UIC-I - __10___

Application for PERMITS, RENEWALS, & MODS

MONUMENT DISPOSAL INC.

DISCHARGE PLAN
FOR CLASS I DISPOSAL
And
APPLICATION FOR
AUTHORIZATION
TO INJECT

Prepared By
Eddie Seay Consulting
October 2006

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MONUMENT DISPOSAL INC.

C-108 APPLICATION
FOR CLASS I DISPOSAL

Prepared By
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October 2006

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance __X__ Disposal _____ Storage
Application qualifies for administrative approval? __X__ Yes _____ No

II. OPERATOR: Monument Disposal Inc.

ADDRESS: 1314 Brittany, Hobbs, NM 88240

CONTACT PARTY: Darrell Bearden PHONE: (505) 390-9576

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? __X__ Yes _____ No
If yes, give the Division order number authorizing the project: SWD-1035 ?

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 geologic data on the injection zone including appropriate lithologic detail, geologic 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 sources 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 sources 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.

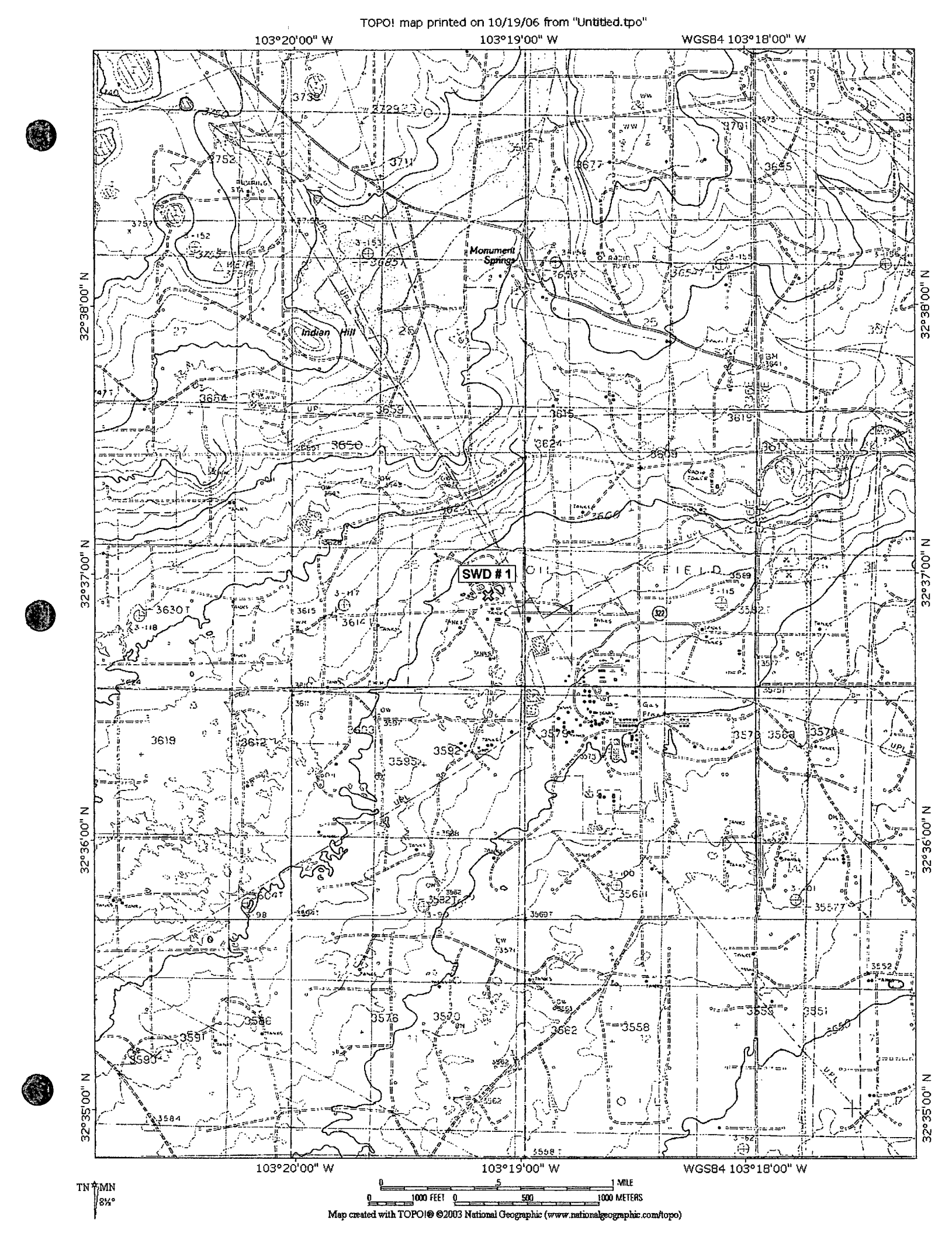
NAME: Eddie W Seay TITLE: Agent

SIGNATURE: Eddie W Seay DATE: 10/30/06

E-MAIL ADDRESS: seay04@leaco.net

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: original C-108, 2005

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

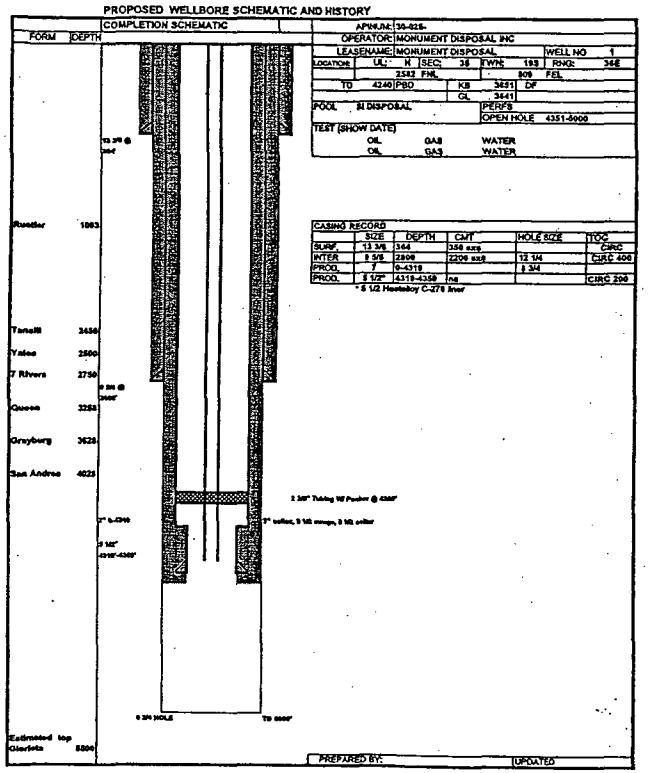

TOPO! map printed on 10/19/06 from "Untitled.tpo"
103°20'00" W
103°19'00" W
WGS84 103°18'00" W
32°38'00" N
32°37'00" N
32°36'00" N
32°35'00" N
Monument Spring
Indian Hill
SWD # 1
FIELD
TN MN
8½°
1 MILE
1000 FEET
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

OPERATOR Monument Disposal Inc LEASE Monument

WELL NO. #1 2582/N 809/E Unit H 35 19 36

FOOTAGE LOCATION SECTION TOWNSHIP RANGE

Schematic



Well Construction Data

Surface Casing

Size 13 3/8 " Cemented with 350 sx.

TOC surface feet determined by circulation

Hole Size 15"

Intermediate Casing

Size 9 5/8 " Cemented with 2200 sx.

TOC surface feet determined by circulated 400 sx

Hole Size 12 1/4

Long String

Size 7 & 4319 " Cemented with 850 sx.

TOC surface feet determined by circulation

Hole Size 8 3/4 5 1/2 liner 4319 - 4359

Total Depth 5000

Injection Interval

4359 feet to 5000 feet

(perforated or open-hole) indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2 3/8 Lining Material: Fiberglass

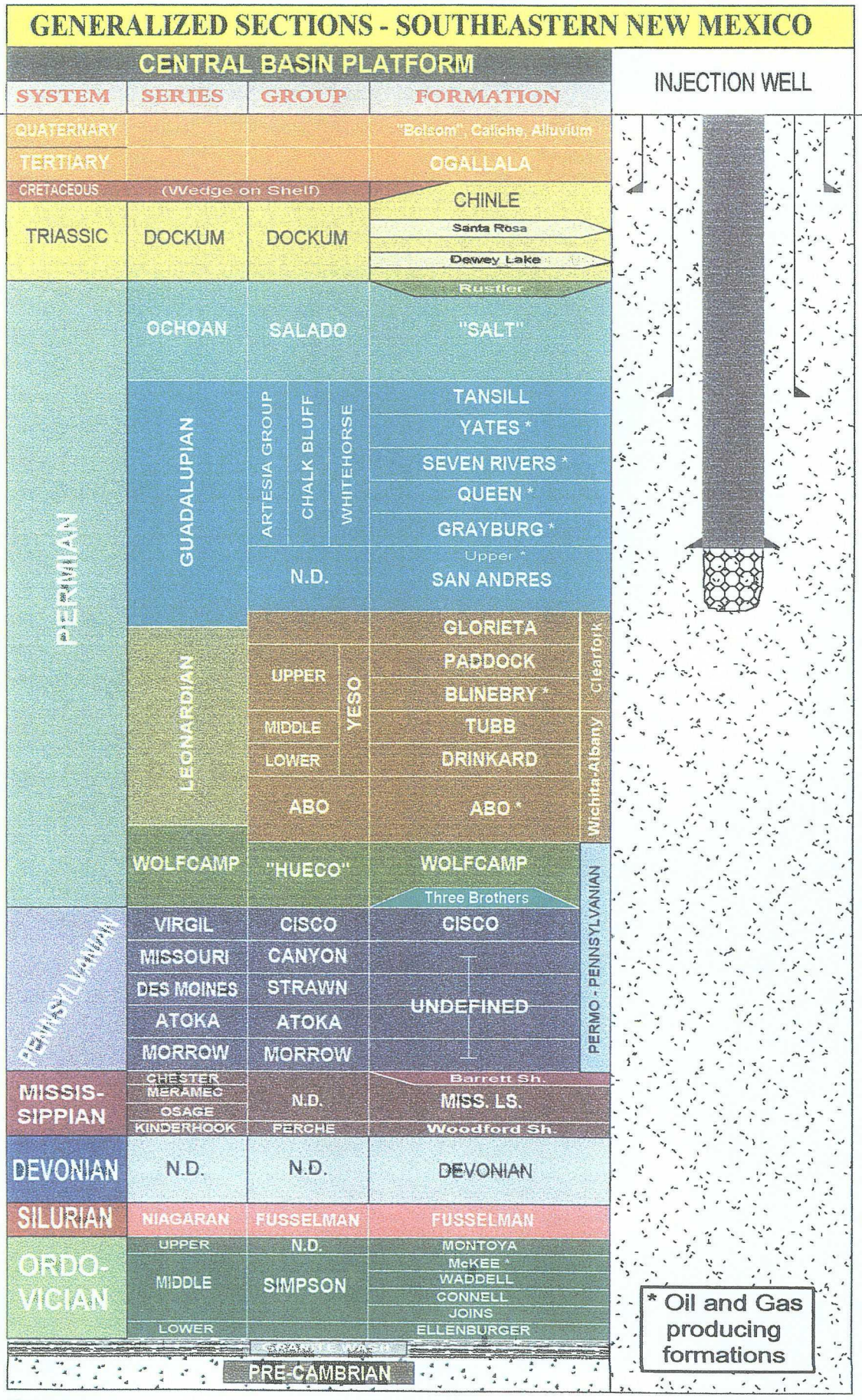
Type of Packer: Lot Model 12

Packer Setting Depth: 4260

Other Type of Tubing/Casing Seal (if applicable): NONE

Additional Data

1. Is this a new well drilled for injection? X Yes ____ No.
   If no, for what purpose was the well originally drilled? Class I injection permitted by EID
2. Name of the Injection Formation: San Andres
3. Name of Field or Pool (if applicable): Monument
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.
   NO
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:
   The Grayburg at 3628' and Glorieta at 5500'


GENERALIZED SECTIONS - SOUTHEASTERN NEW MEXICO
CENTRAL BASIN PLATFORM
INJECTION WELL
SYSTEM
SERIES
GROUP
FORMATION
QUATERNARY
"Bolsom", Caliche, Alluvium
TERTIARY
OGALLALA
CRETACEOUS
(Wedge on Shelf)
CHINLE
TRIASSIC
DOCKUM
DOCKUM
Santa Rosa
Dewey Lake
Rustler
PERMIAN
OCHOAN
SALADO
"SALT"
GUADALUPIAN
ARTESIA GROUP
CHALK BLUFF
WHITEHORSE
TANSILL
YATES *
SEVEN RIVERS *
QUEEN *
GRAYBURG *
N.D.
Upper *
SAN ANDRES
LEONARDIAN
UPPER
MIDDLE
LOWER
YESO
GLORIETA
PADDOCK
BLINEBRY *
TUBB
DRINKARD
ABO
ABO *
Clearfork
Wichita-Albany
WOLFCAMP
"HUECO"
WOLFCAMP
Three Brothers
PERMO - PENNSYLVANIAN
PENNSYLVANIAN
VIRGIL
MISSOURI
DES MOINES
ATOKA
MORROW
CISCO
CANYON
STRAWN
ATOKA
MORROW
UNDEFINED
MISSIS-SIPPIAN
CHESTER
MERAMEC
OSAGE
KINDERHOOK
N.D.
PERCHE
Barrett Sh.
MISS. LS.
Woodford Sh.
DEVONIAN
N.D.
N.D.
DEVONIAN
SILURIAN
NIAGARAN
FUSSELMAN
FUSSELMAN
ORDO-VICIAN
UPPER
MIDDLE
LOWER
N.D.
SIMPSON
MONTOYA
McKEE *
WADDELL
CONNELL
JOINS
ELLENBURGER
PRE-CAMBRIAN
* Oil and Gas producing formations

Attachment to Application C-108
Class I Disposal

Monument # 1
Unit H, Section 35, Twn. 19 S., Rng. 36 E.
Lea Co., New Mexico

III. Well Data

A. 1) See injection well data sheet.
2) See injection well data sheet.
3) 2 3/8" plastic coated tubing.
4) LotModel 12 packer.

B. 1) Injection formation – Lower San Andres.
2) Injection interval – 4351' to 5000'.
3) Well was drilled as a Class I injection well for the NM Environment Dept., and approved for Class II SWD by NM OCD.
4) Next higher producing zone is the Grayburg at 3628'.
Next lower producing zone is the Glorieta at 5500'.

IV. No.

V. Attached.

VI. Attached – list of wells and data.

VII. Proposed Operations.

1) 3000 to 5000 bls. Per day of produced water and non-hazardous material.
2) Open system for commercial use.
3) Average pressure is 800#, or whatever limit OCD allows.
4) Attached.
5) Waters from within the area from San Andres, Glorieta, Tubb, Queen, Blinebry and other formations and non-hazardous material.

VIII. The proposed disposal formation is limestone, dolomite and shale. The primary geologic name is the Lower San Andres, which occurs from 4319' to 5000'. The fresh water formation in the area is the Ogallala and Alluvium which ranges in thickness from 20' to 60'. An analysis from the only producing water wells is attached.

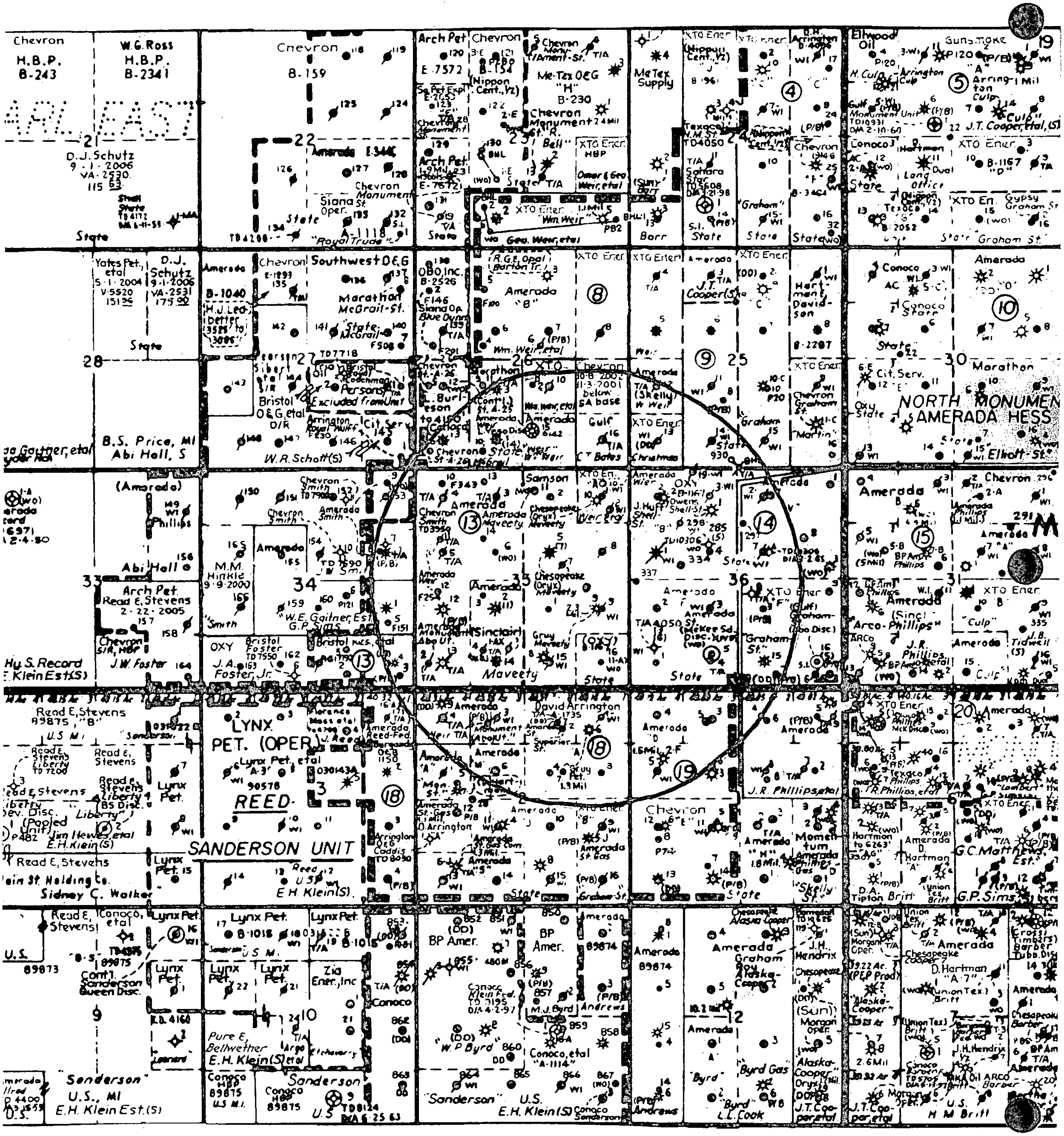
IX. Acid as needed.

X. Previously submitted to the ED and OCD. Available on OCDonline.

XI. Attached.

XII. I, Eddie W. Seay, have examined all available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zones and any underground source of drinking water pertaining to this well.

XIII. Attached.


Chevron
H.B.P.
B-243
W.G. Ross
H.B.P.
B-2341
Chevron
B-159
Arch Pet
Chevron
Me-Tex O&G
"H"
B-230
MeTex Supply
Ellwood Oil
Gunsmoke
D.J. Schutz
9-1-2006
VA-2530
Amerada E-344C
Chevron Monument St.
State
Royal Trude
Geo. Weir, etal
Barr
Graham St.
Yates Pet. etal
5-1-2004
V-5520
Southwest O&G
OBO, Inc.
B-2526
Marathon McGrail-St.
Amerada "B"
Wm. Weir, etal
J.T. Cooper (S)
Conoco
Cit. Serv.
Marathon
NORTH MONUMENT
AMERADA HESS
Bristol O&G etal
B.S. Price, MI
Abi Hall, S
W.R. Schott (S)
Chevron State
Elliott St.
Amerada
Chevron
Samson
OXY
Abi Hall
M.M. Hinkle
9-9-2000
Arch Pet.
Read & Stevens
2-22-2005
W.E. Gaitner, Est.
G.P. Sims
Maveety
Graham St.
J.W. Foster
J.A. Foster, Jr.
Hu. S. Record
E. Klein Est. (S)
Arco-Phillips
J.R. Phillips
Read & Stevens
89875
LYNX
PET. (OPER)
REED
SANDERSON UNIT
Lynx Pet.
E.H. Klein (S)
David Arrington
Amerada
J.R. Phillips, etal
Chevron
G.C. Matthews Est.
Sidney C. Walker
Lynx Pet.
BP Amer.
Amerada
89874
J.H. Hendrix
Chesapeake
Alaska-Cooper
Sanderson
U.S., MI
E.H. Klein Est. (S)
U.S.
"Sanderson"
E.H. Klein (S)
W.P. Byrd
Conoco, etal
Andrews
L.L. Cook
J.T. Cooper, etal
H M Britt

All wells within one mile of proposed disposal well.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-35181	NORTH MONUMENT G/SA UNIT	930	APACHE CORP	4055	O	TA	P	N	25	19	S	36	E	224	S	2443	W	4295
30-025-04057	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	4001	G	TA	P	L	25	19	S	36	E	1980	S	660	W	4792
30-025-04059	NORTH MONUMENT G/SA UNIT	015	APACHE CORP	3998	I	A	S	O	25	19	S	36	E	660	S	1980	E	5233
30-025-04064	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	4010	I	A	P	M	25	19	S	36	E	660	S	660	W	3559
30-025-04053	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3939	I	A	S	N	25	19	S	36	E	660	S	1980	W	4276
30-025-24423	STATE T	008	APACHE CORP	4100	G	A	S	K	25	19	S	36	E	1650	S	2310	W	5257
30-025-33687	MCGRAIL STATE	010	MARATHON OIL CO	8015	O	A	S	N	26	19	S	36	E	400	S	1650	W	4104
30-025-33598	STATE A 26	006	CHEVRON U S A INC	7550	O	A	S	M	26	19	S	36	E	410	S	330	W	5108
30-025-04077	NORTH MONUMENT G/SA UNIT	010	AMERADA HESS CORP	3995	O	P&A	P	J	26	19	S	36	E	1980	S	1980	E	4709
30-025-04078	MCGRAIL STATE	001	MARATHON OIL CO	3990	G	A	S	N	26	19	S	36	E	660	S	1980	W	4088
30-025-04072	STATE A 26	001	LEWIS B BURLESON INC	3985	O	A	S	M	26	19	S	36	E	660	S	660	W	5003
30-025-32579	MCGRAIL STATE	003	MARATHON OIL CO	3850	G	A	S	K	26	19	S	36	E	1880	S	1980	W	5110
30-025-04079	NORTH MONUMENT G/SA UNIT	011	APACHE CORP	4005	O	TA	S	K	26	19	S	36	E	1980	S	1980	W	5197
30-025-04069	W A WEIR GAS COM	007	APACHE CORP	3993	G	A	P	O	26	19	S	36	E	660	S	1980	E	3446
30-025-34005	W A WEIR	015	APACHE CORP	7550	O	A	P	O	26	19	S	36	E	990	S	2310	E	3874
30-025-33820	WEIR B	002	CHEVRON U S A INC	7534	O	A	P	J	26	19	S	36	E	1980	S	2310	E	4802
30-025-04076	C T BATES	001	GULF OIL CORP	3975	O	P&A		P	26	19	S	36	E	660	S	660	E	3245
30-025-04104	NORTH MONUMENT G/SA UNIT	017	APACHE CORP	3800	O	TA	P	H	34	19	S	36	E	1980	N	660	E	5166
30-025-31982	FOSTER	003	DAVID H ARRINGTON OIL & GAS INC	8050	O	A	P	P	34	19	S	36	E	660	S	330	E	5215
30-025-30923	J W SMITH	007	XTO ENERGY, INC	3950	G	A	P	H	34	19	S	36	E	1900	N	660	E	5176
30-025-33190	M E GAITHER	005	APACHE CORP	8100	O	A	P	I	34	19	S	36	E	1650	S	660	E	5236
30-025-36183	SALINE WATER WELL	002	CLIMAX CHEMICAL CO	2449	M	P&A	P	P	34	19	S	36	E	1020	S	330	E	5085
30-025-04101	M E GAITHER	001	APACHE CORP	3950	G	A	P	I	34	19	S	36	E	1980	S	660	E	5180
30-025-12463	NORTH MONUMENT G/SA UNIT	002	APACHE CORP	3982	O	A	P	B	35	19	S	36	E	660	N	1980	E	2250
30-025-04125	SELBY MAVEETY	002	BP AMERICA PRODUCTION COMPANY	3992	G	A	P	K	35	19	S	36	E	1980	S	1980	W	2592
30-025-04126	NORTH MONUMENT G/SA UNIT	015	APACHE CORP	3956	I	A	P	O	35	19	S	36	E	660	S	1980	E	2350
30-025-33567	W A WEIR	011	APACHE CORP	7525	O	TA	P	L	35	19	S	36	E	1680	N	580	W	3994
30-025-26152	MAVEETY STATE GAS COM	008	CIMAREX ENERGY CO OF COLORADO	3800	G	A	S	O	35	19	S	36	E	810	S	2030	E	2248
30-025-33759	W A WEIR	014	APACHE CORP	7505	O	A	P	F	35	19	S	36	E	1650	N	1650	W	2970
30-025-32299	MAVEETY STATE GAS COM	009	CIMAREX ENERGY CO OF COLORADO	3700	G	A	S	I	35	19	S	36	E	1980	S	810	E	718
30-025-04120	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3885	G	TA	P	E	35	19	S	36	E	1980	N	660	W	3858
30-025-12464	W B MAVEETY	005	CHESAPEAKE OPERATING, INC.	3940	G	A	P	G	35	19	S	36	E	1989	N	1991	E	1322
30-025-04119	W A WEIR GAS COM	004	APACHE CORP	3945	G	A	P	F	35	19	S	36	E	1980	N	1980	W	2562
30-025-04122	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3845	O	TA	P	D	35	19	S	36	E	660	N	660	W	4268
30-025-04124	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3940	O	A	P	N	35	19	S	36	E	660	S	1980	W	3218

All wells within one mile of proposed disposal well.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-04127	NORTH MONUMENT G/SA UNIT	016	APACHE CORP	3929	O	A	S	P	35	19	S	36	E	660	S	660	E	2043
30-025-33045	MONUMENT ABO 35	002	APACHE CORP	8092	O	TA	P	M	35	19	S	36	E	660	S	330	W	4615
30-025-32778	W B MAVEETY	010	CHESAPEAKE OPERATING, INC.	3700	G	A	S	A	35	19	S	36	E	750	N	760	E	1832
30-025-33696	W A WEIR	013	APACHE CORP	7660	O	A	P	C	35	19	S	36	E	330	N	1650	W	3609
30-025-12461	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	3945	O	A	P	H	35	19	S	36	E	1980	N	660	E	620
30-025-33670	W A WEIR	012	APACHE CORP	7600	O	A	P	L	35	19	S	36	E	2130	S	560	W	3952
30-025-34056	SELBY MAVEETY	004	APACHE CORP	7550	O	TA	P	N	35	19	S	36	E	975	S	1650	W	3305
30-025-33944	SELBY MAVEETY	003	APACHE CORP	7550	O	A	P	K	35	19	S	36	E	2310	S	1650	W	2847
30-025-04117	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	3836	O	TA	P	M	35	19	S	36	E	660	S	660	W	4321
30-025-04129	SELBY MAVEETY	001Y	AMERADA HESS CORP	3950	O	P&A	P	N	35	19	S	36	E	950	S	2310	W	2779
30-025-04123	W A WEIR NCT A	001	AMERADA HESS CORP	3978	O	P&A	F	A	35	19	S	36	E	660	N	660	E	1927
30-025-33551	W A WEIR	010	APACHE CORP	7550	O	A	P	D	35	19	S	36	E	330	N	660	W	4426
30-025-33877	W B MAVEETY	011	APACHE CORP	7610	O	A	P	B	35	19	S	36	E	520	N	2310	E	2550
30-025-27303	NORTH MONUMENT G/SA UNIT	001	APACHE CORP	3975	I	TA	P	A	35	19	S	36	E	990	N	480	E	1625
30-025-12486	NORTH MONUMENT G/SA UNIT	009	APACHE CORP	3960	I	A	P	I	35	19	S	36	E	1980	S	660	E	733
30-025-12462	NORTH MONUMENT G/SA UNIT	010	APACHE CORP	3938	O	A	P	J	35	19	S	36	E	1988	S	1991	E	1378
30-025-21886	W B MAVEETY	007	ORYX ENERGY CO	4100	I	P&A	P	G	35	19	S	36	E	2310	N	1650	E	883
30-025-04118	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	3945	G	A	P	L	35	19	S	36	E	1980	S	660	W	3878
30-025-04128	SELBY MAVEETY	001	SINCLAIR OIL & GAS CO	2310	O	P&A	P	N	35	19	S	36	E	990	S	2310	W	2754
30-025-04121	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3954	O	TA	P	C	35	19	S	36	E	660	N	1980	W	3146
30-025-05104	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3947	I	A	S	C	36	19	S	36	E	660	N	1980	W	3387
30-025-20517	NORTH MONUMENT G/SA UNIT	286	APACHE CORP	10360	O	TA	S	G	36	19	S	36	E	1980	N	1830	E	4301
30-025-12483	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3935	I	A	S	E	36	19	S	36	E	1980	N	660	W	1587
30-025-12472	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3905	O	A	S	N	36	19	S	36	E	660	S	1980	W	3454
30-025-12477	GRAHAM STATE NCT F	004	XTO ENERGY, INC	3915	G	A	S	O	36	19	S	36	E	660	S	1980	E	4586
30-025-12482	GRAHAM STATE NCT-F	007	TARGA MIDSTREAM SERVICES LTD PTR	7700	S	A	S	O	36	19	S	36	E	330	S	1650	E	5031
30-025-12473	STATE F GAS COM	005	APACHE CORP	10255	G	A	S	N	36	19	S	36	E	785	S	1980	W	3382
30-025-36674	NORTH MONUMENT G/SA UNIT	334	APACHE CORP	3960	O	A	S	E	36	19	S	36	E	2245	N	1250	W	2086
30-025-35177	NORTH MONUMENT G/SA UNIT	297	APACHE CORP	3986	O	A	P	B	36	19	S	36	E	1310	N	2525	E	3784
30-025-13229	LPG STORAGE WELL	002	TARGA MIDSTREAM SERVICES LTD PTR	1799	M	A	P	M	36	19	S	36	E	1020	S	1220	W	2632
30-025-33568	STATE V	007	APACHE CORP	3535	G	A	S	B	36	19	S	36	E	660	N	1880	E	4627
30-025-12468	NORTH MONUMENT G/SA UNIT	007	APACHE CORP	3908	I	A	S	G	36	19	S	36	E	1980	N	1980	E	4152
30-025-12481	NORTH MONUMENT G/SA UNIT	285	APACHE CORP	10100	O	A	S	F	36	19	S	36	E	1830	N	1980	W	2888
30-025-24422	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	4050	I	A	P	M	36	19	S	36	E	990	S	610	W	2220
30-025-24094	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	4030	O	A	S	H	36	19	S	36	E	1650	N	990	E	5183

All wells within one mile of proposed disposal well.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-35197	NORTH MONUMENT G/SA UNIT	298	APACHE CORP	4009	I	A	P	D	36	19	S	36	E	1310	N	1250	W	2420
30-025-31504	MONUMENT G/SA UT. BLK 14 N.	020	AMERADA HESS CORP	Loc	O	Cancl	S	D	36	19	S	36	E	243	N	150	W	2527
30-025-12469	STATE F GAS COM	001	APACHE CORP	3903	G	A	S	M	36	19	S	36	E	660	S	660	W	2512
30-025-12484	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3953	O	A	S	D	36	19	S	36	E	660	N	660	W	2419
30-025-33838	SHELL B STATE	002	JACK HUFF	3800	G	A	S	D	36	19	S	36	E	660	N	810	W	2513
30-025-24166	NORTH MONUMENT G/SA UNIT	010	APACHE CORP	3950	O	TA	S	J	36	19	S	36	E	2310	S	2265	E	3843
30-025-12466	NORTH MONUMENT G/SA UNIT	002B	APACHE CORP	3930	I	A	S	B	36	19	S	36	E	660	N	1980	E	4536
30-025-12471	NORTH MONUMENT G/SA UNIT	011	APACHE CORP	3905	I	A	S	K	36	19	S	36	E	1980	S	1980	W	2879
30-025-12476	GRAHAM STATE NCT F	003	XTO ENERGY, INC	3921	O	A	S	J	36	19	S	36	E	1980	S	1980	E	4171
30-025-31593	SHELL B STATE	001	JACK HUFF	3730	O	A	S	C	36	19	S	36	E	990	N	1980	W	3211
30-025-36913	NORTH MONUMENT G/SA UNIT	337	APACHE CORP	3960	O	A	S	L	36	19	S	36	E	2630	S	150	W	961
30-025-31587	NORTH MONUMENT G/SA UNIT	019	APACHE CORP	5150	I	A	S	C	36	19	S	36	E	81	N	1505	W	3407
30-025-12470	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	3939	O	A	S	L	36	19	S	36	E	1980	S	660	W	1635
30-025-12480	NORTH MONUMENT G/SA UNIT	006	APACHE CORP	3939	O	A	S	F	36	19	S	36	E	1980	N	1980	W	2853
30-025-37985	NORTH MONUMENT G/SA UNIT	343	APACHE CORP	0	O	New	S	L	36	19	S	36	E	1440	S	1275	W	2434
30-025-37984	NORTH MONUMENT G/SA UNIT	342	APACHE CORP	0	O	New	S	I	36	19	S	36	E	2000	S	940	E	5196
30-025-04139	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3954	O	A	S	D	1	20	S	36	E	660	N	660	W	3665
30-025-13228	LPG STORAGE WELL	001	TARGA MIDSTREAM SERVICES LTD PTR	1906	M	A	P	D	1	20	S	36	E	100	N	100	W	2941
30-025-04142	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3900	O	A	S	C	1	20	S	36	E	660	N	1980	W	4365
30-025-04140	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3915	I	A	S	E	1	20	S	36	E	1980	N	660	W	4903
30-025-32361	STATE F GAS COM	002	APACHE CORP	3426	G	A	S	E	1	20	S	36	E	1650	N	825	W	4644
30-025-04143	STATE D	005	APACHE CORP	5220	O	A	S	C	1	20	S	36	E	766	N	1874	W	4381
30-025-04166	NORTH MONUMENT G/SA UNIT	002	APACHE CORP	3940	O	A	S	B	2	20	S	36	E	660	N	1980	E	3556
30-025-34188	APACHE STATE A	007	APACHE CORP	7700	O	TA	S	B	2	20	S	36	E	990	N	1650	E	3782
30-025-04165	NORTH MONUMENT G/SA UNIT	001	APACHE CORP	3945	I	A	S	A	2	20	S	36	E	660	N	660	E	3361
30-025-33006	W A WEIR GAS COM	009	APACHE CORP	3685	G	A	P	D	2	20	S	36	E	330	N	660	W	4867
30-025-04155	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3921	I	A	S	C	2	20	S	36	E	660	N	1980	W	4181
30-025-31611	STATE A	007	CIMAREX ENERGY CO OF COLORADO	3600	G	A	S	G	2	20	S	36	E	1980	N	1650	E	4752
30-025-26886	MONUMENT ABO	001	APACHE CORP	7979	O	TA	S	C	2	20	S	36	E	800	N	1750	W	4431
30-025-04168	NORTH MONUMENT G/SA UNIT	007	APACHE CORP	3912	I	A	S	G	2	20	S	36	E	1980	N	1980	E	4822
30-025-04162	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3930	O	TA	P	D	2	20	S	36	E	660	N	660	W	5079
30-025-04167	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	3837	O	A	S	H	2	20	S	36	E	1980	N	660	E	4680

Shallow wells within one mile of the proposed disposal well, which do not penatrate the disposal interval.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-35181	NORTH MONUMENT G/SA UNIT	930	APACHE CORP	4055	O	TA	P	N	25	19	S	36	E	224	S	2443	W	4295
30-025-04057	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	4001	G	TA	P	L	25	19	S	36	E	1980	S	660	W	4792
30-025-04059	NORTH MONUMENT G/SA UNIT	015	APACHE CORP	3998	I	A	S	O	25	19	S	36	E	660	S	1980	E	5233
30-025-04064	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	4010	I	A	P	M	25	19	S	36	E	660	S	660	W	3559
30-025-04053	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3939	I	A	S	N	25	19	S	36	E	660	S	1980	W	4276
30-025-24423	STATE T	008	APACHE CORP	4100	G	A	S	K	25	19	S	36	E	1650	S	2310	W	5257
30-025-04077	NORTH MONUMENT G/SA UNIT	010	AMERADA HESS CORP	3995	O	P&A	P	J	26	19	S	36	E	1980	S	1980	E	4709
30-025-04078	MCGRAIL STATE	001	MARATHON OIL CO	3990	G	A	S	N	26	19	S	36	E	660	S	1980	W	4088
30-025-04072	STATE A 26	001	LEWIS B BURLESON INC	3985	O	A	S	M	26	19	S	36	E	660	S	660	W	5003
30-025-32579	MCGRAIL STATE	003	MARATHON OIL CO	3850	G	A	S	K	26	19	S	36	E	1880	S	1980	W	5110
30-025-04079	NORTH MONUMENT G/SA UNIT	011	APACHE CORP	4005	O	TA	S	K	26	19	S	36	E	1980	S	1980	W	5197
30-025-04069	W A WEIR GAS COM	007	APACHE CORP	3993	G	A	P	O	26	19	S	36	E	660	S	1980	E	3446
30-025-04076	C T BATES	001	GULF OIL CORP	3975	O	P&A		P	26	19	S	36	E	660	S	660	E	3245
30-025-04104	NORTH MONUMENT G/SA UNIT	017	APACHE CORP	3800	O	TA	P	H	34	19	S	36	E	1980	N	660	E	5166
30-025-30923	J W SMITH	007	XTO ENERGY, INC	3950	G	A	P	H	34	19	S	36	E	1900	N	660	E	5176
30-025-36183	SALINE WATER WELL	002	CLIMAX CHEMICAL CO	2449	M	P&A	P	P	34	19	S	36	E	1020	S	330	E	5085
30-025-04101	M E GAITHER	001	APACHE CORP	3950	G	A	P	I	34	19	S	36	E	1980	S	660	E	5180
30-025-12463	NORTH MONUMENT G/SA UNIT	002	APACHE CORP	3982	O	A	P	B	35	19	S	36	E	660	N	1980	E	2250
30-025-04125	SELBY MAVEETY	002	BP AMERICA PRODUCTION COMPANY	3992	G	A	P	K	35	19	S	36	E	1980	S	1980	W	2592
30-025-04126	NORTH MONUMENT G/SA UNIT	015	APACHE CORP	3956	I	A	P	O	35	19	S	36	E	660	S	1980	E	2350
30-025-26152	MAVEETY STATE GAS COM	008	CIMAREX ENERGY CO OF COLORADO	3800	G	A	S	O	35	19	S	36	E	810	S	2030	E	2248
30-025-32299	MAVEETY STATE GAS COM	009	CIMAREX ENERGY CO OF COLORADO	3700	G	A	S	I	35	19	S	36	E	1980	S	810	E	718
30-025-04120	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3885	G	TA	P	E	35	19	S	36	E	1980	N	660	W	3858
30-025-12464	W B MAVEETY	005	CHESAPEAKE OPERATING, INC.	3940	G	A	P	G	35	19	S	36	E	1989	N	1991	E	1322
30-025-04119	W A WEIR GAS COM	004	APACHE CORP	3945	G	A	P	F	35	19	S	36	E	1980	N	1980	W	2562
30-025-04122	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3845	O	TA	P	D	35	19	S	36	E	660	N	660	W	4268
30-025-04124	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3940	O	A	P	N	35	19	S	36	E	660	S	1980	W	3218
30-025-04127	NORTH MONUMENT G/SA UNIT	016	APACHE CORP	3929	O	A	S	P	35	19	S	36	E	660	S	660	E	2043
30-025-32778	W B MAVEETY	010	CHESAPEAKE OPERATING, INC.	3700	G	A	S	A	35	19	S	36	E	750	N	760	E	1832
30-025-12461	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	3945	O	A	P	H	35	19	S	36	E	1980	N	660	E	620
30-025-04117	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	3836	O	TA	P	M	35	19	S	36	E	660	S	660	W	4321
30-025-04129	SELBY MAVEETY	001Y	AMERADA HESS CORP	3950	O	P&A	P	N	35	19	S	36	E	950	S	2310	W	2779
30-025-04123	W A WEIR NCT A	001	AMERADA HESS CORP	3978	O	P&A	F	A	35	19	S	36	E	660	N	660	E	1927
30-025-27303	NORTH MONUMENT G/SA UNIT	001	APACHE CORP	3975	I	TA	P	A	35	19	S	36	E	990	N	480	E	1625
30-025-12486	NORTH MONUMENT G/SA UNIT	009	APACHE CORP	3960	I	A	P	I	35	19	S	36	E	1980	S	660	E	733

Shallow wells within one mile of the proposed disposal well, which do not penatrate the disposal interval.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-12462	NORTH MONUMENT G/SA UNIT	010	APACHE CORP	3938	O	A	P	J	35	19	S	36	E	1988	S	1991	E	1378
30-025-21886	W B MAVEETY	007	ORYX ENERGY CO	4100	I	P&A	P	G	35	19	S	36	E	2310	N	1650	E	883
30-025-04118	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	3945	G	A	P	L	35	19	S	36	E	1980	S	660	W	3878
30-025-04128	SELBY MAVEETY	001	SINCLAIR OIL & GAS CO	2310	O	P&A	P	N	35	19	S	36	E	990	S	2310	W	2754
30-025-04121	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3954	O	TA	P	C	35	19	S	36	E	660	N	1980	W	3146
30-025-05104	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3947	I	A	S	C	36	19	S	36	E	660	N	1980	W	3387
30-025-12483	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3935	I	A	S	E	36	19	S	36	E	1980	N	660	W	1587
30-025-12472	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3905	O	A	S	N	36	19	S	36	E	660	S	1980	W	3454
30-025-12477	GRAHAM STATE NCT F	004	XTO ENERGY, INC	3915	G	A	S	O	36	19	S	36	E	660	S	1980	E	4586
30-025-36674	NORTH MONUMENT G/SA UNIT	334	APACHE CORP	3960	O	A	S	E	36	19	S	36	E	2245	N	1250	W	2086
30-025-35177	NORTH MONUMENT G/SA UNIT	297	APACHE CORP	3986	O	A	P	B	36	19	S	36	E	1310	N	2525	E	3784
30-025-13229	LPG STORAGE WELL	002	TARGA MIDSTREAM SERVICES LTD PTR	1799	M	A	P	M	36	19	S	36	E	1020	S	1220	W	2632
30-025-33568	STATE V	007	APACHE CORP	3535	G	A	S	B	36	19	S	36	E	660	N	1880	E	4627
30-025-12468	NORTH MONUMENT G/SA UNIT	007	APACHE CORP	3908	I	A	S	G	36	19	S	36	E	1980	N	1980	E	4152
30-025-24422	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	4050	I	A	P	M	36	19	S	36	E	990	S	610	W	2220
30-025-24094	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	4030	O	A	S	H	36	19	S	36	E	1650	N	990	E	5183
30-025-35197	NORTH MONUMENT G/SA UNIT	298	APACHE CORP	4009	I	A	P	D	36	19	S	36	E	1310	N	1250	W	2420
30-025-31504	MONUMENT G/SA UT. BLK 14 N.	020	AMERADA HESS CORP	Loc	O	Cancl	S	D	36	19	S	36	E	243	N	150	W	2527
30-025-12469	STATE F GAS COM	001	APACHE CORP	3903	G	A	S	M	36	19	S	36	E	660	S	660	W	2512
30-025-12484	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3953	O	A	S	D	36	19	S	36	E	660	N	660	W	2419
30-025-33838	SHELL B STATE	002	JACK HUFF	3800	G	A	S	D	36	19	S	36	E	660	N	810	W	2513
30-025-24166	NORTH MONUMENT G/SA UNIT	010	APACHE CORP	3950	O	TA	S	J	36	19	S	36	E	2310	S	2265	E	3843
30-025-12466	NORTH MONUMENT G/SA UNIT	002B	APACHE CORP	3930	I	A	S	B	36	19	S	36	E	660	N	1980	E	4536
30-025-12471	NORTH MONUMENT G/SA UNIT	011	APACHE CORP	3905	I	A	S	K	36	19	S	36	E	1980	S	1980	W	2879
30-025-12476	GRAHAM STATE NCT F	003	XTO ENERGY, INC	3921	O	A	S	J	36	19	S	36	E	1980	S	1980	E	4171
30-025-31593	SHELL B STATE	001	JACK HUFF	3730	O	A	S	C	36	19	S	36	E	990	N	1980	W	3211
30-025-36913	NORTH MONUMENT G/SA UNIT	337	APACHE CORP	3960	O	A	S	L	36	19	S	36	E	2630	S	150	W	961
30-025-12470	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	3939	O	A	S	L	36	19	S	36	E	1980	S	660	W	1635
30-025-12480	NORTH MONUMENT G/SA UNIT	006	APACHE CORP	3939	O	A	S	F	36	19	S	36	E	1980	N	1980	W	2853
30-025-37985	NORTH MONUMENT G/SA UNIT	343	APACHE CORP	*	O	New	S	L	36	19	S	36	E	1440	S	1275	W	2434
30-025-37984	NORTH MONUMENT G/SA UNIT	342	APACHE CORP	*	O	New	S	I	36	19	S	36	E	2000	S	940	E	5196
30-025-04139	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3954	O	A	S	D	1	20	S	36	E	660	N	660	W	3665
30-025-13228	LPG STORAGE WELL	001	TARGA MIDSTREAM SERVICES LTD PTR	1906	M	A	P	D	1	20	S	36	E	100	N	100	W	2941
30-025-04142	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3900	O	A	S	C	1	20	S	36	E	660	N	1980	W	4365
30-025-04140	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3915	I	A	S	E	1	20	S	36	E	1980	N	660	W	4903

Shallow wells within one mile of the proposed disposal well, which do not penatrate the disposal interval.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-32361	STATE F GAS COM	002	APACHE CORP	3426	G	A	S	E	1	20	S	36	E	1650	N	825	W	4644
30-025-04166	NORTH MONUMENT G/SA UNIT	002	APACHE CORP	3940	O	A	S	B	2	20	S	36	E	660	N	1980	E	3556
30-025-04165	NORTH MONUMENT G/SA UNIT	001	APACHE CORP	3945	I	A	S	A	2	20	S	36	E	660	N	660	E	3361
30-025-33006	W A WEIR GAS COM	009	APACHE CORP	3685	G	A	P	D	2	20	S	36	E	330	N	660	W	4867
30-025-04155	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3921	I	A	S	C	2	20	S	36	E	660	N	1980	W	4181
30-025-31611	STATE A	007	CIMAREX ENERGY CO OF COLORADO	3600	G	A	S	G	2	20	S	36	E	1980	N	1650	E	4752
30-025-04168	NORTH MONUMENT G/SA UNIT	007	APACHE CORP	3912	I	A	S	G	2	20	S	36	E	1980	N	1980	E	4822
30-025-04162	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3930	O	TA	P	D	2	20	S	36	E	660	N	660	W	5079
30-025-04167	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	3837	O	A	S	H	2	20	S	36	E	1980	N	660	E	4680

