Millman Queen-Grayburg Pool shall be waived during such tests. The project operator shall notify all operators offsetting the well, as well as the Commission, of the exact time such tests are to be conducted. Tests may be witnessed by representatives of the offsetting operators and the Commission, if they so desire.

RULE 7. The allowable assigned to each producing well in the project shall be equal to the well's ability to produce or to top unit allowable for the East Millman Queen-Grayburg Pool, whichever is less, provided that any producing well in the project area which directly or diagonally offsets a well outside the project area producing from the same common source of supply shall not produce in excess of top unit allowable for the pool until such time as the well receives a substantial response to water injection. When such a response has occurred, the well shall be permitted to produce up to two times top unit allowable for the pool. Production of such well at a higher rate shall be authorized only after notice and hearing. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the East Millman Queen-Grayburg Pool, except that any well or wells within the project area producing with a gas-oil ratio in excess of 2,000 cubic feet of gas per barrel of oil may be produced on a "net" gas-oil ratio basis, which net gas-oil ratio shall be determined by applying credit for daily average gas injected, if any, into the East Millman Queen-Grayburg Pool within the project area to such high gas-oil ratio well. The daily adjusted oil allowable for any well receiving gas injection credit shall be determined in accordance with the following formula:

$$A_{adj} = \frac{TUA \times F_a \times 2,000}{\frac{P_g - I_g}{P_o}}$$

where:

$A_{adj}$  = the well's daily adjusted allowable

TUA = top unit allowable for the pool

$F_a$  = the well's acreage factor

$P_g$  = average daily volume of gas produced by the well during the preceding month, cubic feet

$I_g$  = the well's allocated share of the daily average gas injected during the preceding month, cubic feet

$P_o$  = average daily volume of oil produced by the well during the preceding month, barrels

In no event shall the amount of injected gas being credited to a well be such as to cause the net gas-oil ratio,  $\frac{P_g - I_g}{P_o}$ , to be less than 2,000 cubic feet of gas per barrel of oil produced.

**RULE 8.** Credit for daily average net water injected into the East Millman Queen-Grayburg Pool through any injection well located within the project area may be converted to its gas equivalent and applied to any well producing with a gas-oil ratio in excess of two thousand cubic feet of gas per barrel of oil. Total credit for net water injected in the project area shall be the gas equivalent volume of the daily average net water injected during a one-month period. The daily average gas equivalent of net water injected shall be computed in accordance with the following formula:

$$E_g = (V_{w \text{ inj}} - V_{w \text{ prod}}) \times 5.61 \times \frac{P_a}{15.025} \times \frac{520^\circ}{T_r} \times \frac{1}{Z}$$

where:

$E_g$  = Average daily gas equivalent of net water injected, cubic feet

$V_{w \text{ inj}}$  = Average daily volume of water injected, barrels

$V_{w \text{ prod}}$  = Average daily volume of water produced, barrels

5.61 = Cubic foot equivalent of one barrel of water

$P_a$  = Average reservoir pressure at a datum of + 1700 feet above sea level, psig + 12.00, as determined from most recent survey

15.025 = Pressure base, psi

$520^\circ$  = Temperature base of  $60^\circ$  F expressed as absolute temperature

$T_r$  = Reservoir temperature of  $85^\circ$  F expressed as absolute temperature ( $545^\circ$  R)

Z = Compressibility factor from analysis of East Millman Queen-Grayburg gas at average reservoir pressure,  $P_a$ , interpolated from compressibility tabulation below:

Pressure Psig	Z	Pressure Psig	Z	Pressure Psig	Z
0	.998	400	.900	800	.802
50	.986	450	.887	850	.790
100	.973	500	.875	900	.777
150	.961	550	.863	950	.765
200	.949	600	.851	1000	.753
250	.936	650	.838	1050	.741
300	.924	700	.826	1100	.729
350	.912	750	.816		

RULE 9. Each month the project operator shall, within three days after the normal unit allowable for Southeast New Mexico has been established, submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the project as well as the total project allowable. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the project.