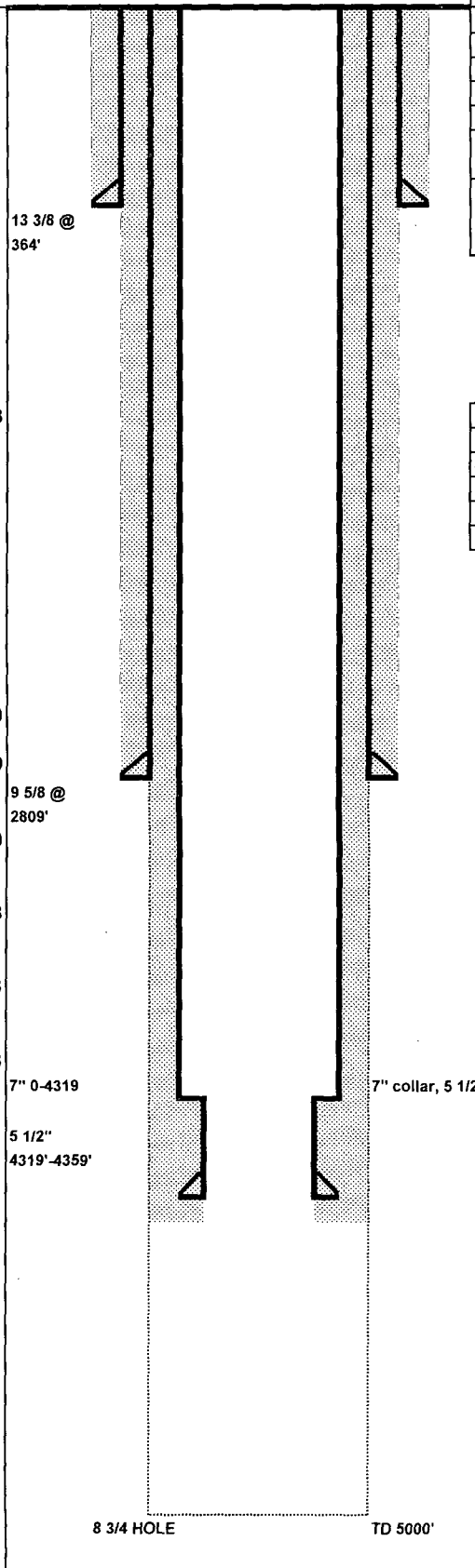
Deep wells within one mile of the proposed disposal well.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-33687	MCGRAIL STATE	010	MARATHON OIL CO	8015	O	A	S	N	26	19	S	36	E	400	S	1650	W	4104
30-025-33598	STATE A 26	006	CHEVRON U S A INC	7550	O	A	S	M	26	19	S	36	E	410	S	330	W	5108
30-025-34005	W A WEIR	015	APACHE CORP	7550	O	A	P	O	26	19	S	36	E	990	S	2310	E	3874
30-025-33820	WEIR B	002	CHEVRON U S A INC	7534	O	A	P	J	26	19	S	36	E	1980	S	2310	E	4802
30-025-31982	FOSTER	003	DAVID H ARRINGTON OIL & GAS INC	8050	O	A	P	P	34	19	S	36	E	660	S	330	E	5215
30-025-33190	M E GAITHER	005	APACHE CORP	8100	O	A	P	I	34	19	S	36	E	1650	S	660	E	5236
30-025-33567	W A WEIR	011	APACHE CORP	7525	O	TA	P	L	35	19	S	36	E	1680	N	580	W	3994
30-025-33759	W A WEIR	014	APACHE CORP	7505	O	A	P	F	35	19	S	36	E	1650	N	1650	W	2970
30-025-33045	MONUMENT ABO 35	002	APACHE CORP	8092	O	TA	P	M	35	19	S	36	E	660	S	330	W	4615
30-025-33696	W A WEIR	013	APACHE CORP	7660	O	A	P	C	35	19	S	36	E	330	N	1650	W	3609
30-025-33670	W A WEIR	012	APACHE CORP	7600	O	A	P	L	35	19	S	36	E	2130	S	560	W	3952
30-025-34056	SELBY MAVEETY	004	APACHE CORP	7550	O	TA	P	N	35	19	S	36	E	975	S	1650	W	3305
30-025-33944	SELBY MAVEETY	003	APACHE CORP	7550	O	A	P	K	35	19	S	36	E	2310	S	1650	W	2847
30-025-33551	W A WEIR	010	APACHE CORP	7550	O	A	P	D	35	19	S	36	E	330	N	660	W	4426
30-025-33877	W B MAVEETY	011	APACHE CORP	7610	O	A	P	B	35	19	S	36	E	520	N	2310	E	2550
30-025-20517	NORTH MONUMENT G/SA UNIT	286	APACHE CORP	10360	O	TA	S	G	36	19	S	36	E	1980	N	1830	E	4301
30-025-12482	GRAHAM STATE NCT-F	007	TARGA MIDSTREAM SERVICES LTD PTR	7700	S	A	S	O	36	19	S	36	E	330	S	1650	E	5031
30-025-12473	STATE F GAS COM	005	APACHE CORP	10255	G	A	S	N	36	19	S	36	E	785	S	1980	W	3382
30-025-12481	NORTH MONUMENT G/SA UNIT	285	APACHE CORP	10100	O	A	S	F	36	19	S	36	E	1830	N	1980	W	2888
30-025-31587	NORTH MONUMENT G/SA UNIT	019	APACHE CORP	5150	I	A	S	C	36	19	S	36	E	81	N	1505	W	3407
30-025-04143	STATE D	005	APACHE CORP	5220	O	A	S	C	1	20	S	36	E	766	N	1874	W	4381
30-025-34188	APACHE STATE A	007	APACHE CORP	7700	O	TA	S	B	2	20	S	36	E	990	N	1650	E	3782
30-025-26886	MONUMENT ABO	001	APACHE CORP	7979	O	TA	S	C	2	20	S	36	E	800	N	1750	W	4431

PRESENT WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500



APINUM:	30-025-37918				
OPERATOR:	MONUMENT DISPOSAL INC				
LEASENAME:	MONUMENT DISPOSAL			WELL NO	1
LOCATION:	UL: H	SEC: 35	TWN: 19S	RNG:	36E
	2582 FNL		809	FEL	
TD	4240	PBD	KB 3651	DF	
			GL 3641		
POOL	SI DISPOSAL		PERFS		
			OPEN HOLE	4351-5000	

TEST (SHOW DATE)

OIL	GAS	WATER
OIL	GAS	WATER

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

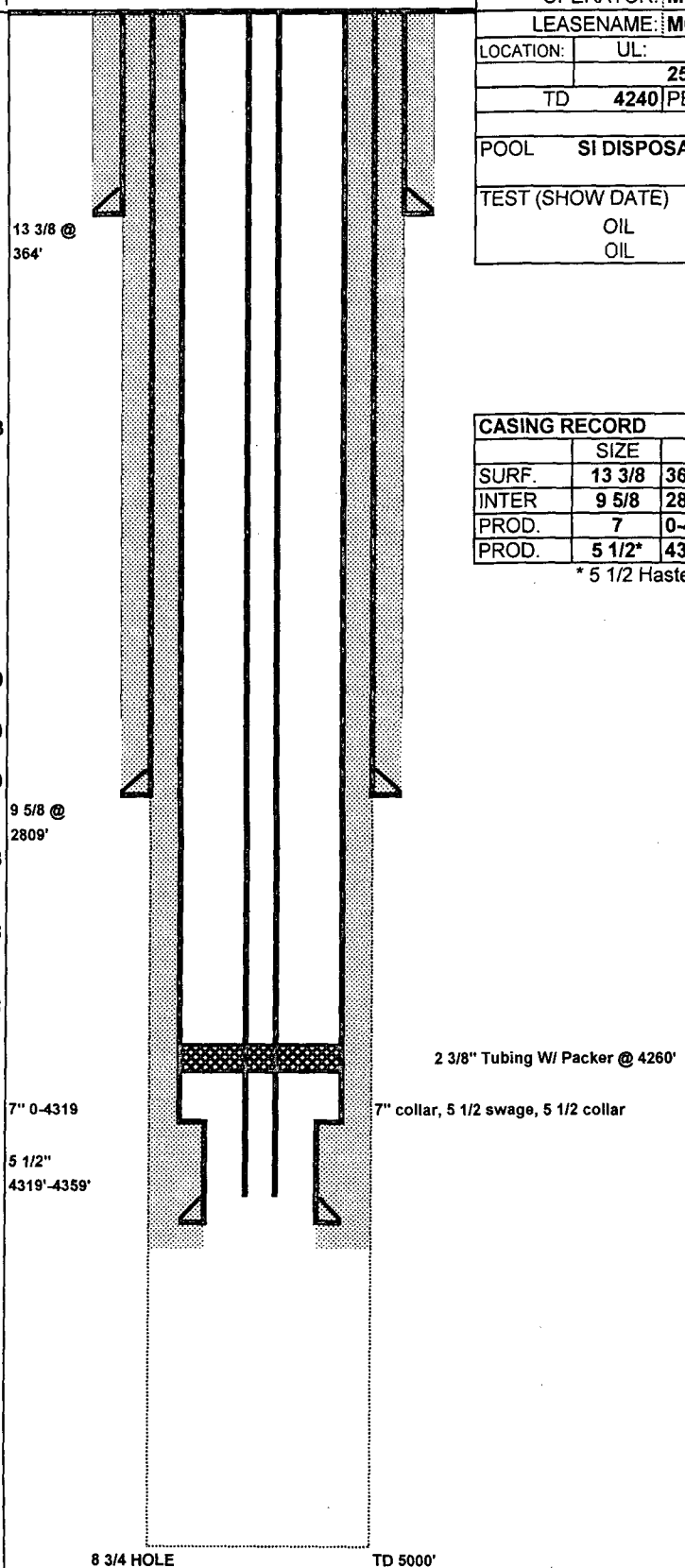
* 5 1/2 Hastelloy C-276 liner (see attached material data sheet)

PREPARED BY: | UPDATED 7/31/2006

PROPOSED WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500



APINUM:	30-025-37918
OPERATOR:	MONUMENT DISPOSAL INC
LEASENAME:	MONUMENT DISPOSAL — WELL NO 1
LOCATION:	UL: H SEC: 35 TWN: 19S RNG: 36E
	2582 FNL 809 FEL
TD 4240	PBD — KB 3651 DF — GL 3641
POOL	SI DISPOSAL — PERFS — OPEN HOLE 4351-5000
TEST (SHOW DATE)	OIL GAS WATER
	OIL GAS WATER

CASING RECORD

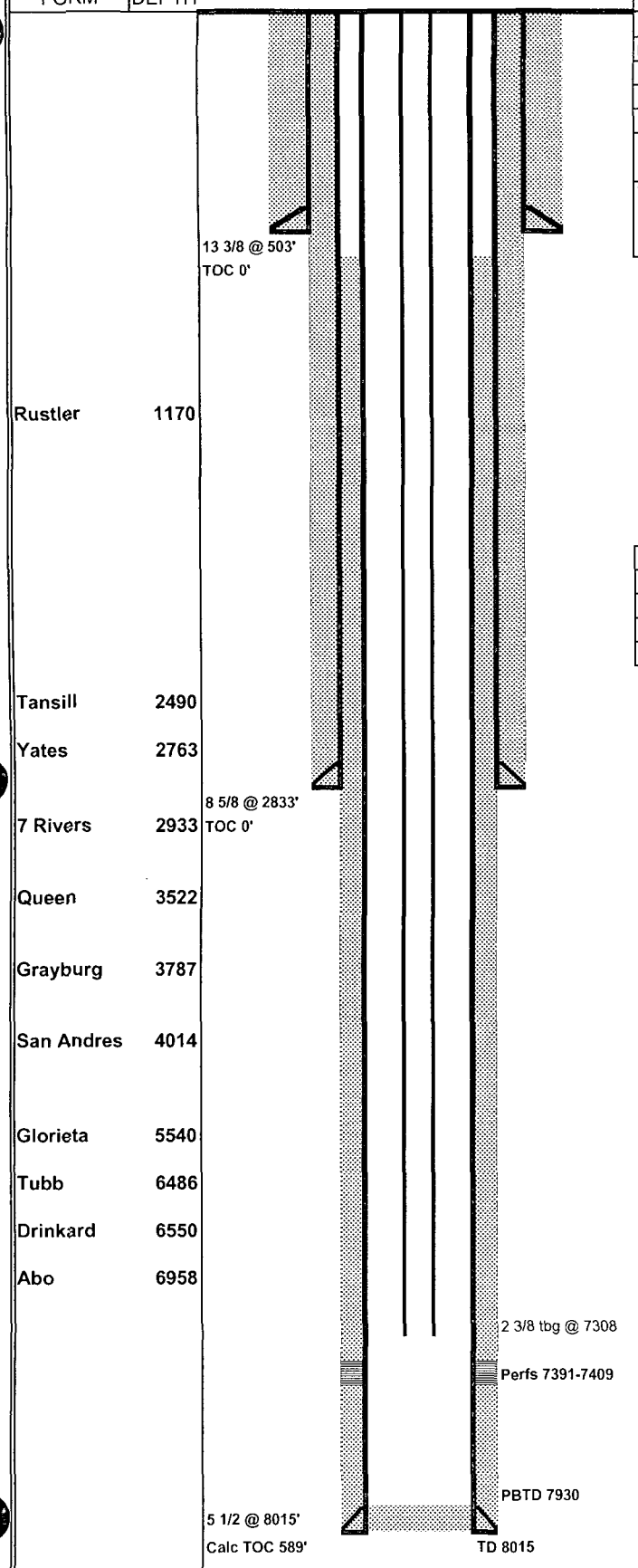
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

* 5 1/2 Hastelloy C-276 liner (see attached material data sheet)

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



APINUM:	30-025-33687						
OPERATOR:	MARATHON OIL CO						
LEASENAME:	MCGRAIL STATE					WELL NO.	10
LOCATION:	UL:	N	SEC:	26	TWN:	19S	RNG: 36E
	400	FSL			1650	FWL	
TD	8015	PBD	7930	KB	3680	DF	
				GL	3668		
POOL					PERFS	7391-7409	
Monument Abo							

TEST (SHOW DATE)

Jan-97	OIL	189	GAS	162	WATER	10
	OIL		GAS		WATER	

CASING RECORD

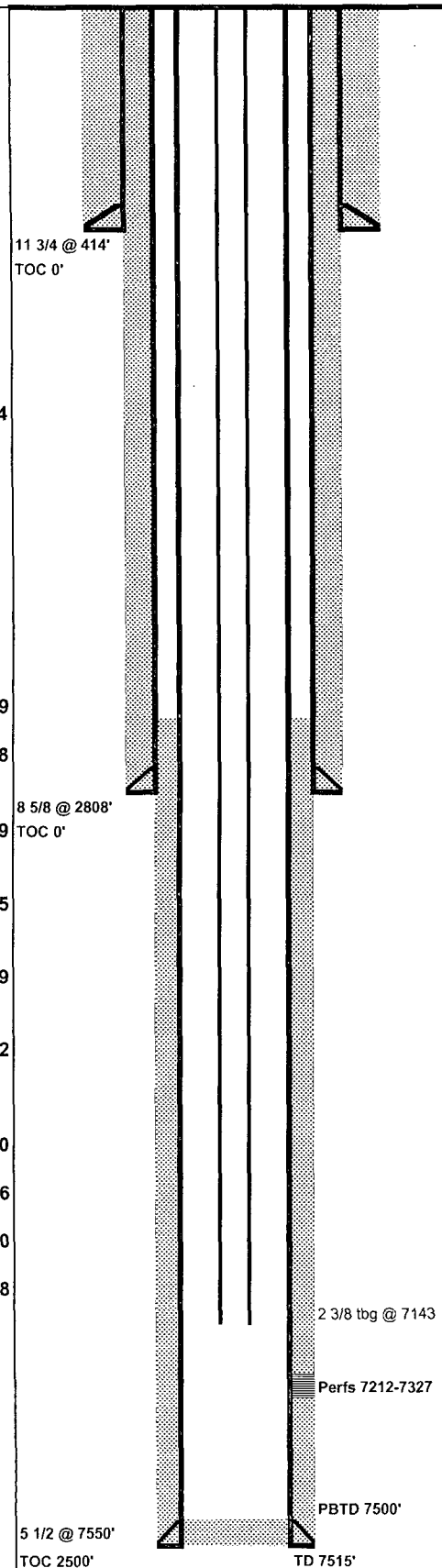
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	503	665 sxs	17 1/2	0' CIRC
INT1	8 5/8	2833	950 sxs	11	0' CIRC
PROD.	5 1/2	8015	1260 sxs	7 7/8	Calc 589'

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1214
Tansill	2529
Yates	2678
7 Rivers	2969
Queen	3515
Grayburg	3899
San Andres	4022
Glorieta	5540
Tubb	6486
Drinkard	6550
Abo	6958



APINUM:	30-025-33598						
OPERATOR:	CHEVRON U S A INC						
LEASENAME:	STATE A 26					WELL NO.	6
SURFACE LOCATION:	UL: M	SEC: 26	TWN: 19S	RNG: 36E			
	410 FSL		330 FWL				
BHL LOCATION:	UL: M	SEC: 26	TWN: 19S	RNG: 36E			
	448 FSL		387 FWL				
TD 7550	PBD 7500	KB	DF				
		GL 3660					
POOL		PERFS	7212-7327				
Monument Abo							
TEST (SHOW DATE)							
Nov-96	OIL 543	GAS 465	WATER 0				
	OIL	GAS	WATER				

CASING RECORD

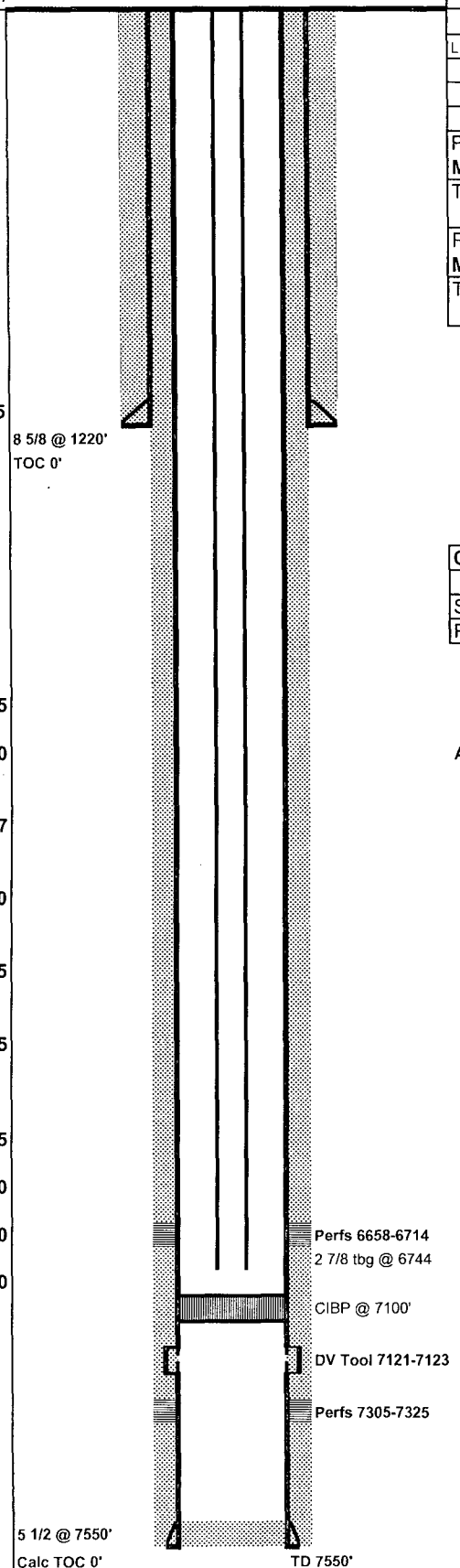
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	11 3/4	414	260 sxs	14 3/4	0' CIRC
INT1	8 5/8	2808	800 sxs	11	0' CIRC
PROD.	5 1/2	7550	1200 sxs	7 7/8	2500'

PREPARED BY:	UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1165
Tansill	2495
Yates	2640
7 Rivers	2977
Queen	3430
Grayburg	3805
San Andres	4025
Glorieta	5355
Tubb	6200
Drinkard	6680
Abo	6970



APINUM:	30-025-34005				
OPERATOR:	APACHE CORP				
LEASENAME:	W A WEIR			WELL NO.	15
LOCATION:	UL: O	SEC: 26	TWN: 19S	RNG:	36E
	990 FSL		2310 FEL		
TD	7550	PBD 7100	KB	DF	
			GL 3664		
POOL			PERFS	7305-7325	
Monument Abo			Isolated by CIBP @ 7100		
TEST (SHOW DATE)					
Jul-97	OIL 31	GAS 331	WATER 0		
POOL			PERFS	6658-6714	
Monument Yeso					
TEST (SHOW DATE)					
Apr-01	OIL 142	GAS 301	WATER 154		

CASING RECORD

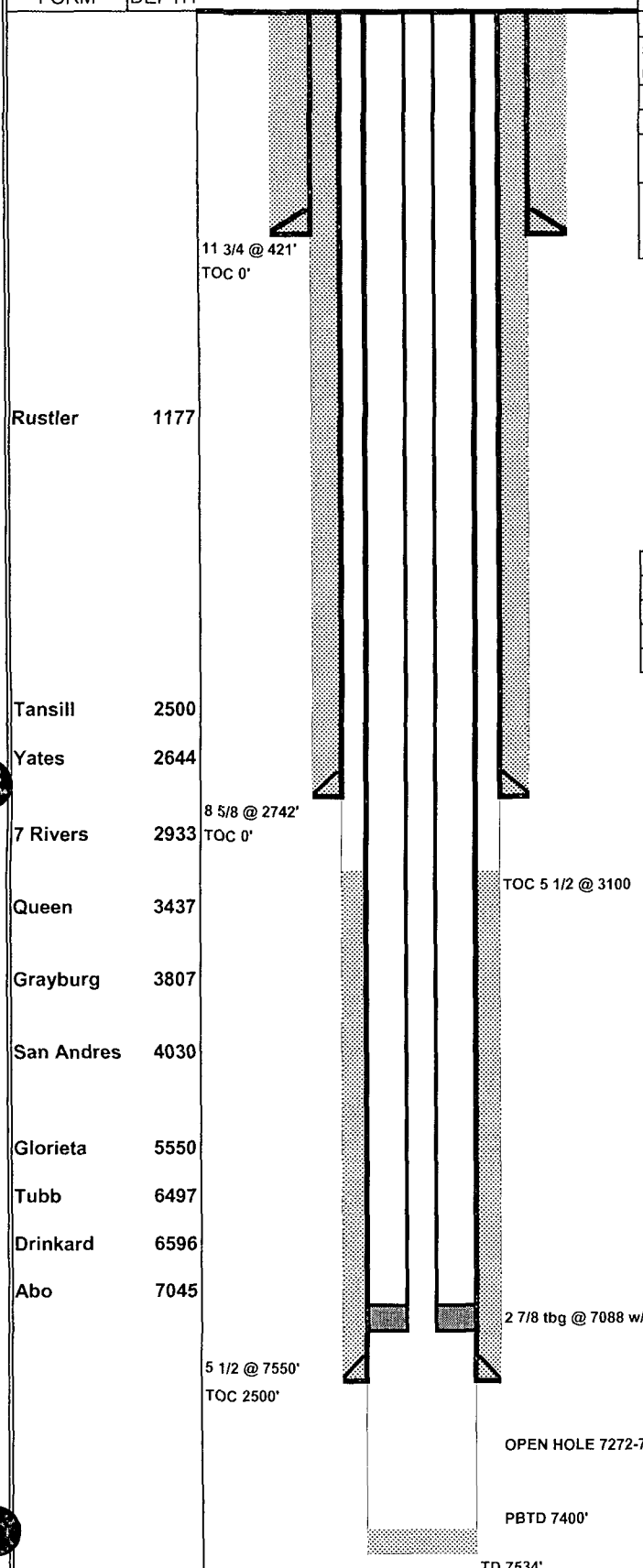
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1220	400 sxs	11	0' CIRC
PROD.	5 1/2	7550	1225 sxs	7 7/8	Calc 0'

Apr-01 Plug back to Yeso Formation. CIBP @ 7100. Perf 6658-6714.

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



APINUM:	30-025-33820
OPERATOR:	CHEVRON U S A INC
LEASENAME:	WEIR B
WELL NO.	2

SURFACE LOCATION:	UL:	J	SEC:	26	TWN:	19S	RNG: 36E
	1980	FSL			2310	FEL	

TD	7534	PBD	7400	KB	DF
				GL	3666

POOL	OPEN HOLE: 7272-7400
Monument Abo	

TEST (SHOW DATE)

May-97	OIL	360	GAS	918	WATER	0
	OIL		GAS		WATER	

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	11 3/4	421	300 sxs	14 3/4	0' CIRC
INT1	8 5/8	2742	800 sxs	11	0' CIRC
PROD.	5 1/2	7272	540 sxs	7 7/8	3100'

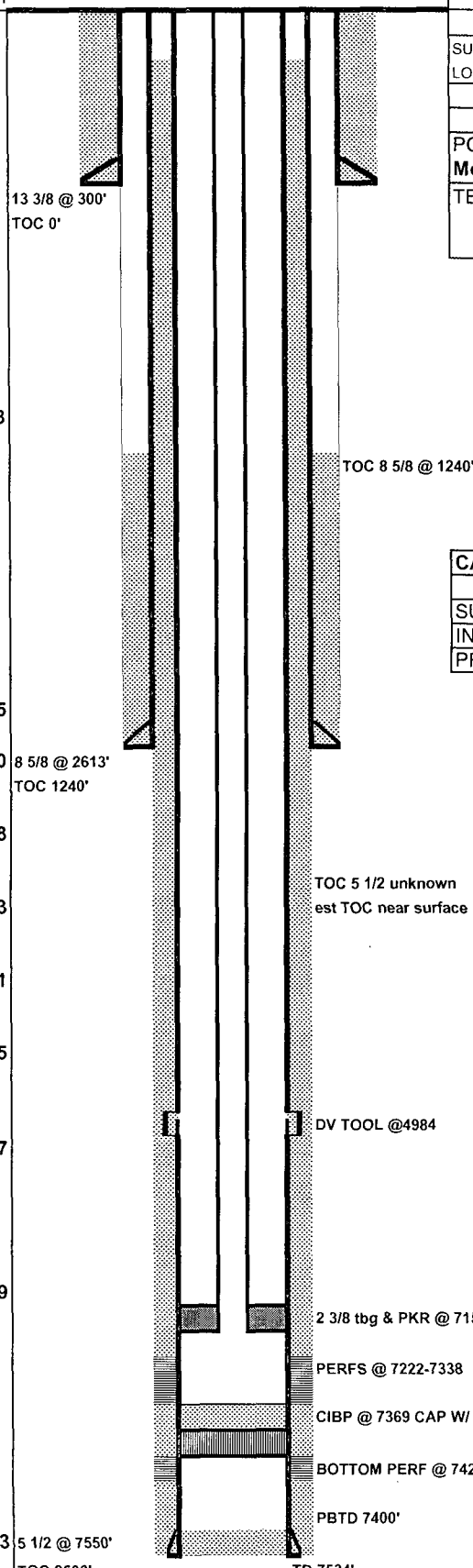
PREPARED BY:

UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1163
Tansill	2505
Yates	2650
7 Rivers	2848
Queen	3413
Grayburg	3801
San Andres	4025
Glorieta	5067
Abo	7099
Wolfcamp	8023



APINUM:	30-025-31982						
OPERATOR:	DAVID H ARRINGTON OIL & GAS INC						
LEASENAME:	J A FOSTER					WELL NO.	3
SURFACE LOCATION:	UL: PBD	SEC: 34	TWN: 19S	RNG: 36E			
	660 FSL		330 FEL				
TD	8050	PBD 7346	KB	3627	DF		
			GL	3614			
POOL				OLD PERFS:	7323-7428		
Monument Abo				NEW PERFS:	7222-7338		
TEST (SHOW DATE)							
Nov-93	OIL 22	GAS 35	WATER 230				
May-99	OIL 108	GAS na	WATER na				

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	300	400 sxs	17 1/2	0' CIRC
INT1	8 5/8	2613	1400 sxs	12 1/4	1240'
PROD.	5 1/2	8035	1660 sxs	7 7/8	*

* TOC on 5 1/2 calculated at surface, however C-103 dated 12/15/93 indicates cement did not circulate.

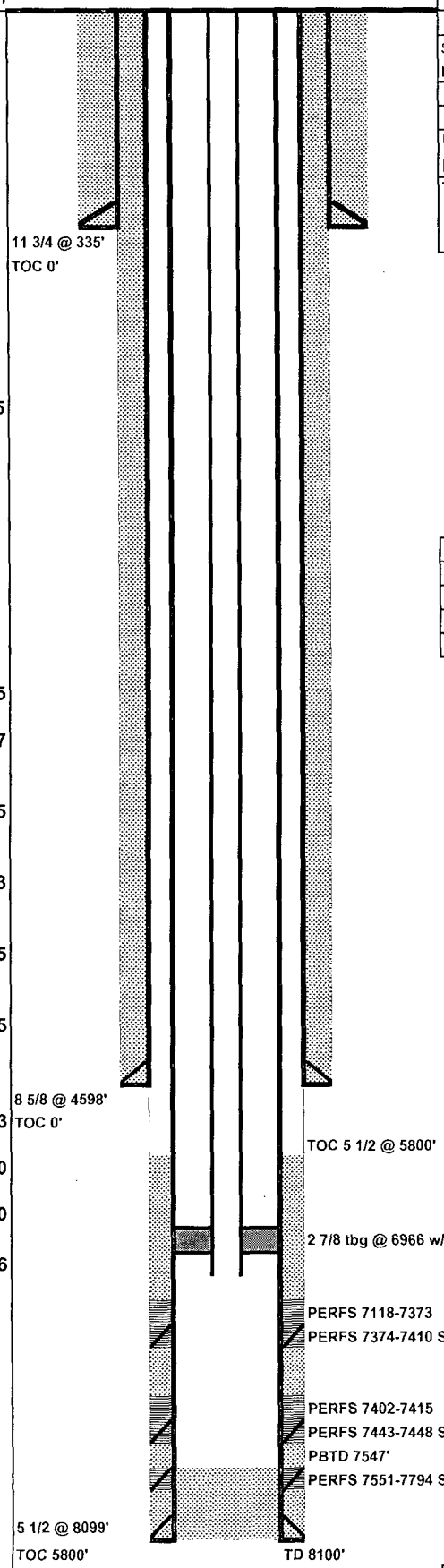
5/14/1999 Set CIBP @ 7369 capped w/ cmnt. PBTD 7346'
Perf 7222- 7332

PREPARED BY:	UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1195
Tansill	2615
Yates	2747
7 Rivers	2945
Queen	3453
Grayburg	3855
San Andres	4075
Glorieta	5423
Tubb	6450
Drinkard	6860
Abo	6976



APINUM:	30-025-33190						
OPERATOR:	APACHE CORP						
LEASENAME:	M E GAITHER					WELL NO.	5
SURFACE LOCATION:	UL: I	SEC: 34	TWN: 19S	RNG: 36E			
	1650 FSL		660 FEL				
TD 8100	PBD 7547	KB		DF			
		GL 3621					
POOL			PERFS:	7118-7373			
Monument Abo				7402-7415			
TEST (SHOW DATE)							
Feb-96	OIL 151	GAS 130	WATER 241				
	OIL	GAS	WATER				

CASING RECORD

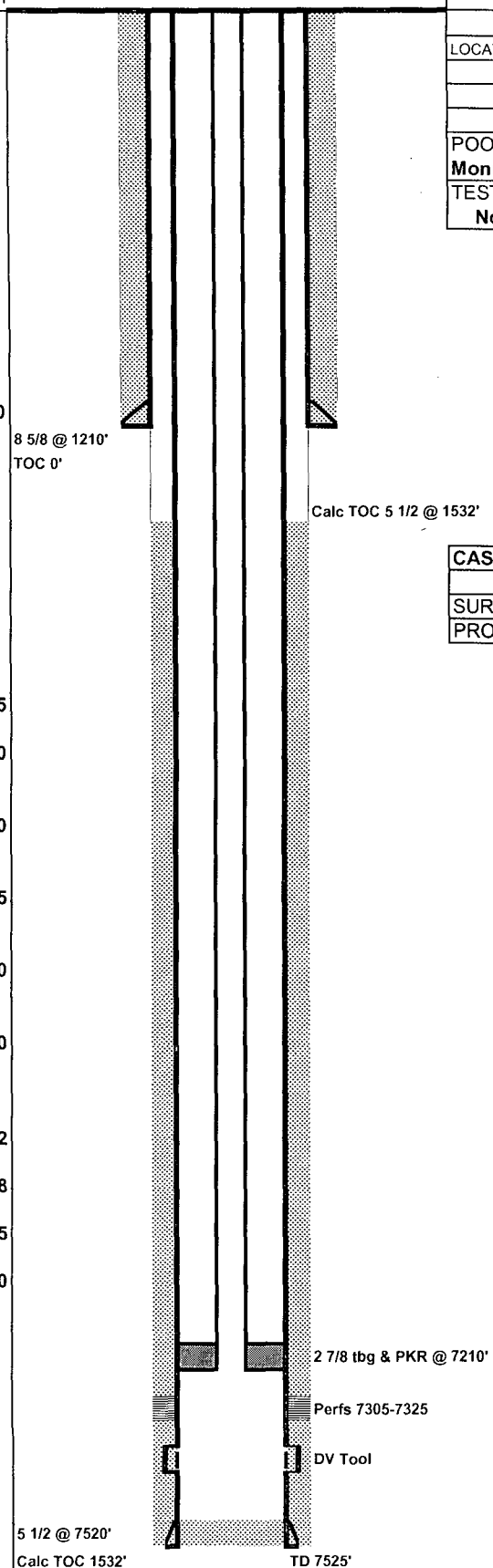
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	11 3/4	335	275 sxs	14 3/4	0' CIRC
INT1	8 5/8	4598	1300 sxs	11	0' CIRC
PROD.	5 1/2	8099	525 sxs	7 7/8	5800'

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1160
Tansill	2475
Yates	2650
7 Rivers	2720
Queen	3325
Grayburg	3770
San Andres	4000
Glorieta	5202
Tubb	6618
Drinkard	6705
Abo	6950



APINUM:	30-025-33567						
OPERATOR:	APACHE CORP						
LEASENAME:	W A WEIR					WELL NO.	11
LOCATION:	UL: E	SEC: 35		TWN: 19S		RNG:	36E
	1680 FNL			580 FWL			
TD	7525	PBD 7430	KB		DF		
			GL	3623			
POOL				PERFS	7270-7400		
Monument Abo							
TEST (SHOW DATE)							
Nov-96	OIL 310	GAS 270	WATER 0				

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1210	400 sxs	11	0' CIRC
PROD.	5 1/2	7520	1005 sxs	7 7/8	Calc 1532'

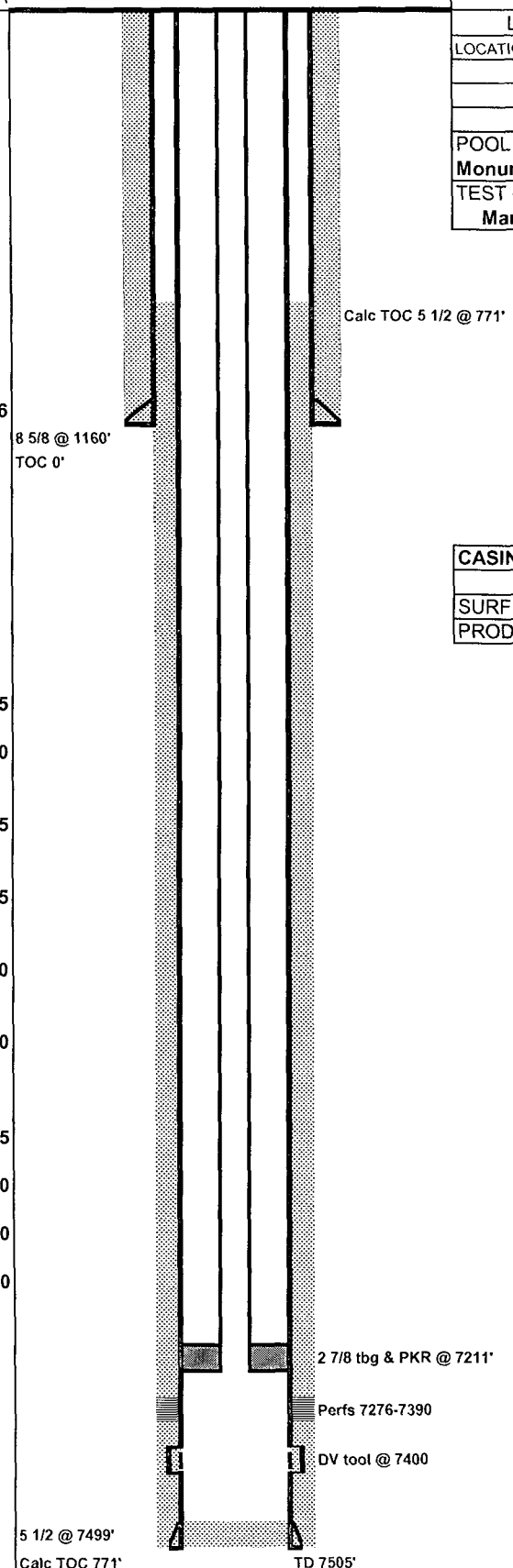
PREPARED BY:

UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1116
Tansill	2395
Yates	2600
7 Rivers	2785
Queen	3275
Grayburg	3710
San Andres	3940
Glorieta	5585
Tubb	6520
Drinkard	6740
Abo	7010



APINUM:	30-025-33759						
OPERATOR:	APACHE CORP						
LEASENAME:	W A WEIR					WELL NO.	14
LOCATION:	UL: F	SEC: 35	TWN: 19S	RNG: 36E			
	1650 FNL		1650 FWL				
TD 7505	PBD 7495	KB	DF				
		GL 3623					
POOL		PERFS 7276-7390					
Monument Abo							
TEST (SHOW DATE)							
Mar-97	OIL 214	GAS 180	WATER 1				

CASING RECORD

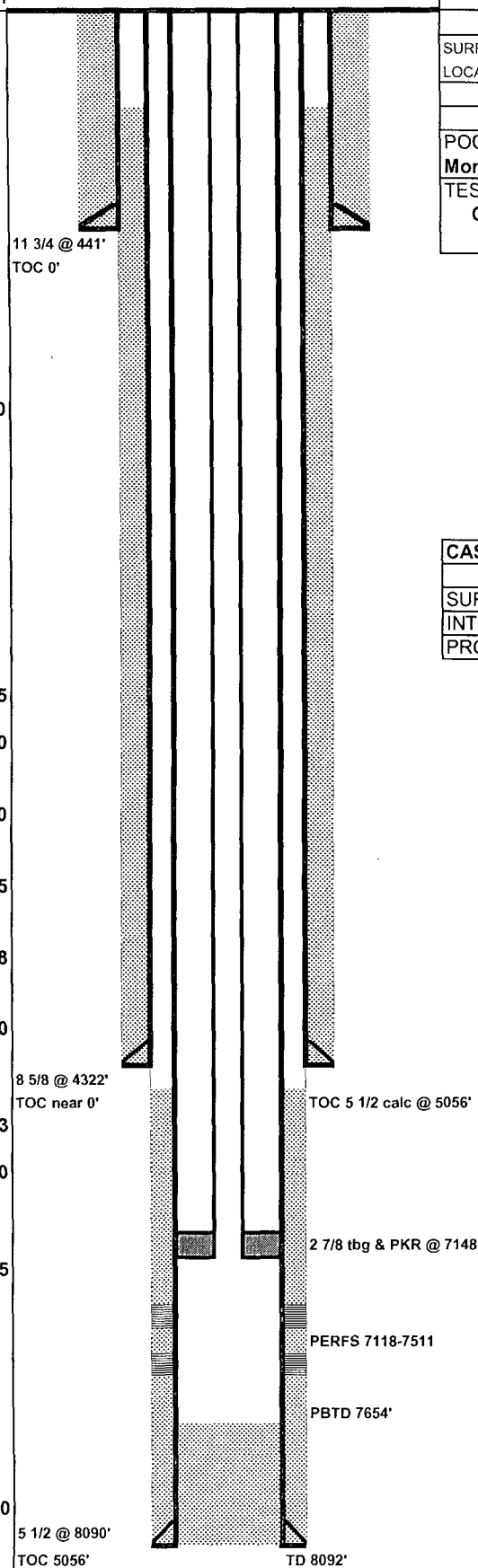
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1160	400 sxs	11	0' CIRC
PROD.	5 1/2	7499	1200 sxs	7 7/8	Calc 771'

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1270
Tansill	2225
Yates	2410
7 Rivers	2590
Queen	3375
Grayburg	3768
San Andres	3990
Glorieta	5323
Tubb	6350
Abo	6945
Wolfcamp	8010



APINUM:	30-025-33045				
OPERATOR:	APACHE CORP				
LEASENAME:	MONUMENT ABO 35			WELL NO.	2
SURFACE LOCATION:	UL: M	SEC: 35	TWN: 19S	RNG:	36E
	660 FSL		330 FWL		
TD 8092	PBD 7654	KB	DF		
		GL 3612			
POOL		PERFS: 7198-7511			
Monument Abo					
TEST (SHOW DATE)					
Oct-95	OIL 207	GAS 197	WATER 13		
	OIL	GAS	WATER		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	11 3/4	441	375 sxs	14 3/4	0' CIRC
INT1	8 5/8	4322	1025 sxs	11	(*)
PROD.	5 1/2	8090	436 sxs	7 7/8	5056 Calc

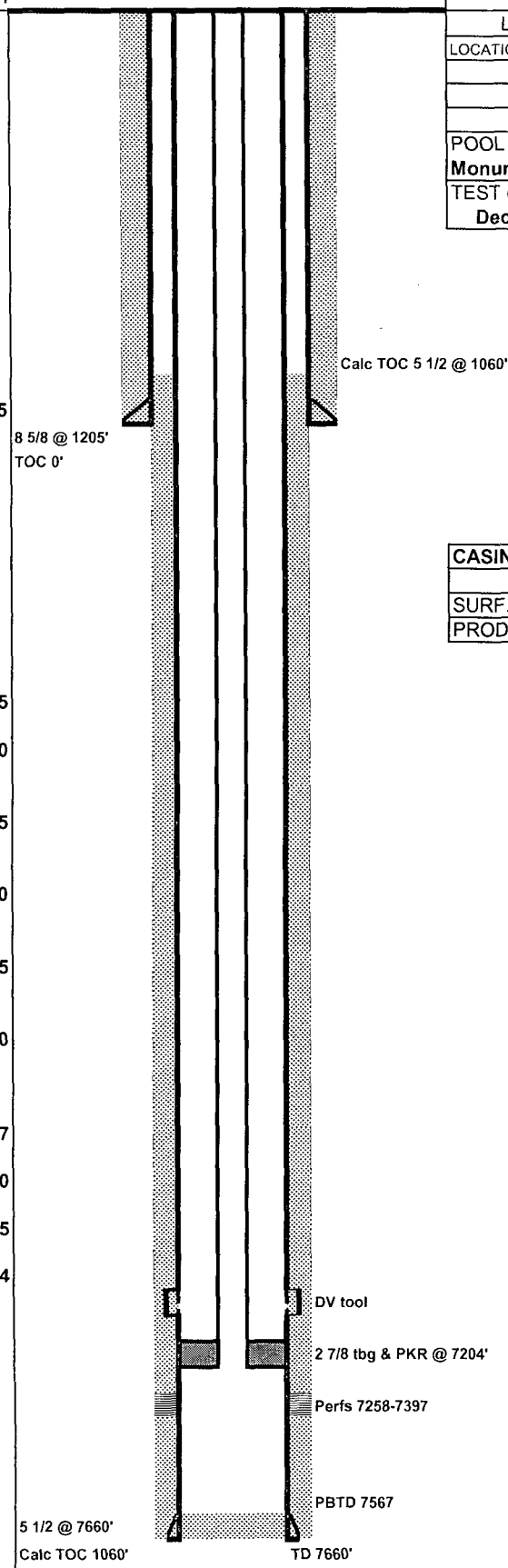
(*) TOC on 8 5/8 calculated at surface, however C-103 dated 09/05/95 indicates cement did not circulate.