RULE 10. The Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for each well in the project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the project and may be produced from the wells in the project in any proportion except that no well in the project which directly or diagonally offsets a well outside the project producing from the same common source of supply shall produce in excess of two times top unit allowable for the pool.

RULE 11. The conversion of producing wells to injection, the drilling of additional wells for injection, and expansion of the project area shall be accomplished only after approval of the same by the Secretary-Director of the Commission. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional injection wells, shall include the following:

(1) A plat showing the location of proposed injection well, all wells within the project area, and offset operators, locating wells which offset the project area.

(2) A schematic drawing of the proposed injection well which fully describes the casing, tubing, perforated interval,

and depth showing that the injection of gas or water will be confined to the Queen and/or Grayburg formations.

(3) A letter stating that all offset operators to the proposed injection well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed injection well if, within 20 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators.


Expansion of the project area may be approved by the Secretary-Director of the Commission administratively when good cause is shown therefor.

(III) That the Secretary-Director of the Commission is hereby authorized to reclassify the Western Development Company East Millman Queen-Grayburg Pressure Maintenance Project as a waterflood project, effective September 1, 1963, upon receipt of written request for such reclassification from Western Development Company. Upon reclassification, the above rules governing the pressure maintenance project shall terminate ipso facto and the waterflood project shall in all ways be governed by Commission Rule 701-E, including the allowable provisions thereof, and including the provisions with respect to expansion of the waterflood project.

(IV) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
-JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

CASE No. 2656  
Order No. R-2405-A

APPLICATION OF WESTERN DEVELOPMENT  
COMPANY FOR A SECONDARY RECOVERY  
PROJECT, EAST MILLMAN QUEEN-GRAYBURG  
FIELD, EDDY COUNTY, NEW MEXICO.

NUNC PRO TUNC ORDER

BY THE COMMISSION:

It appearing to the Commission that due to clerical error and mistake, Order No. R-2405, dated December 31, 1962, does not correctly state the intended order of the Commission,

IT IS THEREFORE ORDERED:

(1) That the phrase "80-acre" is hereby stricken from Rule 5 of the Special Rules and Regulations for the Western Development Company East Millman Queen-Grayburg Pressure Maintenance Project, and the phrase "40-acre" is hereby interlineated in lieu thereof.

(2) That this order shall be effective nunc pro tunc as of December 31, 1962.

DONE at Santa Fe, New Mexico, on this 24th day of January, 1963.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

# Affidavit of Publication

No. 14836

STATE OF NEW MEXICO,

County of Eddy:

Gary D. Scott being duly sworn, says: That he is the Publisher of The Artesia Daily Press, a daily newspaper of general circulation, published in English at Artesia, said county and state, and that the hereto attached Legal Notice

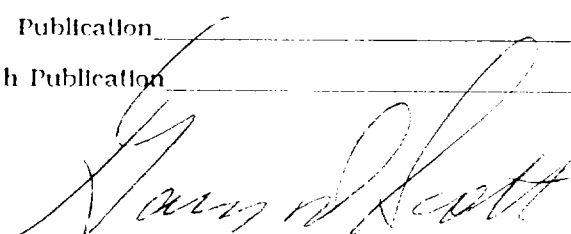
was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for 1 days consecutive weeks on the same day as follows:

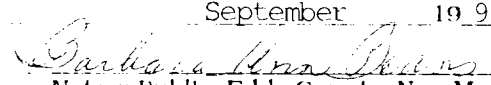
First Publication September 16, 1994

Second Publication \_\_\_\_\_

Third Publication \_\_\_\_\_

Fourth Publication \_\_\_\_\_

  
Subscribed and sworn to before me this 20th day of September 19 94

  
Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1996

# Copy of Publication

jection 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. Published in the Artesia Daily Press, Artesia, N.M. September 16, 1994.

Legal 14836

## 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 in-