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1155
Tansill	2455
Yates	2600
7 Rivers	2855
Queen	3350
Grayburg	3785
San Andres	4000
Glorieta	5487
Tubb	6580
Drinkard	6715
Abo	6994



APINUM:	30-025-33696						
OPERATOR:	APACHE CORP						
LEASENAME:	W A WEIR					WELL NO.	13
LOCATION:	UL: C	SEC: 35		TWN: 19S		RNG:	36E
	330 FNL			1650 FWL			
TD	7660	PBD 7567	KB		DF		
			GL	3639			
POOL				PERFS	7258-7397		
Monument Abo							
TEST (SHOW DATE)							
Dec-96	OIL 189	GAS 114	WATER 0				

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1205	400 sxs	11	0' CIRC
PROD.	5 1/2	7660	1150 sxs	7 7/8	Calc 1060'

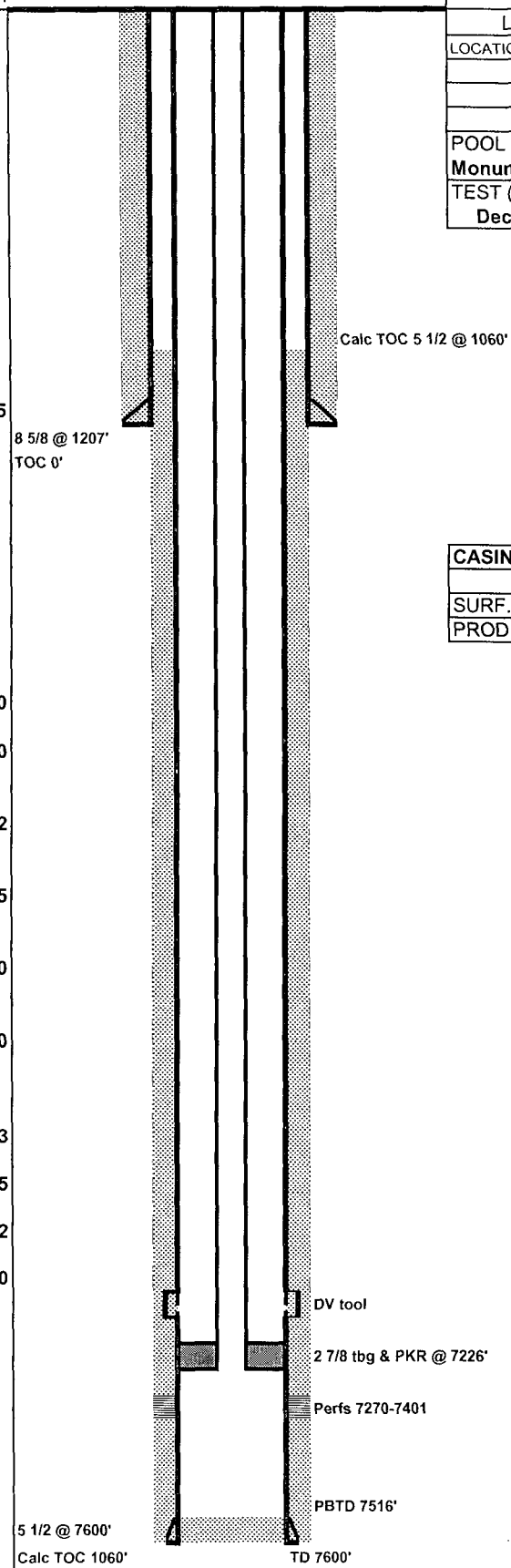
PREPARED BY:

UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1145
Tansill	2420
Yates	2560
7 Rivers	2822
Queen	3315
Grayburg	3760
San Andres	3980
Glorieta	5213
Tubb	6685
Drinkard	6822
Abo	6940



APINUM:	30-025-33670				
OPERATOR:	APACHE CORP				
LEASENAME:	W A WEIR			WELL NO.	12
LOCATION:	UL: L	SEC: 35	TWN: 19S	RNG:	36E
	2130 FSL		560 FWL		
TD 7600	PBD 7516	KB	DF		
		GL 3617			
POOL		PERFS	7270-7401		
Monument Abo					
TEST (SHOW DATE)					
Dec-96	OIL 254	GAS 187	WATER 0		

CASING RECORD

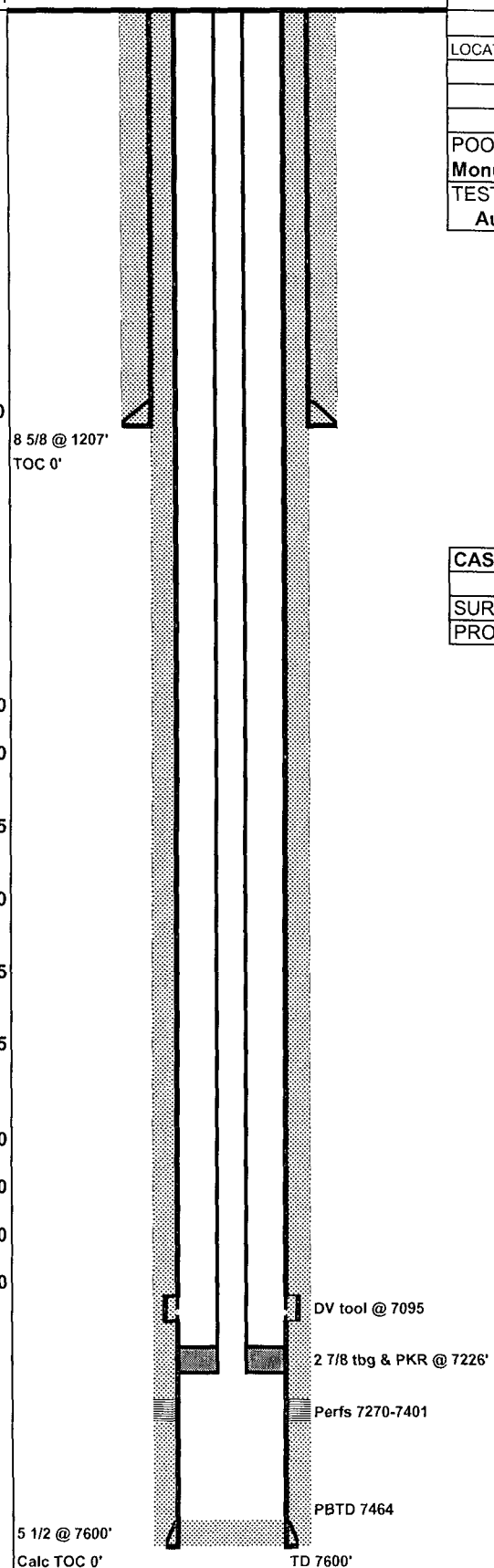
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1207	400 sxs	11	0' CIRC
PROD.	5 1/2	7600	1150 sxs	7 7/8	Calc 1060'

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1080
Tansill	2370
Yates	2510
7 Rivers	2765
Queen	3250
Grayburg	3665
San Andres	4045
Glorieta	5500
Tubb	6550
Drinkard	6690
Abo	6970



APINUM:	30-025-34056						
OPERATOR:	APACHE CORP						
LEASENAME:	SELBY MAVEETY					WELL NO.	4
LOCATION:	UL: N	SEC: 35	TWN: 19S	RNG: 36E			
	975 FSL		1650 FWL				
TD 7550	PBD 7464	KB	DF				
		GL 3608					
POOL		PERFS 7298-7362					
Monument Abo							
TEST (SHOW DATE)							
Aug-97	OIL 65	GAS 139	WATER 0				

CASING RECORD

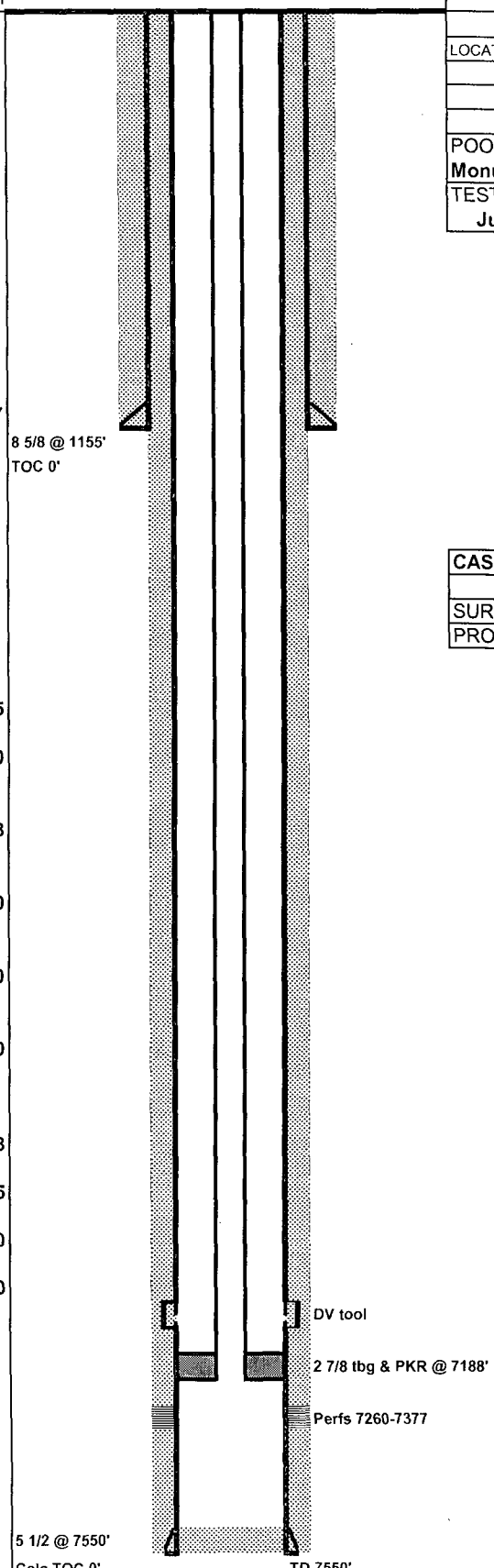
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1145	450 sxs	11	0' CIRC
PROD.	5 1/2	7550	1150 sxs	7 7/8	Calc 0'

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1097
Tansill	2385
Yates	2500
7 Rivers	2783
Queen	3110
Grayburg	3690
San Andres	3920
Glorieta	5458
Tubb	6575
Drinkard	6740
Abo	6960



APINUM:	30-025-33944				
OPERATOR:	APACHE CORP				
LEASENAME:	SELBY MAVEETY			WELL NO.	3
LOCATION: UL:	K	SEC: 35	TWN: 19S	RNG:	36E
	2310 FSL		1650 FWL		
TD 7550	PBD 7459	KB	DF		
		GL 3609			
POOL			PERFS	7260-7377	
Monument Abo					
TEST (SHOW DATE)					
Jun-97	OIL 263	GAS 239	WATER 0		

CASING RECORD

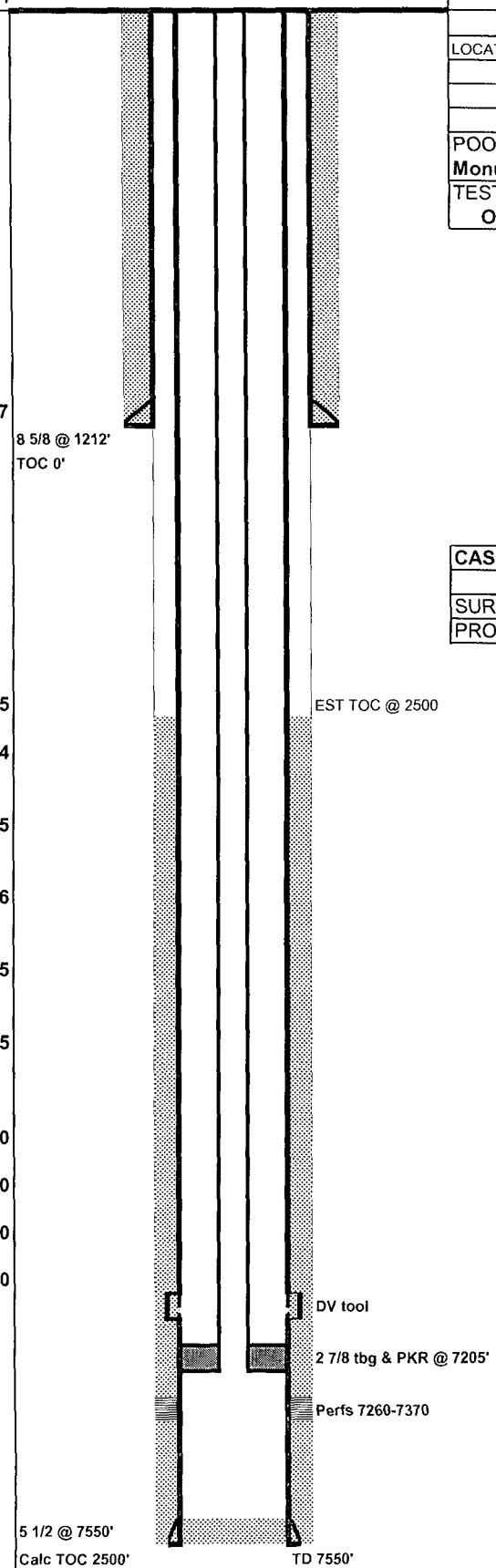
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1155	450 sxs	11	0' CIRC
PROD.	5 1/2	7550	1350 sxs	7 7/8	Calc 0'

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1187
Tansill	2485
Yates	2784
7 Rivers	2915
Queen	3396
Grayburg	3945
San Andres	4165
Glorieta	5300
Tubb	6540
Drinkard	6730
Abo	6980



APINUM:	30-025-33551				
OPERATOR:	APACHE CORP				
LEASENAME:	W A WEIR			WELL NO.	10
LOCATION:	UL: D	SEC: 35	TWN: 19S	RNG:	36E
	330 FNL		660 FWL		
TD 7550	PBD 7458	KB		DF	
		GL 3648			
POOL			PERFS	7260-7370	
Monument Abo					
TEST (SHOW DATE)					
Oct-96	OIL 343	GAS 151	WATER 0		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1212	450 sxs	11	0' CIRC
PROD.	5 1/2	7550	1125 sxs	7 7/8	2500

PREPARED BY:

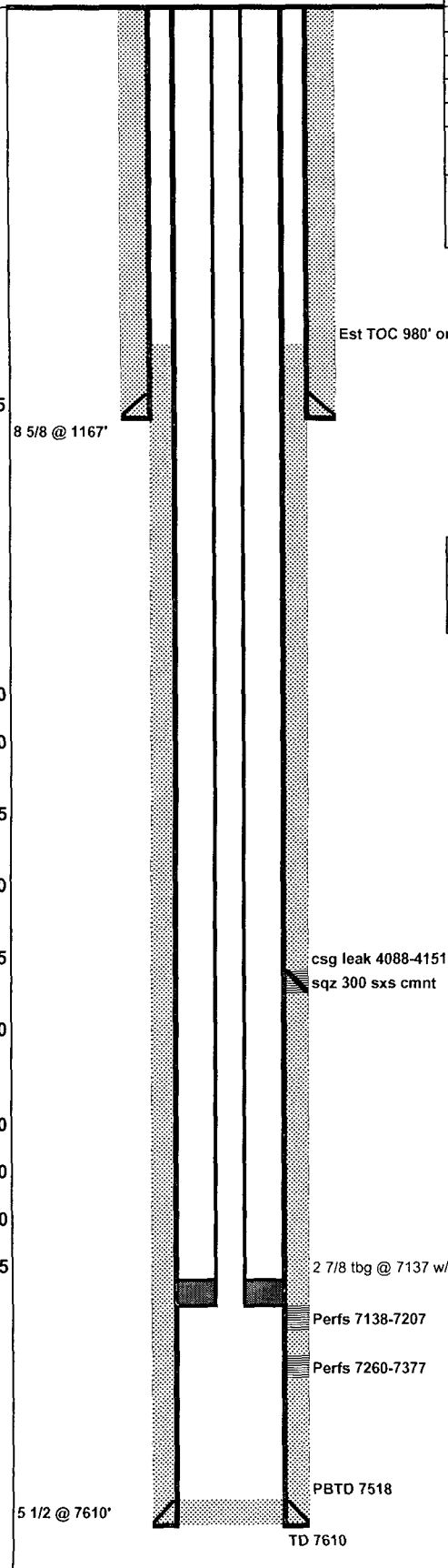
UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

APINUM:	30-025-33877						
OPERATOR:	APACHE CORP						
LEASENAME:	W B MAVEETY					WELL NO.	11
LOCATION:	UL: B	SEC: 35	TWN: 19S	RNG: 36E			
	520 FNL		2310 FEL				
TD 7610	PBD 7518	KB		DF			
		GL 3647					
POOL			PERFS	7138-7207			
Monument Abo				7250-7372			
TEST (SHOW DATE)							
May-97	OIL 96	GAS 113	WATER 3				
	OIL	GAS	WATER				

FORM	DEPTH
Rustler	1125
Tansill	2420
Yates	2570
7 Rivers	2715
Queen	3300
Grayburg	3715
San Andres	4200
Glorieta	5540
Tubb	6490
Drinkard	6690
Abo	6985



CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1167	400 sxs	11	CIRC
PROD.	5 1/2	7610	1225 sxs	7 7/8	Est 980'

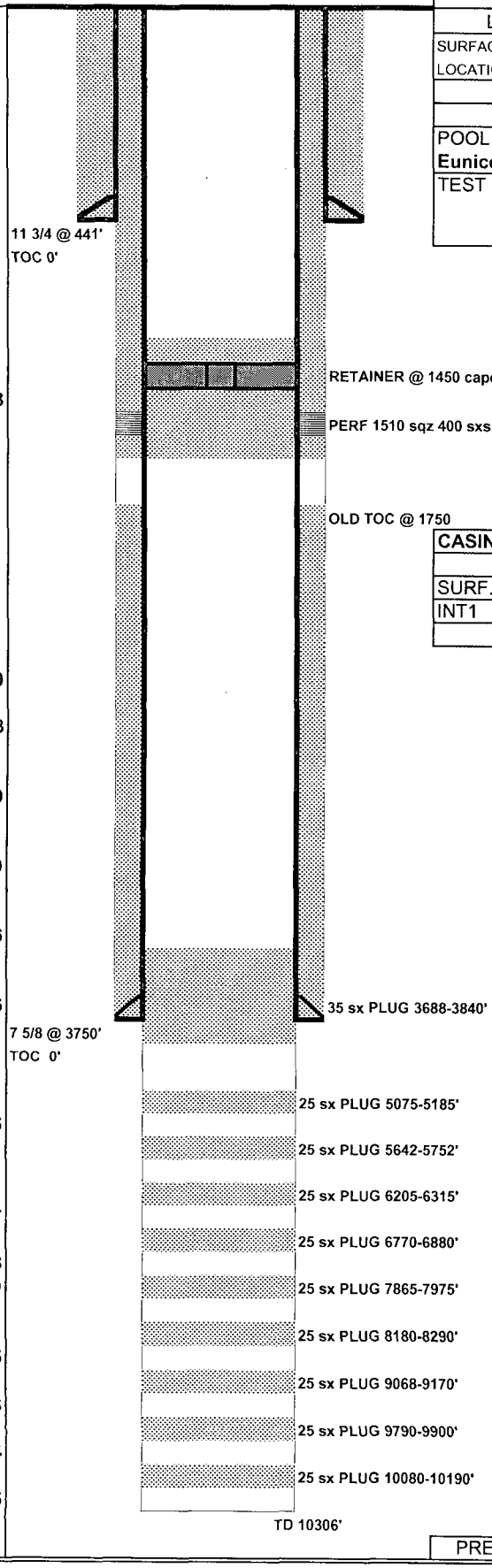
Oct-98	Sqzd 300 sxs casing leak @ 4088-4151'
	Press. Tested csg to 500 psi for 30 min. Held OK.
Oct-98	Added perfs 7138-7207

PREPARED BY: UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1038
Tansill	2250
Yates	2433
7 Rivers	2669
Queen	3170
Grayburg	3516
San Andres	3736
Glorieta	5205
Tubb	6347
Abo	6903
Wolfcamp	7970
Silurian	8325
Montoya	9178
Mckee	9914
Grante	10295



APINUM:	30-025-20517
OPERATOR:	APACHE CORP
LEASENAME:	NORTH MONUMENT G/SA UNIT
WELL NO.	286
SURFACE LOCATION:	UL: G SEC: 36 TWN: 19S RNG: 36E 1980 FNL 1830 FEL
TD	10360
PBD	3688
KB	
DF	3603
GL	
POOL	Eunice Monument Gb-SA
PERFS:	Zone TA'd Aug -95
TEST (SHOW DATE)	No tests
	OIL GAS WATER
	OIL GAS WATER

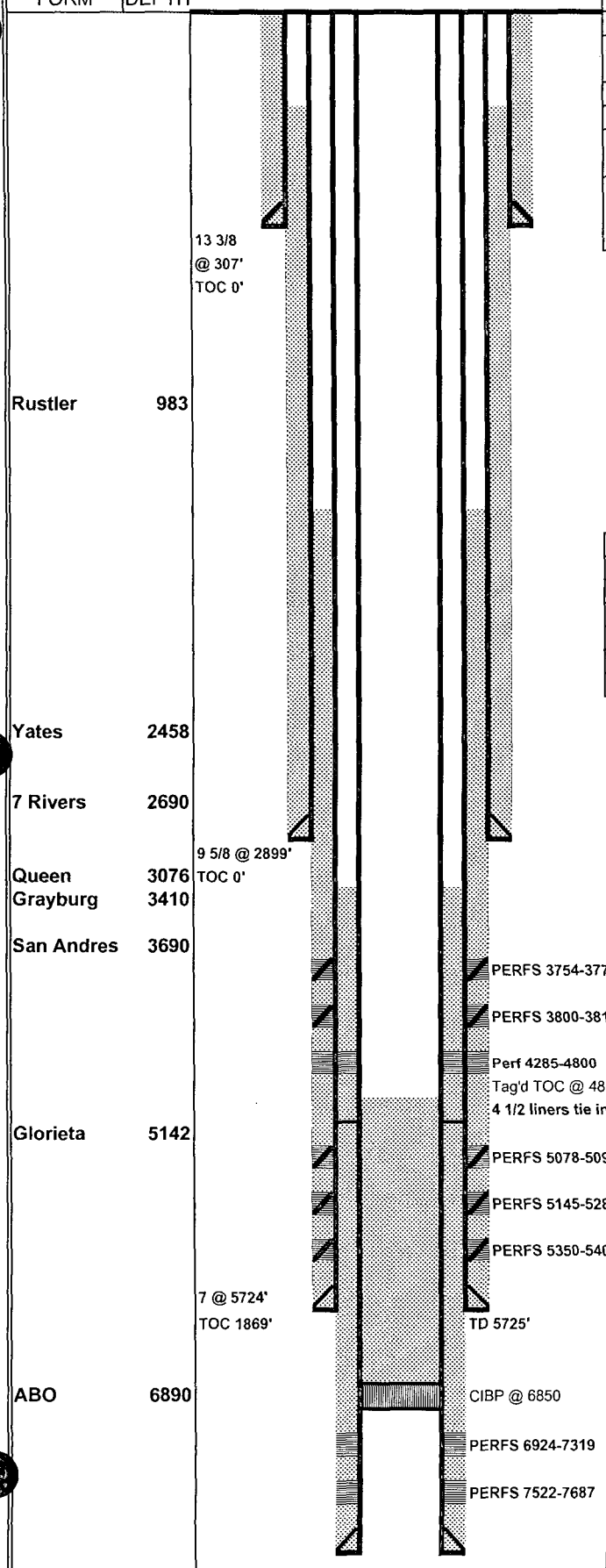
CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	10 3/4	1096	1050 sxs	15	0' CIRC
INT1	7 5/8	3750	600 sxs	9 7/8	0' CIRC
				6 3/4	

PREPARED BY: UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



FORM	DEPTH
Rustler	983
Yates	2458
7 Rivers	2690
Queen	3076
Grayburg	3410
San Andres	3690
Glorieta	5142
ABO	6890

APINUM:	30-025-12482				
OPERATOR:	TARGA MIDSTREAM SERVICES LTD PTR				
LEASENAME:	GRAHAM STATE NCT-F			WELL NO.	7
SURFACE LOCATION:	UL: O	SEC: 36	TWN: 19S	RNG:	36E
	330 FSL		1650 FEL		
TD	5725	PBD	KB	DF	
			GL 3577		
POOL			PERFS:	4285-4800	
SWD LOWER SAN ANDRES					
TEST (SHOW DATE)					
	OIL	GAS	WATER		
	OIL	GAS	WATER		

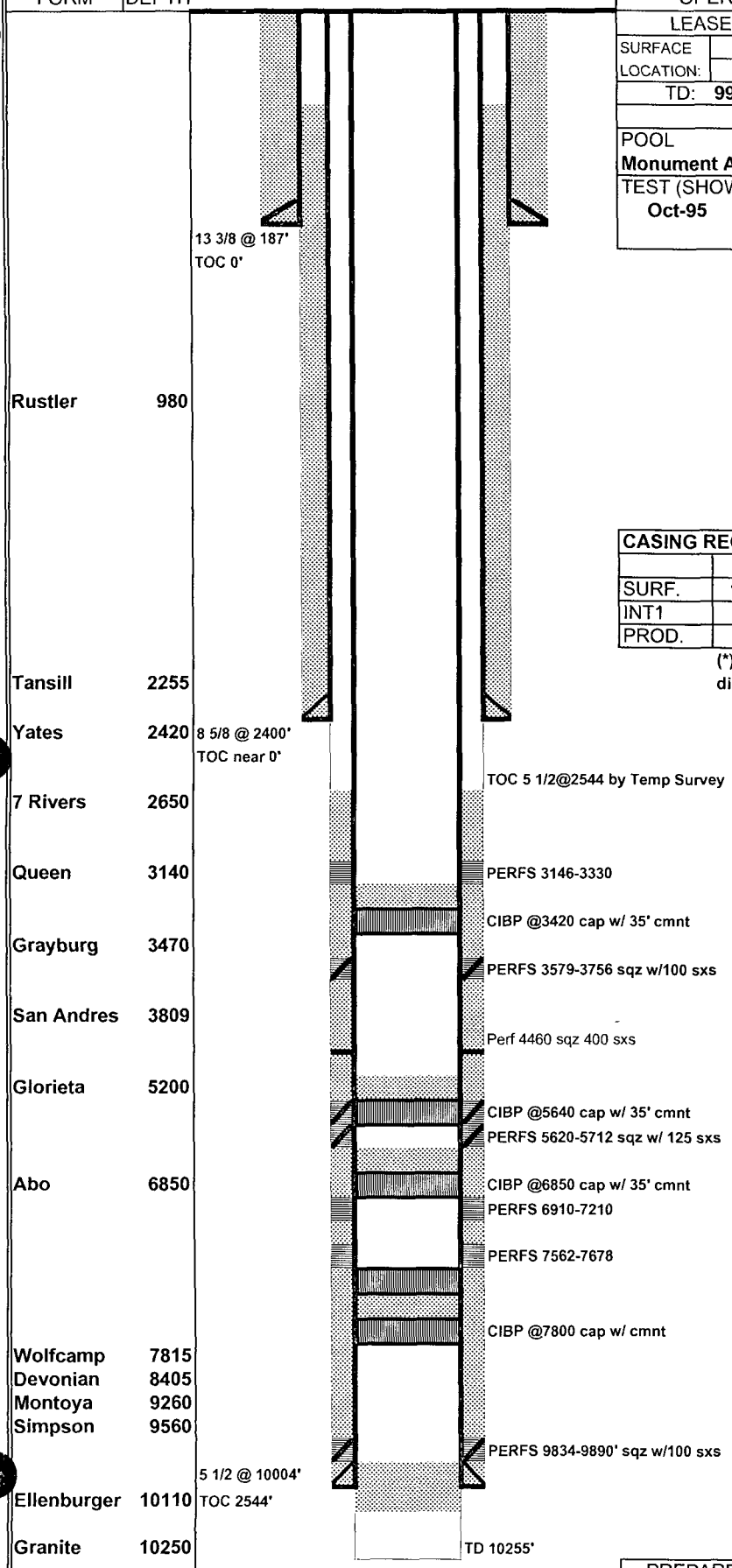
CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	307	375 sxs	18	0' CIRC
INT1	9 5/8	2899	1750 sxs	11	0' CIRC
PROD.	7	5724	500 sxs	8 3/4	Calc 1869'
Liner 1	4 1/2	4956-7699	340 sxs	6 1/4	4956'
Liner 2	4 1/2	0-4956	150 sxs	6 1/4	Calc 3334'

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



FORM	DEPTH
Rustler	980
Tansill	2255
Yates	2420
7 Rivers	2650
Queen	3140
Grayburg	3470
San Andres	3809
Glorieta	5200
Abo	6850
Wolfcamp	7815
Devonian	8405
Montoya	9260
Simpson	9560
Ellenburger	10110
Granite	10250

APINUM:	30-025-12473				
OPERATOR:	APACHE CORP				
LEASENAME:	STATE F GAS COM			WELL NO	5
SURFACE LOCATION:	UL: N	SEC: 36	TWN: 19S	RNG:	36E
	785 FSL		1980 FWL		
TD: 9978	PBD	KB	DF		
		GL 3580			
POOL		PERFS: 7198-7511			
Monument Abo					
TEST (SHOW DATE)					
Oct-95	OIL 207	GAS 197	WATER 13		
	OIL	GAS	WATER		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	187	200 sxs	17 1/2	0' CIRC
INT1	8 5/8	2400	1300 sxs	11	(*)
PROD.	5 1/2	10004	1200 sxs	7 3/4	2544 Temp

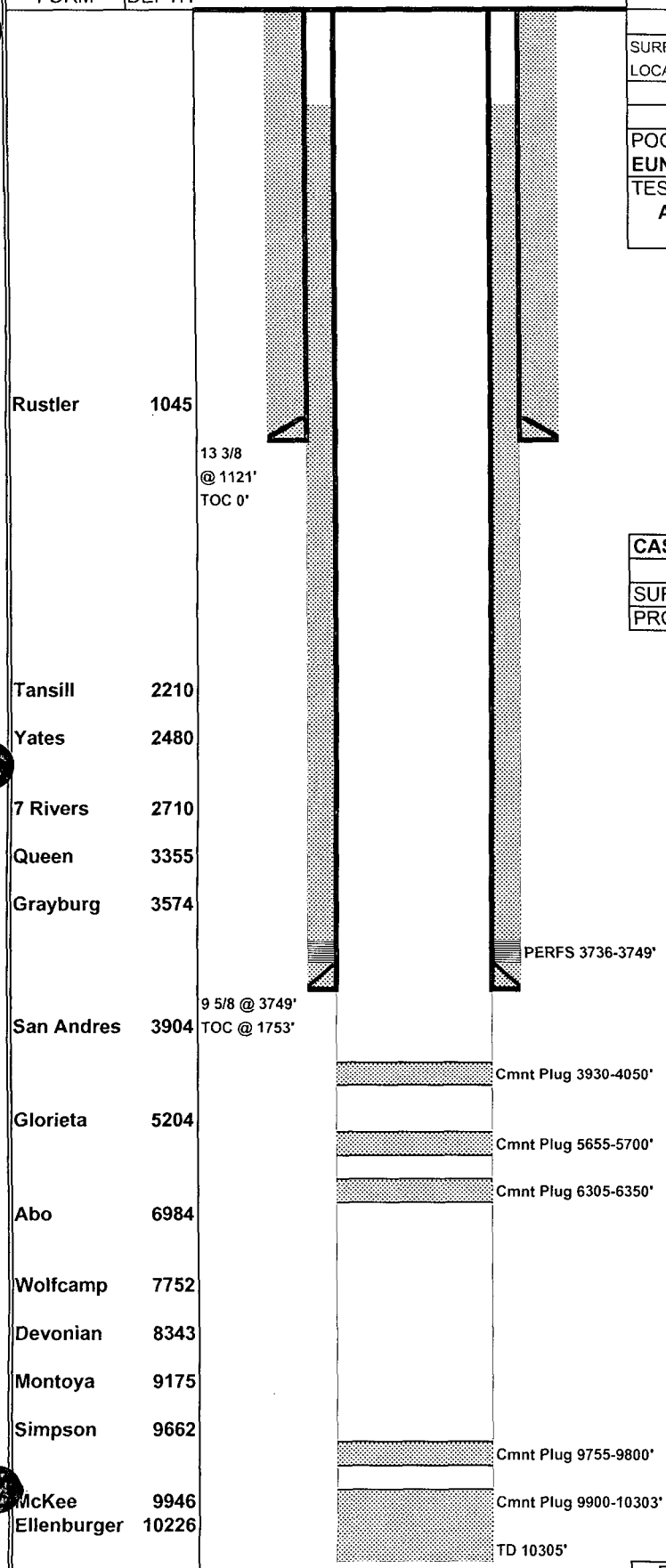
(*) Calc TOC at surface. Sundry report indicates cmnt did not circulate.

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1045
Tansill	2210
Yates	2480
7 Rivers	2710
Queen	3355
Grayburg	3574
San Andres	3904
Glorieta	5204
Abo	6984
Wolfcamp	7752
Devonian	8343
Montoya	9175
Simpson	9662
McKee	9946
Ellenburger	10226



APINUM:	30-025-12481
OPERATOR:	APACHE CORP
LEASENAME:	NORTH MONUMENT G/SA UNIT
WELL NO	285
SURFACE LOCATION: UL:	F
SEC:	36
TWN:	19S
RNG:	36E
	1830 FNL
	1980 FWL
TD:	10305
PBD	3930
KB	
DF	3611
GL	
POOL	EUNICE MONUMENT GB-SA
PERFS:	3736-3749
Open Hole:	3749-3930

TEST (SHOW DATE)

Apr-96	OIL	3	GAS	51	WATER 37
	OIL		GAS		WATER

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	1121	1125 sxs	17	0' CIRC
PROD.	9 5/8	3749	600 sxs	12 1/4	Calc 1753'

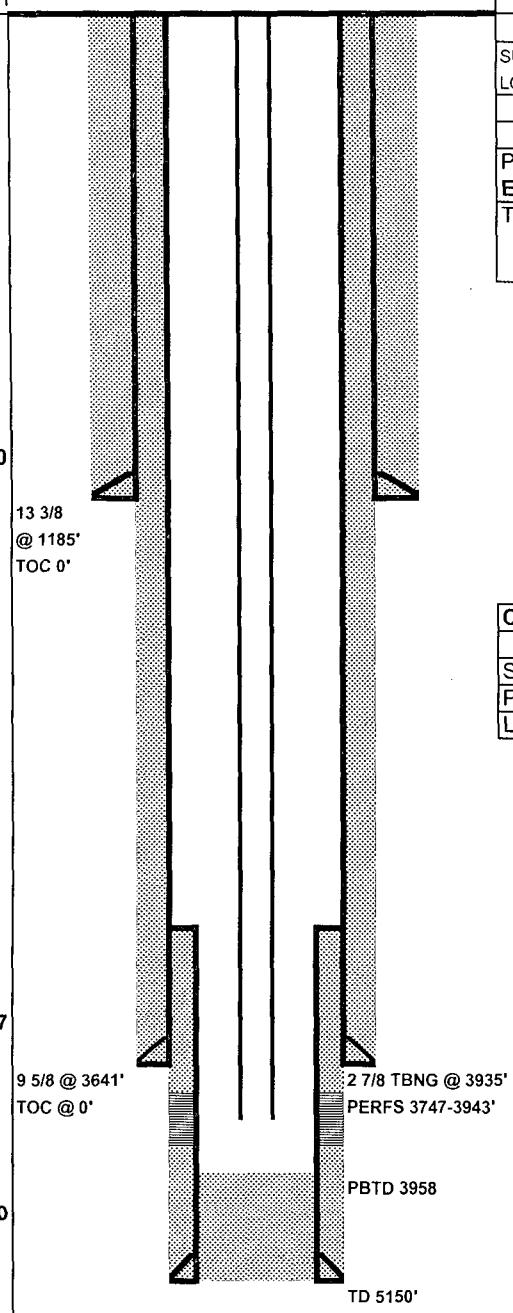
PREPARED BY:

UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1090
Grayburg	3627
San Andres	4020
Glorieta est	5300



APINUM:	30-025-31587				
OPERATOR:	APACHE CORP				
LEASENAME:	NORTH MONUMENT G/SA UNIT			WELL N(	19
SURFACE LOCATION:	UL: C	SEC: 36	TWN: 19S	RNG:	36E
	81 FNL		1505 FWL		
TD: 5150	PBD 3958	KB		DF	
		GL 3610			
POOL			PERFS:	3747-3943	
EUNICE MONUMENT GB-SA					
TEST (SHOW DATE)					
Feb-93	OIL 196	GAS 78	WATER 37		
	OIL	GAS	WATER		

CASING RECORD

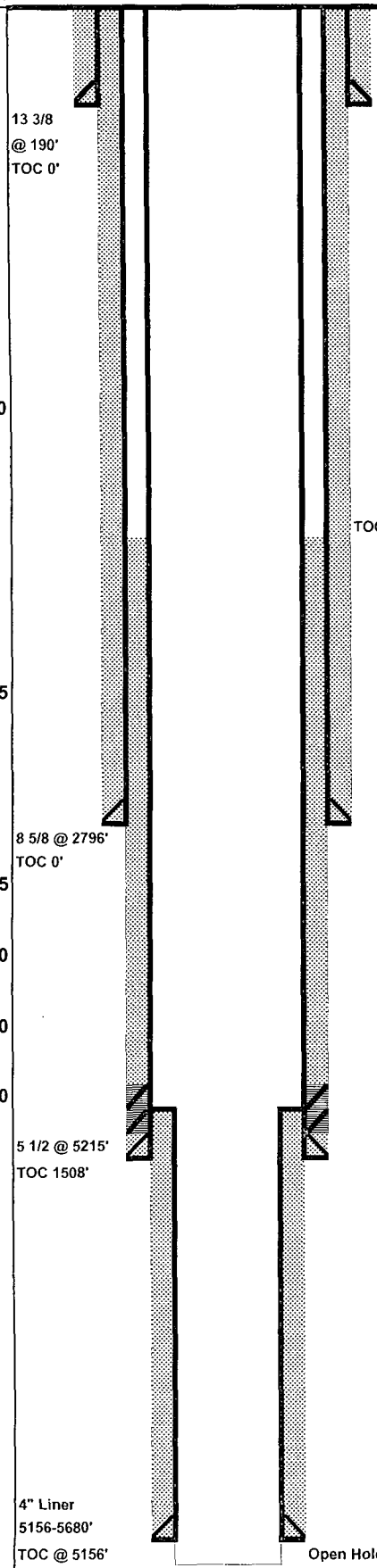
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	1185	915 sxs	17 1/2	0' CIRC
PROD.	9 5/8	3641	925 sxs	12 1/4	Calc 0'
Liner 1	7	3482-5148	203 sxs	8 3/4	3482'

PREPARED BY:	UPDATED	07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	940
Tansill	2225
Queen	3185
Grayburg	3570
San Andres	3800
Glorieta	5100



APINUM:	30-025-04143				
OPERATOR:	APACHE CORP				
LEASENAME:	STATE D			WELL NO.	5
SURFACE LOCATION:	UL: C	SEC: 1	TWN: 20S	RNG:	36E
	766 FNL		1874 FWL		
TD	5730	PBD	KB	DF	
			GL 3577		

POOL				PERFS:	5150-5207	
Monument Paddock				abandoned 1952		
TEST (SHOW DATE)						
Apr-48	OIL	192	GAS 774	WATER	na	
	OIL		GAS	WATER		
POOL				Open Hole:	5680-5730	
Monument Paddock						
TEST (SHOW DATE)						
Nov-52	OIL	146	GAS 160	WATER	na	
	OIL		GAS	WATER		

CASING RECORD

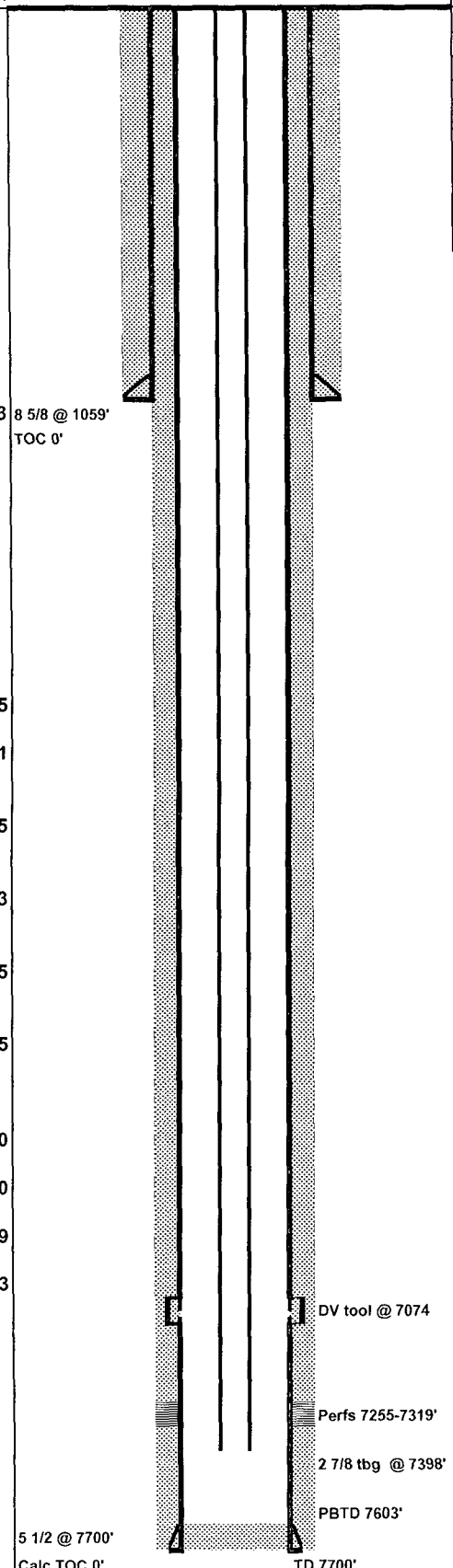
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	190	200 sxs	17 1/2	0' CIRC
INT1	8 5/8	2796	1550 sxs	11	0' CIRC
PROD.	5 1/2	5215	500 sxs	7 3/4	1508 ts
Liner 1	4	5156-5680	100 sxs	4 3/4	5156

PREPARED BY: UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1103
Tansill	2385
Yates	2521
7 Rivers	2735
Queen	3233
Grayburg	3585
San Andres	3715
Paddock	5570
Tubb	6550
Drinkard	6619
Abo	6823



APINUM:	30-025-34188				
OPERATOR:	APACHE CORP				
LEASENAME:	STATE A				WELL NO. 7
LOCATION:	UL: B	SEC: 2	TWN: 20S	RNG: 36E	
	990 FNL		1650 FEL		
TD 7700	PBD 7603	KB	DF		
		GL 3591			
POOL		PERFS 7255-7319			
Monument Abo					
TEST (SHOW DATE)					
Apr-98	OIL 30	GAS 31	WATER 34		
	OIL	GAS	WATER		

CASING RECORD

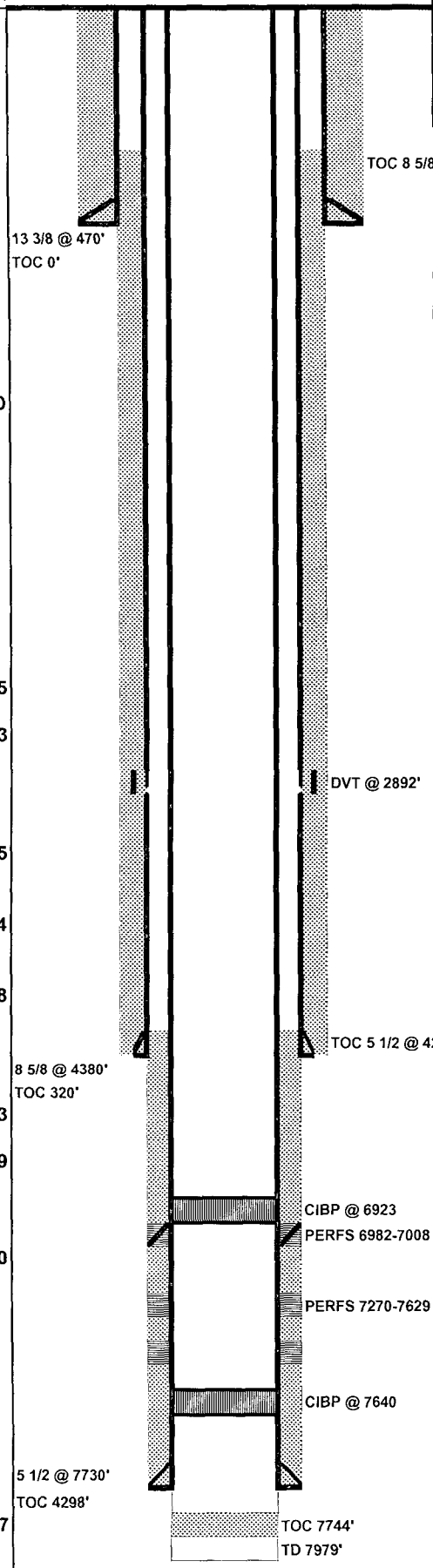
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1059	450 sxs	11	CIRC
PROD.	5 1/2	7700	1400 sxs	7 7/8	Calc 0'

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1060
Tansill	2345
Yates	2483
Queen	3265
Grayburg	3644
San Andres	4058
Glorieta	5053
Tubb	6479
Abo	7040
Wolfcamp	7867



APINUM:	30-025-26886				
OPERATOR:	APACHE CORP				
LEASENAME:	MONUMENT ABO UNIT			WELL NO	1
SURFACE LOCATION:	UL: C	SEC: 2	TWN: 20S	RNG:	36E
	800 FNL		1750 FWL		
TD: 7979	PBD 7750	KB 3613	DF		
		GL 3598			

POOL	PERFS: 7283-7629
Monument Abo	TA'd CIBP @ 6923
TEST (SHOW DATE)	
Feb-81 OIL 230 GAS 188 WATER 13	
OIL GAS WATER	

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	470	500 sxs	17 1/2	0' CIRC
INT1	8 5/8	4380	2150 sxs	12 1/4	320' TS
PROD.	5 1/2	7730	675 sxs	7 7/8	4298' CBL

Aug-02 **Well TA, tested to 520 psi for 30 min. TA expires 08/15/2007**

PREPARED BY:	UPDATED 7/31/2006

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE SEAY
601 W. ILLINOIS
HOBBS, NM 88242
FAX TO: (505) 392-6949

Receiving Date: 04/12/05
Reporting Date: 04/13/05
Project Owner: BEARDEN
Project Name: MONUMENT SWD
Project Location: MONUMENT, NM

Sampling Date: 04/11/05
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (u S/cm)	T-Alkalinity ($mgCaCO_3$/L)
ANALYSIS DATE:		04/12/05	04/12/05	04/12/05	04/12/05	04/12/05	04/12/05
H9698-1	COOPER #1	54	43	21	6.35	562	228
H9698-2	SECTION 30 #2	94	85	27	3.56	1014	288
Quality Control		NR	58	54	4.90	1322	NR
True Value QC		NR	50	50	5.00	1413	NR
% Recovery		NR	116	108	98.0	93.6	NR
Relative Percent Difference		NR	3.1	3.8	0.8	0.7	NR
METHODS:			SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl^- (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		04/12/05	04/12/05	04/12/05	04/12/05	04/12/05	04/13/05
H9698-1	COOPER #1	44	29	0	278	6.84	477
H9698-2	SECTION 30 #2	92	110	0	351	6.74	773
Quality Control		998	50.33	NR	961	7.11	NR
True Value QC		1000	50.00	NR	1000	7.00	NR
% Recovery		99.8	101	NR	96.1	102	NR
Relative Percent Difference		0.2	0.2	NR	1.6	0.1	1.4
METHODS:		SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

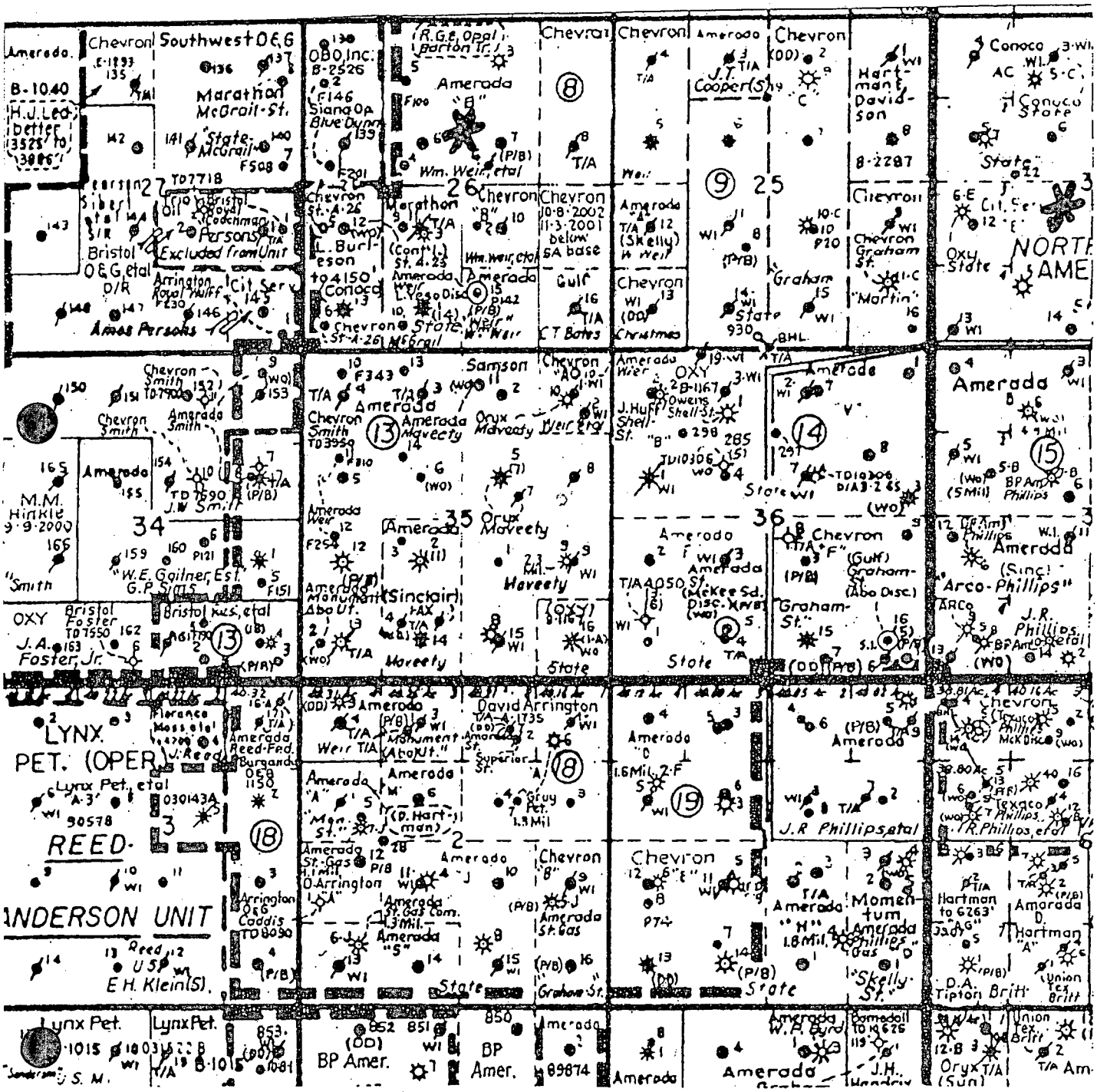
Amy Hill
Chemist

4/13/05
Date

H9698

XI

* water wells



LIST OF OFFSET OPERATORS

APACHE CORP
6120 S Yale, Ste 1500
Tulsa, OK 74136

CHEVRON U S A INC
15 Smith Rd
Midland, TX 79705

DAVID H ARRINGTON OIL & GAS INC
PO Box 2071
Midland, TX 79702

MARATHON OIL CO
PO Box 3497
Houston, TX 77056

TARGA MIDSTREAM SERVICES LTD PTR
1000 Louisiana, Ste 4700
Houston, TX 77002

7005 1820 0001 6797 6375

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Street, Apt. No.; or PO Box No.: P.O. Box 3497
City, State, ZIP+4: Houston, TX 77056

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Total Postage & Fees	$ 6.56

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Sent To: Chevron USA Inc.
Street, Apt. No.; or PO Box No.: 15 Smith Rd.
City, State, ZIP+4: Midland, TX 79705

PS Form 3800, June 2002 See Reverse for Instructions

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Sent To: David H. Arrington Oil & Gas Inc.
Street, Apt. No.; or PO Box No.: P.O. Box 2071
City, State, ZIP+4: Midland, TX 79702

PS Form 3800, June 2002 See Reverse for Instructions

7005 1820 0001 6797 6382

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Total Postage & Fees	$ 632

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Sent To: Targa Midstream Services Ltd. PTR
Street, Apt. No.; or PO Box No.: 1000 Louisiana, Ste. 4700
City, State, ZIP+4: Houston, TX 77002

PS Form 3800, June 2002 See Reverse for Instructions

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Return Receipt Fee (Endorsement Required)	185
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.56

EUNICE, NM 88231 OCT Postmark Here 27 2006 USPS

Sent To: Apache Corp.
Street, Apt. No.; or PO Box No.: 6120 S. Yale, Ste. 1500
City, State, ZIP+4: Tulsa, OK 74136

PS Form 3800, June 2002 See Reverse for Instructions

MONUMENT DISPOSAL INC.
1314 Brittany
Hobbs, NM 88240

RE: Monument #1
Unit H, Sect. 35, T. 19 S., R. 36 E.

Dear Sirs:

In accordance with the Rules and Regulations of the Oil Conservation Division of the State of New Mexico, you are being provided a copy of the C-108 Application for Authorization to Inject into the above captioned well.

Any questions about the permit can be directed to Eddie W. Seay, (505)392-2236. Any objections or request for hearing must be filed with the Oil Conservation Division within fifteen (15) days from the date received. The OCD address is P. O. Box 6429, 1220 S. Saint Francis Drive, Santa Fe, NM 87504, (505)476-3440.

Thank you,

Eddie W Seay

Eddie W. Seay, Agent
601 W. Illinois
Hobbs, NM 88242
(505)392-2236

LEGAL NOTICE

Pursuant to the rules and regulations of the Oil Conservation Division of the State of New Mexico, Monument Disposal Inc., 1314 Brittany, Hobbs, NM 88240, is filing a C-108, Application for a Class I Non-Hazardous Disposal. The well being applied for is the Monument #1, located in Unit H, Section 35, Township 19 S., Range 36 E., Lea Co., NM. The injection formation is San Andres located from 4351′ to 5000′ below surface. Expected maximum injection rate is 3000 bpd. and the expected maximum injection pressure is 800 lbs. or what the OCD allows. Any questions about the application can be directed to Eddie W. Seay, (505)392-2236, or any objections or request for hearing must be directed to the Oil Conservation Division, (505)476-3440, 1220 South Saint Francis Drive, Santa Fe, NM 87504, within fifteen (15) days.

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that she is Advertisting Director of **THE LOVINGTON LEADER**, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Legal Notice

was published in a regular and entire issue of **THE LOVINGTON LEADER** and not in any supplement thereof, for one (1) day, beginning with the issue of October 28, 2006 and ending with the issue of October 28, 2006.

And that the cost of publishing said notice is the sum of $22.69 which sum has been (Paid) as Court Costs.

Joyce Clemens

Subscribed and sworn to before me this 31st day of October 2006

Debbie Schilling

Debbie Schilling
Notary Public, Lea County, New Mexico
My Commission Expires June 22, 2010

LEGAL NOTICE
Pursuant to the rules and regulations of the Oil Conservation Division of the State of New Mexico, Monument Disposal Inc., 1314 Brittany, Hobbs, NM 88240, is filing a C-108, Application for a Class I Non-Hazardous Disposal. The well being applied for is the Monument #1, located in Unit H, Section 35, Township 19 S., Range 36 E., Lea Co., NM. the injection formation is San Andres located from 4351' to 5000' below surface. Expected maximum injection rate is 3000 bpd. and the expected maximum injection pressure is 800 lbs. or what the OCD allows. Any questions about the application can be directed to Eddie W. Seay, (505)392-2236, or any objections or request for hearing must be directed to the Oil Conservation Division, (505)476-3440, 1220 South Saint Francis Drive, Santa Fe, NM 87504, within fifteen (15) days. Published in the Lovington Leader October 28, 2006.

MONUMENT DISPOSAL INC.

DISCHARGE PLAN
FOR CLASS I DISPOSAL

Prepared By
Eddie Seay Consulting
October 2006

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Oct 08, 2002

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to
Appropriate
District Office

DISCHARGE PLAN APPLICATION FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELL FACILITY

☒ New ☐ Renewal

I. Facility Name: MONUMENT DISPOSAL

II. Operator: MONUMENT DISPOSAL INC

Address: 1314 Brittany, Hobbs, NM 88240

Contact Person: Darrell Bearden Phone: (505) 390-9576

III. Location: SE /4 NE /4 Section 35 Township 19S Range 36E
Submit large scale topographic map showing exact location.

IV. Attach the name and address of the landowner of the facility site.

V. Attach a description of the types and quantities of fluids at the facility.

VI. Attach a description of all fluid transfer and storage and fluid and solid disposal facilities.

VII. Attach a description of underground facilities (well diagrams etc. including a C-101 or C-103, and C-108).

VIII. Attach a contingency plan for reporting and clean-up of spills or releases.

IX. Attach geological/hydrological evidence demonstrating that operations will not adversely impact fresh water.

X. Attach such other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

XI. CERTIFICATION:

I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Name: Eddie W Seay Title: Agent

Signature: Eddie W Seay Date: 11/02/06

Item IV. Name and address of the land owner

Monument Disposal Inc
1314 Brittany
Hobbs, NM 88240

Item V. Types and quantities of fluids at facility

This facility will temporarily store and dispose of Non Hazardous Regulated Liquid waste such as spent acids or caustics, well treating chemical fluids, completion fluids, or waste that is approved under 40 CFR Part 261 Environmental Protection Agency. No other fluids will be stored at this facility. The non-hazardous regulated liquid waste will be stored in three (3), 500 bl. above ground tanks. These tanks will be located on and within a Polyethylene "CIM 1000" lined dike area (CIM 1000 see material data sheet attached). The dike area will be sized to hold more than 133% of the tanks combine capacity. The volume will vary from month to month. This volume could be 15,000 to 30,000 bls. per month.

Item VI. Transfer and storage

The facility will be located within a security fence. Fluid waste will be transported to the site by tanker truck. Any unloading will only occur after verification of proper documentation and approval. Tanker truck will then be admitted to the facility and the tanker truck will be positioned inside a polyethylene "CIM 1000" lined dike off loading area to retain fluids in event an accidental discharge or spill were to occur (CIM 1000 see material data sheet attached). Tank trucks will connect to a header valve by hose and pumps on the truck will pull the fluids from the tanker truck to the header valve. The fluid waste will flow from the header valve and header system to the tanks by piping positioned above the poly liner. When off loading is complete, the driver or operator will close the valve on the truck, followed by the header valve. As a precaution, an above ground drip tank will be located at the header valve to catch any drips that might occur during the off loading process. The operator or driver will be present during the off loading process and will fill out a run ticket for the volume source. These tickets will be used for billing and also for monitoring the volumes which will help in keeping up with the integrity of the system.

A flow meter will be located between the tanks and the disposal well. The physical and chemical characteristics of the injected fluids, monthly average, maximum and minimum values for injection pressure, flow rate and volume, flow rate and volume and annular pressure will be reported quarterly.

Tanks and piping will be above ground for rapid visual leak inspection and detection. The off loading area will be poly lined dike area to contain any spillage that may occur. Dike areas will prevent run-off of storm water. Any water that does accumulate will be vacuumed up and disposed into the system. Monument disposal personnel will be at the facility on a daily basis checking for leaks and/or spills. The inspection will be recorded and kept on file, any corrections or repairs will be noted on inspection file.

Prior to starting injection and after approval, the casing will be pressure tested for integrity. These "MIT" tests will be conducted on at least a five year schedule or as required by the OCD. MIT tests will also be conducted after any work-over is done on

the well. Upon proper notification the facility will be open for regulatory inspection by OCD personnel.

No solids will be disposed of at this site.

Item VII. Description of Underground Facility

The only underground facilities will be the disposal well and its piping construction. Enclosed is the schematic of the existing and proposed wellbore.

The proposed construction will be:

13 3/8" surface casing set at 364' with cement circulated to surface.
9 5/8" intermediate casing set at 2809' with cement circulated to surface.
7" production casing from surface to 4319', 7" collar, 5 ½" swage, 5 ½ collar, 5 ½" Hastelloy C-176 liner from 4319' to 4359' with cement circulated to surface (see attached material data sheet for Hastelloy C-176 liner).
2 3/8' plastic lined tubing set at approximately 4355' with a packer set at approximately 4260'.

Item VIII. Contingency Plan for reporting and clean-up spills or releases

All above ground piping and tanks will be visually inspected for leaks by company personnel during each site visit. Any problems such as leaks, spills or well abnormality will be taken to the attention of Monument Disposal supervisor immediately. Supervisor will assess the problem and proceed with proper notification and repairs as OCD Rule 116 and WQCC Regulation 5208 requires. The onsite safety and contingency plan will be posted on site. Monument Disposal will adhere to any County, State and Federal regulations as it pertains to this facility.

Item IX. Site Characteristics

Location:
The proposed disposal well is located on Monument Disposal property at 8205 South Highway 322, approximately 3 ½ miles west of Monument, NM. (Section 35, Township 19 South, Range 36 East, Unit Letter H, 2582' from North line, 809' from East line, Latitude: 32°37'05", Longitude: 103°19'26") (see attached Location Map)

Hydrology:
There is no surface water in close proximity . ı the
Monument area is derived from three geologi ernary
Alluvium and the Santa Rosa Formation. The the
site and is present 2 miles north and 6 miles ea: ıe
Ogallala to the north and east of Monument, the ?5 to
175'. The movement of ground water in the Og ast.

The saturated thickness of the Quaternary alluvium in the Monument area is 0' to 30' thick and ground water movement is towards the southeast. In the vicinity of the disposal well site, the saturated thickness ranges from 0' to 35'. The direction of ground water movement in the near vicinity of the disposal site is to the south.

Beneath the Ogallala Formation and the Quaternary Alluvium is the undifferentiated redbeds of the Dockum Group. The Santa Rosa Formation is the lowest formation of the Dockum Group. The redbeds are relatively impermeable and act as a barrier to downward or upward movement of ground water. In the Monument area only a few wells produce water from the Santa Rosa.

Geology

The proposed site is located on the Central Basin Platform of the Permian Basin. Beneath the Dockum Group is a sequence of evaporates consisting of the Rustler Formation and salt section. The Rustler and salt section are approximately 1350 feet thick. Below the base of the salt in descending order are the Tansill, Yates, Seven Rivers, Queen and Grayburg Formations. Beneath the Grayburg Formation at 4028' is the San Andres Formation the injection zone for this well.

The proposed site in the Rustler through San Andres Formations is on the west side of a structural high known as the Monument high. In this area these formations dip to the west and southwest. One of the main oil producing horizons in the Monument area is the Monument-Grayburg-San Andres Pool. The oil water contact in the Monument-Grayburg-San Andres Pool is at 3992'. At the site of the proposed disposal well the San Andres formation is below the oil water contact. In this area, the San Andres can be divided into an upper, middle and lower zones based on the porosity and permeability. The Monument-Grayburg-San Andres Pool is only productive of oil from the Grayburg and Upper San Andres Formations where these formations are above the oil water contact at 3992'.

The San Andres Formation consists of dolomite with some interbedded limestone. The Upper San Andres from 4028 to 4110 ranges from 4-16% porosity with an average porosity of 12% and a permeability of 50-70 md. The middle San Andres interval from 4110' to 4225' acts as a confining interval. This confining interval has a porosity less than 4% and permeability less than .02 md. The lower San Andres is the injection interval. The lower San Andres consists of 4 zones. From the top to the bottom they are L1, L2, L3 and L4. The porosity of L1 (340' thick) and L3 (350' thick) ranges from 4-16% porosity with permeability up to 30md. Zones L2 (20' thick) and L4 (250' thick) has porosity less than 4% and very low permeability. Zones L2 and L4 act as barrier zones and zones L1 and L3 being the primary disposal interval. Zone L4 isolates the disposal interval from Formations below the San Andres.

Item X. Monument Disposal Inc. will comply with any rule regulation or order which the OCD or WQCC currently has or any new rule and regulation that pertains to this type of facility that the OCD or WQCC may initiate in the future.

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
May 27, 2004

WELL API NO.
30-025-37918

5. Indicate Type of Lease
STATE ☐ FEE ☒

6. State Oil & Gas Lease No.

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.)

7. Lease Name or Unit Agreement Name
MONUMENT DISPOSAL (35738)

1. Type of Well: Oil Well ☐ Gas Well ☐ Other SWD

8. Well Number # 1

2. Name of Operator
MONUMENT DISPOSAL INC

9. OGRID Number 242044

3. Address of Operator
1314 BRITTANY, HOBBS, NM 88240

10. Pool name or Wildcat
SWD;SAN ANDRES

4. Well Location
Unit Letter H : 2582 feet from the N line and 809 feet from the E line
Section 35 Township 19S Range 36E NMPM LEA County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type _____ **Depth to Groundwater** _____ **Distance from nearest fresh water well** _____ **Distance from nearest surface water** _____

Pit Liner Thickness: _____ **mil** **Below-Grade Tank: Volume** _____ **bbls; Construction Material** _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER:	☒			OTHER:			☐

13. 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. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

1) Propose to convert this well from Class II SWD to a Class I Disposal well

2) Notify OCD Hobbs office at least 24 hors prior to working on well

3) RIH with tubing, set at approximately 4355' with packer at 4260'

4) Pressure test well to 500 psi w/ chart

4A) If well test successful submit follow up C-103 w/ chart to OCD

or

4B) If test unsuccessful follow up C-103 to OCD with plan of action to repair well.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. **I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☒ or an (attached) alternative OCD-approved plan ☐.**

SIGNATURE Eddie W Seay TITLE Agent DATE 11/2/06

Type or print name E-mail address: Telephone No.

For State Use Only

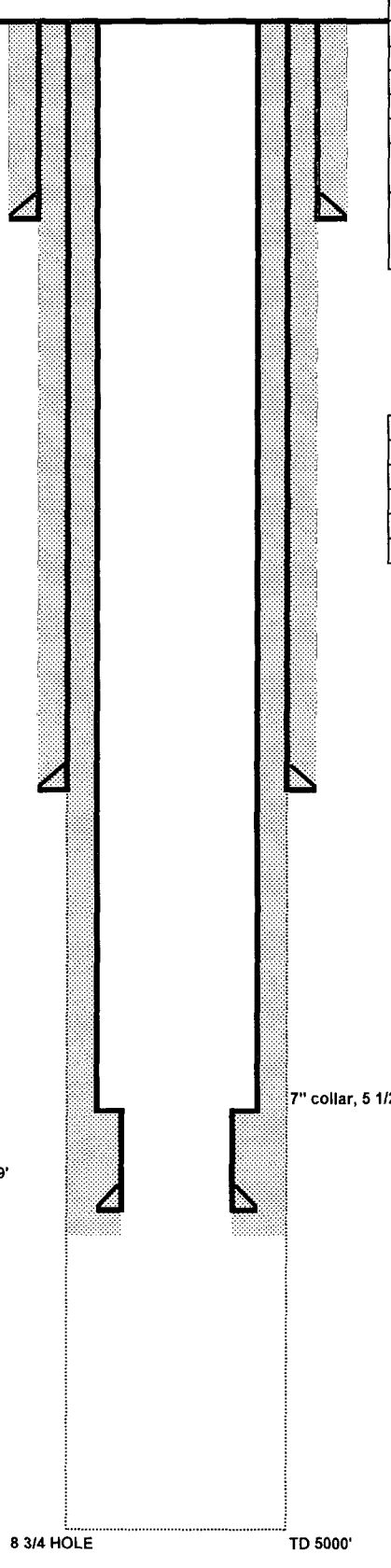
APPROVED BY: _____ TITLE _____ DATE _____

Conditions of Approval (if any):

PRESENT WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500



APINUM:	30-025- 37918				
OPERATOR:	MONUMENT DISPOSAL INC				
LEASENAME:	MONUMENT DISPOSAL			WELL NO	1
LOCATION:	UL: H	SEC: 35	TWN: 19S	RNG:	36E
	2582 FNL		809	FEL	
TD	4240	PBD	KB 3651	DF	
			GL 3641		
POOL	SI DISPOSAL		PERFS		
			OPEN HOLE	4351-5000	

TEST (SHOW DATE)

OIL	GAS	WATER
OIL	GAS	WATER

CASING RECORD

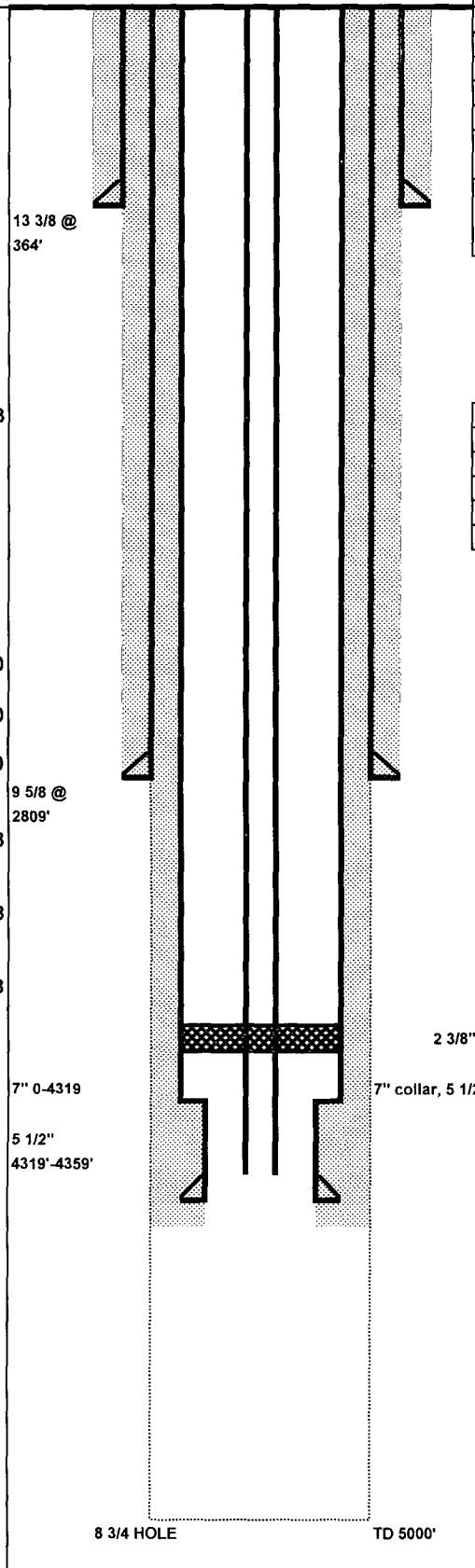
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

* 5 1/2 Hastelloy C-276 liner

PREPARED BY: | UPDATED 7/31/2006

PROPOSED WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500

APINUM:	30-025-37918				
OPERATOR:	MONUMENT DISPOSAL INC				
LEASENAME:	MONUMENT DISPOSAL			WELL NO	1
LOCATION:	UL: H	SEC: 35	TWN: 19S	RNG:	36E
	2582 FNL		809 FEL		
TD	4240	PBD	KB	3651	DF
			GL	3641	
POOL	SI DISPOSAL		PERFS		
			OPEN HOLE	4351-5000	

TEST (SHOW DATE)

OIL	GAS	WATER
OIL	GAS	WATER

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

* 5 1/2 Hastelloy C-276 liner

PREPARED BY:	UPDATED	7/31/2006

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State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
May 27, 2004

WELL API NO.
30-025-37918

5. Indicate Type of Lease
STATE ☐ FEE ☒

6. State Oil & Gas Lease No.

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.)

7. Lease Name or Unit Agreement Name
MONUMENT DISPOSAL (35738)

1. Type of Well: Oil Well ☐ Gas Well ☐ Other SWD

8. Well Number # 1

2. Name of Operator
MONUMENT DISPOSAL INC

9. OGRID Number 242044

3. Address of Operator
1314 BRITTANY, HOBBS, NM 88240

10. Pool name or Wildcat
SWD;SAN ANDRES

4. Well Location
Unit Letter H : 2582 feet from the N line and 809 feet from the E line
Section 35 Township 19S Range 36E NMPM LEA County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type _____ **Depth to Groundwater** _____ **Distance from nearest fresh water well** _____ **Distance from nearest surface water** _____

Pit Liner Thickness: _____ **mil** **Below-Grade Tank: Volume** _____ **bbls;** **Construction Material** _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☒	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER:			☒	OTHER:			☐

13. 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. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

1) Notify OCD Hobbs office at least 24 hors prior to rigging up on the well prior to commencing P&A
2) Pull tubing and packer
3) RIH with tubing, set retainer at 4260'. Pump 215 sxs cement. Cap retainer with 25 sx cement.
4) Load hole with 9.5 brine
5) Set 25 sx plug from 2860-2750 to cover 50' below/ 50' above intermediate shoe at 2809 Tag plug
6) Set 25 sx plug from 2500-2400 to cover base of salt.
7) Set 25 sx plug from 1143-1043 to cover top of salt
8) Set 24 sx plug from 414-314 to cover surface shoe @ 364' Tag plug
9) Set 60' plug at surface.
10) Set P&A marker

I hereby certify that the information above is true and complete to the best of my knowledge and belief. **I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☒ or an (attached) alternative OCD-approved plan ☐.**

SIGNATURE Eddie W Seay TITLE Agent DATE 11/2/06

Type or print name E-mail address: Telephone No.

For State Use Only

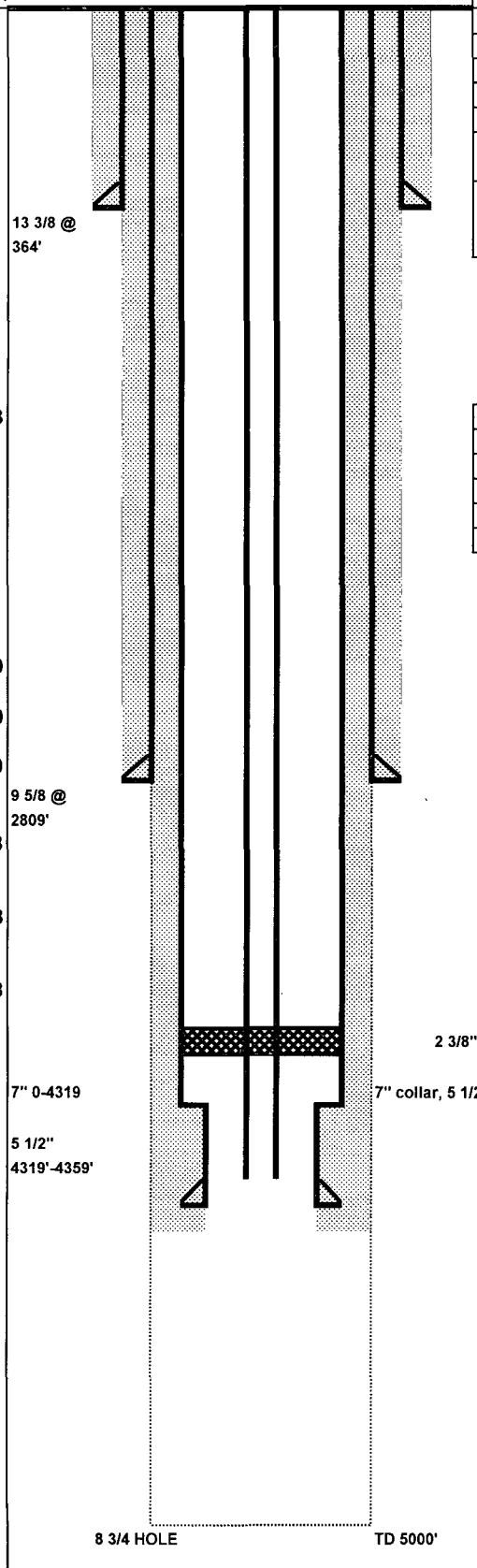
APPROVED BY: _____ TITLE _____ DATE _____

Conditions of Approval (if any):

PROPOSED WELLBORE SCHEMATIC AND HISTORY *BEFORE P+A*

FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500

COMPLETION SCHEMATIC



APINUM:	30-025-37918				
OPERATOR:	MONUMENT DISPOSAL INC				
LEASENAME:	MONUMENT DISPOSAL			WELL NO	1
LOCATION:	UL: H	SEC: 35	TWN: 19S	RNG:	36E
	2582 FNL		809	FEL	
TD	4240	PBD	KB	3651	DF
			GL	3641	
POOL	SI DISPOSAL		PERFS		
			OPEN HOLE	4351-5000	

TEST (SHOW DATE)

OIL	GAS	WATER
OIL	GAS	WATER

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

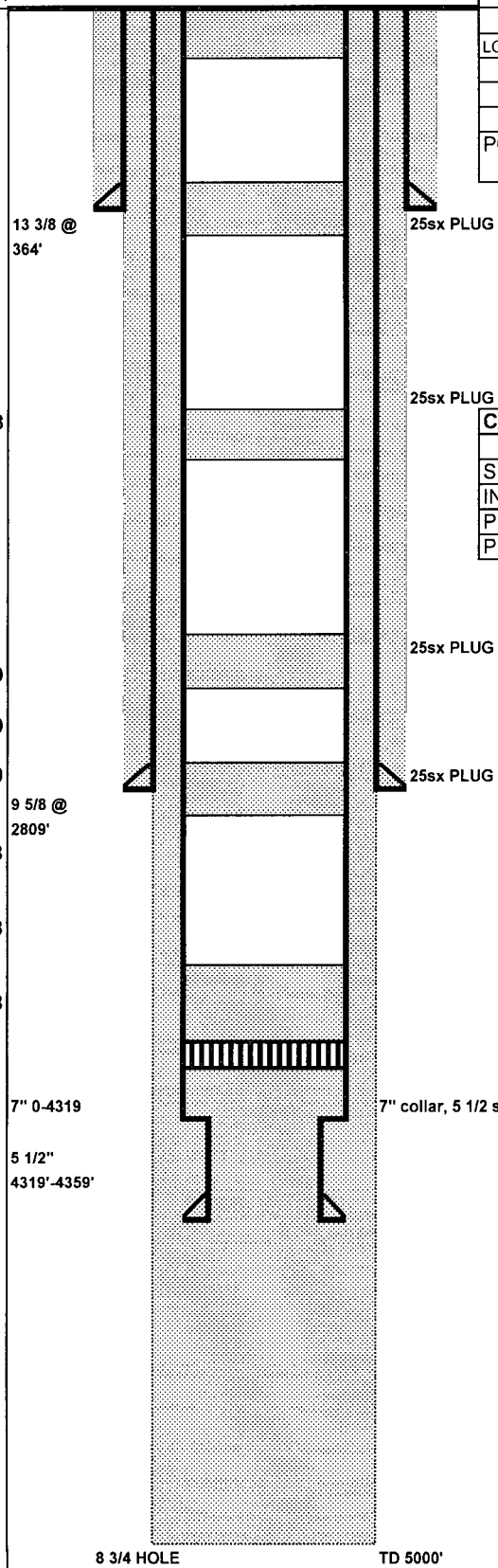
* 5 1/2 Hastelloy C-276 liner

PREPARED BY: | UPDATED 7/31/2006

PROPOSED P&A WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500



APINUM:	30-025-37918				
OPERATOR:	MONUMENT DISPOSAL INC				
LEASENAME:	MONUMENT DISPOSAL			WELL NO	1
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	2582 FNL		809	FEL	
TD	4240	PBD	KB 3651	DF	
			GL 3641		
POOL	SI DISPOSAL		PERFS		
			OPEN HOLE	4351-5000	

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
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PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

* 5 1/2 Hastelloy C-276 liner

PREPARED BY: | UPDATED 7/31/2006

NEW MEXICO ENERGY, MINERALS and
NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E
Director
Oil Conservation Divisio

ADMINISTRATIVE ORDER SWD-1035

APPLICATION OF MONUMENT DISPOSAL INC. FOR PRODUCED WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), Monument Disposal Inc. made application to the New Mexico Oil Conservation Division for permission to utilize for produced water disposal its Monument Well No. 1 (API No. 30-025-37918) located 2582 feet from the North line and 809 feet from the East line of Section 35, Township 19 South, Range 36 East, NMPM, Lea County, New Mexico.

THE DIVISION DIRECTOR FINDS THAT:

(1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;

(2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified;

(3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met; and

(4) No objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED THAT:

The applicant is hereby authorized to utilize its Monument Well No. 1 (API No. 30-025-37918) located 2582 feet from the North line and 809 feet from the East line of Section 35, Township 19 South, Range 36 East, NMPM, Lea County, New Mexico, in such manner as to permit the injection of produced water for disposal purposes into the San Andres formation through an open hole from approximately 4359 feet to 5000 feet and through plastic-lined tubing set in a packer located within 100 feet of the top of the injection interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

Prior to beginning commercial injection operations, the operator shall report the initial static fluid level in the well.

After installing injection tubing, the casing shall be pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

The wellhead injection pressure on the well shall be limited to **no more than 872 psi**. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Hobbs district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall provide written notice of the date of commencement of injection to the Hobbs district office of the Division.

The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

Approved at Santa Fe, New Mexico, on June 28, 2006.

MARK E. FESMIRE, P.E.
Director

MEF/wvjj

cc: Oil Conservation Division – Hobbs

Outstanding Corrosion Resistance in the As-Welded Condition — HASTELLOY alloy C-276 is an improved wrought version of HASTELLOY alloy C. Alloy C-276 has the same excellent corrosion resistance as alloy C with vastly improved fabricability. This alloy resists the formation of grain-boundary precipitates in the weld heat-affected zone, thus making it suitable for most chemical process applications in the as-welded condition. Alloy C-276 also has excellent resistance to pitting, stress-corrosion cracking and to oxidizing atmospheres up to 1900 deg. F (1038 deg. C).

HASTELLOY alloy C-276 has exceptional resistance to a wide variety of chemical process environments. These include strong oxidizers such as ferric and cupric chlorides, hot contaminated mineral acids, solvents, chloride-contaminated media (organic and inorganic), chlorine, formic and acetic acids, acetic anhydride, and sea water and brine solutions. It is also one of the few materials that will resist the corrosive effects of wet chlorine gas, hypochlorite, and chlorine dioxide solutions.

Precipitation Characteristics — The precipitation characteristics of alloy C-276 indicate that a much greater time is required to form precipitates in the grain boundaries than is required for alloy C. Precipitation does not occur in alloy C-276 until after several minutes, and then in a very narrow temperature range for short-time precipitate formation compared to alloy C.

Fabricated by a Variety of Methods — HASTELLOY alloy C-276 can be forged, hot-upset, and impact extruded. Although the alloy tends to work-harden, it can be successfully deep-drawn, spun, press formed or punched. All of the common methods of welding can be used to weld HASTELLOY alloy C-276, although the oxy-acetylene process is not recommended when the fabricated item is intended for use in corrosion service. Special precautions should be taken to avoid excessive heat in-put when welding especially with submerged-arc. Fluxes containing carbon or silicon should not be used when welding alloy C-276 by the submerged-arc method.

Detailed fabricating information is available in the booklet, F-30,126, "Fabrication of HASTELLOY Alloys."

Available in Wrought Form — HASTELLOY alloy C-276 is available in the form of sheet, strip, plate, bar, wire, pipe, welding electrodes and forging stock.

Heat-Treatment — Wrought forms of HASTELLOY alloy C-276 are furnished in the solution heat-treated condition unless otherwise specified. Alloy C-276 is solution heat-treated at an effective temperature of 2050 deg. F (1121 deg. C) and rapid quenched. Parts which have been hot-formed should be solution heat-treated prior to final fabrication or installation, if possible.

Specifications — For information on specifications to which this alloy can be ordered, please contact one of the locations shown on the back cover of this booklet. Ask for booklet F-30,556.

Properties Data — The properties listed in this booklet are average values based on laboratory tests conducted by the manufacturer. They are indicative only of the results obtained in such tests and should not be considered as guaranteed maximums or minimums. Materials must be tested under actual service conditions to determine their suitability for a particular purpose. All data represent the average of four or less tests unless otherwise noted. The secondary units (metric) used in this booklet are those of the SI system.

AVERAGE TENSILE DATA

Form	Condition	Test Temp. deg. F (deg. C)	Ultimate Tensile Strength, Ksi (MPa)	Yield Strength at 2% offset, Ksi (MPa)	Elongation in 2 in., (50.8 mm), percent
Sheet, 0.078 in. (2.0 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	Room	114.9 (792)	51.6 (356)	61
		400 (204)	100.6 (694)	42.0 (290)	59
		600 (316)	98.8 (681)	35.9 (248)	68
		800 (427)	94.3 (650)	32.7 (225)	67
Sheet, 0.094 in. (2.4 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	400 (204)	101.0 (696)	39.9 (275)	58
		600 (316)	97.6 (673)	33.5 (231)	64
		800 (427)	93.5 (645)	29.7 (205)	64
Sheet, 0.063 to 0.187 in. (1.6 to 4.7 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	400 (204)[1]	100.8 (695)	42.1 (290)	56
		600 (316)[2]	97.0 (669)	37.7 (260)	64
		800 (427)[2]	95.0 (655)	34.8 (240)	65
		1000 (538)[2]	88.9 (613)	33.8 (233)	60
Plate, 3/16 to 1 in. (4.8 to 25.4 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	400 (204)[3]	98.9 (682)	38.2 (263)	61
		600 (316)[3]	94.3 (650)	34.1 (235)	66
		800 (427)[3]	91.5 (631)	32.7 (225)	60
		1000 (538)[3]	87.2 (601)	32.8 (226)	59
Plate, 1 in. (25.4 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	Room	113.9 (785)	52.9 (365)	59
		600 (316)	96.3 (664)	36.2 (250)	63
		800 (427)	94.8 (654)	30.5 (210)	61
Sheet, 0.094 in. (2.4 mm), original thickness	Cold-reduced				
	0 percent	Room	116.9 (806)	63.0 (434)	67
	10 percent	Room	129.7 (894)	92.2 (636)	48
	20 percent	Room	148.1 (1021)	129.1 (890)	26
	30 percent	Room	169.8 (1171)	157.1 (1083)	15
	40 percent	Room	193.8 (1336)	182.9 (1261)	9
	50 percent	Room	210.1 (1449)	195.4 (1347)	7

1-Average of 25 tests.
2-Average of 34-36 tests.
3-Average of 9-11 tests.

CHEMICAL COMPOSITION, PERCENT*

Nickel	Cobalt	Chromium	Molybdenum	Tungsten	Iron	Silicon	Manganese	Carbon	Others
Balance	2.50**	14.50-16.50	15.00-17.00	3.00-4.50	4.00-7.00	0.08**	1.00**	0.02**	V-0.35** P-0.04** S-0.03**

*The undiluted deposited chemical composition of alloy C-276 covered electrodes has 0.20 percent maximum silicon.
**Maximum

AVERAGE PHYSICAL PROPERTIES

Physical Properties	Temp., deg. C	Metric Units	Temp., deg. F	British Units
Density	22	8885 kg/m³	72	0.321 lb./in.³
Melting Temperature	1323-1371		2415-2500	
Electrical Resistivity	24	1.30 microhm-m	75	51 microhm-in. (779 ohms per cir. mil. ft.)
Mean Coefficient of Thermal Expansion	24-93	11.2 x 10^{-6}m/m·K	75-200	6.2 microinches/in.-deg. F
	24-204	12.0 x 10^{-6}m/m·K	75-400	6.7 microinches/in.-deg. F
	24-316	12.8 x 10^{-6}m/m·K	75-600	7.1 microinches/in.-deg. F
	24-427	13.2 x 10^{-6}m/m·K	75-800	7.3 microinches/in.-deg. F
	24-538	13.4 x 10^{-6}m/m·K	75-1000	7.4 microinches/in.-deg. F
	24-649	14.1 x 10^{-6}m/m·K	75-1200	7.8 microinches/in.-deg. F
	24-760	14.9 x 10^{-6}m/m·K	75-1400	8.3 microinches/in.-deg. F
	24-871	15.9 x 10^{-6}m/m·K	75-1600	8.8 microinches/in.-deg. F
	24-927	16.0 x 10^{-6}m/m·K	75-1700	8.9 microinches/in.-deg. F
Thermal Conductivity	-168	7.2 W/m·K	-270	50 Btu-in./ft.²-hr.-deg. F
	-73	8.6 W/m·K	-100	60 Btu-in./ft.²-hr.-deg. F
	32	9.4 W/m·K	0	65 Btu-in./ft.²-hr.-deg. F
	38	10.2 W/m·K	100	71 Btu-in./ft.²-hr.-deg. F
	93	11.1 W/m·K	200	77 Btu-in./ft.²-hr.-deg. F
	204	13.0 W/m·K	400	90 Btu-in./ft.²-hr.-deg. F
	316	15.0 W/m·K	600	104 Btu-in./ft.²-hr.-deg. F
	427	16.9 W/m·K	800	117 Btu-in./ft.²-hr.-deg. F
	538	19.0 W/m·K	1000	132 Btu-in./ft.²-hr.-deg. F
	649	20.9 W/m·K	1200	145 Btu-in./ft.²-hr.-deg. F
	760	22.9 W/m·K	1400	159 Btu-in./ft.²-hr.-deg. F
	871	24.9 W/m·K	1600	173 Btu-in./ft.²-hr.-deg. F
	982	26.7 W/m·K	1800	185 Btu-in./ft.²-hr.-deg. F
	1093	28.1 W/m·K	2000	195 Btu-in./ft.²-hr.-deg. F
Specific Heat (Calculated)	Room	427 J/kg·K	Room	0.102 Btu/lb.-deg. F
Dynamic Modulus of Elasticity	Room	205,000 MPa	Room	29.8 psi x 10^6
	204	195,000 MPa	400	28.3 psi x 10^6
	316	188,000 MPa	600	27.3 psi x 10^6
	427	182,000 MPa	800	26.4 psi x 10^6
	538	176,000 MPa	1000	25.5 psi x 10^6

C.I.M. Industries Inc.

CIM 1000

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TYPICAL PROPERTIES

Abrasion Resistance–Wt. Loss, Taber Abraser CS–17 Wheel 1000 gr./1000 rev. ASTM D4060	1.2 mg. Loss
Adhesion to Concrete (dry) Elcometer	350 psi
Deflection Temperature ASTM D648	below -60°F
Density (Approx.)	
Premix	8.0 lbs./gal.
Activator	10.1 lbs./gal.
Mixed & Cured	8.3 lbs./gal.
Elastomeric Waterproofing	
ASTM C836	exceeds all criteria
ASTM C957	exceeds all criteria
Extension to Break ASTM D412	400%
Flammability	
ASTM D2859	pass/combustible substrate
UL790	Class A[1]
Hardness, Shore A ASTM D2240 @ 77°F	60
Jet Fuel Resistance FS SS-S-200D	pass for joints
Liner Performance Crack Bridging	
10 cycles @ -15°F	greater than ⅛"
After heat aging	greater than ¼"
Liner Weight (60 mil wet film thickness)	31 lbs./100 sq. ft.
Mix Ratio	
Weight	7:1
Volume	9:1
Mullen Burst Strength ASTM D751, 50 mil	150 psi
Permeability to Water Vapor ASTM E96 Method E, 100°F, 100 mil sheet	0.03 perms
Recovery from 100% extension:	
after 5 minutes	98%
after 24 hours	100%
Salt Spray ASTM B117	pass 2000 hrs.
Service Temperature	-60°F to 220°F
Softening Point, Ring & Ball ASTM D36	>325°F
Tear Strength ASTM D624 (Die C)	150 lbs./in.
Tensile Strength ASTM D 412, 100 mil sheet	900 psi
Weathering ASTM D822	pass 5000 hrs.

[1]Contact C.I.M. Industries for details regarding UL fire ratings

CHEMICAL RESISTANCE

CIM 1000 is resistant to a broad range of acids and alkalis. Consult C.I.M. Industries for additional information regarding chemical resistance after reviewing CIM 1000 Chemical Resistance Chart.

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CONTACT C.I.M. INDUSTRIES FOR CURRENT INFORMATION.
www.cimindustries.com

C.I.M. Industries Inc.

CIM 1000

GENERAL APPLICATION INFORMATION

USE **FOR PROFESSIONAL USE ONLY.**

PRECAUTIONS Avoid contamination with water or moisture. Keep all pails and jugs tightly closed until ready for use. All equipment, air supplies, and application substrates must be **ABSOLUTELY DRY.** Do not apply in wet weather or when rain is imminent or when the CIM 1000 or the substrate may become wet within 4 hours after coating. Use caution when applying CIM 1000 in confined spaces. See C.I.M. Industries' Instruction Guide, "Applying CIM Within Confined Spaces" (IG–9).

TEMPERATURE Surface should be at least 50°F (10°C) and must be 5°F (3°C) above the dew point. **DO NOT APPLY WHEN THE SUBSTRATE OR AMBIENT TEMPERATURE IS RISING OR COATING IS IN DIRECT SUNLIGHT.** CIM 1000 should be at least 60°F (15°C) when mixed and applied. CIM 1000 may be preheated to facilitate application at low temperatures, but working time will be reduced. See C.I.M. Industries' Instruction Guide "Applying CIM Liners in Cold Weather" (IG–11).

EQUIPMENT Spray equipment requires large diameter hose and air supplied mastic gun. Airless pump may be used to provide fluid side pressure. See "Spray Application of CIM" (IG–12) or contact C.I.M. Industries for specific recommendations. Roller, squeegee, and trowel may also be used.

POT LIFE About 30 minutes. Working time depends on temperature and method of application. Working time for spray application will be significantly shorter.

PRIMING Porous substrates such as wood and concrete may be primed with CIM 61BG Epoxy Primer to minimize outgassing. The recoat window for CIM 61BG Epoxy Primer shall be no longer than 48 hours. See CIM 61BG Epoxy Primer Coating Profile for additional information. Perform adhesion tests to confirm adequacy of adhesion to primer.

MIXING **DO NOT THIN. DO NOT HAND MIX.** Begin mixing each pail (4.5 gal.) of CIM 1000 Premix using a power mixer (e.g. ½" drill and an eight inch mud mixer). Do not draw air into the mix. While mixing, slowly add one jug (0.5 gal.) of CIM 1000 Activator to the pail. Once the CIM 1000 Activator has been added, mix thoroughly for **3 FULL MINUTES.** The proportions are premeasured. **DO NOT ESTIMATE.** Mixing Jigs and Timers from C.I.M. Industries help eliminate mixing errors and increase productivity on the job. See C.I.M. Industries' Instruction Guide, "Mixing CIM Premix and Activator" (IG–8).

APPLICATION Apply CIM 1000 directly to a clean and dry substrate. Vertical surfaces will require multiple coats. See C.I.M. Industries' specific substrate Instruction Guide for additional guidelines.

RECOATING CIM 1000 may be recoated in 1 hour and must be recoated soon after the coating no longer comes off on polyethylene (typically within 4 hours of mixing). If the liner has cured longer than this time, the surface must be severely abraded using surface grinder or other mechanical means, and be free of dust and debris. Use CIM Bonding Agent for better adhesion. For immersion conditions, all coats shall be applied within 4 hours of each other, except at joint lines.

SPREAD RATE **Note: Coverages are theoretical and do not account for waste, spillage, irregular surfaces, or application technique. Consult CIM 1000 coverage chart for additional coverage information.**

CURING TIME CIM 1000 may be placed in service within 24 hours for non-aggressive service. Severe service applications may require a cure time of 72 hours or more. Contact C.I.M. Industries for specific recommendations.

CLEAN-UP Use mineral spirits for clean-up of uncured material. Spray equipment must be flushed regularly during application to prevent material from setting up in the hose and pump. Cured material is very difficult to remove. Soaking in solvent will soften the material and may assist in its removal.

CONTACT C.I.M. INDUSTRIES FOR SPECIFIC RECOMMENDATIONS AND INSTRUCTION GUIDES.

C.I.M. Industries Inc.

CIM 1000

SHIPPING, STORAGE AND SAFETY DATA

WARNING **Flammable. Use only in well ventilated areas. Do not store or use near open flame, sparks or hot surfaces. Keep tightly closed. Avoid contact with moisture or water. Keep out of reach of children.**

SAFETY INFORMATION This product contains petroleum asphalt, petroleum distillates, amine compounds and/or other chemical ingredients. Adequate health and safety precautions should be observed during the storage, handling, application and curing. Refer to C.I.M. Industries' Material Safety Data Sheets for further details regarding the safe use of this product.

PACKAGING CIM 1000 is available in mixed units of **5** gallons. Each unit consists of a container of premix and a smaller container of activator. Quantities have been premeasured to provide the proper mixing ratio, leaving sufficient room in the premix container to facilitate adequate mixing. **Do not estimate proportions.**

SHIPPING	**Premix**	**Activator**
Weights		
5.0 gallon units	40 lbs. per pail	5.5 lbs. per jug (33 lbs. per case of 6)
Properties		
Flash Point	101°F	>250°F
Shipping Name	Coating Solution	Not Regulated
DOT Class	Class 3, UN1139, PG III	Not Regulated
STORAGE		
Temperature	20°F to 110°F	70°F to 95°F
Shelf Life	2 years	6 months
NFPA	Class II	Non Flammable

WARRANTY & LIMITATION OF SELLER'S LIABILITY

C.I.M. Industries Inc. (C.I.M.) warrants that for a period of five (5) years from the date of shipment to the initial purchaser, the products, when mixed in proper ratios for the proper length of time, (a) will not become brittle or crack and (b) will provide a water barrier. Due to application variables beyond C.I.M.'s control which may affect results, C.I.M. makes no warranty of any kind, expressed or implied, including that of merchantability, other than that the products conform to C.I.M.'s current quality control standards at time of manufacture. If breach of warranty is established, the buyer's exclusive remedy shall be repayment of the purchase price of the non-conforming CIM membrane product or, at C.I.M.'s option, resupply of conforming product to replace the non-conforming product. The buyer expressly waives any claim to additional damages, including consequential damages.

THE INFORMATION PRESENTED IN THIS PUBLICATION IS SUBJECT TO CHANGE WITHOUT NOTICE.

CONTACT C.I.M. INDUSTRIES FOR CURRENT INFORMATION.

FOR PROFESSIONAL USE ONLY.

www.cimindustries.com

C.I.M. Industries Inc.
23 Elm St., Peterborough, NH 03458
Tel: (800) 543-3458 (603) 924-9481
Fax: (603) 924-9482
Web site: www.cimindustries.com

C.I.M. Industries Inc.

CIM 1000

Information presented here is believed to be accurate, but it is not to be construed as a guarantee of minimum performance. Test performance results are obtained in a controlled laboratory environment under procedures that may not represent actual operating environments.

CHEMICAL RESISTANCE

The following chart is a general guide to the resistance of CIM 1000 liner to various types of exposure. Although we believe this information to be reliable, C.I.M. Industries Inc. has no control over any particular application, installation, or exposure of CIM 1000 liner; and suitable tests should be carried out by the user.

Where chemical concentrations are listed, the designated rating applies to all concentrations up to and including the concentration indicated.

Except as indicated by a footnote, the maximum service temperature is 140F (60C) for continuous service.

Consult C.I.M. Industries for additional information regarding chemical resistance.

Acetic Acid, Glacial	S	Hydrogen Sulfide,	
Acetic Acid, 25%	R2	Vapor Over Sat. Solution	R
Acetic Acid, 10%	R	Methanol	R1
Ammonium Hydroxide, 10%	R2	Nitric Acid, 10%	R2
Biological Oxidation Ponds	R	Outdoor Exposure	R
Chlorine,		Phosphoric Acid, 10%	R
Saturated Solution in Water	R1	Sewage Disposal Plant	
Citric Acid, 10%	R	(Act. Sludge Sed. Tanks)	R
Copper Sulfate (Sat.)	R	Sodium Hydroxide, 10%	R
Crude Oil	S	Sodium Hydroxide, 50%	R1
Diesel Fuel	S	Sodium Hypochlorite, 15%	R
Ethylene Glycol		Soil Burial	R
(Antifreeze Solution)	R1	Sodium Silicate, 34%	R
Ferric Chloride, 42%	R	Strawberry Juice	R
Hydrochloric Acid, 10%	R2	Sulfuric Acid, 30% or less	R
Hydrofluoric Acid, 10%	R2	Trisodium Phosphate, 10%	R
Hydrogen Sulfide,		Water, Salt	R
Saturated Solution in Water	R	Wine (for floor protection)	R

Footnote:

R Suitable for continuous immersion.
S Suitable for splash and spillage conditions.
R1 Maximum service temperature limited to 80F.
R2 Maximum service temperature limited to 120F.

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C.I.M. Industries Inc.

CIM 1000

COVERAGE CHART — MIXED GALLONS

Dry Thickness (mils)	Wet Thickness (mils)	Gal/SF	SF/Gal	Dry Thickness (mils)	Wet Thickness (mils)	Gal/SF	SF/Gal
20	23	0.014	71	18	20	0.012	80
25	28	0.018	57	22	25	0.016	64
30	34	0.021	47	26	30	0.019	53
35	40	0.025	40	31	35	0.022	46
40	45	0.028	35	35	40	0.025	40
45	51	0.032	31	40	45	0.028	36
50	57	0.035	28	44	50	0.031	32
55	62	0.039	26	48	55	0.034	29
60	68	0.042	24	53	60	0.037	27
65	74	0.046	22	57	65	0.041	25
70	79	0.050	20	62	70	0.044	23
75	85	0.053	19	66	75	0.047	21
80	91	0.057	18	70	80	0.050	20
85	96	0.060	17	75	85	0.053	19
90	102	0.064	16	79	90	0.056	18
95	108	0.067	15	84	95	0.059	17
100	114	0.071	14	88	100	0.062	16
105	119	0.074	13	92	105	0.065	15
110	125	0.078	13	97	110	0.069	15
115	131	0.081	12	101	115	0.072	14
120	136	0.085	12	106	120	0.075	13
125	142	0.088	11	110	125	0.078	13

COVERAGE FORMULAS

$$\text{Gallons Required} = \frac{\text{Theoretical Wet Film Thickness (Mils)} \times \text{Sq.Ft. To Be Covered}}{1604} = \frac{\text{Theoretical Dry Film Thickness (Mils)} \times \text{Sq.Ft. To Be Covered}}{1413}$$

1 MIL = .001 of an inch

Coverages are theoretical and do not account for waste, spillage, irregular surfaces, or application technique.

CIM BONDING AGENT

Porous Surface	1 gallon = 300 sq.ft. or .00333 gal/sq.ft.
Non Porous Surface	1 gallon = 600 sq.ft. or .00166 gal/sq.ft.

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CIM 1000

COATING PROFILE

DESCRIPTION CIM 1000 is a liquid applied urethane coating that cures in hours to form a tough elastomeric liner that adheres to most substrates, forming a chemical and abrasion resistant barrier for waterproofing, corrosion protection, and containment of water and most aqueous chemicals.

ADVANTAGES CIM 1000 has over 25 years of proven performance in demanding environments. It remains flexible and resilient and provides exceptional service in a broad range of applications.

- Forms a tough elastomeric liner able to bridge cracks and joints.
- Impervious to water and most aqueous chemicals, providing a long lasting tank and pond liner.
- Asphalt extended urethane formula provides superior wear and weatherability for parking decks and containment areas.
- Adheres to and bridges between common construction materials such as concrete, steel and other metals, asphalt pavement, glass, wood, and most coatings.
- Environmentally sound, complying with the toughest VOC regulations.
- Can be repaired when damaged.
- Excellent abrasion resistance for severe wear applications.
- UV stable.
- Liquid, two-component urethane can be applied to complex shapes, multiple penetrations or to most geotextiles.

SURFACE PREPARATION

GENERAL: Substrates must be **clean and dry** with no oils, grease or loose debris. CIM Bonding Agent is recommended on all non-porous substrates. Perform adhesion tests to confirm adequacy of surface preparation. See C.I.M. Industries' specific substrate Instruction Guide for specific guidelines.

CONCRETE: ICRI-CSP 4-6 surface profile exposing aggregate. Concrete must exhibit minimum 3,000 psi compressive strength and be free of release agents and curing compounds. The substrate must be clean and dry (see CIM Instruction Guide IG-2), and free of contaminates.

STEEL: Minimum 3 mil profile.
Immersion service – SSPC-SP10 / NACE No. 2 Near White Blast.
Non-Immersion service – SSPC-SP6 / NACE No. 3 Commercial Blast.
Use CIM Bonding Agent for greater adhesion.

OTHER METALS: SSPC-SP1 solvent clean and abrasive blast to roughen and degloss the surface. Use CIM Bonding Agent for greater adhesion.

GLASS: Thoroughly clean. CIM Bonding Agent must be used for increased adhesion. For immersion service roughen the surface.

WOOD: Substrate must be clean, dry and free of surface contamination.

PREVIOUS COATINGS AND LININGS: CIM 1000 may be applied over some existing coatings and linings and achieve acceptable performance. CIM Bonding Agent is recommended for greater adhesion. Finished system results vary due to a variety of project specific factors, including the service conditions to which the system is exposed. Therefore, C.I.M. Industries does not accept responsibility for determining the suitability of an existing coating as a substrate for CIM products. Owner shall perform adhesion tests on any existing coating or lining to determine suitability.

EARTH: Use CIM Scrim.

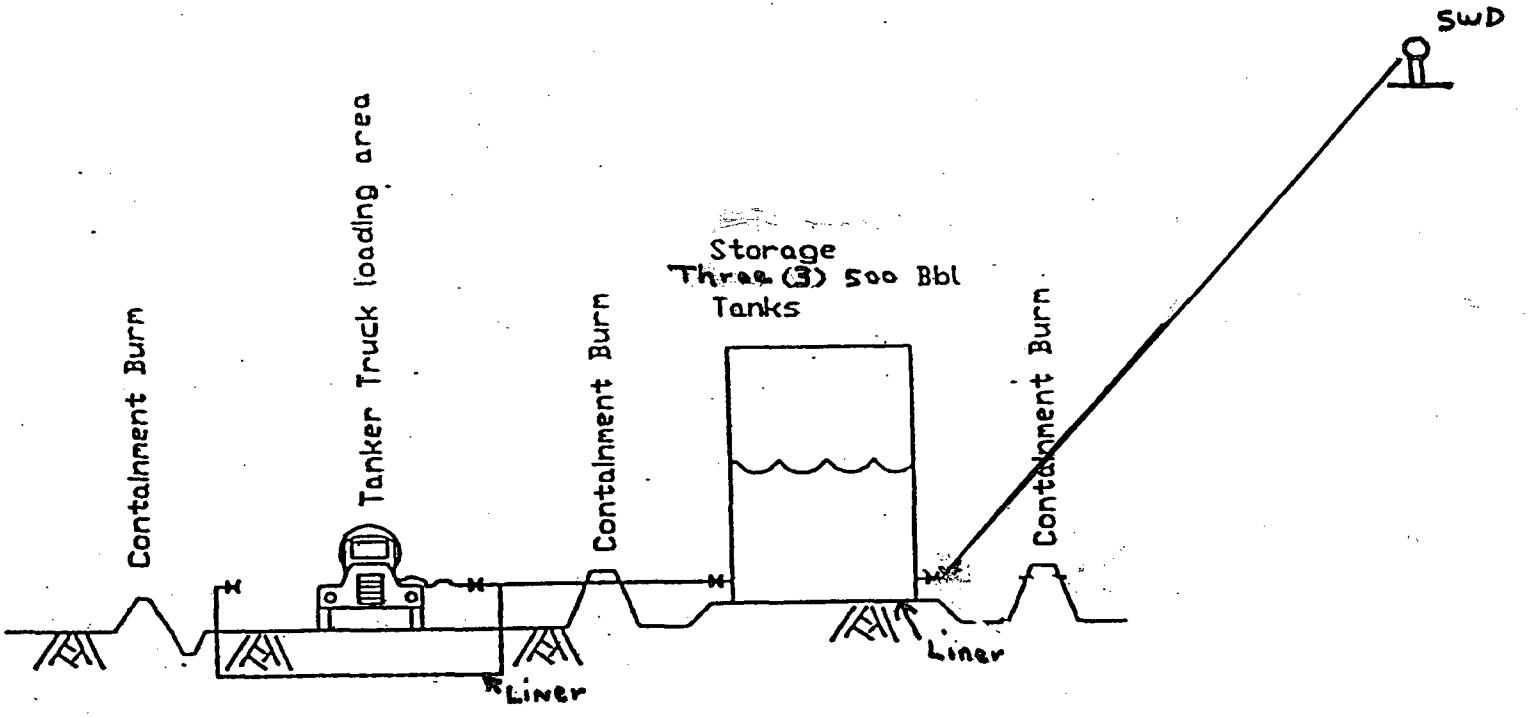
COLOR CIM 1000 is initially shiny black, turning dull over 3 to 6 months when exposed to direct sunlight. For a colored or reflecting surface finish, see C.I.M Industries' Instruction Guide, "Topcoats" (IG–7) for further instructions.

SOLIDS BY VOLUME 88% (1413 dry mils x sq. ft./gal.)

RECOMMENDED COVERAGE Recommended minimum thickness at all points of the coating is 60 wet mils. Higher coverages may be specified, but extended time is required to insure proper solvent release prior to placing the liner in service. Contact C.I.M. Industries for additional information.

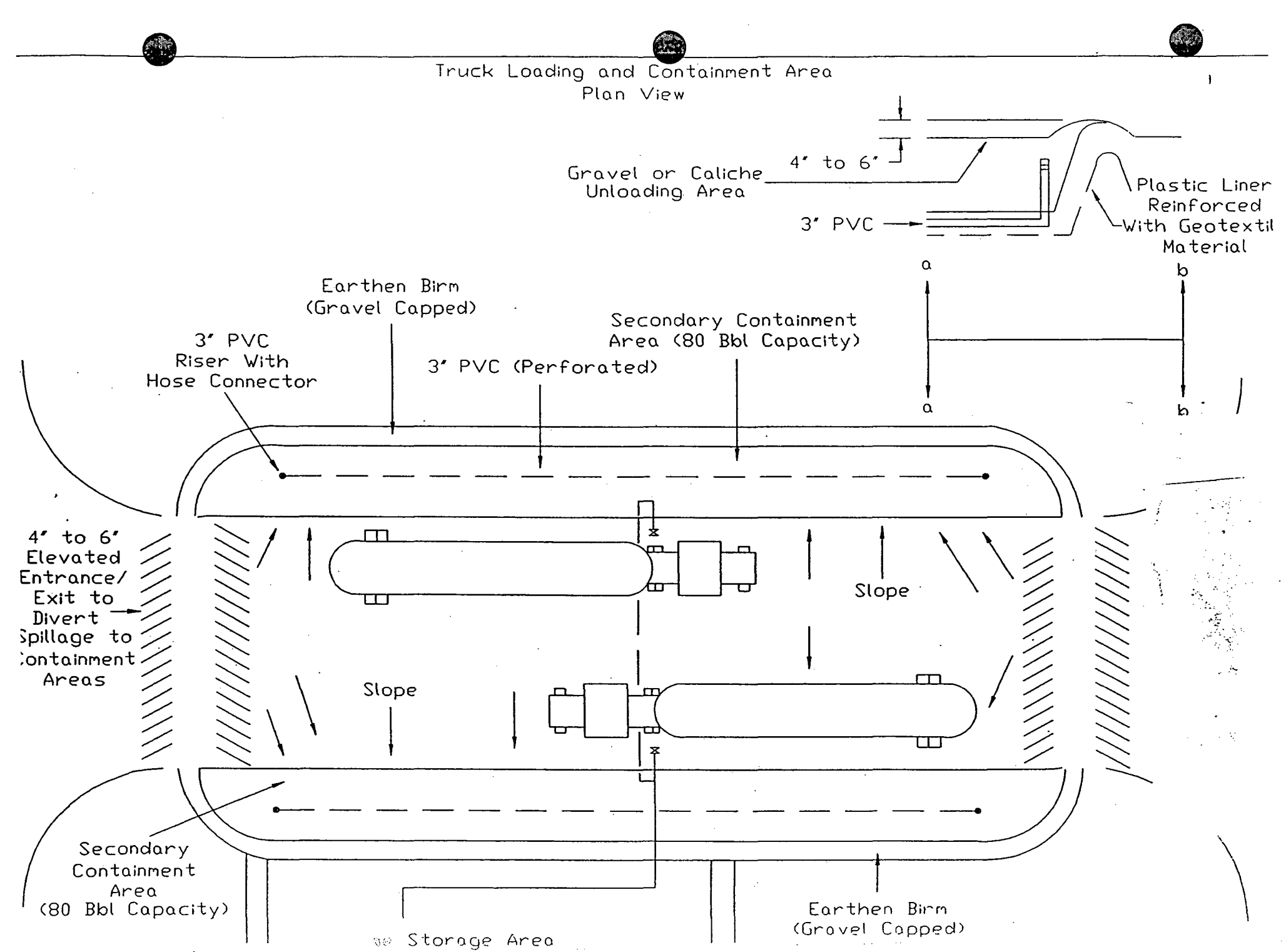
VOC 92 g/l (0.76 lb./gal.). CIM 1000 complies with the toughest VOC regulations.

Unloading Area

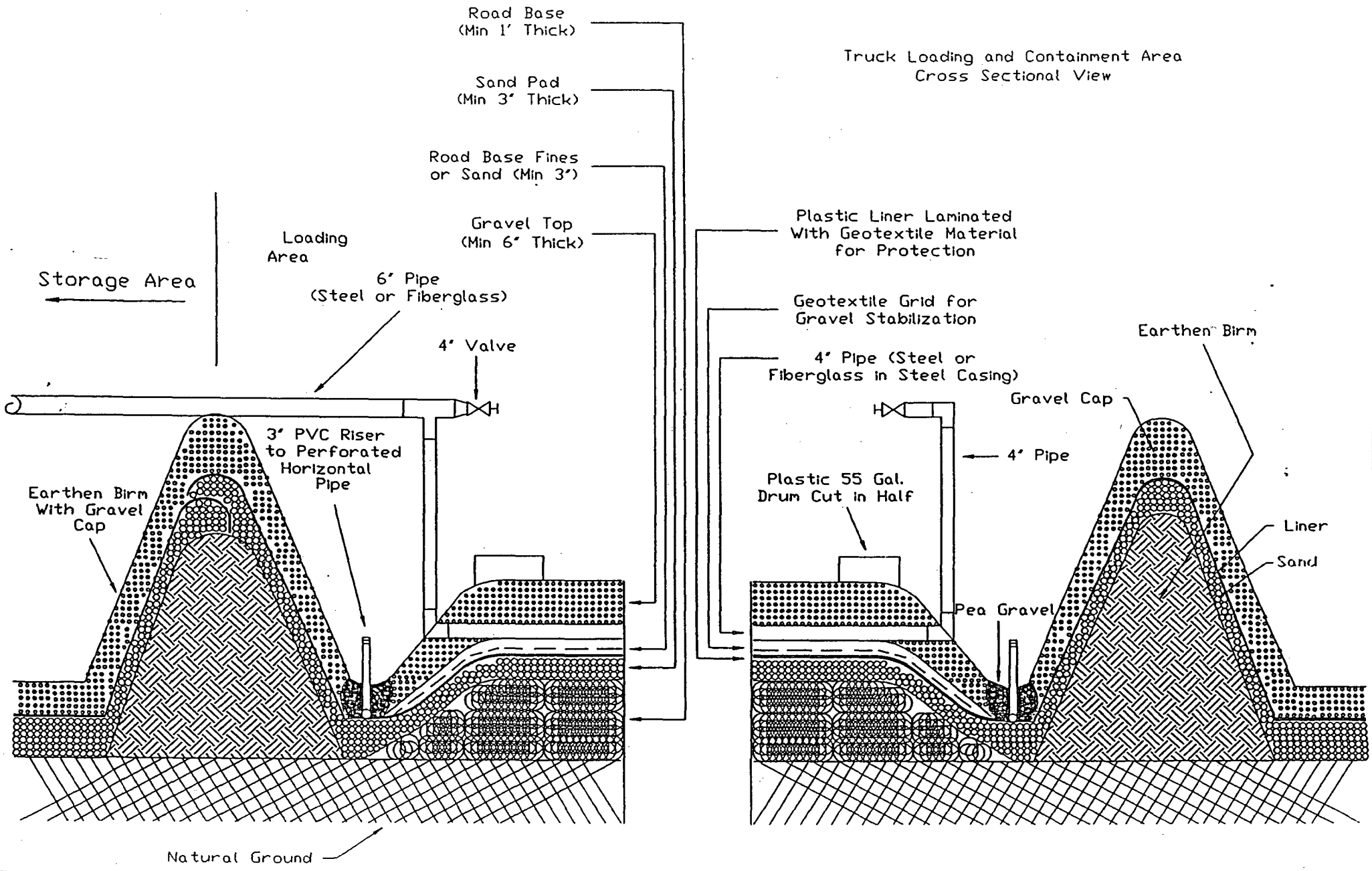


Area will be fenced

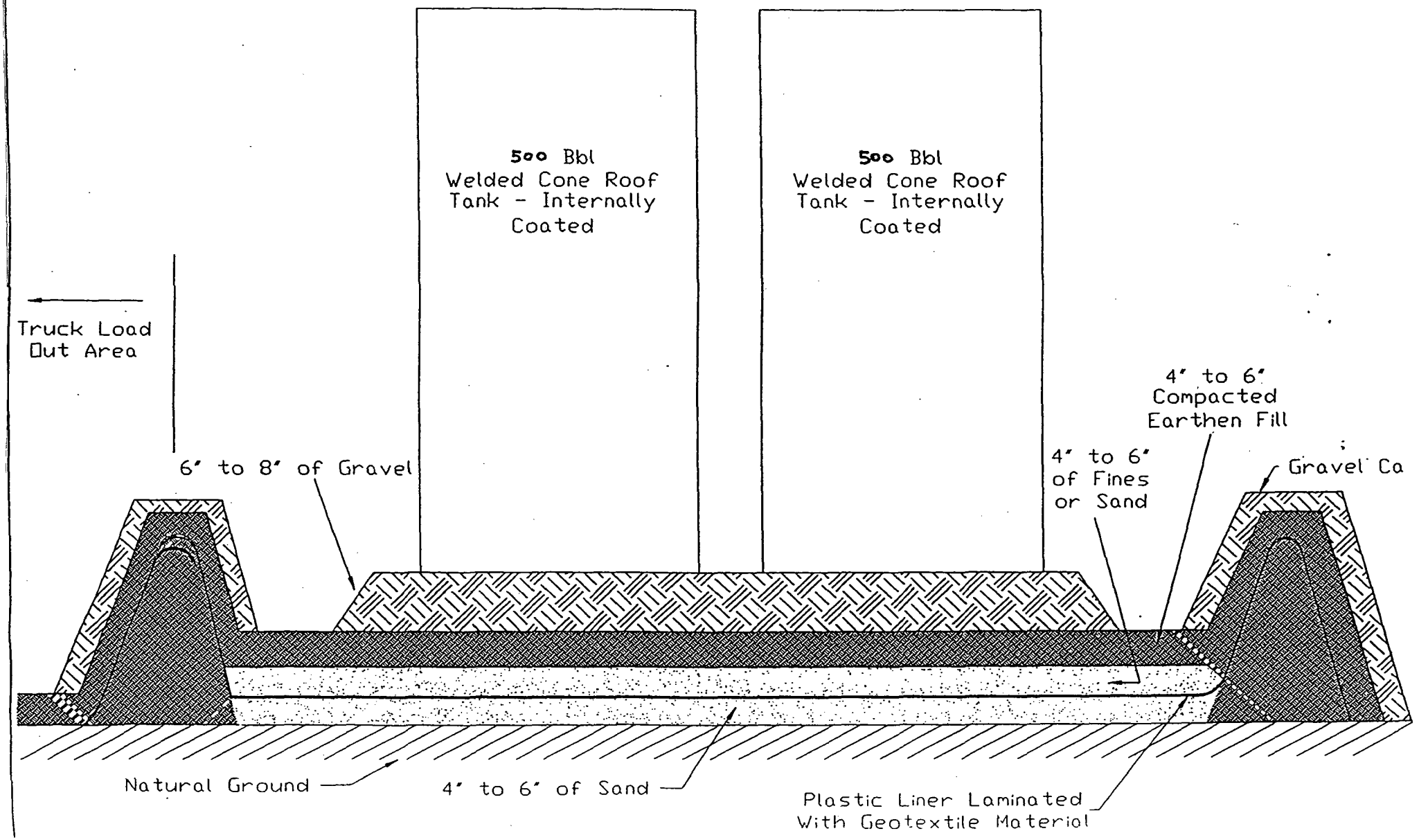
Truck Loading and Containment Area
Plan View



Truck Loading and Containment Area
Cross Sectional View



Storage Containment Area Specification Drawing
(Containment Area Sized For 133% Of Tank Storage Capacity)



November 6, 2006

NMOCD Environmental
ATTN: Wayne Price
1220 S. Saint Francis Drive
Santa Fe, NM 87504

RE: C-108 and Discharge Plan
Monument Disposal
Class I Non-Hazardous

Mr. Price:

Within is the application for Monument Disposal to convert its SWD to Class I. Also, attached is a check for $100.00 Application Fee.

After you have reviewed this application, please call if you have any questions.

Sincerely,

Eddie W. Seay

I-10

Eddie W. Seay, Agent
Eddie Seay Consulting
601 W. Illinois
Hobbs, NM 88242
(505)392-2236
seay04@leaco.net

cc: Monument Disposal Inc.

MONUMENT DISPOSAL INC.

DISCHARGE PLAN
FOR CLASS I DISPOSAL
And
APPLICATION FOR
AUTHORIZATION
TO INJECT

Prepared By
Eddie Seay Consulting
October 2006

INDEX

MONUMENT DISPOSAL INC.

C-108 APPLICATION FOR CLASS I DISPOSAL

Prepared By
Eddie Seay Consulting
October 2006

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance ___X___ Disposal _____ Storage
Application qualifies for administrative approval? ___X___ Yes _____ No

II. OPERATOR: Monument Disposal Inc.

ADDRESS: 1314 Brittany, Hobbs, NM 88240

CONTACT PARTY: Darrell Bearden PHONE: (505) 390-9576

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? ___X___ Yes _____ No
If yes, give the Division order number authorizing the project: SWD-1035

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 geologic data on the injection zone including appropriate lithologic detail, geologic 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 sources 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 sources 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.

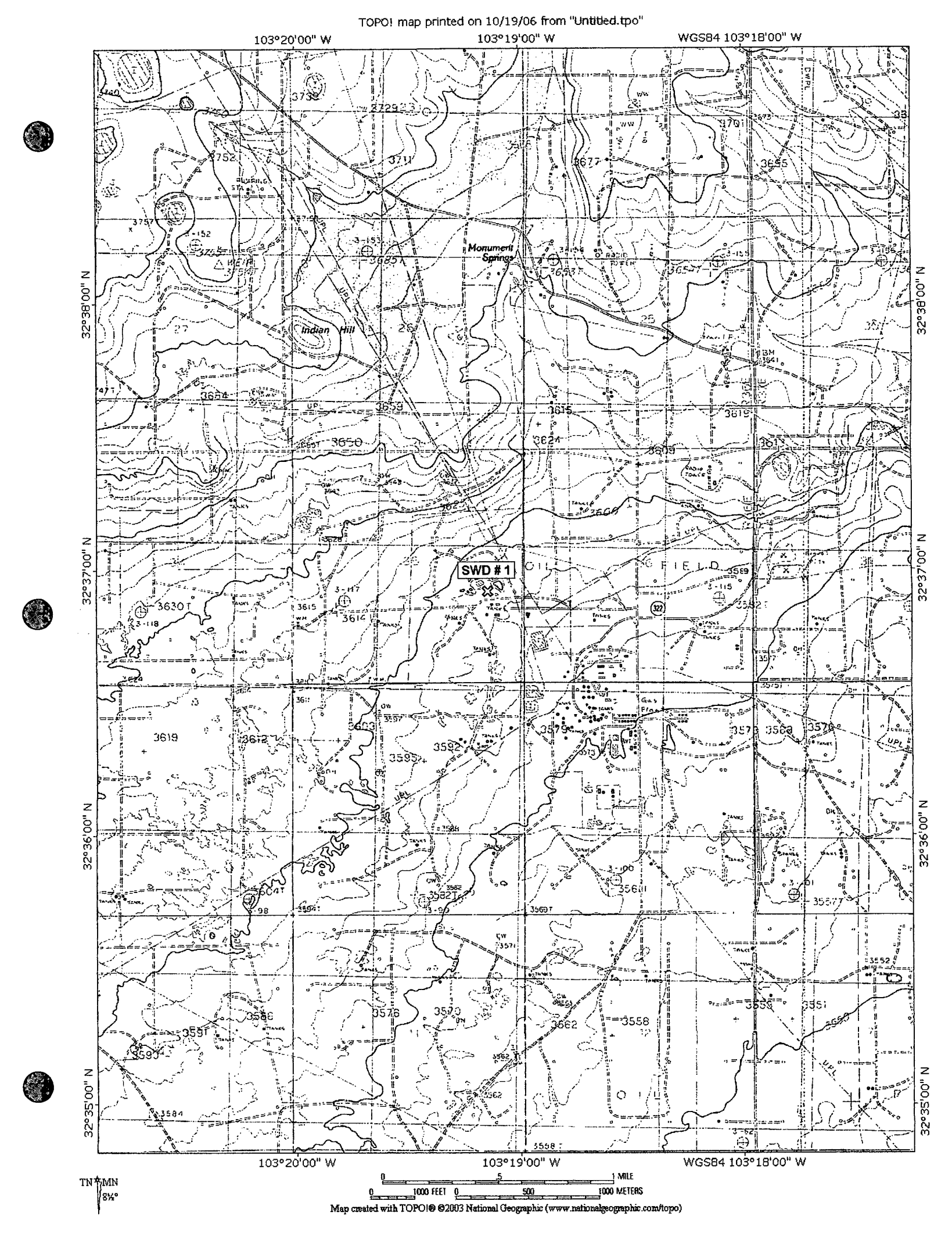
NAME: Eddie W Seay TITLE: Agent

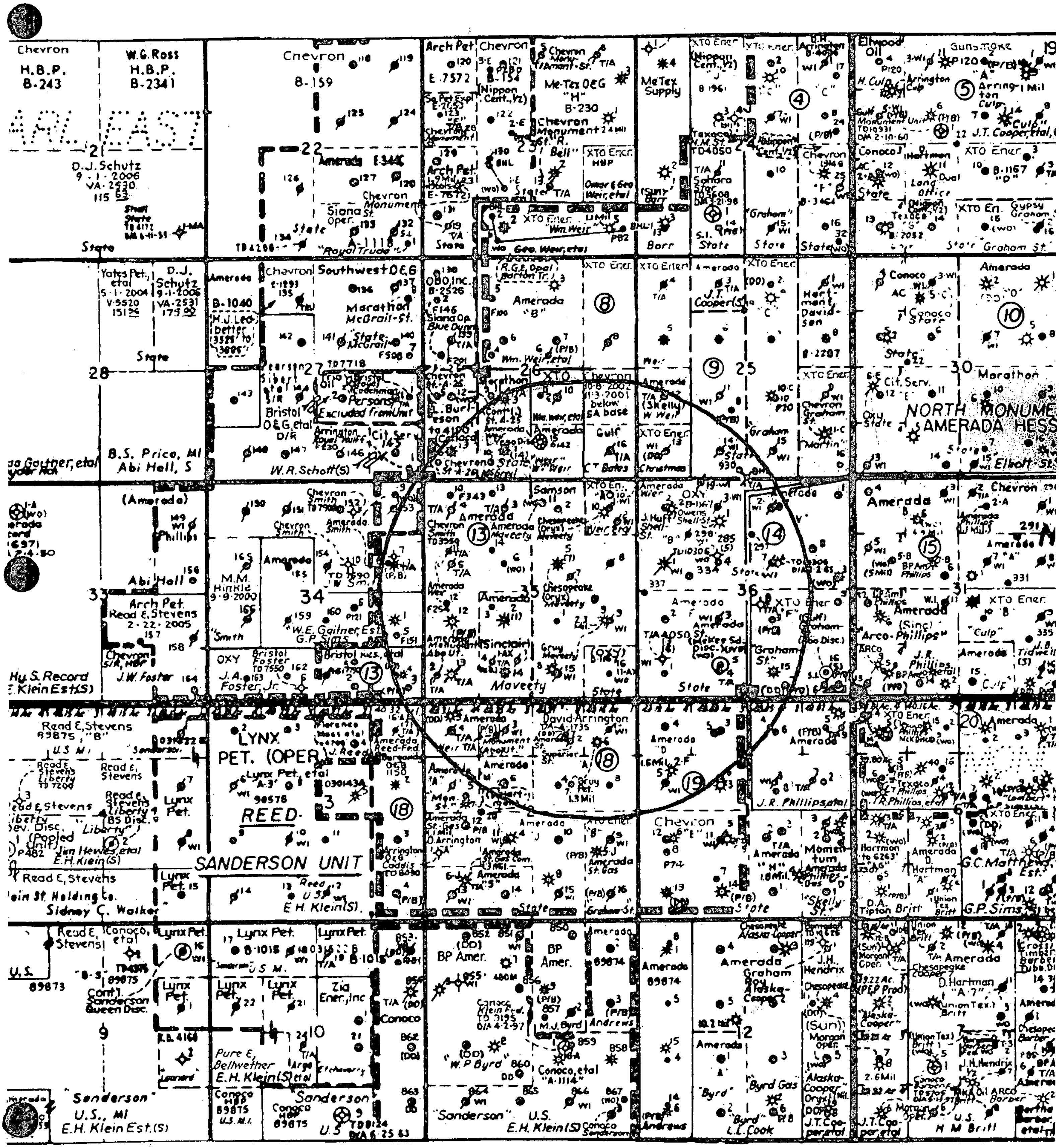
SIGNATURE: Eddie W Seay DATE: 10/30/06

E-MAIL ADDRESS: seay04@leaco.net

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: original C-108, 2005

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


TOPO! map printed on 10/19/06 from "Untitled.tpo"
103°20'00" W
103°19'00" W
WGS84 103°18'00" W
32°38'00" N
32°37'00" N
32°36'00" N
32°35'00" N
SWD # 1
Monument Springs
Indian Hill
OIL FIELD
TN MN
8½°
0 .5 1 MILE
0 1000 FEET 0 500 1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



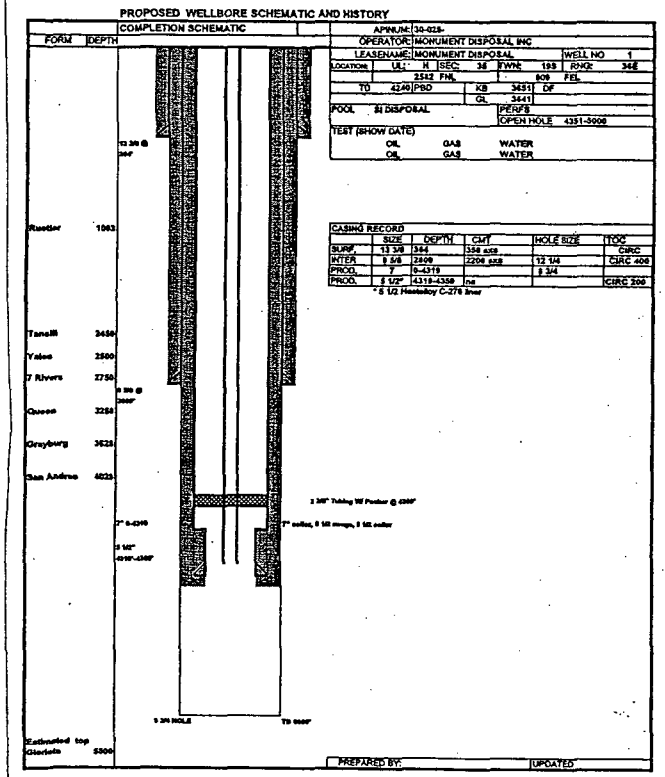
Chevron
H.B.P.
B-243
W.G. Ross
H.B.P.
B-2341
Chevron
B-159
21
D.J. Schutz
22
Amerada
Chevron
Monument
State
"Royal Trude"
Arch Pet
Chevron
Me-Tex O&G
"H"
B-230
Chevron
Monument
MeTex
Supply
Barr
State
4
"C"
5
Elwood
Oil
Gunsmoke
J.T. Cooper, etal
Conoco
XTO Ener.
State
Graham St.
Yates Pet.
D.J. Schutz
Chevron
Southwest O&G
Amerada
B-1040
Marathon
McGrail-St.
State
OBO, Inc.
Amerada
"B"
8
XTO Ener.
J.T. Cooper(S)
9
25
Conoco
10
28
27
26
30
Marathon
Bristol
O&G, etal
Persons
Chevron
Gulf
NORTH MONUMENT
AMERADA HESS
Cit. Serv.
B.S. Price, MI
Abi Hall, S
W.R. Schott(S)
Elliott St.
(Amerada)
Phillips
Amerada
13
Amerada
Maveety
OXY
Samson
14
Amerada
15
Chevron
Abi Hall
M.M. Hinkle
34
35
36
Arch Pet.
Read E. Stevens
Chesapeake
Amerada
Sinclair
Maveety
State
Graham St.
Arco-Phillips
Amerada
XTO Ener.
OXY
Bristol Foster
J.A. Foster, Jr.
13
Hy. S. Record
E. Klein Est(S)
Read E. Stevens
LYNX
PET. (OPER)
REED
18
David Arrington
18
19
Amerada
Chevron
J.R. Phillips, etal
20
Amerada
XTO Ener.
SANDERSON UNIT
Lynx Pet.
E.H. Klein(S)
State
Graham St.
State
Skelly St.
G.P. Sims
Read E. Stevens
Sidney C. Walker
Read E. Stevens
Conoco, etal
Lynx Pet.
Lynx Pet.
Lynx Pet.
BP Amer.
BP Amer.
Amerada
Amerada
Graham
Alaska-Cooper
J.H. Hendrix
Amerada
U.S.
9
Lynx Pet.
Lynx Pet.
Lynx Pet.
Zia Ener., Inc
Conoco
10
11
12
Morgan Oper.
Amerada
"Sanderson"
U.S., MI
E.H. Klein Est.(S)
Sanderson
U.S.
"Sanderson"
U.S.
E.H. Klein(S)
Andrews
Byrd Gas
L.L. Cook
J.T. Cooper, etal
H.M. Britt

OPERATOR Monument Disposal Inc LEASE Monument

WELL NO. # 1 2582/N 809/E Unit H 35 19 36

FOOTAGE LOCATION SECTION TOWNSHIP RANGE

Schematic



Well Construction Data

Surface Casing

Size 13 3/8 " Cemented with 350 sx.

TOC surface feet determined by circulation

Hole Size 15"

Intermediate Casing

Size 9 5/8 " Cemented with 2200 sx.

TOC surface feet determined by circulated 400 sx

Hole Size 12 1/4

Long String

Size 7 @ 4319 " Cemented with 850 sx.

TOC surface feet determined by circulation

Hole Size 8 3/4 5 1/2 liner 4319 - 4359

Total Depth 5080

Injection Interval

4359' feet to 5000 feet

(perforated or (open-hole) indicate which)

Side 2

INJECTION WELL DATA SHEET

Tubing Size: 2 3/8 Lining Material: Fiberglass

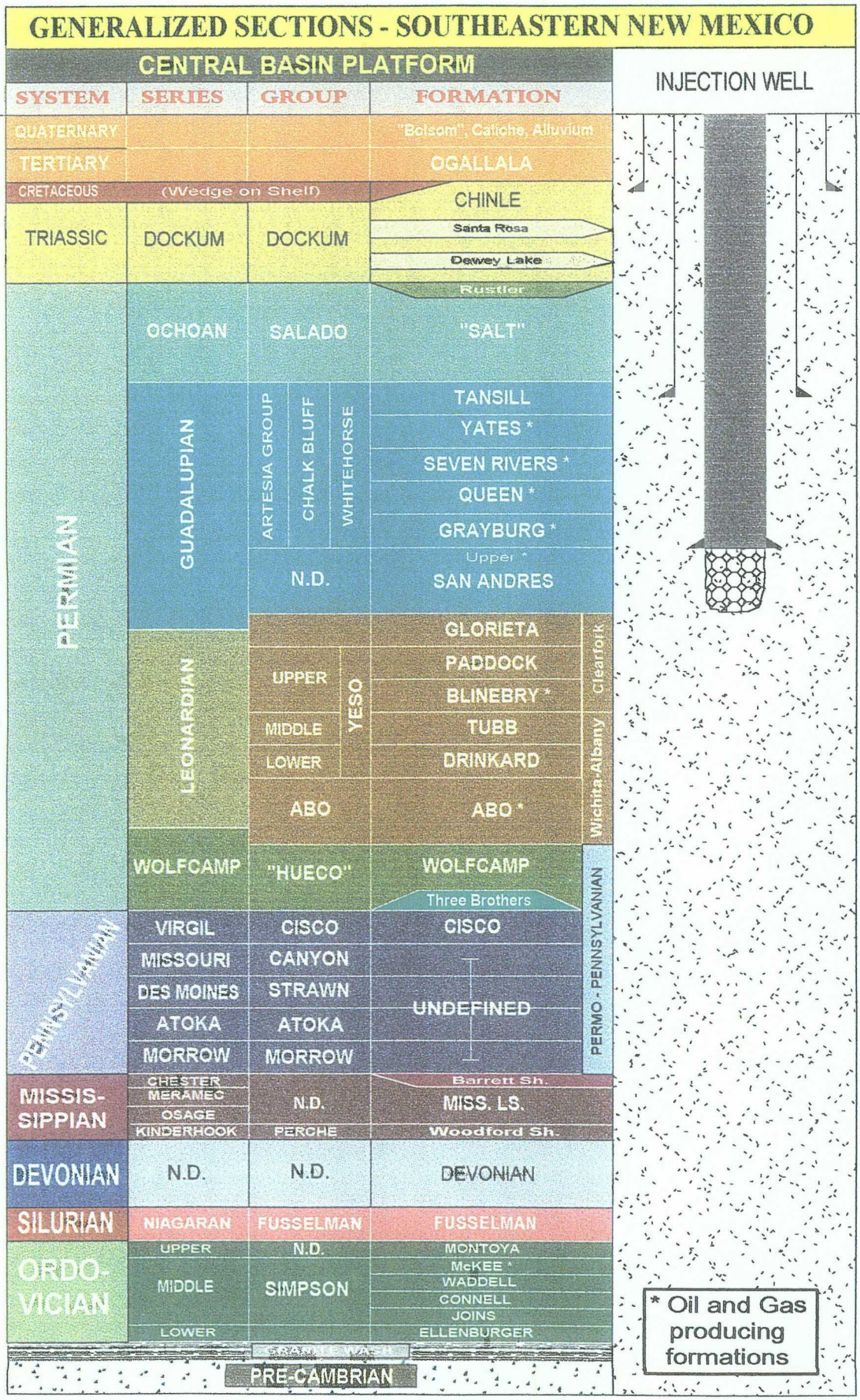
Type of Packer: Lot Model 12

Packer Setting Depth: 4260

Other Type of Tubing/Casing Seal (if applicable): NONE

Additional Data

1. Is this a new well drilled for injection? X Yes ____ No.
   If no, for what purpose was the well originally drilled? Class I injection permitted by EID
2. Name of the Injection Formation: San Andres
3. Name of Field or Pool (if applicable): Monument
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.
   NO
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:
   The Grayburg at 3628' and Glorieta at 5500'


GENERALIZED SECTIONS - SOUTHEASTERN NEW MEXICO
CENTRAL BASIN PLATFORM
INJECTION WELL
SYSTEM
SERIES
GROUP
FORMATION
QUATERNARY
"Bolsom", Caliche, Alluvium
TERTIARY
OGALLALA
CRETACEOUS
(Wedge on Shelf)
CHINLE
TRIASSIC
DOCKUM
DOCKUM
Santa Rosa
Dewey Lake
Rustler
PERMIAN
OCHOAN
SALADO
"SALT"
GUADALUPIAN
ARTESIA GROUP
CHALK BLUFF
WHITEHORSE
TANSILL
YATES *
SEVEN RIVERS *
QUEEN *
GRAYBURG *
N.D.
Upper *
SAN ANDRES
LEONARDIAN
YESO
UPPER
MIDDLE
LOWER
GLORIETA
PADDOCK
BLINEBRY *
TUBB
DRINKARD
Clearfork
Wichita/Albany
ABO
ABO *
WOLFCAMP
"HUECO"
WOLFCAMP
Three Brothers
PERMO - PENNSYLVANIAN
PENNSYLVANIAN
VIRGIL
MISSOURI
DES MOINES
ATOKA
MORROW
CISCO
CANYON
STRAWN
ATOKA
MORROW
CISCO
UNDEFINED
MISSIS-SIPPIAN
CHESTER
MERAMEC
OSAGE
KINDERHOOK
N.D.
PERCHE
Barrett Sh.
MISS. LS.
Woodford Sh.
DEVONIAN
N.D.
N.D.
DEVONIAN
SILURIAN
NIAGARAN
FUSSELMAN
FUSSELMAN
ORDO-VICIAN
UPPER
MIDDLE
LOWER
N.D.
SIMPSON
MONTOYA
McKEE *
WADDELL
CONNELL
JOINS
ELLENBURGER
PRE-CAMBRIAN
* Oil and Gas producing formations

Attachment to Application C-108
Class I Disposal

Monument # 1
Unit H, Section 35, Twn. 19 S., Rng. 36 E.
Lea Co., New Mexico

III. Well Data
A. 1) See injection well data sheet.
2) See injection well data sheet.
3) 2 3/8" plastic coated tubing.
4) LotModel 12 packer.

B. 1) Injection formation – Lower San Andres.
2) Injection interval – 4351' to 5000'.
3) Well was drilled as a Class I injection well for the NM Environment Dept., and approved for Class II SWD by NM OCD.
4) Next higher producing zone is the Grayburg at 3628'.
Next lower producing zone is the Glorieta at 5500'.

IV. No.

V. Attached.

VI. Attached – list of wells and data.

VII. Proposed Operations.
1) 3000 to 5000 bls. Per day of produced water and non-hazardous material.
2) Open system for commercial use.
3) Average pressure is 800#, or whatever limit OCD allows.
4) Attached.
5) Waters from within the area from San Andres, Glorieta, Tubb, Queen, Blinebry and other formations and non-hazardous material.

VIII. The proposed disposal formation is limestone, dolomite and shale. The primary geologic name is the Lower San Andres, which occurs from 4319' to 5000'. The fresh water formation in the area is the Ogallala and Alluvium which ranges in thickness from 20' to 60'. An analysis from the only producing water wells is attached.

IX. Acid as needed.

X. Previously submitted to the ED and OCD. Available on OCDonline.

XI. Attached.

XII. I, Eddie W. Seay, have examined all available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zones and any underground source of drinking water pertaining to this well.

XIII. Attached.

All wells within one mile of proposed disposal well.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-35181	NORTH MONUMENT G/SA UNIT	930	APACHE CORP	4055	O	TA	P	N	25	19	S	36	E	224	S	2443	W	4295
30-025-04057	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	4001	G	TA	P	L	25	19	S	36	E	1980	S	660	W	4792
30-025-04059	NORTH MONUMENT G/SA UNIT	015	APACHE CORP	3998	I	A	S	O	25	19	S	36	E	660	S	1980	E	5233
30-025-04064	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	4010	I	A	P	M	25	19	S	36	E	660	S	660	W	3559
30-025-04053	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3939	I	A	S	N	25	19	S	36	E	660	S	1980	W	4276
30-025-24423	STATE T	008	APACHE CORP	4100	G	A	S	K	25	19	S	36	E	1650	S	2310	W	5257
30-025-33687	MCGRAIL STATE	010	MARATHON OIL CO	8015	O	A	S	N	26	19	S	36	E	400	S	1650	W	4104
30-025-33598	STATE A 26	006	CHEVRON U S A INC	7550	O	A	S	M	26	19	S	36	E	410	S	330	W	5108
30-025-04077	NORTH MONUMENT G/SA UNIT	010	AMERADA HESS CORP	3995	O	P&A	P	J	26	19	S	36	E	1980	S	1980	E	4709
30-025-04078	MCGRAIL STATE	001	MARATHON OIL CO	3990	G	A	S	N	26	19	S	36	E	660	S	1980	W	4088
30-025-04072	STATE A 26	001	LEWIS B BURLESON INC	3985	O	A	S	M	26	19	S	36	E	660	S	660	W	5003
30-025-32579	MCGRAIL STATE	003	MARATHON OIL CO	3850	G	A	S	K	26	19	S	36	E	1880	S	1980	W	5110
30-025-04079	NORTH MONUMENT G/SA UNIT	011	APACHE CORP	4005	O	TA	S	K	26	19	S	36	E	1980	S	1980	W	5197
30-025-04069	W A WEIR GAS COM	007	APACHE CORP	3993	G	A	P	O	26	19	S	36	E	660	S	1980	E	3446
30-025-34005	W A WEIR	015	APACHE CORP	7550	O	A	P	O	26	19	S	36	E	990	S	2310	E	3874
30-025-33820	WEIR B	002	CHEVRON U S A INC	7534	O	A	P	J	26	19	S	36	E	1980	S	2310	E	4802
30-025-04076	C T BATES	001	GULF OIL CORP	3975	O	P&A		P	26	19	S	36	E	660	S	660	E	3245
30-025-04104	NORTH MONUMENT G/SA UNIT	017	APACHE CORP	3800	O	TA	P	H	34	19	S	36	E	1980	N	660	E	5166
30-025-31982	FOSTER	003	DAVID H ARRINGTON OIL & GAS INC	8050	O	A	P	P	34	19	S	36	E	660	S	330	E	5215
30-025-30923	J W SMITH	007	XTO ENERGY, INC	3950	G	A	P	H	34	19	S	36	E	1900	N	660	E	5176
30-025-33190	M E GAITHER	005	APACHE CORP	8100	O	A	P	I	34	19	S	36	E	1650	S	660	E	5236
30-025-36183	SALINE WATER WELL	002	CLIMAX CHEMICAL CO	2449	M	P&A	P	P	34	19	S	36	E	1020	S	330	E	5085
30-025-04101	M E GAITHER	001	APACHE CORP	3950	G	A	P	I	34	19	S	36	E	1980	S	660	E	5180
30-025-12463	NORTH MONUMENT G/SA UNIT	002	APACHE CORP	3982	O	A	P	B	35	19	S	36	E	660	N	1980	E	2250
30-025-04125	SELBY MAVEETY	002	BP AMERICA PRODUCTION COMPANY	3992	G	A	P	K	35	19	S	36	E	1980	S	1980	W	2592
30-025-04126	NORTH MONUMENT G/SA UNIT	015	APACHE CORP	3956	I	A	P	O	35	19	S	36	E	660	S	1980	E	2350
30-025-33567	W A WEIR	011	APACHE CORP	7525	O	TA	P	L	35	19	S	36	E	1680	N	580	W	3994
30-025-26152	MAVEETY STATE GAS COM	008	CIMAREX ENERGY CO OF COLORADO	3800	G	A	S	O	35	19	S	36	E	810	S	2030	E	2248
30-025-33759	W A WEIR	014	APACHE CORP	7505	O	A	P	F	35	19	S	36	E	1650	N	1650	W	2970
30-025-32299	MAVEETY STATE GAS COM	009	CIMAREX ENERGY CO OF COLORADO	3700	G	A	S	I	35	19	S	36	E	1980	S	810	E	718
30-025-04120	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3885	G	TA	P	E	35	19	S	36	E	1980	N	660	W	3858
30-025-12464	W B MAVEETY	005	CHESAPEAKE OPERATING, INC.	3940	G	A	P	G	35	19	S	36	E	1989	N	1991	E	1322
30-025-04119	W A WEIR GAS COM	004	APACHE CORP	3945	G	A	P	F	35	19	S	36	E	1980	N	1980	W	2562
30-025-04122	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3845	O	TA	P	D	35	19	S	36	E	660	N	660	W	4268
30-025-04124	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3940	O	A	P	N	35	19	S	36	E	660	S	1980	W	3218

All wells within one mile of proposed disposal well.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-04127	NORTH MONUMENT G/SA UNIT	016	APACHE CORP	3929	O	A	S	P	35	19	S	36	E	660	S	660	E	2043
30-025-33045	MONUMENT ABO 35	002	APACHE CORP	8092	O	TA	P	M	35	19	S	36	E	660	S	330	W	4615
30-025-32778	W B MAVEETY	010	CHESAPEAKE OPERATING, INC.	3700	G	A	S	A	35	19	S	36	E	750	N	760	E	1832
30-025-33696	W A WEIR	013	APACHE CORP	7660	O	A	P	C	35	19	S	36	E	330	N	1650	W	3609
30-025-12461	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	3945	O	A	P	H	35	19	S	36	E	1980	N	660	E	620
30-025-33670	W A WEIR	012	APACHE CORP	7600	O	A	P	L	35	19	S	36	E	2130	S	560	W	3952
30-025-34056	SELBY MAVEETY	004	APACHE CORP	7550	O	TA	P	N	35	19	S	36	E	975	S	1650	W	3305
30-025-33944	SELBY MAVEETY	003	APACHE CORP	7550	O	A	P	K	35	19	S	36	E	2310	S	1650	W	2847
30-025-04117	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	3836	O	TA	P	M	35	19	S	36	E	660	S	660	W	4321
30-025-04129	SELBY MAVEETY	001Y	AMERADA HESS CORP	3950	O	P&A	P	N	35	19	S	36	E	950	S	2310	W	2779
30-025-04123	W A WEIR NCT A	001	AMERADA HESS CORP	3978	O	P&A	F	A	35	19	S	36	E	660	N	660	E	1927
30-025-33551	W A WEIR	010	APACHE CORP	7550	O	A	P	D	35	19	S	36	E	330	N	660	W	4426
30-025-33877	W B MAVEETY	011	APACHE CORP	7610	O	A	P	B	35	19	S	36	E	520	N	2310	E	2550
30-025-27303	NORTH MONUMENT G/SA UNIT	001	APACHE CORP	3975	I	TA	P	A	35	19	S	36	E	990	N	480	E	1625
30-025-12486	NORTH MONUMENT G/SA UNIT	009	APACHE CORP	3960	I	A	P	I	35	19	S	36	E	1980	S	660	E	733
30-025-12462	NORTH MONUMENT G/SA UNIT	010	APACHE CORP	3938	O	A	P	J	35	19	S	36	E	1988	S	1991	E	1378
30-025-21886	W B MAVEETY	007	ORYX ENERGY CO	4100	I	P&A	P	G	35	19	S	36	E	2310	N	1650	E	883
30-025-04118	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	3945	G	A	P	L	35	19	S	36	E	1980	S	660	W	3878
30-025-04128	SELBY MAVEETY	001	SINCLAIR OIL & GAS CO	2310	O	P&A	P	N	35	19	S	36	E	990	S	2310	W	2754
30-025-04121	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3954	O	TA	P	C	35	19	S	36	E	660	N	1980	W	3146
30-025-05104	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3947	I	A	S	C	36	19	S	36	E	660	N	1980	W	3387
30-025-20517	NORTH MONUMENT G/SA UNIT	286	APACHE CORP	10360	O	TA	S	G	36	19	S	36	E	1980	N	1830	E	4301
30-025-12483	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3935	I	A	S	E	36	19	S	36	E	1980	N	660	W	1587
30-025-12472	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3905	O	A	S	N	36	19	S	36	E	660	S	1980	W	3454
30-025-12477	GRAHAM STATE NCT F	004	XTO ENERGY, INC	3915	G	A	S	O	36	19	S	36	E	660	S	1980	E	4586
30-025-12482	GRAHAM STATE NCT-F	007	TARGA MIDSTREAM SERVICES LTD PTR	7700	S	A	S	O	36	19	S	36	E	330	S	1650	E	5031
30-025-12473	STATE F GAS COM	005	APACHE CORP	10255	G	A	S	N	36	19	S	36	E	785	S	1980	W	3382
30-025-36674	NORTH MONUMENT G/SA UNIT	334	APACHE CORP	3960	O	A	S	E	36	19	S	36	E	2245	N	1250	W	2086
30-025-35177	NORTH MONUMENT G/SA UNIT	297	APACHE CORP	3986	O	A	P	B	36	19	S	36	E	1310	N	2525	E	3784
30-025-13229	LPG STORAGE WELL	002	TARGA MIDSTREAM SERVICES LTD PTR	1799	M	A	P	M	36	19	S	36	E	1020	S	1220	W	2632
30-025-33568	STATE V	007	APACHE CORP	3535	G	A	S	B	36	19	S	36	E	660	N	1880	E	4627
30-025-12468	NORTH MONUMENT G/SA UNIT	007	APACHE CORP	3908	I	A	S	G	36	19	S	36	E	1980	N	1980	E	4152
30-025-12481	NORTH MONUMENT G/SA UNIT	285	APACHE CORP	10100	O	A	S	F	36	19	S	36	E	1830	N	1980	W	2888
30-025-24422	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	4050	I	A	P	M	36	19	S	36	E	990	S	610	W	2220
30-025-24094	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	4030	O	A	S	H	36	19	S	36	E	1650	N	990	E	5183

All wells within one mile of proposed disposal well.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-35197	NORTH MONUMENT G/SA UNIT	298	APACHE CORP	4009	I	A	P	D	36	19	S	36	E	1310	N	1250	W	2420
30-025-31504	MONUMENT G/SA UT. BLK 14 N.	020	AMERADA HESS CORP	Loc	O	Cancl	S	D	36	19	S	36	E	243	N	150	W	2527
30-025-12469	STATE F GAS COM	001	APACHE CORP	3903	G	A	S	M	36	19	S	36	E	660	S	660	W	2512
30-025-12484	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3953	O	A	S	D	36	19	S	36	E	660	N	660	W	2419
30-025-33838	SHELL B STATE	002	JACK HUFF	3800	G	A	S	D	36	19	S	36	E	660	N	810	W	2513
30-025-24166	NORTH MONUMENT G/SA UNIT	010	APACHE CORP	3950	O	TA	S	J	36	19	S	36	E	2310	S	2265	E	3843
30-025-12466	NORTH MONUMENT G/SA UNIT	002B	APACHE CORP	3930	I	A	S	B	36	19	S	36	E	660	N	1980	E	4536
30-025-12471	NORTH MONUMENT G/SA UNIT	011	APACHE CORP	3905	I	A	S	K	36	19	S	36	E	1980	S	1980	W	2879
30-025-12476	GRAHAM STATE NCT F	003	XTO ENERGY, INC	3921	O	A	S	J	36	19	S	36	E	1980	S	1980	E	4171
30-025-31593	SHELL B STATE	001	JACK HUFF	3730	O	A	S	C	36	19	S	36	E	990	N	1980	W	3211
30-025-36913	NORTH MONUMENT G/SA UNIT	337	APACHE CORP	3960	O	A	S	L	36	19	S	36	E	2630	S	150	W	961
30-025-31587	NORTH MONUMENT G/SA UNIT	019	APACHE CORP	5150	I	A	S	C	36	19	S	36	E	81	N	1505	W	3407
30-025-12470	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	3939	O	A	S	L	36	19	S	36	E	1980	S	660	W	1635
30-025-12480	NORTH MONUMENT G/SA UNIT	006	APACHE CORP	3939	O	A	S	F	36	19	S	36	E	1980	N	1980	W	2853
30-025-37985	NORTH MONUMENT G/SA UNIT	343	APACHE CORP	0	O	New	S	L	36	19	S	36	E	1440	S	1275	W	2434
30-025-37984	NORTH MONUMENT G/SA UNIT	342	APACHE CORP	0	O	New	S	I	36	19	S	36	E	2000	S	940	E	5196
30-025-04139	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3954	O	A	S	D	1	20	S	36	E	660	N	660	W	3665
30-025-13228	LPG STORAGE WELL	001	TARGA MIDSTREAM SERVICES LTD PTR	1906	M	A	P	D	1	20	S	36	E	100	N	100	W	2941
30-025-04142	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3900	O	A	S	C	1	20	S	36	E	660	N	1980	W	4365
30-025-04140	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3915	I	A	S	E	1	20	S	36	E	1980	N	660	W	4903
30-025-32361	STATE F GAS COM	002	APACHE CORP	3426	G	A	S	E	1	20	S	36	E	1650	N	825	W	4644
30-025-04143	STATE D	005	APACHE CORP	5220	O	A	S	C	1	20	S	36	E	766	N	1874	W	4381
30-025-04166	NORTH MONUMENT G/SA UNIT	002	APACHE CORP	3940	O	A	S	B	2	20	S	36	E	660	N	1980	E	3556
30-025-34188	APACHE STATE A	007	APACHE CORP	7700	O	TA	S	B	2	20	S	36	E	990	N	1650	E	3782
30-025-04165	NORTH MONUMENT G/SA UNIT	001	APACHE CORP	3945	I	A	S	A	2	20	S	36	E	660	N	660	E	3361
30-025-33006	W A WEIR GAS COM	009	APACHE CORP	3685	G	A	P	D	2	20	S	36	E	330	N	660	W	4867
30-025-04155	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3921	I	A	S	C	2	20	S	36	E	660	N	1980	W	4181
30-025-31611	STATE A	007	CIMAREX ENERGY CO OF COLORADO	3600	G	A	S	G	2	20	S	36	E	1980	N	1650	E	4752
30-025-26886	MONUMENT ABO	001	APACHE CORP	7979	O	TA	S	C	2	20	S	36	E	800	N	1750	W	4431
30-025-04168	NORTH MONUMENT G/SA UNIT	007	APACHE CORP	3912	I	A	S	G	2	20	S	36	E	1980	N	1980	E	4822
30-025-04162	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3930	O	TA	P	D	2	20	S	36	E	660	N	660	W	5079
30-025-04167	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	3837	O	A	S	H	2	20	S	36	E	1980	N	660	E	4680

Shallow wells within one mile of the proposed disposal well, which do not penatrate the disposal interval.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-35181	NORTH MONUMENT G/SA UNIT	930	APACHE CORP	4055	O	TA	P	N	25	19	S	36	E	224	S	2443	W	4295
30-025-04057	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	4001	G	TA	P	L	25	19	S	36	E	1980	S	660	W	4792
30-025-04059	NORTH MONUMENT G/SA UNIT	015	APACHE CORP	3998	I	A	S	O	25	19	S	36	E	660	S	1980	E	5233
30-025-04064	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	4010	I	A	P	M	25	19	S	36	E	660	S	660	W	3559
30-025-04053	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3939	I	A	S	N	25	19	S	36	E	660	S	1980	W	4276
30-025-24423	STATE T	008	APACHE CORP	4100	G	A	S	K	25	19	S	36	E	1650	S	2310	W	5257
30-025-04077	NORTH MONUMENT G/SA UNIT	010	AMERADA HESS CORP	3995	O	P&A	P	J	26	19	S	36	E	1980	S	1980	E	4709
30-025-04078	MCGRAIL STATE	001	MARATHON OIL CO	3990	G	A	S	N	26	19	S	36	E	660	S	1980	W	4088
30-025-04072	STATE A 26	001	LEWIS B BURLESON INC	3985	O	A	S	M	26	19	S	36	E	660	S	660	W	5003
30-025-32579	MCGRAIL STATE	003	MARATHON OIL CO	3850	G	A	S	K	26	19	S	36	E	1880	S	1980	W	5110
30-025-04079	NORTH MONUMENT G/SA UNIT	011	APACHE CORP	4005	O	TA	S	K	26	19	S	36	E	1980	S	1980	W	5197
30-025-04069	W A WEIR GAS COM	007	APACHE CORP	3993	G	A	P	O	26	19	S	36	E	660	S	1980	E	3446
30-025-04076	C T BATES	001	GULF OIL CORP	3975	O	P&A		P	26	19	S	36	E	660	S	660	E	3245
30-025-04104	NORTH MONUMENT G/SA UNIT	017	APACHE CORP	3800	O	TA	P	H	34	19	S	36	E	1980	N	660	E	5166
30-025-30923	J W SMITH	007	XTO ENERGY, INC	3950	G	A	P	H	34	19	S	36	E	1900	N	660	E	5176
30-025-36183	SALINE WATER WELL	002	CLIMAX CHEMICAL CO	2449	M	P&A	P	P	34	19	S	36	E	1020	S	330	E	5085
30-025-04101	M E GAITHER	001	APACHE CORP	3950	G	A	P	I	34	19	S	36	E	1980	S	660	E	5180
30-025-12463	NORTH MONUMENT G/SA UNIT	002	APACHE CORP	3982	O	A	P	B	35	19	S	36	E	660	N	1980	E	2250
30-025-04125	SELBY MAVEETY	002	BP AMERICA PRODUCTION COMPANY	3992	G	A	P	K	35	19	S	36	E	1980	S	1980	W	2592
30-025-04126	NORTH MONUMENT G/SA UNIT	015	APACHE CORP	3956	I	A	P	O	35	19	S	36	E	660	S	1980	E	2350
30-025-26152	MAVEETY STATE GAS COM	008	CIMAREX ENERGY CO OF COLORADO	3800	G	A	S	O	35	19	S	36	E	810	S	2030	E	2248
30-025-32299	MAVEETY STATE GAS COM	009	CIMAREX ENERGY CO OF COLORADO	3700	G	A	S	I	35	19	S	36	E	1980	S	810	E	718
30-025-04120	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3885	G	TA	P	E	35	19	S	36	E	1980	N	660	W	3858
30-025-12464	W B MAVEETY	005	CHESAPEAKE OPERATING, INC.	3940	G	A	P	G	35	19	S	36	E	1989	N	1991	E	1322
30-025-04119	W A WEIR GAS COM	004	APACHE CORP	3945	G	A	P	F	35	19	S	36	E	1980	N	1980	W	2562
30-025-04122	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3845	O	TA	P	D	35	19	S	36	E	660	N	660	W	4268
30-025-04124	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3940	O	A	P	N	35	19	S	36	E	660	S	1980	W	3218
30-025-04127	NORTH MONUMENT G/SA UNIT	016	APACHE CORP	3929	O	A	S	P	35	19	S	36	E	660	S	660	E	2043
30-025-32778	W B MAVEETY	010	CHESAPEAKE OPERATING, INC.	3700	G	A	S	A	35	19	S	36	E	750	N	760	E	1832
30-025-12461	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	3945	O	A	P	H	35	19	S	36	E	1980	N	660	E	620
30-025-04117	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	3836	O	TA	P	M	35	19	S	36	E	660	S	660	W	4321
30-025-04129	SELBY MAVEETY	001Y	AMERADA HESS CORP	3950	O	P&A	P	N	35	19	S	36	E	950	S	2310	W	2779
30-025-04123	W A WEIR NCT A	001	AMERADA HESS CORP	3978	O	P&A	F	A	35	19	S	36	E	660	N	660	E	1927
30-025-27303	NORTH MONUMENT G/SA UNIT	001	APACHE CORP	3975	I	TA	P	A	35	19	S	36	E	990	N	480	E	1625
30-025-12486	NORTH MONUMENT G/SA UNIT	009	APACHE CORP	3960	I	A	P	I	35	19	S	36	E	1980	S	660	E	733

Shallow wells within one mile of the proposed disposal well, which do not penatrate the disposal interval.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-12462	NORTH MONUMENT G/SA UNIT	010	APACHE CORP	3938	O	A	P	J	35	19	S	36	E	1988	S	1991	E	1378
30-025-21886	W B MAVEETY	007	ORYX ENERGY CO	4100	I	P&A	P	G	35	19	S	36	E	2310	N	1650	E	883
30-025-04118	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	3945	G	A	P	L	35	19	S	36	E	1980	S	660	W	3878
30-025-04128	SELBY MAVEETY	001	SINCLAIR OIL & GAS CO	2310	O	P&A	P	N	35	19	S	36	E	990	S	2310	W	2754
30-025-04121	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3954	O	TA	P	C	35	19	S	36	E	660	N	1980	W	3146
30-025-05104	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3947	I	A	S	C	36	19	S	36	E	660	N	1980	W	3387
30-025-12483	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3935	I	A	S	E	36	19	S	36	E	1980	N	660	W	1587
30-025-12472	NORTH MONUMENT G/SA UNIT	014	APACHE CORP	3905	O	A	S	N	36	19	S	36	E	660	S	1980	W	3454
30-025-12477	GRAHAM STATE NCT F	004	XTO ENERGY, INC	3915	G	A	S	O	36	19	S	36	E	660	S	1980	E	4586
30-025-36674	NORTH MONUMENT G/SA UNIT	334	APACHE CORP	3960	O	A	S	E	36	19	S	36	E	2245	N	1250	W	2086
30-025-35177	NORTH MONUMENT G/SA UNIT	297	APACHE CORP	3986	O	A	P	B	36	19	S	36	E	1310	N	2525	E	3784
30-025-13229	LPG STORAGE WELL	002	TARGA MIDSTREAM SERVICES LTD PTR	1799	M	A	P	M	36	19	S	36	E	1020	S	1220	W	2632
30-025-33568	STATE V	007	APACHE CORP	3535	G	A	S	B	36	19	S	36	E	660	N	1880	E	4627
30-025-12468	NORTH MONUMENT G/SA UNIT	007	APACHE CORP	3908	I	A	S	G	36	19	S	36	E	1980	N	1980	E	4152
30-025-24422	NORTH MONUMENT G/SA UNIT	013	APACHE CORP	4050	I	A	P	M	36	19	S	36	E	990	S	610	W	2220
30-025-24094	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	4030	O	A	S	H	36	19	S	36	E	1650	N	990	E	5183
30-025-35197	NORTH MONUMENT G/SA UNIT	298	APACHE CORP	4009	I	A	P	D	36	19	S	36	E	1310	N	1250	W	2420
30-025-31504	MONUMENT G/SA UT. BLK 14 N.	020	AMERADA HESS CORP	Loc	O	Cancl	S	D	36	19	S	36	E	243	N	150	W	2527
30-025-12469	STATE F GAS COM	001	APACHE CORP	3903	G	A	S	M	36	19	S	36	E	660	S	660	W	2512
30-025-12484	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3953	O	A	S	D	36	19	S	36	E	660	N	660	W	2419
30-025-33838	SHELL B STATE	002	JACK HUFF	3800	G	A	S	D	36	19	S	36	E	660	N	810	W	2513
30-025-24166	NORTH MONUMENT G/SA UNIT	010	APACHE CORP	3950	O	TA	S	J	36	19	S	36	E	2310	S	2265	E	3843
30-025-12466	NORTH MONUMENT G/SA UNIT	002B	APACHE CORP	3930	I	A	S	B	36	19	S	36	E	660	N	1980	E	4536
30-025-12471	NORTH MONUMENT G/SA UNIT	011	APACHE CORP	3905	I	A	S	K	36	19	S	36	E	1980	S	1980	W	2879
30-025-12476	GRAHAM STATE NCT F	003	XTO ENERGY, INC	3921	O	A	S	J	36	19	S	36	E	1980	S	1980	E	4171
30-025-31593	SHELL B STATE	001	JACK HUFF	3730	O	A	S	C	36	19	S	36	E	990	N	1980	W	3211
30-025-36913	NORTH MONUMENT G/SA UNIT	337	APACHE CORP	3960	O	A	S	L	36	19	S	36	E	2630	S	150	W	961
30-025-12470	NORTH MONUMENT G/SA UNIT	012	APACHE CORP	3939	O	A	S	L	36	19	S	36	E	1980	S	660	W	1635
30-025-12480	NORTH MONUMENT G/SA UNIT	006	APACHE CORP	3939	O	A	S	F	36	19	S	36	E	1980	N	1980	W	2853
30-025-37985	NORTH MONUMENT G/SA UNIT	343	APACHE CORP	*	O	New	S	L	36	19	S	36	E	1440	S	1275	W	2434
30-025-37984	NORTH MONUMENT G/SA UNIT	342	APACHE CORP	*	O	New	S	I	36	19	S	36	E	2000	S	940	E	5196
30-025-04139	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3954	O	A	S	D	1	20	S	36	E	660	N	660	W	3665
30-025-13228	LPG STORAGE WELL	001	TARGA MIDSTREAM SERVICES LTD PTR	1906	M	A	P	D	1	20	S	36	E	100	N	100	W	2941
30-025-04142	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3900	O	A	S	C	1	20	S	36	E	660	N	1980	W	4365
30-025-04140	NORTH MONUMENT G/SA UNIT	005	APACHE CORP	3915	I	A	S	E	1	20	S	36	E	1980	N	660	W	4903

Shallow wells within one mile of the proposed disposal well, which do not penatrate the disposal interval.

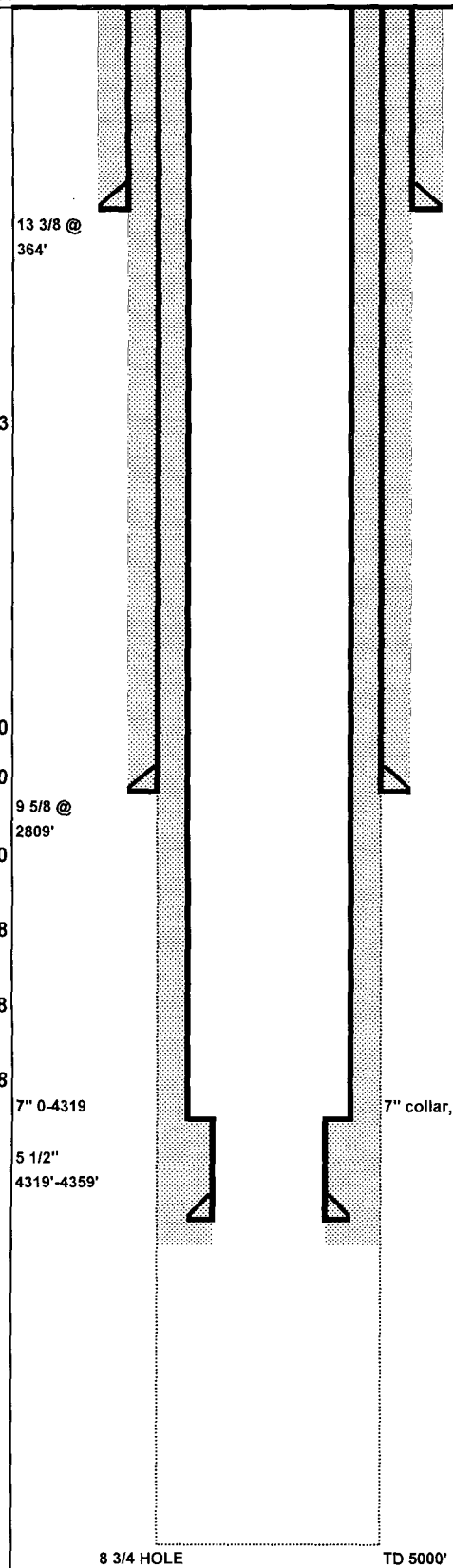
API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-32361	STATE F GAS COM	002	APACHE CORP	3426	G	A	S	E	1	20	S	36	E	1650	N	825	W	4644
30-025-04166	NORTH MONUMENT G/SA UNIT	002	APACHE CORP	3940	O	A	S	B	2	20	S	36	E	660	N	1980	E	3556
30-025-04165	NORTH MONUMENT G/SA UNIT	001	APACHE CORP	3945	I	A	S	A	2	20	S	36	E	660	N	660	E	3361
30-025-33006	W A WEIR GAS COM	009	APACHE CORP	3685	G	A	P	D	2	20	S	36	E	330	N	660	W	4867
30-025-04155	NORTH MONUMENT G/SA UNIT	003	APACHE CORP	3921	I	A	S	C	2	20	S	36	E	660	N	1980	W	4181
30-025-31611	STATE A	007	CIMAREX ENERGY CO OF COLORADO	3600	G	A	S	G	2	20	S	36	E	1980	N	1650	E	4752
30-025-04168	NORTH MONUMENT G/SA UNIT	007	APACHE CORP	3912	I	A	S	G	2	20	S	36	E	1980	N	1980	E	4822
30-025-04162	NORTH MONUMENT G/SA UNIT	004	APACHE CORP	3930	O	TA	P	D	2	20	S	36	E	660	N	660	W	5079
30-025-04167	NORTH MONUMENT G/SA UNIT	008	APACHE CORP	3837	O	A	S	H	2	20	S	36	E	1980	N	660	E	4680

Deep wells within one mile of the proposed disposal well.

API #	PROPERTY NAME	#	OPERATOR	TD	TYPE	STAT	LAND	U/L	SEC	TWN		RNG		N/S		E/W		Distance
30-025-33687	MCGRAIL STATE	010	MARATHON OIL CO	8015	O	A	S	N	26	19	S	36	E	400	S	1650	W	4104
30-025-33598	STATE A 26	006	CHEVRON U S A INC	7550	O	A	S	M	26	19	S	36	E	410	S	330	W	5108
30-025-34005	W A WEIR	015	APACHE CORP	7550	O	A	P	O	26	19	S	36	E	990	S	2310	E	3874
30-025-33820	WEIR B	002	CHEVRON U S A INC	7534	O	A	P	J	26	19	S	36	E	1980	S	2310	E	4802
30-025-31982	FOSTER	003	DAVID H ARRINGTON OIL & GAS INC	8050	O	A	P	P	34	19	S	36	E	660	S	330	E	5215
30-025-33190	M E GAITHER	005	APACHE CORP	8100	O	A	P	I	34	19	S	36	E	1650	S	660	E	5236
30-025-33567	W A WEIR	011	APACHE CORP	7525	O	TA	P	L	35	19	S	36	E	1680	N	580	W	3994
30-025-33759	W A WEIR	014	APACHE CORP	7505	O	A	P	F	35	19	S	36	E	1650	N	1650	W	2970
30-025-33045	MONUMENT ABO 35	002	APACHE CORP	8092	O	TA	P	M	35	19	S	36	E	660	S	330	W	4615
30-025-33696	W A WEIR	013	APACHE CORP	7660	O	A	P	C	35	19	S	36	E	330	N	1650	W	3609
30-025-33670	W A WEIR	012	APACHE CORP	7600	O	A	P	L	35	19	S	36	E	2130	S	560	W	3952
30-025-34056	SELBY MAVEETY	004	APACHE CORP	7550	O	TA	P	N	35	19	S	36	E	975	S	1650	W	3305
30-025-33944	SELBY MAVEETY	003	APACHE CORP	7550	O	A	P	K	35	19	S	36	E	2310	S	1650	W	2847
30-025-33551	W A WEIR	010	APACHE CORP	7550	O	A	P	D	35	19	S	36	E	330	N	660	W	4426
30-025-33877	W B MAVEETY	011	APACHE CORP	7610	O	A	P	B	35	19	S	36	E	520	N	2310	E	2550
30-025-20517	NORTH MONUMENT G/SA UNIT	286	APACHE CORP	10360	O	TA	S	G	36	19	S	36	E	1980	N	1830	E	4301
30-025-12482	GRAHAM STATE NCT-F	007	TARGA MIDSTREAM SERVICES LTD PTR	7700	S	A	S	O	36	19	S	36	E	330	S	1650	E	5031
30-025-12473	STATE F GAS COM	005	APACHE CORP	10255	G	A	S	N	36	19	S	36	E	785	S	1980	W	3382
30-025-12481	NORTH MONUMENT G/SA UNIT	285	APACHE CORP	10100	O	A	S	F	36	19	S	36	E	1830	N	1980	W	2888
30-025-31587	NORTH MONUMENT G/SA UNIT	019	APACHE CORP	5150	I	A	S	C	36	19	S	36	E	81	N	1505	W	3407
30-025-04143	STATE D	005	APACHE CORP	5220	O	A	S	C	1	20	S	36	E	766	N	1874	W	4381
30-025-34188	APACHE STATE A	007	APACHE CORP	7700	O	TA	S	B	2	20	S	36	E	990	N	1650	E	3782
30-025-26886	MONUMENT ABO	001	APACHE CORP	7979	O	TA	S	C	2	20	S	36	E	800	N	1750	W	4431

PRESENT WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500

APINUM:	30-025-37918				
OPERATOR:	MONUMENT DISPOSAL INC				
LEASENAME:	MONUMENT DISPOSAL			WELL NO	1
LOCATION:	UL: H	SEC: 35	TWN: 19S	RNG:	36E
	2582 FNL		809	FEL	
TD	4240	PBD	KB	3651	DF
			GL	3641	
POOL	SI DISPOSAL		PERFS		
			OPEN HOLE	4351-5000	

TEST (SHOW DATE)

OIL	GAS	WATER
OIL	GAS	WATER

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

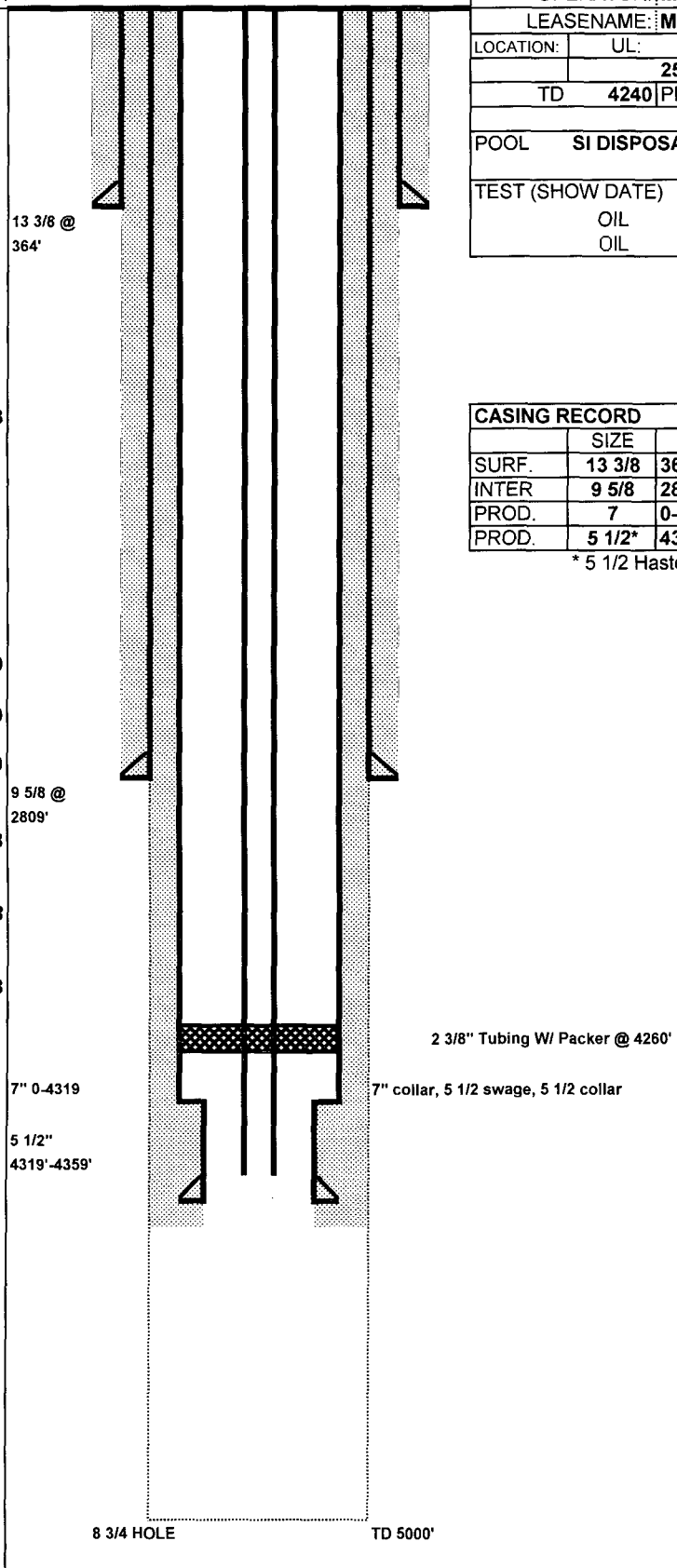
* 5 1/2 Hastelloy C-276 liner (see attached material data sheet)

PREPARED BY: | UPDATED 7/31/2006

PROPOSED WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500



APINUM:	30-025-37918				
OPERATOR:	MONUMENT DISPOSAL INC				
LEASENAME:	MONUMENT DISPOSAL			WELL NO	1
LOCATION:	UL: H	SEC: 35	TWN: 19S	RNG:	36E
	2582 FNL		809	FEL	
TD	4240	PBD	KB 3651	DF	
			GL 3641		
POOL	SI DISPOSAL		PERFS		
			OPEN HOLE	4351-5000	
TEST (SHOW DATE)					
	OIL	GAS	WATER		
	OIL	GAS	WATER		

CASING RECORD

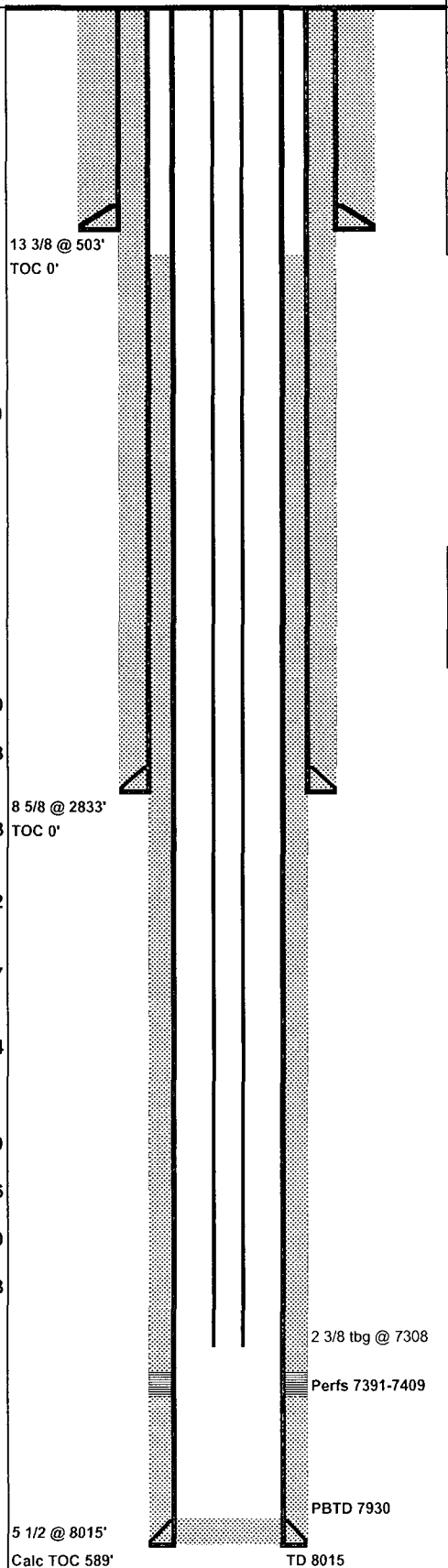
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

* 5 1/2 Hastelloy C-276 liner (see attached material data sheet)

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



FORM	DEPTH
Rustler	1170
Tansill	2490
Yates	2763
7 Rivers	2933
Queen	3522
Grayburg	3787
San Andres	4014
Glorieta	5540
Tubb	6486
Drinkard	6550
Abo	6958

APINUM:	30-025-33687				
OPERATOR:	MARATHON OIL CO				
LEASENAME:	MCGRAIL STATE			WELL NO.	10
LOCATION:	UL: N	SEC: 26	TWN: 19S	RNG:	36E
	400 FSL		1650 FWL		
TD 8015	PBD 7930	KB 3680	DF		
		GL 3668			
POOL			PERFS	7391-7409	
Monument Abo					
TEST (SHOW DATE)					
Jan-97	OIL 189	GAS 162	WATER 10		
	OIL	GAS	WATER		

CASING RECORD

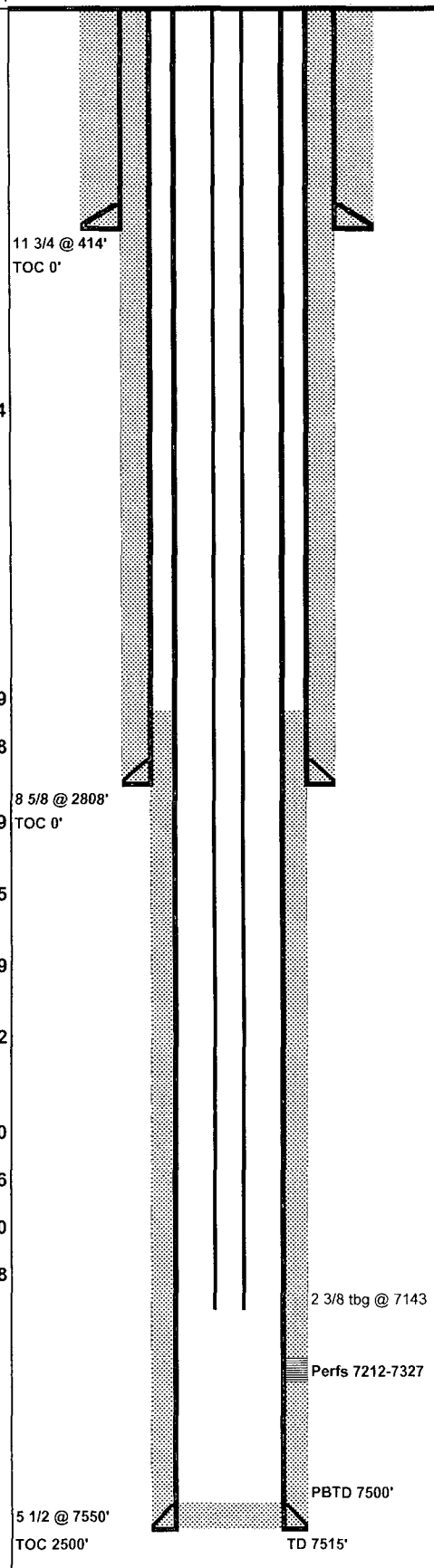
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	503	665 sxs	17 1/2	0' CIRC
INT1	8 5/8	2833	950 sxs	11	0' CIRC
PROD.	5 1/2	8015	1260 sxs	7 7/8	Calc 589'

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1214
Tansill	2529
Yates	2678
7 Rivers	2969
Queen	3515
Grayburg	3899
San Andres	4022
Glorieta	5540
Tubb	6486
Drinkard	6550
Abo	6958



APINUM:	30-025-33598				
OPERATOR:	CHEVRON U S A INC				
LEASENAME:	STATE A 26			WELL NO.	6
SURFACE LOCATION:	UL: M	SEC: 26	TWN: 19S	RNG:	36E
	410 FSL		330 FWL		
BHL LOCATION:	UL: M	SEC: 26	TWN: 19S	RNG:	36E
	448 FSL		387 FWL		
TD 7550	PBD 7500	KB	DF		
		GL 3660			
POOL		PERFS	7212-7327		
Monument Abo					
TEST (SHOW DATE)					
Nov-96	OIL 543	GAS 465	WATER 0		
	OIL	GAS	WATER		

CASING RECORD

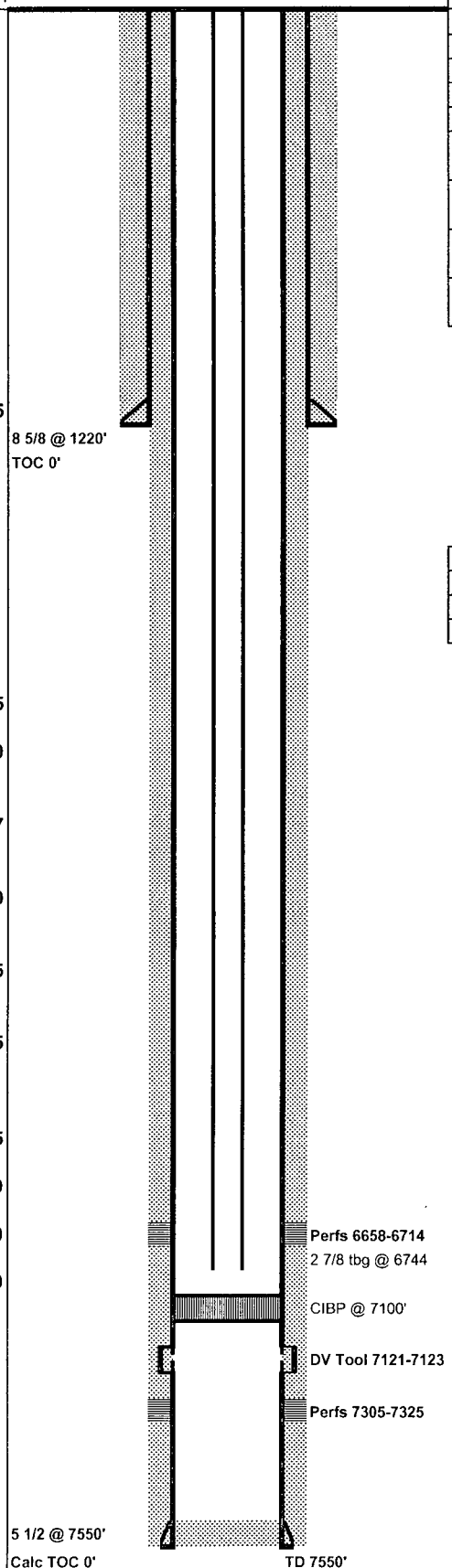
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	11 3/4	414	260 sxs	14 3/4	0' CIRC
INT1	8 5/8	2808	800 sxs	11	0' CIRC
PROD.	5 1/2	7550	1200 sxs	7 7/8	2500'

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

FORM	DEPTH
Rustler	1165
Tansill	2495
Yates	2640
7 Rivers	2977
Queen	3430
Grayburg	3805
San Andres	4025
Glorieta	5355
Tubb	6200
Drinkard	6680
Abo	6970

COMPLETION SCHEMATIC



APINUM:	30-025-34005				
OPERATOR:	APACHE CORP				
LEASENAME:	W A WEIR			WELL NO.	15
LOCATION:	UL: O	SEC: 26	TWN: 19S	RNG:	36E
	990 FSL		2310 FEL		
TD 7550	PBD 7100	KB		DF	
		GL 3664			
POOL		PERFS	7305-7325		
Monument Abo		Isolated by CIBP @ 7100			
TEST (SHOW DATE)					
Jul-97	OIL 31	GAS 331	WATER 0		
POOL		PERFS	6658-6714		
Monument Yeso					
TEST (SHOW DATE)					
Apr-01	OIL 142	GAS 301	WATER 154		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1220	400 sxs	11	0' CIRC
PROD.	5 1/2	7550	1225 sxs	7 7/8	Calc 0'

Apr-01 Plug back to Yeso Formation. CIBP @ 7100. Perf 6658-6714.

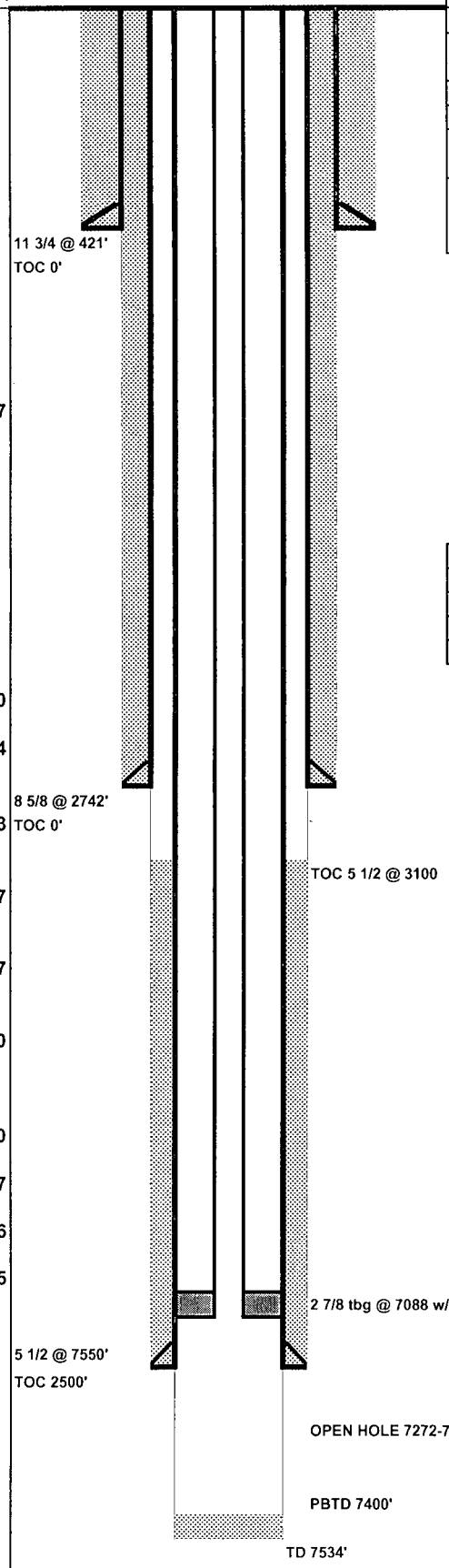
PREPARED BY:

UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1177
Tansill	2500
Yates	2644
7 Rivers	2933
Queen	3437
Grayburg	3807
San Andres	4030
Glorieta	5550
Tubb	6497
Drinkard	6596
Abo	7045



APINUM:	30-025-33820				
OPERATOR:	CHEVRON U S A INC				
LEASENAME:	WEIR B			WELL NO.	2
SURFACE LOCATION:	UL: J	SEC: 26	TWN: 19S	RNG:	36E
	1980 FSL		2310 FEL		
TD 7534	PBD 7400	KB	DF		
		GL 3666			
POOL		OPEN HOLE: 7272-7400			
Monument Abo					
TEST (SHOW DATE)					
May-97	OIL 360	GAS 918	WATER 0		
	OIL	GAS	WATER		

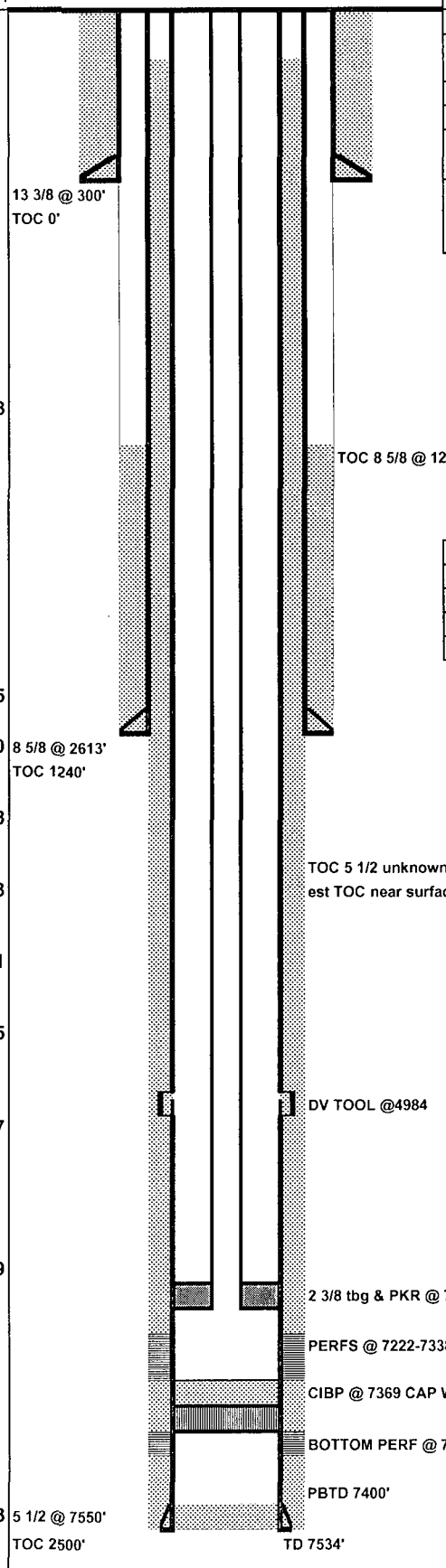
CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	11 3/4	421	300 sxs	14 3/4	0' CIRC
INT1	8 5/8	2742	800 sxs	11	0' CIRC
PROD.	5 1/2	7272	540 sxs	7 7/8	3100'

PREPARED BY:	UPDATED	07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



FORM	DEPTH
Rustler	1163
Tansill	2505
Yates	2650
7 Rivers	2848
Queen	3413
Grayburg	3801
San Andres	4025
Glorieta	5067
Abo	7099
Wolfcamp	8023

APINUM:	30-025-31982				
OPERATOR:	DAVID H ARRINGTON OIL & GAS INC				
LEASENAME:	J A FOSTER			WELL NO.	3
SURFACE LOCATION:	UL: PBD	SEC: 34	TWN: 19S	RNG:	36E
	660 FSL		330 FEL		
TD 8050	PBD 7346	KB 3627	DF		
		GL 3614			
POOL			OLD PERFS:	7323-7428	
Monument Abo			NEW PERFS:	7222-7338	

TEST (SHOW DATE)

Nov-93	OIL	22	GAS	35	WATER	230
May-99	OIL	108	GAS	na	WATER	na

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	300	400 sxs	17 1/2	0' CIRC
INT1	8 5/8	2613	1400 sxs	12 1/4	1240'
PROD.	5 1/2	8035	1660 sxs	7 7/8	*

* TOC on 5 1/2 calculated at surface, however C-103 dated 12/15/93 indicates cement did not circulate.

5/14/1999 Set CIBP @ 7369 capped w/ cmnt. PBTD 7346'
Perf 7222- 7332

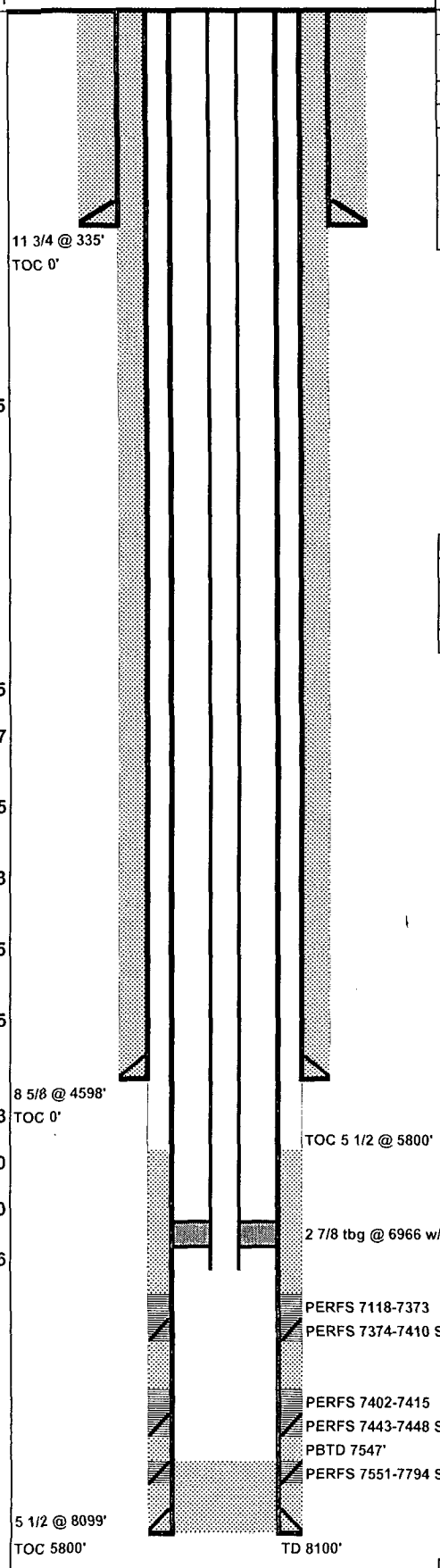
PREPARED BY:

UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1195
Tansill	2615
Yates	2747
7 Rivers	2945
Queen	3453
Grayburg	3855
San Andres	4075
Glorieta	5423
Tubb	6450
Drinkard	6860
Abo	6976



APINUM:	30-025-33190				
OPERATOR:	APACHE CORP				
LEASENAME:	M E GAITHER			WELL NO.	5
SURFACE LOCATION:	UL: I	SEC: 34	TWN: 19S	RNG:	36E
	1650 FSL		660	FEL	
TD 8100	PBD 7547	KB		DF	
		GL 3621			
POOL			PERFS:	7118-7373	
Monument Abo				7402-7415	
TEST (SHOW DATE)					
Feb-96	OIL 151	GAS 130	WATER 241		
	OIL	GAS	WATER		

CASING RECORD

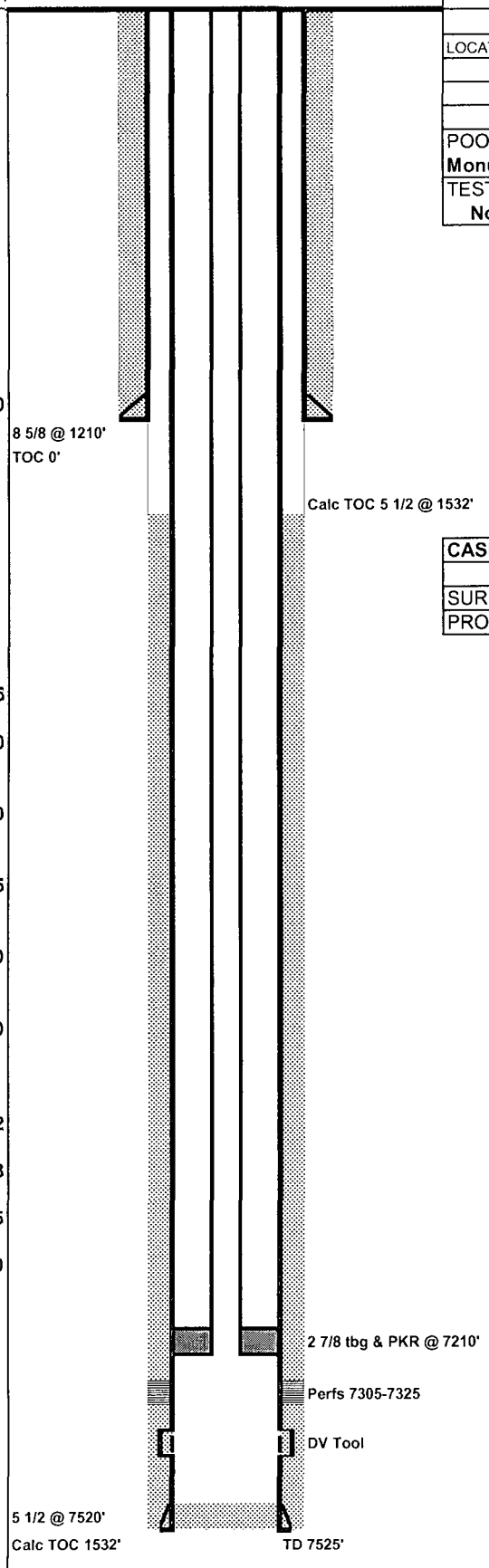
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	11 3/4	335	275 sxs	14 3/4	0' CIRC
INT1	8 5/8	4598	1300 sxs	11	0' CIRC
PROD.	5 1/2	8099	525 sxs	7 7/8	5800'

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1160
Tansill	2475
Yates	2650
7 Rivers	2720
Queen	3325
Grayburg	3770
San Andres	4000
Glorieta	5202
Tubb	6618
Drinkard	6705
Abo	6950



APINUM:	30-025-33567				
OPERATOR:	APACHE CORP				
LEASENAME:	W A WEIR			WELL NO.	11
LOCATION:	UL: E	SEC: 35	TWN: 19S	RNG:	36E
	1680 FNL		580 FWL		
TD	7525	PBD 7430	KB	DF	
			GL 3623		
POOL			PERFS	7270-7400	
Monument Abo					
TEST (SHOW DATE)					
Nov-96	OIL 310	GAS 270	WATER 0		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1210	400 sxs	11	0' CIRC
PROD.	5 1/2	7520	1005 sxs	7 7/8	Calc 1532'

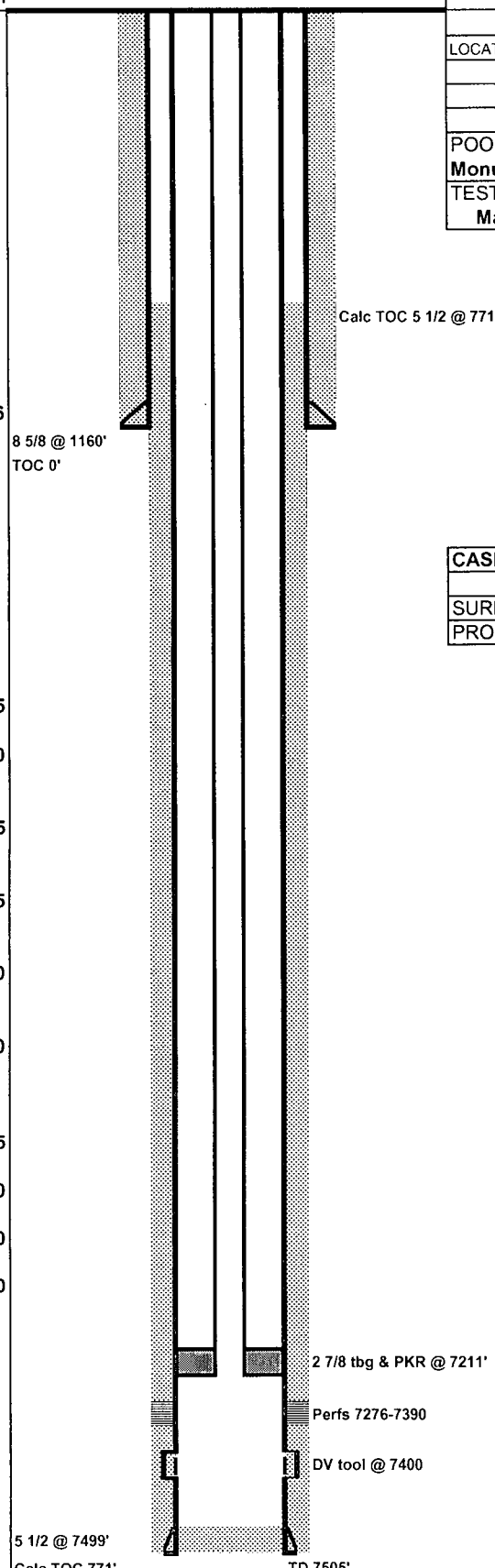
PREPARED BY:

UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1116
Tansill	2395
Yates	2600
7 Rivers	2785
Queen	3275
Grayburg	3710
San Andres	3940
Glorieta	5585
Tubb	6520
Drinkard	6740
Abo	7010



APINUM:	30-025-33759				
OPERATOR:	APACHE CORP				
LEASENAME:	W A WEIR			WELL NO.	14
LOCATION:	UL: F	SEC: 35	TWN: 19S	RNG:	36E
	1650 FNL		1650 FWL		
TD 7505	PBD 7495	KB	DF		
		GL 3623			
POOL		PERFS	7276-7390		
Monument Abo					
TEST (SHOW DATE)					
Mar-97	OIL 214	GAS 180	WATER 1		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1160	400 sxs	11	0' CIRC
PROD.	5 1/2	7499	1200 sxs	7 7/8	Calc 771'

PREPARED BY:

UPDATED 7/31/2006

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, April 03, 2007 4:22 PM
To: 'seay04@leaco.net'
Cc: Price, Wayne, EMNRD; Jones, William V., EMNRD
Subject: Monument Class I Well C-108 Update

Mr. Seay:

Good afternoon. I notice that you have already public noticed the well in advance of the OCD's determination of "administrative completeness." Monument Disposal Inc. and the OCD begin the public notice process after the application has been deemed "Administratively Complete."

From your AOR, the following wells where cement appears to be lacking are of concern to the OCD:

API# 30-025-33190
API# 30-025-33045
~~API# 30-025-20517~~
~~API# 30-025-12481~~

It appears that corrective action is needed at the above wells in the San Andres Formation at the injection interval 4351 and 5000 ft. depth before injection may be approved by the OCD?

Due to current projects and priorities, I have been reviewing your application on and off as time permits. However, the public notice process begins only after the OCD deems the application to be administratively complete.

Thanks in advance for your cooperation in the application review process. Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/
(Pollution Prevention Guidance is under "Publications")

26. Certification: Monument Disposal Inc. by the officer, whose signature appears below, accepts this permit and agrees to comply with all submitted commitments, including these terms and conditions contained here. **Monument Disposal Inc.** further acknowledges that the OCD may, for good cause shown, as necessary to protect fresh water, public health, safety, and the environment, change the conditions and requirements of this permit administratively.

Conditions accepted by: "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."

_____
Monument Disposal Inc.- print name above

_____
Company Representative- print name

_____
Company Representative- signature

Title_____

Date:_____

1. Cover sheet marked as "Annual Class I Well Report, name of operator, permit #, API# of well(s), date of report, and person submitting report.
2. Brief summary of Class I Well(s) operations including description and reason for any remedial or major work on the well with a copy of OCD Form C-103.
3. Production volumes as required above in 22.G. including a running total should be carried over to each year. The maximum and average injection pressure.
4. A copy of the chemical analysis as required above in 22.H.
5. A copy of any mechanical integrity test chart, including the type of test, i.e. duration, gauge pressure, etc.
6. Brief explanation describing deviations from normal production methods.
7. A copy of any expansion tank monitoring pressure, fluid removals/additions, well problems, drinking water impacts, leaks and spills reports.
8. If applicable, results of any groundwater monitoring.
9. An Area of Review (AOR) update summary.
10. Sign-off requirements pursuant to WQCC Subsection G 20.6.2.5101.
11. A summary with interpretation of MITs, Fall-Off Tests, etc., with conclusion(s) and recommendation(s).
12. Annual facility training.

23. Transfer of Discharge Permit: Pursuant to WQCC 20.6.2.5101.H Monument Disposal Inc. and any new owner/operator shall provide written notice of any transfer of the permit in accordance with WQCC 20.6.2.3104 (Discharge Permit Required), 20.6.2.3111 (Transfer of Discharge Permit), 20.6.2.5101 (Discharge Permit and Other Requirements for Class I Non-Hazardous Waste Waste Disposal Wells, and Class III Wells). Both parties shall sign the notice 30 days prior to any transfer of ownership, control or possession of a Class I Well with an approved discharge permit. In addition, the purchaser shall include a written commitment to comply with the terms and conditions of the previously approved discharge permit. OCD will not transfer Class I Well operations until: correspondence between the transferor and transferee is submitted along with a signed certification of acceptance by the transferee, and proper bonding or financial assurance is in place and approved by the division. OCD reserves the right to require a major modification of the permit during the transfer process.

24. Training: All personnel associated with operations at the Monument Class I disposal well shall have appropriate training in accepting, processing, and disposing of Class I non exempt non-hazardous oil field waste to insure proper disposal. Provide training documentation in annual report under Section 22K(12).

25. Closure: Monument Disposal Inc. shall notify the OCD when operations of the facility are to be discontinued for a period in excess of six months. Prior to closure of the facility, the operator shall submit for OCD approval, a closure plan including a completed C-103 form for plugging and abandonment of the well(s). Closure and waste disposal shall be in accordance with the statutes, rules and regulations in effect at the time of closure.

G. Injection Record Volumes and Pressures: The owner/operator shall submit quarterly reports of its disposal, operation and well workovers provided herein. The minimum, maximum, average flow waste injection volumes (including total volumes) and annular pressures of waste (oil field exempt/non-exempt non-hazardous waste) injected will be recorded monthly and submitted to the OCD Santa Fe Office on a quarterly basis.

The casing-tubing annulus shall contain fluid and be equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The owner/ operator shall provide the following information on a quarterly basis of each quarterly report. Any well activity (i.e., plugging, changing injection intervals, etc.) shall be conducted in accordance with all applicable New Mexico Oil Conservation Division regulations.

H. Analysis of Injected Waste: Provide an analysis of the injection waste and produced water with each annual report. The analytical testing shall be conducted on a quarterly basis with any exceedence reported to the OCD within 24 hours after having knowledge of an exceedence(s). Records shall be maintained at Monument Disposal for the life of the well. The required analytical test methods are:

a. Aromatic and halogenated volatile hydrocarbon scan by EPA Method 8260C GC/MS. Semi-volatile Organics GC/MS EPA Method 8270B including 1 and 2-methylnaphthalene.
b. General water chemistry (Method 40 CFR 136.3) to include calcium, potassium, magnesium, sodium, bicarbonate, carbonate, chloride, sulfate, total dissolved solids (TDS), pH, and conductivity.
c. Heavy metals using the ICP scan (EPA Method 6010) and Arsenic and Mercury using atomic absorption (EPA Methods 7060 and 7470).
d. EPA RCRA Characteristics for Ignitability, Corrosivity and Reactivity (40 CFR part 261 Subpart C Sections 261.21 – 261.23, July 1, 1992).

I. Area of Review (AOR): The operator shall report within 24 hours of discovery of any new wells, conduits, or any other device that penetrates or may penetrate the injection zone within a 1-mile radius from the Class I Well. Documentation of new wells shall be added to the existing AOR information in the well file within 30 days of the discovery.

J. Bonding or Financial Assurance: The operator shall maintain at a minimum, a one well plugging bond in the amount of $95,000 or the actual amount required to plug/abandon the well pursuant to OCD and WQCC rules and regulations. If warranted, OCD may require additional financial assurance to ensure adequate funding to plug and abandon the well or for any corrective actions.

K. Annual Report: All operators shall submit an annual report due on January 31 of each year. The report shall include the following information:

f. OCD must witness the beginning of test (putting chart on) and ending of test (removing chart). At the end of test, the operator may be required to bleed-off well pressure to demonstrate recorder and gauge response.
g. The Operator shall supply the following information on the pressure chart that the inspector will file in the well records:
    1. Company Name, Well Name, API #, Legal Location.
    2. Test Procedure with "Pass/Fail" designation.
    3. Testing Media: Water, Gas, Oil, Etc.
    4. Date, time started and ending.
    5. Name (printed) and signature of company representative and OCD Inspector

2. Test Acceptance:

The OCD will use the following criteria in determining if a well has passed the Mechanical Integrity Test:

a. Passes if Zero Bleed-Off during the test.
b. Passes if Final Test Pressure is within ± 10% of Starting Pressure, if approved by the OCD inspector.
c. Fails if any Final Test Pressure is greater than ± 10% of Starting Pressure. Operators must investigate for leaks and demonstrate that mechanical integrity of the well(s) by ensuring there are no leaks in the tubing, casing, or packer, and injected/produced fluids are confined within the piping and/or injection zones. Wells shall not resume operations until approved by OCD.

    Note: OCD recognizes that different operations, well designs, formation characteristics and field conditions may cause variations in the above procedures. If the operator wishes to make or discuss anticipated changes, please notify the OCD for approval. All operators are responsible to notify OCD of any procedure that may cause harm to the well system or formation. Please be advised that OCD approval does not relieve any operator of liability should operations result in pollution of surface water, groundwater, or the environment.

d. When the MIT is not witnessed by an OCD Representative and fails, the owner/operator shall notify the OCD within 24 hours after having knowledge of well MIT failure.

F. Loss of Mechanical Integrity: The operator shall report within 24 hours of discovery any failure of the casing, tubing or packer, or movement of fluids outside of the injection zone. The operator shall cease operations until proper repairs are made and receive OCD approval to re-start injection operations. In addition, any associated fresh ground water monitor wells, which exhibit anomalous static water levels, detection of elevated general chemistry constituents, public health issues, etc. shall be immediately reported to the OCD.

escape to other formations or onto the ground surface. Any pressure that causes new fractures or propagation in existing fractures or causes damage to the system shall be reported to OCD within 24 hours of discovery.

The Director of the OCD may authorize an increase in injection pressure upon demonstration by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such demonstration shall consist of a valid step-rate test run in accordance with and acceptable to the OCD.

E. Mechanical Integrity Testing (MIT):

The owner/operator shall complete an annual casing-tubing annulus pressure test from the surface to the approved injection depth and below the depth of fresh ground water (< 10,000 ppm TDS) to assess casing and tubing integrity. The MIT shall consist of a 30-minute test at a minimum pressure from 300 to 500 psig measured at the surface. A Bradenhead test(s) shall also be performed annually along with the casing-tubing annulus test. A Bradenhead test(s) shall be performed in all annular spaces including surface casing if not cemented.

The owner/operator shall complete an annual pressure fall-off test to monitor the pressure buildup in the injection zone. The well shall be shut down for the time sufficient to conduct the test and shall be submitted to the OCD in the annual report (see Section 22K (11)).

All testing shall be performed annually or shall also be performed whenever the tubing is pulled or the packer reseated or when the injection formation will be isolated from the casing/tubing annuals.

The operator shall notify the supervisor of the Santa Fe Office of the Division of the date, time and time of the installation of disposal equipment and of any MIT so that it may be inspected and witnessed.

1. General Requirements:
   a. If the testing requires a packer then casing-tubing annulus must be loaded with inert fluid 24 hours prior to testing.
   b. Have manpower and equipment available for pressure test. Wellhead shall be prepared for test and all valves and gauges should be in good working order.
   c. Pumps, tanks, external lines etc. must be isolated from the wellhead during test.
   d. A continuous recording pressure device with a 4-hour clock shall be installed on the casing-tubing annulus. The pressure range shall not be greater than 500 psig. The operator must provide proof that the pressure-recording device has been calibrated within the past 6 months.
   e. A minimum of one pressure gauge shall be installed on the casing/tubing annulus.

ii. A cement bond, temperature, or density log after the casing is set and cemented.

b. For intermediate and long strings of casing intended to facilitate injection:
   i. Resistivity, spontaneous potential, porosity, and gamma ray logs before the casing is installed.
   ii. Fracture finder logs; and
   iii. A cement bond, temperature, or density log after the casing is set and cemented.
   iv. At a minimum, the following information concerning the injection formation shall be determined or calculated for new Class I wells:
      1. Fluid pressure;
      2. Temperature;
      3. Fracture pressure;
      4. Other physical and chemical characteristics of the injection matrix; and
      5. Physical and chemical characteristics of the formation fluids.

22. Class I Injection Well(s) Identification, Operation, Monitoring, Bonding and Reporting.

A. Well Identification: API # 30-025-37918

B. Well Work Over Operations: OCD approval will be obtained prior to performing remedial work, pressure test or any other work. Approval will be requested on OCD Form C-103 "Sundry Notices and Reports on Wells" (OCD Rule 1103.A) with appropriate copies sent to the OCD Environmental Bureau and District Office.

C. Injection Formation, Interval & Waste: Injected oil field exempt/non-exempt non-hazardous wastes will be injected into the Lower San Andres Formation at the interval 4351 ft to 5000 ft at a daily rate of 3,000 to 5,000 barrels per day. Tubing shall be surrounded by surface casing set to a depth protective of fresh ground water (< 10,000 ppm TDS). The owner/operator shall take all steps necessary to ensure that the injected waste enters only the above specified injection interval and is not permitted to escape to other formations or onto the surface. The operator shall provide written notice of the date of commencement of injection to the Santa Fe Office of the Division.

D. Well Injection Pressure Limits: The wellhead injection pressure on the well shall be limited to no more than 875 psig. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition, which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well. The maximum operating surface injection and/or test pressure measured at the wellhead shall not exceed 875 psig unless otherwise approved by the OCD. The pressure-limiting device shall monthly be demonstrated and reported quarterly to the OCD. Monument Disposal Inc. shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to

16. OCD Inspections: The OCD may place additional requirements on the facility and modify the permit conditions based on well emergencies, OCD inspections, and/or quarterly reporting information.

17. Storm Water: Monument Disposal Inc. shall implement and maintain run-on and runoff plans and controls. Monument Disposal Inc. shall not discharge any water contaminant that exceeds the WQCC standards specified in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) including any oil sheen in any stormwater run-off. Monument Disposal Inc. shall notify the OCD within 24 hours of discovery of any releases and shall take immediate corrective action(s) to stop the discharge.

18. Unauthorized Discharges: Monument Disposal Inc. shall not allow or cause water pollution, discharge or release of any water contaminant that exceeds the WQCC standards listed in 20.6.2.3101 NMAC or 20.6.4 NMAC (Water Quality Standards for Interstate and Intrastate Streams) unless specifically listed in the permit application approved herein.

An unauthorized discharge is a violation of this permit.

19. Vadose Zone and Water Pollution: Monument Disposal Inc. shall address any contamination through the discharge permit process or pursuant to WQCC 20.6.2.4000-.4116 NMAC (Prevention and Abatement of Water Pollution). The OCD may require Monument Disposal Inc. to modify its permit for investigation, remediation, abatement, and monitoring requirements for any vadose zone or water pollution. Failure to perform any required investigation, remediation, abatement and submit subsequent reports will be a violation of the permit.

20. Additional Site Specific Conditions: Monument Disposal Inc. shall notify the OCD within 24 hours after having knowledge of ground water pollution complaints or well problems within a 1-mile radius of Monument Disposal #1.

21. Class I Injection Well(s) Construction Conditions.
All wells, except those municipal wells injection of non-corrosive wastes, shall inject fluids through tubing with a packer set immediately above the injection zone or tubing.

A. Construction: The tubing and packer shall be designed and maintained for the duration of expected service.

B. Logs or tests required for the following situations:

a. For surface casing intended to protect underground sources of drinking water:
i. Resistivity, spontaneous potential, and caliper logs before the casing is installed; and

inspection of cleaned tanks and/or sumps, or other OCD approved methods. Monument Disposal Inc. shall notify the OCD at least 72 hours prior to all testing.

12. Underground Process/Wastewater Lines:

A. Monument Disposal Inc. shall test all underground process/wastewater pipelines at least once every five (5) years to demonstrate their mechanical integrity, except lines containing fresh water or fluids that are gases at atmospheric temperature and pressure. Pressure rated pipe shall be tested by pressuring up to one and one-half times the normal operating pressure, if possible, or for atmospheric drain systems, to 3 pounds per square inch greater than normal operating pressure, and pressure held for a minimum of 30 minutes with no more than a 1% loss/gain in pressure. Monument Disposal Inc. may use other methods for testing if approved by the OCD.

B. Monument Disposal Inc. shall maintain underground process and wastewater pipeline schematic diagrams or plans showing all drains, vents, risers, valves, underground piping, pipe type, rating, size, and approximate location. All new underground piping must be approved by the OCD prior to installation. Monument Disposal Inc. shall report any leaks or loss of integrity to the OCD within 15 days of discovery.

Monument Disposal Inc. shall maintain the results of all tests at the facility covered by this discharge permit and they shall be available for OCD inspection. Monument Disposal Inc. shall notify the OCD at least 72 hours prior to all testing.

13. Class V Wells: Monument Disposal Inc. shall close all Class V wells (e.g., septic systems, leach fields, dry wells, etc.) that inject non-hazardous industrial wastes or a mixture of industrial wastes and domestic wastes unless it can be demonstrated that ground water will not be impacted in the reasonably foreseeable future. Leach fields and other wastewater disposal systems at OCD-regulated facilities that inject non-hazardous fluid into or above an underground source of drinking water are considered Class V Waste Disposal Wells under the EPA UIC program. Class V wells that inject domestic waste only, must be permitted by the New Mexico Environment Department (NMED).

14. Housekeeping: Monument Disposal Inc. shall inspect all systems designed for spill collection/prevention and leak detection at least monthly to ensure proper operation and to prevent over topping or system failure. All spill collection and/or secondary containment devices shall be emptied of fluids within 72 hours of discovery. Monument Disposal Inc. shall maintain all records at the facility and available for OCD inspection.

15. Spill Reporting: Monument Disposal Inc. shall report all unauthorized discharges, spills, leaks and releases and conduct corrective action pursuant to WQCC Regulation 20.5.12.1203 NMAC and OCD Rule 116 (19.15.3.116 NMAC). Monument Disposal Inc. shall notify both the OCD District Office and the Santa Fe Office within 24 hours and file a written report within 15 days.

maintenance, and yard areas which show evidence that water contaminants from releases, leaks and spills have reached the ground surface.

9. Above Ground Tanks: Monument Disposal Inc. shall ensure that all aboveground tanks have impermeable secondary containment (e.g., liners and berms), which will contain a volume of at least one-third greater than the total volume of the largest tank or all interconnected tanks. Monument Disposal Inc. shall retrofit all existing tanks before discharge permit renewal. Tanks that contain fresh water or fluids that are gases at atmospheric temperature and pressure are exempt from this condition.

10. Labeling: Monument Disposal Inc. shall clearly label all tanks, drums, and containers to identify their contents and other emergency notification information. Monument Disposal Inc. may use a tank code numbering system, which is incorporated into their emergency response plans.

11. Below-Grade Tanks/Sumps and Pits/Ponds.

A. All below-grade tanks and sumps must be approved by the OCD prior to installation and must incorporate secondary containment with leak detection into the design. Monument Disposal Inc. shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal. All existing below-grade tanks and sumps without secondary containment and leak detection must be tested annually or as specified herein. Systems that have secondary containment with leak detection shall have a monthly inspection of the leak detection system to determine if the primary containment is leaking. Small sumps or depressions in secondary containment systems used to facilitate fluid removal are exempt from these requirements if fluids are removed within 72 hours.

B. All pits and ponds, including modifications and retrofits, shall be designed by a certified registered professional engineer and approved by the OCD prior to installation. In general, all pits or ponds shall have approved hydrologic and geologic reports, location, foundation, liners, and secondary containment with leak detection, monitoring and closure plans. All pits or ponds shall be designed, constructed and operated so as to contain liquids and solids in a manner that will protect fresh water, public health, safety and the environment for the foreseeable future. Monument Disposal Inc. shall retrofit all existing systems without secondary containment and leak detection before discharge permit renewal.

C. Monument Disposal Inc. shall ensure that all exposed pits, including lined pits and open top tanks (8 feet in diameter or larger) shall be fenced, screened, netted, or otherwise rendered non-hazardous to wildlife, including migratory birds.

D. Monument Disposal Inc. shall maintain the results of tests and inspections at the facility covered by this discharge permit and available for OCD inspection. Monument Disposal Inc. shall report the discovery of any system which is found to be leaking or has lost integrity to the OCD within 15 days. Monument Disposal Inc. may propose various methods for testing such as pressure testing to 3 pounds per square inch greater than normal operating pressure and/or visual

4. Monument Disposal Inc. Commitments: Monument Disposal Inc. shall abide by all commitments submitted in its February 20, 2007 Discharge Plan Application and C-108 Application for Authorization to

Inject including subsequent attachments and amendments; letters and conditions herein for approval. Permit applications that reference previously approved plans on file with the division shall be incorporated in this permit and Monument Disposal Inc. shall abide by all previous commitments of such plans and these conditions for approval.

5. Modifications: WQCC Regulation 20.6.2.3107.C, 20.6.2.3109 and 20.6.2.5101.I NMAC addresses possible future modifications of a permit. Monument Disposal Inc. (discharger) shall notify the OCD of any facility expansion, production increase or process modification that would result in any significant modification in the discharge of water contaminants. The Division Director may require a permit modification if any water quality standard specified at 20.6.2.3103 NMAC is or will be exceeded, or if a toxic pollutants as defined in WQCC Regulation 20.6.2.7 NMAC is present in ground water at any place of withdrawal for present or reasonably foreseeable future use, or that the Water Quality Standards for Interstate and Intrastate streams as specified in 20.6.4 NMAC are being or may be violated in surface water in New Mexico.

6. Waste Disposal and Storage: Monument Disposal Inc. shall dispose of all other non-injected wastes at an OCD-approved facility. Only oil field RCRA-exempt and non-exempt non-hazardous wastes may be disposed of by injection in an OCD Class I well. RCRA non-hazardous, exempt and non-exempt oil field wastes may be disposed of at an OCD-approved facility upon proper waste determination pursuant to 40 CFR Part 261. Any waste stream that is not listed in the discharge permit application must be approved by the OCD on a case-by-case basis.

A. OCD Rule 712 Waste: Pursuant to OCD Rule 712 (19.15.9.712 NMAC) disposal of certain non-domestic waste without notification to the OCD is allowed at NMED permitted solid waste facilities if the waste stream has been identified in the discharge permit and existing process knowledge of the waste stream does not change.

B. Waste Storage: Monument Disposal Inc. shall store all waste in an impermeable bermed area, except waste generated during emergency response operations for up to 72 hours. All waste storage areas shall be identified in the discharge permit application. Any waste storage area not identified in the permit shall be approved on a case-by-case basis only. Monument Disposal Inc. shall not store oil field waste on-site for more than 180 days unless approved by the OCD.

7. Drum Storage: Monument Disposal Inc. must store all drums, including empty drums, containing materials other than fresh water on an impermeable pad with curbing. Monument Disposal Inc. must store empty drums on their sides with the bungs in place and lined up on a horizontal plane. Monument Disposal Inc. must store chemicals in other containers, such as tote tanks, sacks, or buckets on an impermeable pad with curbing.

8. Process, Maintenance and Yard Areas: Monument Disposal Inc. shall either pave and curb or have some type of spill collection device incorporated into the design at all process,

ATTACHMENT TO THE DISCHARGE PERMIT
Monument Disposal Inc., Monument Disposal Well #1
Class I Waste Disposal Well UIC-CLI-010 (I-010)
DISCHARGE PERMIT APPROVAL CONDITIONS

June 7, 2007

Please remit a check for $4,500.00 made payable to Water Quality Management Fund:

Water Quality Management Fund
C/o: Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505

1. **Payment of Discharge Plan Fees:** All discharge permits are subject to WQCC Regulations. Every billable facility that submits a discharge permit application will be assessed a filing fee of $100.00, plus a renewal flat fee (*see* WQCC Regulation 20.6.2.3114 NMAC). The Oil Conservation Division ("OCD") has received the required $100.00 filing fee and Monument Disposal Inc. still owes the required $4500.00 permit fee for the Class I Well.

2. **Permit Expiration and Renewal Conditions and Penalties:** Pursuant to WQCC Regulation 20.6.2.3109.H.4 NMAC, this permit is valid for a period of five years. **The permit will expire on July 1, 2012** and an application for renewal should be submitted no later than 120 days before that expiration date. Pursuant to WQCC Regulation 20.6.2.3106.F NMAC, if a discharger submits a discharge permit renewal application at least 120 days before the discharge permit expires and is in compliance with the approved permit, then the existing discharge permit will not expire until the application for renewal has been approved or disapproved. ***Expired permits are a violation of the Water Quality Act (Chapter 74, Article 6, NMSA 1978) and civil penalties may be assessed accordingly.***

3. **Permit Terms and Conditions:** Pursuant to WQCC Regulation 20.6.2.3104 NMAC, when a permit has been issued, Monument Disposal Inc. must ensure that all discharges shall be consistent with the terms and conditions of the permit. In addition, all facilities shall abide by the applicable rules and regulations administered by the OCD pursuant to the Oil and Gas Act, NMSA 1978, Sections 70-2-1 through 70-2-38. All injection operations related to oil and natural gas production in New Mexico are regulated under the provisions of the Oil and Gas Act, NMSA 1978, Sections 70-2-1 *et seq.* and the Water Quality Act, NMSA 1978, Sections 74-6-1 *et seq.* These Acts delegate authority for enforcement of their provisions relating to oil and natural gas drilling, production, processing, and transportation to the Oil Conservation Division (OCD) of the New Mexico Energy, Minerals and Natural Resources Department, and to the Oil Conservation Commission (OCC) and the Water Quality Control Commission (WQCC). To carry out its authority, the OCC has promulgated rules (19 NMAC) and numerous orders. Monument Disposal Inc. shall comply with WQCC Regulations 20.6.2 *et seq.* NMAC relating to Class I Waste Disposal Wells.

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

June 7, 2007

Mr. Darrell Bearden
Monument Disposal Inc.
1314 Brittany
Hobbs, New Mexico 88240

Re: **Draft Approval of Class I Injection Well Discharge Permit Monument Disposal Well #1**
UIC-CLI-010 (I-010)
Class I Non-Hazardous Oil Field Waste Disposal Well
Monument Disposal #1 (API No. 30-025-37918)
2582 FNL and 809 FEL UL: H Section 35, T 19 S, R 36 E
Lea County, New Mexico

Dear Mr. Bearden:

Pursuant to all applicable parts of the Water Quality Control Commission (WQCC) Regulations 20.6.2 NMAC and more specifically 20.6.2.3104 - 20.6.2.3999 discharge permit, and 20.6.2.5000-.5299 Underground Injection Control, the Oil Conservation Division (OCD), the applicant is hereby authorized to utilize its Monument Disposal Inc. Class I Monument Disposal Well #1 injection well (API No. 30-025-37918) located 2582 feet from the North line and 809 feet from the East line in the SE/4, NE/4 of Section 35, Township 19 South, and Range 36 East, NMPM, Lea County, New Mexico, under the conditions specified in the enclosed **Attachment To The Class I Injection Well Discharge Permit**.

Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within 30 working days of receipt of this letter-including permit fees.**

Please be advised that approval of this permit does not relieve Monument Disposal Inc. of responsibility should operations result in pollution of surface water, ground water or the environment. Nor does approval of the permit relieve Monument Disposal Inc. of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If you have any questions, please contact Carl Chavez of my staff at (505-476-3491) or E-mail address: carlj.chavez@state.nm.us. On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge permit review.

Sincerely,

Wayne Price
Environmental Bureau Chief

LWP/cc
Attachments-1
xc: OCD District Office

http://www.epa.gov/epaoswer/other/oil/oil-gas.pdf

Please let me know if you think Apache Corporation will have issues with the application from Monument Disposal, Inc. Apache Corporation will also have a chance to provide public comments on the application when or if the OCD deems the submittal to be administratively complete. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/
(Pollution Prevention Guidance is under "Publications")

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, August 09, 2007 4:40 PM
To: 'rick.crist@apachecorp.com'
Subject: FW: Monument #1 Class I WDW C-108 Application (API# 30-025-37918)

Mr. Crist:

Do you have any remaining concerns about the Monument Class I Disposal Well, since it was formerly approved as a Class II Well and then later reapplied for as a Class I Well? I notice the following wells may be of concern in the 1-mile AOR. When this was a Class II Well, Apache Corp. had opposed the well, then rescinded its opposition. I recall a past communication with you; however, I could not recall whether Apache had any remaining issues based on the new Class I Well application. Please advise.

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf_Owner	UL	Sec	Twp	N/S	Rng	W/E	Feet	NS	Ft	EW	Last Insp	Order_No
30-025-33190-00-00	M E GAITHER	005	APACHE CORP	O	A	Lea	P	I	34	19	S	36	E	1650	S	660	E	1/3/2003	H2S-16
30-025-33045-00-00	MONUMENT ABO 35	002	APACHE CORP	O	A	Lea	P	M	35	19	S	36	E	660	S	330	W		H2S-16
30-025-20517-00-00	NORTH MONUMENT G/SA UNIT	286	APACHE CORP	O	E	Lea	S	G	36	19	S	36	E	1980	N	1830	E		
30-025-12481-00-00	NORTH MONUMENT G/SA UNIT	285	APACHE CORP	O	A	Lea	S	F	36	19	S	36	E	1830	N	1980	W	2/10/2000	H2S-16

Thank you.

No producing pools in Glorieta 19 S 36 E

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3491
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: http://www.emnrd.state.nm.us/ocd/index.htm
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Tuesday, April 03, 2007 4:07 PM
To: 'rick.crist@apachecorp.com'
Subject: Monument #1 Class I WDW C-108 Application

Mr. Crist:

Please find below the link to the EPA 1995 publication on oilfield exempt and non-exempt wastes for your consideration.

Exemption of Oil and Gas Exploration and Production Wastes from Federal Hazardous Waste Regulations

June 2007.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

Mark Fesmire, Director

perforate at top of existing cement
on production pipe & Squeeze Cement
to cover equivalent injection interval
4500 – 5000'

NOTICE OF PUBLICATION

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

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations (20.6.2.3106 NMAC), the following discharge permit application(s) has been submitted to the Director of the New Mexico Oil Conservation Division ("NMOCD"), 1220 S. Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

(I-010) Monument Disposal Inc. Darrell Bearden, 1314 Brittany, Hobbs, New Mexico 88240, has submitted a new application for their Class I Injection Well Discharge Permit (UIC-CLI-010) for Monument Disposal Well #1 (API# 30-025-37918) located in the SE/4, NE/4 of Section 35, Township 19 South, Range 36 East, NMPM, Lea County, New Mexico. The injection well is located at 8205 South Highway 322 approximately 3.5 miles west of Monument, NM. Oil field exempt and non-exempt non-hazardous waste will be disposed into the Lower San Andres Formation at an injection interval from 4,351 ft. to 5,000 ft. below ground surface at a daily rate of 3,000 to 5,000 barrels per day and at a maximum injection pressure of 875 psig. Groundwater most likely to be affected by a spill, leak or accidental discharge is at a depth from 20 to 60 ft. below ground surface, with a total dissolved solids concentration of 500 mg/L. The discharge plan addresses well construction, operation, monitoring of the well, associated surface facilities, and provides a contingency plan in the event of accidental spills, leaks and other accidental discharges in order to protect fresh water.

The NMOCD has determined that the application is administratively complete and has prepared a draft permit. The NMOCD will accept comments and statements of interest regarding this application and will create a facility-specific mailing list for persons who wish to receive future notices. Persons interested in obtaining further information, submitting comments or requesting to be on a facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the Oil Conservation Division at the address given above. The administrative completeness determination and draft permit may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday, or may also be viewed at the NMOCD web site http://www.emnrd.state.nm.us/ocd/. Persons interested in obtaining a copy of the application and draft permit may contact the NMOCD at the address given above. Prior to ruling on any proposed discharge permit or major modification, the Director shall allow a period of at least thirty (30) days after the date of publication of this notice, during which interested persons may submit comments or request that NMOCD hold a public hearing. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines that there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed permit based on information available, including all comments received. If a public hearing is held, the director will approve or disapprove the proposed permit based on information in the permit application and information submitted at the hearing.

Para obtener más información sobre esta solicitud en español, sirvase comunicarse por favor: New Mexico Energy, Minerals and Natural Resources Department (Depto. Del Energia, Minerals y Recursos Naturales de Nuevo México), Oil Conservation Division (Depto. Conservacio´n Del Petróleo), 1220 South St. Francis Drive, Santa Fe, New México (Contacto: Dorothy Phillips, 505-476-3461)

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 7th day of

30-025-00000	Monument Well No. 1	Monument Disposal Inc.	2582 N		809 E		H	35 19S	36E	30-025-00000									
API	WELL NAME	OPERATOR	FTG NS	NS CD	FTG EW	EW CD	UL2	Sec	Tsp	Rge	Dist	OGRID_CDE	TVD DEPTH	LAND TYPE	WELL TYPE	SPUD DATE	FORMATION AND NOTES	STATUS	ACRES	NBR COMPLS
30-025-04129	PRE-ONGARD WELL #001Y	PRE-ONGARD WELL OPERATOR	950	S	2310	W	N	35	19S	36E	2.779	214263		P	O	1900-01-01	ATLANTIC RICHFIELD /SELBY MAVEETY	PLUGGED		
30-025-31587	NORTH MONUMENT G/SA UNIT #019	AMERADA HESS CORP	81	N	1505	W	C	36	19S	36E	3.407	495	5150	S	I	1992-07-25	GRYBRG/SA ; CONVERTED TO WIW	ACTIVE		
30-025-33759	W A WEIR #014	AMERADA HESS CORP	1650	N	1650	W	F	35	19S	36E	2.971	495	7505	P	O	1997-01-23	ABO	ACTIVE	40.00	1
30-025-33567	W A WEIR #011	AMERADA HESS CORP	1680	N	580	W	L	35	19S	36E	3.994	495	7525	P	O	1996-09-21	ABO	ACTIVE	40.00	1
30-025-33944	SELBY MAVEETY #003	AMERADA HESS CORP	2310	S	1650	W	K	35	19S	36E	2.848	495	7550	P	O	1997-05-05	ABO	ACTIVE	40.00	1
30-025-34056	SELBY MAVEETY #004	AMERADA HESS CORP	975	S	1650	W	N	35	19S	36E	3.306	495	7550	P	O	1997-07-19	ABO	T/A	40.00	1
30-025-33561	W A WEIR #010	AMERADA HESS CORP	330	N	660	W	D	35	19S	36E	4.427	495	7550	P	O	1996-08-30	ABO	ACTIVE	40.00	1
30-025-33670	W A WEIR #012	AMERADA HESS CORP	2130	S	560	W	L	35	19S	36E	3.952	495	7600	P	O	1996-11-08	ABO	ACTIVE	40.00	1
30-025-33877	**W B MAVEETY #011**	**AMERADA HESS CORP**	**520**	**N**	**2310**	**E**	**B**	**35**	**19S**	**36E**	**2.550**	**495**	**7610**	**P**	**O**	**1997-04-15**	**ABO**	**ACTIVE**	**40.00**	**1**
30-025-33696	W A WEIR #013	AMERADA HESS CORP	330	N	1650	W	C	35	19S	36E	3.610	495	7660	P	O	1996-11-26	ABO	ACTIVE	40.00	1
30-025-12482	GRAHAM STATE NCT-F #007	PTR	330	S	1650	E	O	36	19S	36E	5.031	24650	7700	S	S	1978-11-27	SAN ANDRES / CONVERTED TO SWD	ACTIVE ✓		
30-025-33045	MONUMENT ABO 35 #002	AMERADA HESS CORP	660	S	330	W	M	35	19S	36E	4.615	495	8092	P	O	1995-08-15	ABO	T/A	40.00	1
30-025-20517	NORTH MONUMENT G/SA UNIT #286	AMERADA HESS CORP	1980	N	1830	E	G	36	19S	36E	4.301	495	9900	S	O	1962-12-28	GRAYBURG SAN ANDRES	T/A	40.00	1
30-025-12481	NORTH MONUMENT G/SA UNIT #285	AMERADA HESS CORP	1830	N	1980	W	F	36	19S	36E	2.889	495	10100	S	O	1959-01-07	GRAYBURG-SAN ANDRES	ACTIVE ✓	40.00	1
30-025-12473	STATE F GAS COM #005	AMERADA HESS CORP	785	S	1980	W	N	36	19S	36E	3.382	495	10255	S	G	1948-05-02	YATES SEVEN RIVERS QUEEN	ACTIVE	320.21	1

4351 – 5000

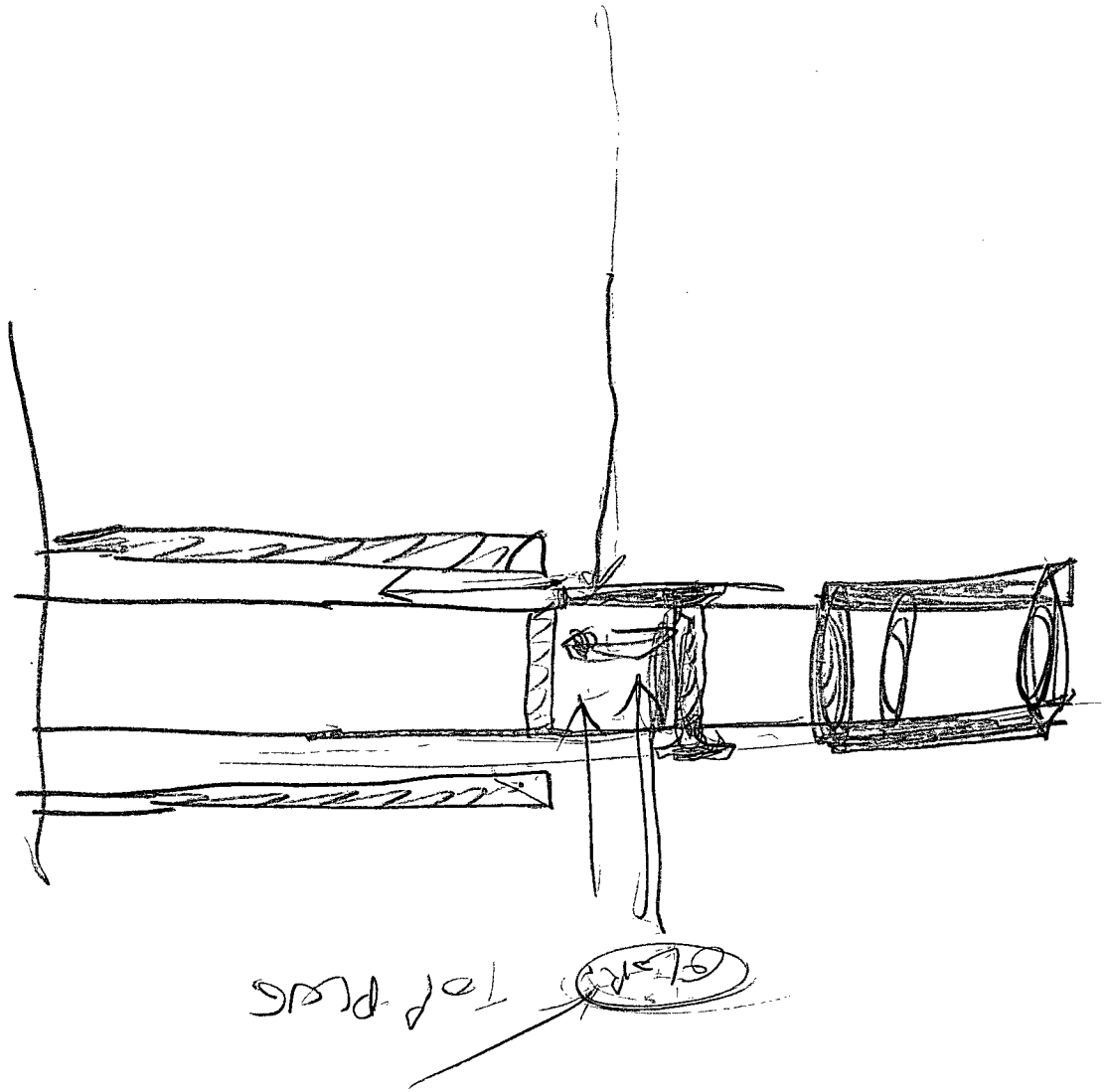
30-025-33190 Apache Surface Csg & Intermd 4598'

30-025-33045 Apache Intermd 4322'

30-025-20517 " — Spotty plugs at depth

30-025-12481 " — 3749

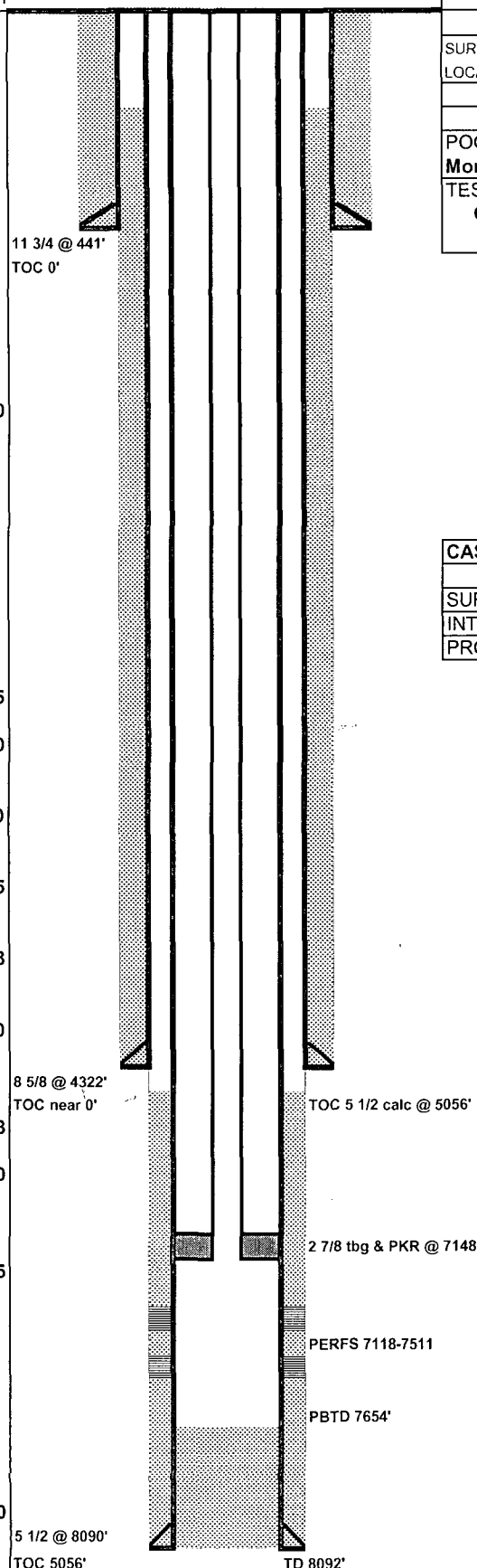
Formation	2005 PRODUCING POOL	AppCategory	OrderNo	AmendNo	Dt_Order	UICPermit	MaxAlowPr	PrsLimit	InjFrmtn
ANDRES	ANDRES	WFX	765		10-Oct-00	WFX-765	749	749	Pgb
ABO	MONUMENT;ABO								
ABO	MONUMENT;ABO								
ABO	MONUMENT;ABO								
ABO	MONUMENT;ABO								
ABO	**MONUMENT;ABO**								
ABO	MONUMENT;ABO								
SAN ANDRES	SWD;SAN ANDRES	SWD	561	A	03-Jun-94	SWD-561	890	890	
ANDRES	ANDRES								
RIVERS-QUEEN	EUMONT;YATES-7 RVRS-QUEEN (GAS)								



WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1270
Tansill	2225
Yates	2410
7 Rivers	2590
Queen	3375
Grayburg	3768
San Andres	3990
Glorieta	5323
Tubb	6350
Abo	6945
Wolfcamp	8010



APINUM:	30-025-33045				
OPERATOR:	APACHE CORP				
LEASENAME:	MONUMENT ABO 35			WELL NO.	2
SURFACE LOCATION:	UL: M	SEC: 35	TWN: 19S	RNG:	36E
	660 FSL		330 FWL		
TD 8092	PBD 7654	KB	DF		
		GL 3612			
POOL		PERFS:	7198-7511		
Monument Abo					
TEST (SHOW DATE)					
Oct-95	OIL 207	GAS 197	WATER 13		
	OIL	GAS	WATER		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	11 3/4	441	375 sxs	14 3/4	0' CIRC
INT1	8 5/8	4322	1025 sxs	11	(*)
PROD.	5 1/2	8090	436 sxs	7 7/8	5056 Calc

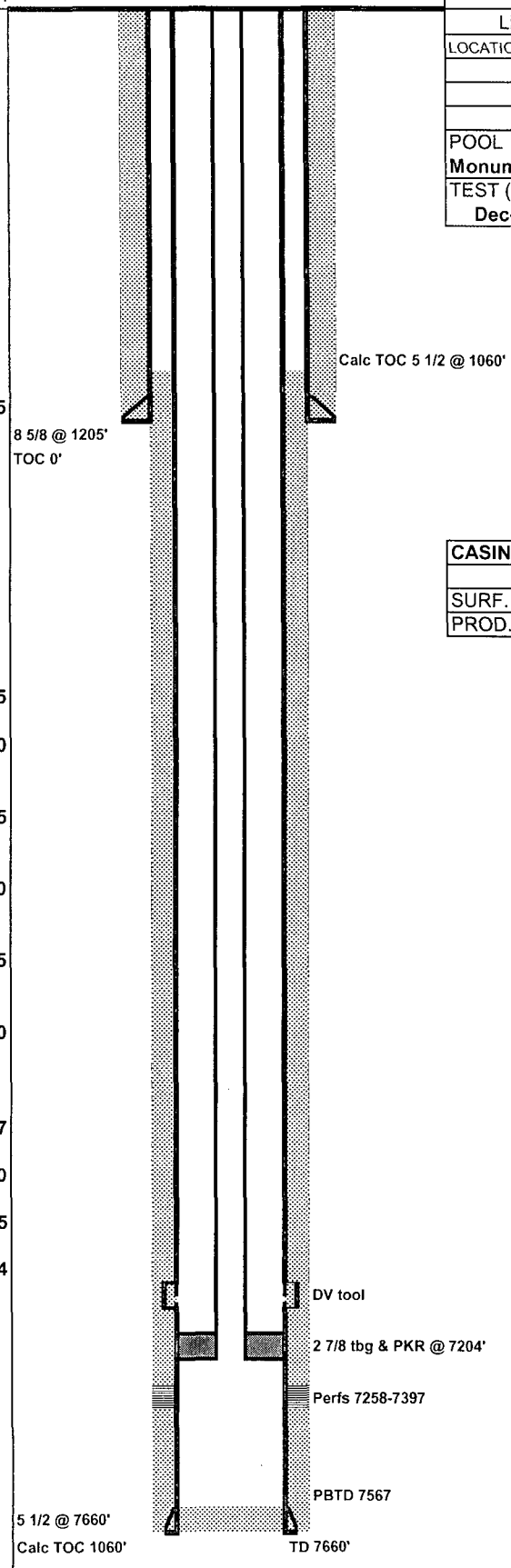
(*) TOC on 8 5/8 calculated at surface, however C-103 dated 09/05/95 indicates cement did not circulate.

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1155
Tansill	2455
Yates	2600
7 Rivers	2855
Queen	3350
Grayburg	3785
San Andres	4000
Glorieta	5487
Tubb	6580
Drinkard	6715
Abo	6994



APINUM:	30-025-33696				
OPERATOR:	APACHE CORP				
LEASENAME:	W A WEIR			WELL NO.	13
LOCATION:	UL: C	SEC: 35	TWN: 19S	RNG:	36E
	330 FNL		1650 FWL		
TD 7660	PBD 7567	KB	DF		
		GL 3639			
POOL		PERFS	7258-7397		
Monument Abo					
TEST (SHOW DATE)					
Dec-96	OIL 189	GAS 114	WATER 0		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1205	400 sxs	11	0' CIRC
PROD.	5 1/2	7660	1150 sxs	7 7/8	Calc 1060'

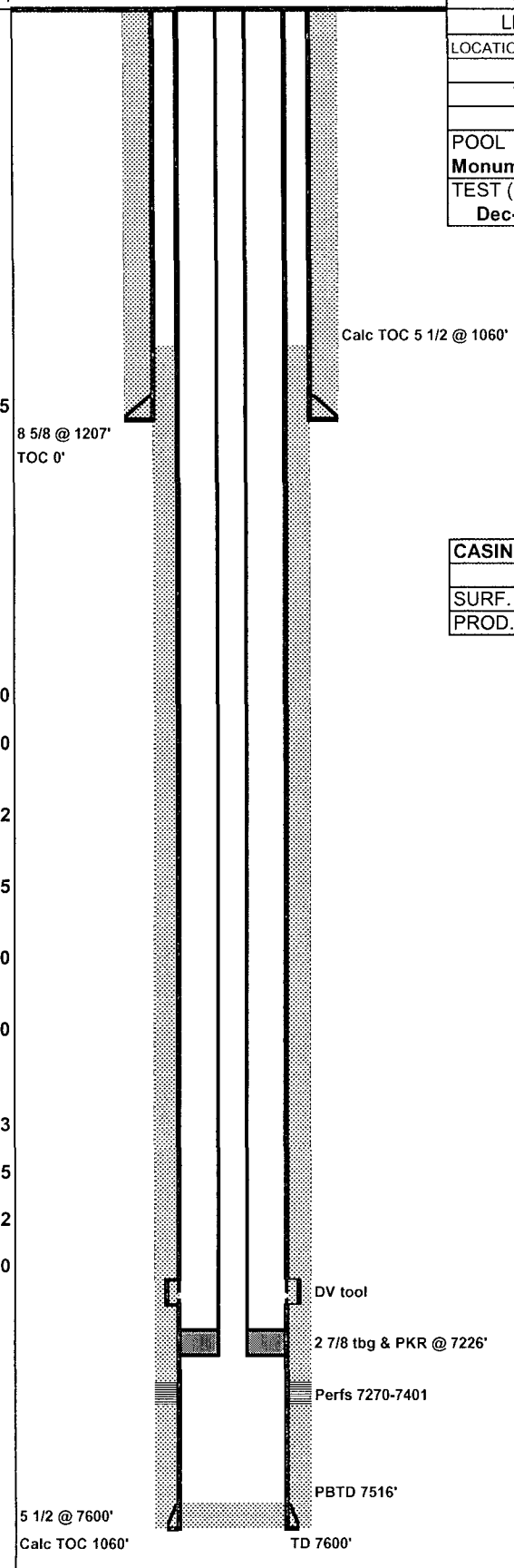
PREPARED BY:

UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1145
Tansill	2420
Yates	2560
7 Rivers	2822
Queen	3315
Grayburg	3760
San Andres	3980
Glorieta	5213
Tubb	6685
Drinkard	6822
Abo	6940



APINUM:	30-025-33670				
OPERATOR:	APACHE CORP				
LEASENAME:	W A WEIR			WELL NO.	12
LOCATION: UL:	L	SEC: 35	TWN: 19S	RNG:	36E
	2130 FSL		560 FWL		
TD 7600	PBD 7516	KB		DF	
		GL 3617			
POOL			PERFS	7270-7401	
Monument Abo					
TEST (SHOW DATE)					
Dec-96	OIL 254	GAS 187	WATER 0		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1207	400 sxs	11	0' CIRC
PROD.	5 1/2	7600	1150 sxs	7 7/8	Calc 1060'

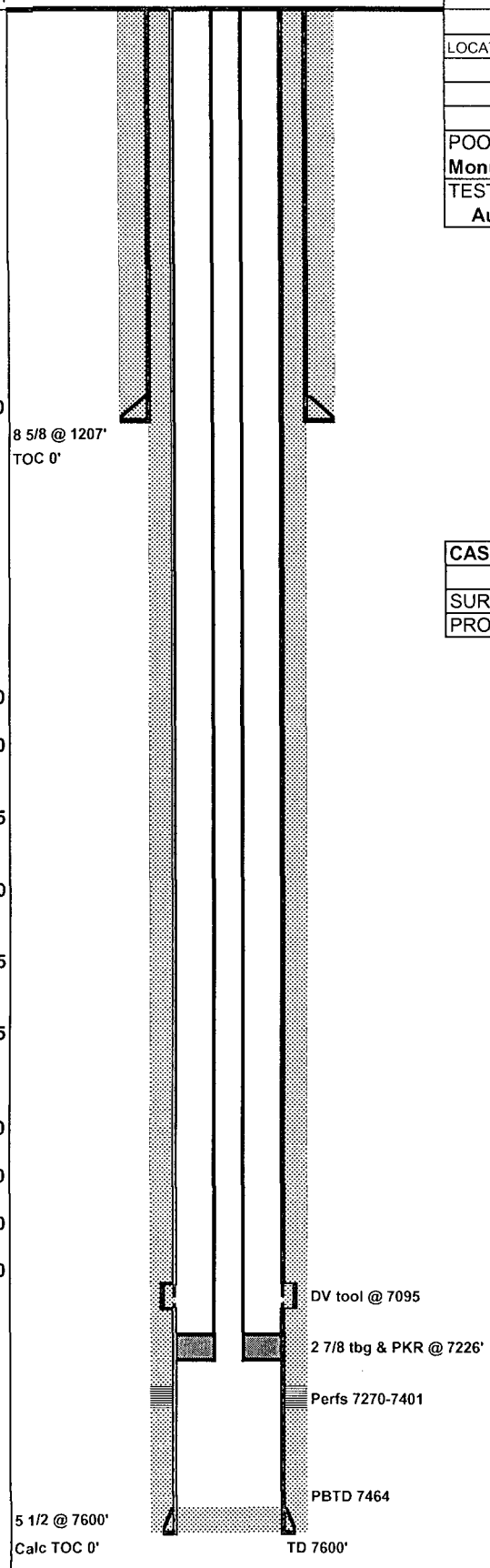
PREPARED BY:

UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1080
Tansill	2370
Yates	2510
7 Rivers	2765
Queen	3250
Grayburg	3665
San Andres	4045
Glorieta	5500
Tubb	6550
Drinkard	6690
Abo	6970



APINUM:	30-025-34056				
OPERATOR:	APACHE CORP				
LEASENAME:	SELBY MAVEETY			WELL NO.	4
LOCATION: UL:	N	SEC: 35	TWN: 19S	RNG:	36E
975	FSL		1650	FWL	
TD 7550	PBD 7464	KB		DF	
		GL 3608			
POOL			PERFS	7298-7362	
Monument Abo					
TEST (SHOW DATE)					
Aug-97	OIL 65	GAS 139	WATER 0		

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1145	450 sxs	11	0' CIRC
PROD.	5 1/2	7550	1150 sxs	7 7/8	Calc 0'

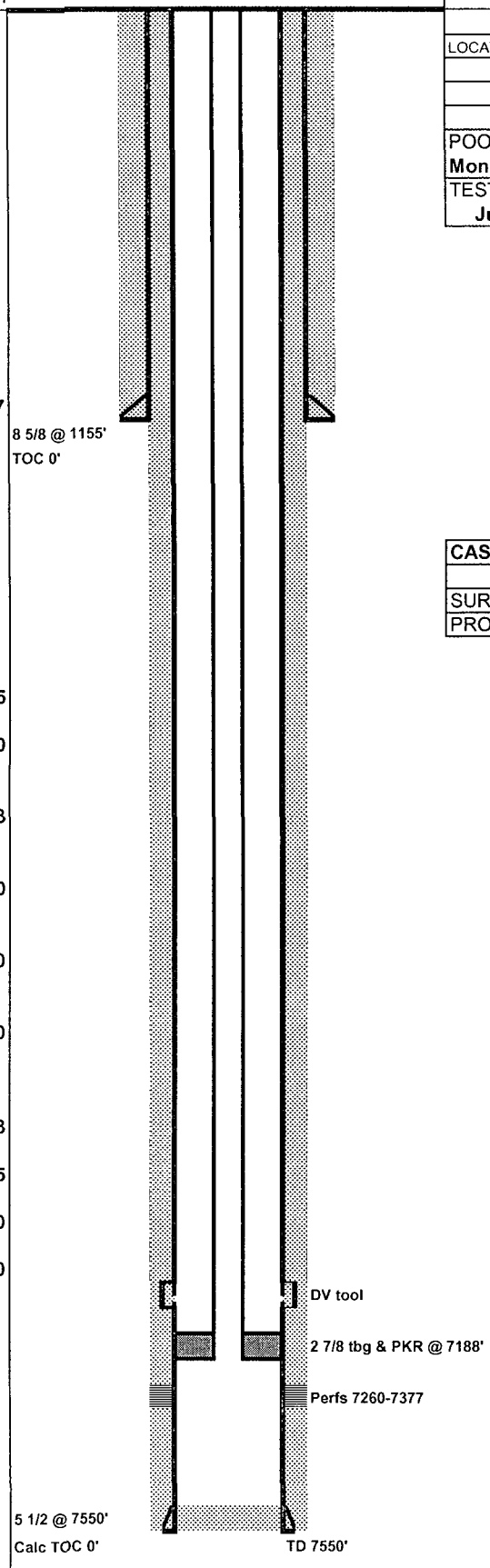
PREPARED BY:

UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1097
Tansill	2385
Yates	2500
7 Rivers	2783
Queen	3110
Grayburg	3690
San Andres	3920
Glorieta	5458
Tubb	6575
Drinkard	6740
Abo	6960



APINUM:	30-025-33944				
OPERATOR:	APACHE CORP				
LEASENAME:	SELBY MAVEETY			WELL NO.	3
LOCATION:	UL: K	SEC: 35	TWN: 19S	RNG:	36E
	2310 FSL		1650 FWL		
TD 7550	PBD 7459	KB	DF		
		GL 3609			
POOL		PERFS	7260-7377		
Monument Abo					
TEST (SHOW DATE)					
Jun-97	OIL 263	GAS 239	WATER 0		

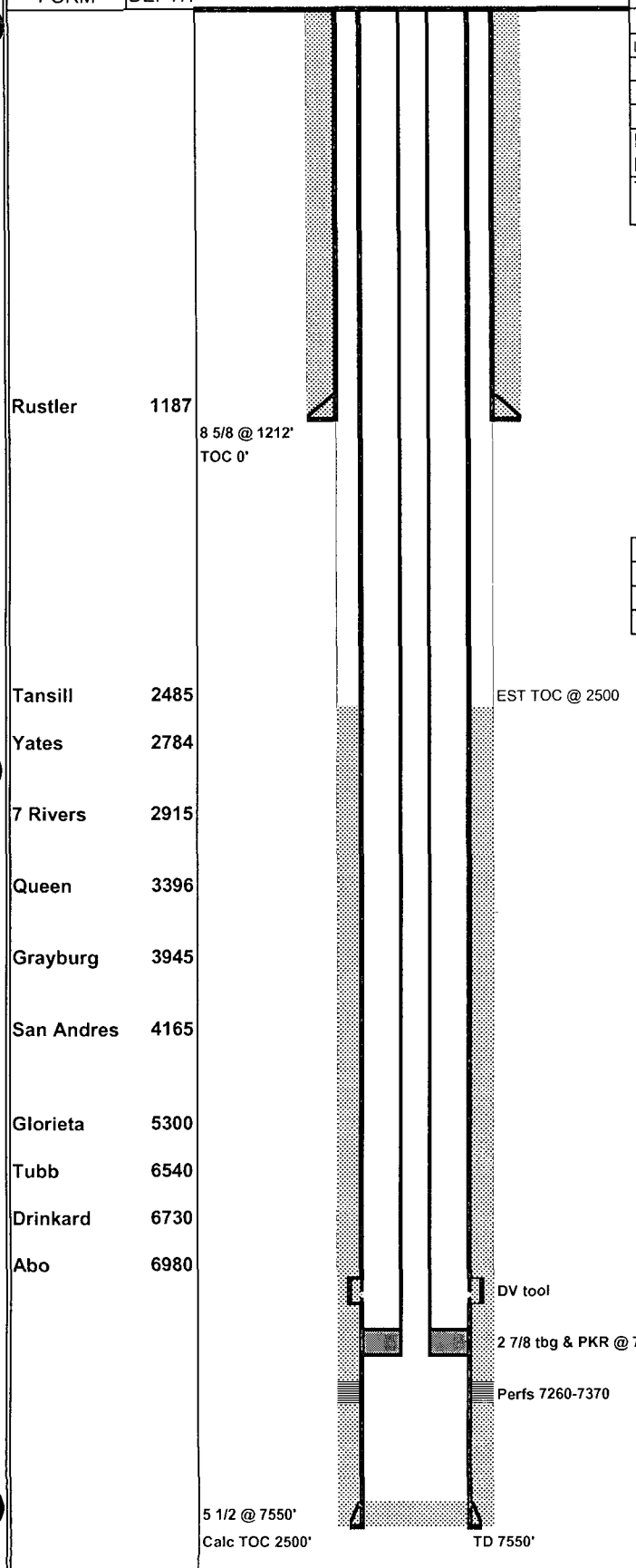
CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1155	450 sxs	11	0' CIRC
PROD.	5 1/2	7550	1350 sxs	7 7/8	Calc 0'

PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



APINUM:	30-025-33551				
OPERATOR:	APACHE CORP				
LEASENAME:	W A WEIR			WELL NO.	10
LOCATION: UL:	D	SEC: 35	TWN: 19S	RNG:	36E
330	FNL	660	FWL		
TD 7550	PBD 7458	KB		DF	
		GL 3648			
POOL		PERFS	7260-7370		
Monument Abo					
TEST (SHOW DATE)					
Oct-96 OIL 343	GAS 151	WATER 0			

CASING RECORD

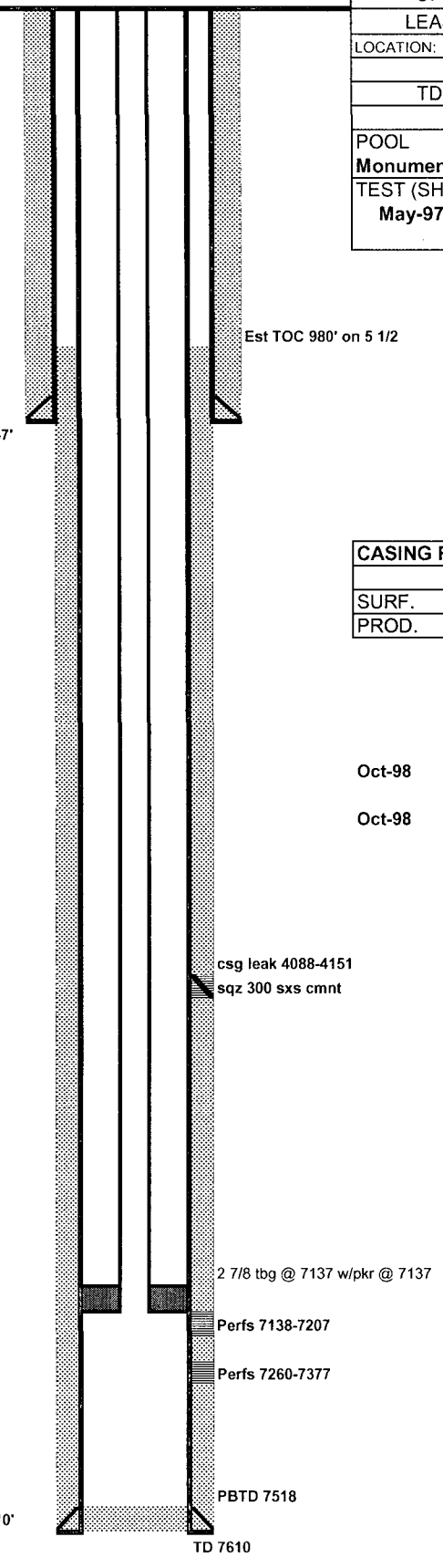
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1212	450 sxs	11	0' CIRC
PROD.	5 1/2	7550	1125 sxs	7 7/8	2500

PREPARED BY: UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1125
Tansill	2420
Yates	2570
7 Rivers	2715
Queen	3300
Grayburg	3715
San Andres	4200
Glorieta	5540
Tubb	6490
Drinkard	6690
Abo	6985



APINUM:	30-025-33877						
OPERATOR:	APACHE CORP						
LEASENAME:	W B MAVEETY					WELL NO.	11
LOCATION:	UL:	B	SEC:	35	TWN:	19S	RNG: 36E
	520	FNL			2310	FEL	
TD	7610	PBD	7518	KB		DF	
				GL	3647		

POOL	PERFS
Monument Abo	7138-7207
	7250-7372

TEST (SHOW DATE)

May-97	OIL	96	GAS	113	WATER	3
	OIL		GAS		WATER	

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1167	400 sxs	11	CIRC
PROD.	5 1/2	7610	1225 sxs	7 7/8	Est 980'

Oct-98	Sqzd 300 sxs casing leak @ 4088-4151'
	Press. Tested csg to 500 psi for 30 min. Held OK.
Oct-98	Added perfs 7138-7207

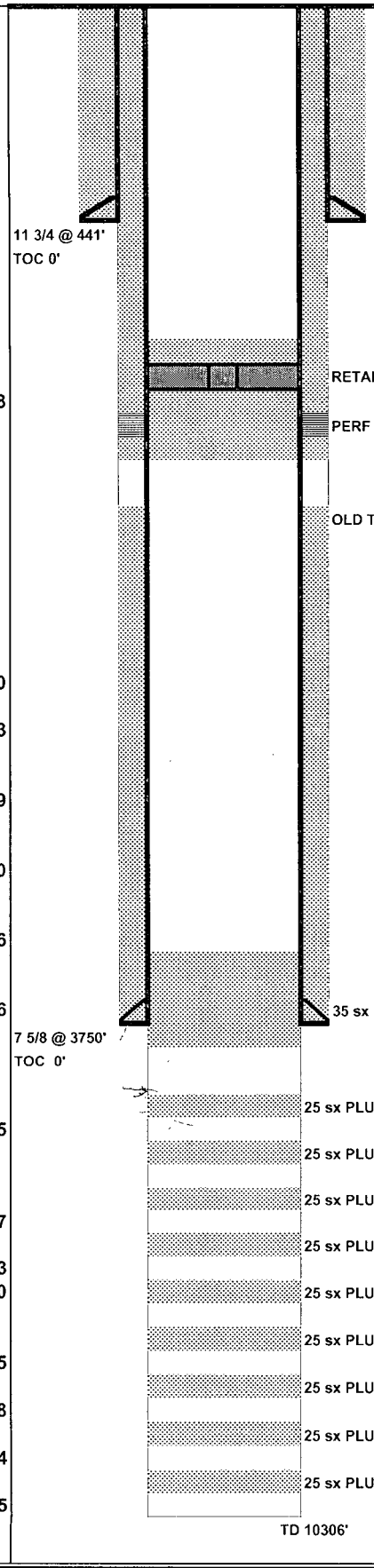
PREPARED BY:

UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1038
Tansill	2250
Yates	2433
7 Rivers	2669
Queen	3170
Grayburg	3516
San Andres	3736
Glorieta	5205
Tubb	6347
Abo	6903
Wolfcamp	7970
Silurian	8325
Montoya	9178
Mckee	9914
Grante	10295



APINUM:	30-025-20517				
OPERATOR:	APACHE CORP				
LEASENAME:	NORTH MONUMENT G/SA UNIT			WELL NO.	286
SURFACE LOCATION:	UL: G	SEC: 36	TWN: 19S	RNG:	36E
	1980 FNL		1830 FEL		
TD 10360	PBD 3688	KB		DF	3603
		GL			
POOL			PERFS:		
Eunice Monument Gb-SA			Zone TA'd Aug -95		
TEST (SHOW DATE)	No tests				
OIL	GAS	WATER			
OIL	GAS	WATER			

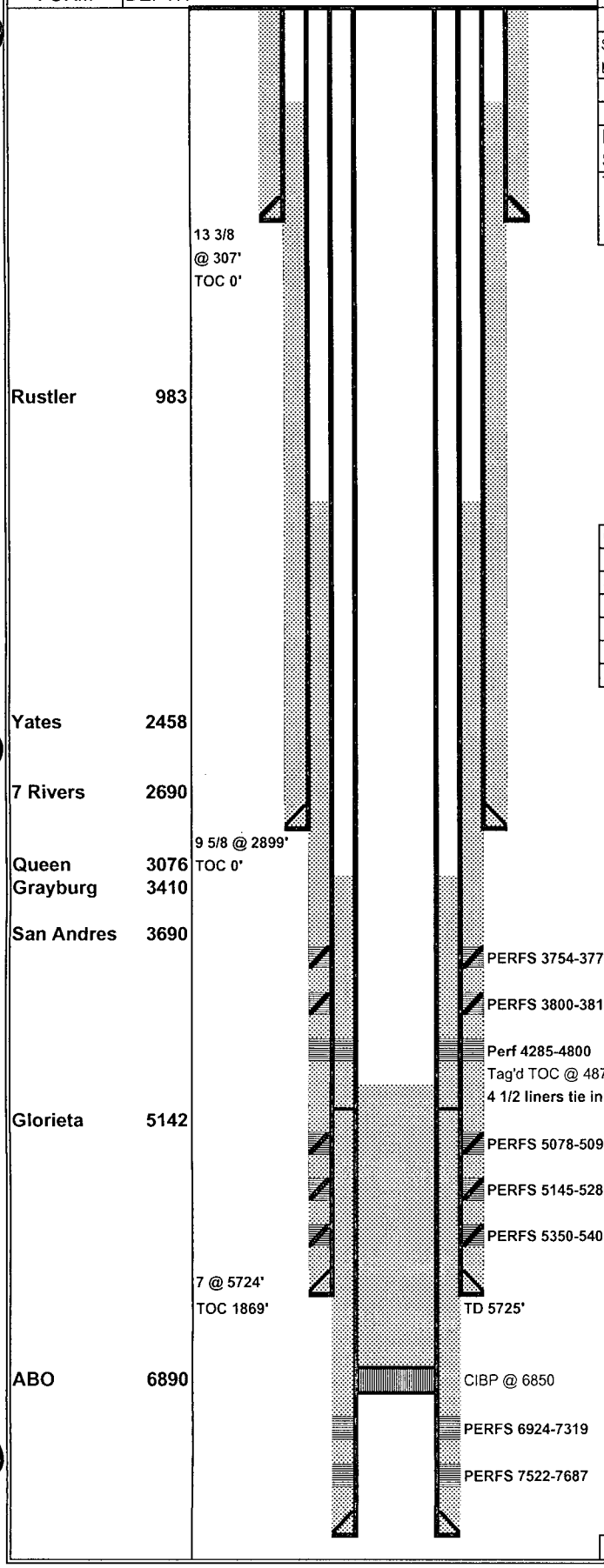
CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	10 3/4	1096	1050 sxs	15	0' CIRC
INT1	7 5/8	3750	600 sxs	9 7/8	0' CIRC
				6 3/4	

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC



APINUM:	30-025-12482				
OPERATOR:	TARGA MIDSTREAM SERVICES LTD PTR				
LEASENAME:	GRAHAM STATE NCT-F			WELL NO.	7
SURFACE LOCATION:	UL: O	SEC: 36	TWN: 19S	RNG:	36E
	330 FSL		1650 FEL		
TD 5725	PBD	KB		DF	
		GL 3577			
POOL		PERFS: 4285-4800			
SWD LOWER SAN ANDRES					
TEST (SHOW DATE)					
OIL	GAS	WATER			
OIL	GAS	WATER			

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	307	375 sxs	18	0' CIRC
INT1	9 5/8	2899	1750 sxs	11	0' CIRC
PROD.	7	5724	500 sxs	8 3/4	Calc 1869'
Liner 1	4 1/2	4956-7699	340 sxs	6 1/4	4956'
Liner 2	4 1/2	0-4956	150 sxs	6 1/4	Calc 3334'

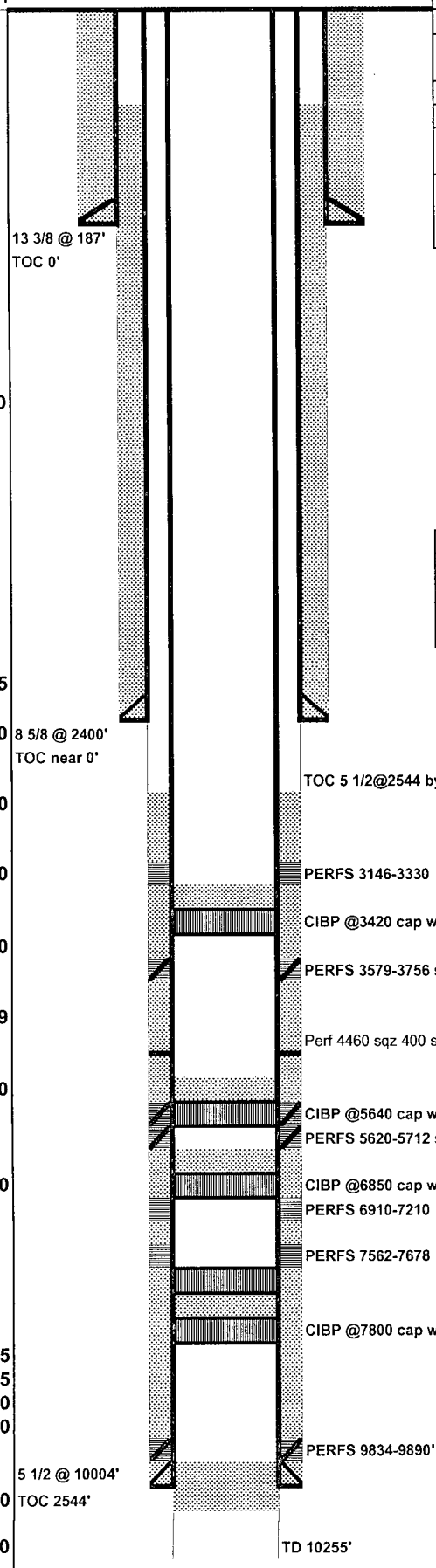
PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

APINUM:	30-025-12473						
OPERATOR:	APACHE CORP						
LEASENAME:	STATE F GAS COM					WELL N(	5
SURFACE LOCATION:	UL: N	SEC: 36	WN: 19S	RNG: 36E			
	785 FSL		1980 FWL				
TD: 9978	PBD	KB	DF				
		GL 3580					
POOL		PERFS: 7198-7511					
Monument Abo							
TEST (SHOW DATE)							
Oct-95	OIL 207	GAS 197	WATEF 13				
	OIL	GAS	WATER				

FORM	DEPTH
Rustler	980
Tansill	2255
Yates	2420
7 Rivers	2650
Queen	3140
Grayburg	3470
San Andres	3809
Glorieta	5200
Abo	6850
Wolfcamp	7815
Devonian	8405
Montoya	9260
Simpson	9560
Ellenburger	10110
Granite	10250



CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	187	200 sxs	17 1/2	0' CIRC
INT1	8 5/8	2400	1300 sxs	11	(*)
PROD.	5 1/2	10004	1200 sxs	7 3/4	2544 Temp

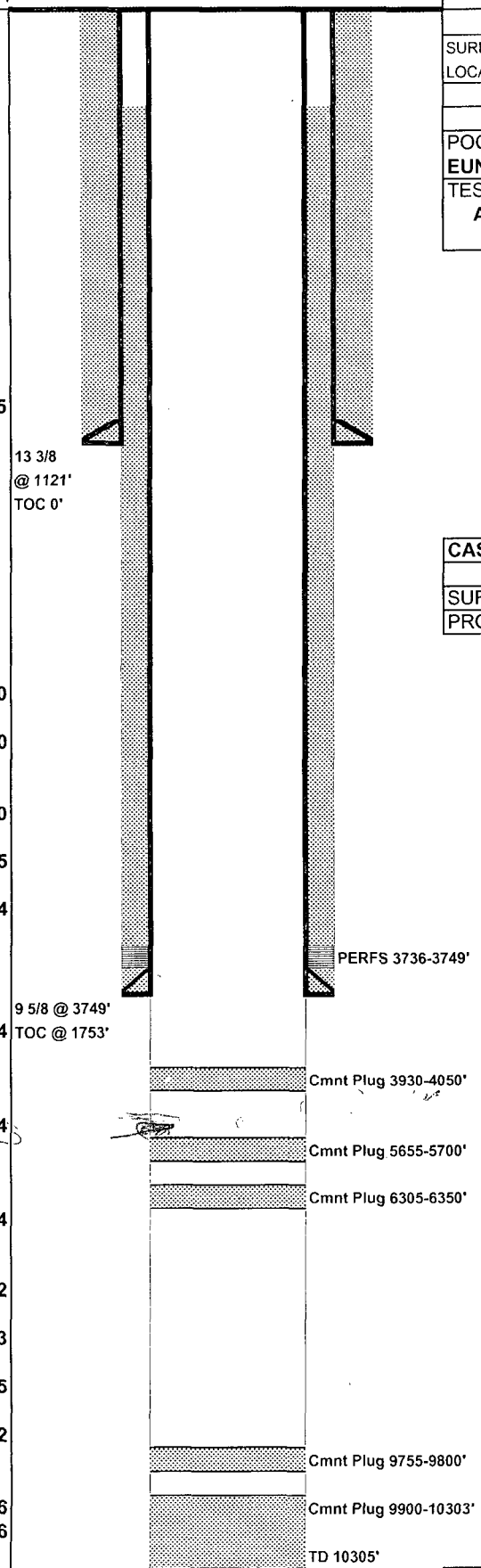
(*) Calc TOC at surface. Sundry report indicates cmnt did not circulate.

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1045
Tansill	2210
Yates	2480
7 Rivers	2710
Queen	3355
Grayburg	3574
San Andres	3904
Glorieta	5204
Abo	6984
Wolfcamp	7752
Devonian	8343
Montoya	9175
Simpson	9662
McKee	9946
Ellenburger	10226



APINUM:	30-025-12481				
OPERATOR:	APACHE CORP				
LEASENAME:	NORTH MONUMENT G/SA UNIT			WELL N(	285
SURFACE LOCATION:	UL: F	SEC: 36	WN: 19S	RNG:	36E
	1830 FNL		1980 FWL		
TD: 10305	PBD 3930	KB	DF 3611		
		GL			
POOL			PERFS:	3736-3749	
EUNICE MONUMENT GB-SA			Open Hole:	3749-3930	
TEST (SHOW DATE)					
Apr-96	OIL 3	GAS 51	WATER	37	
	OIL	GAS	WATER		

CASING RECORD

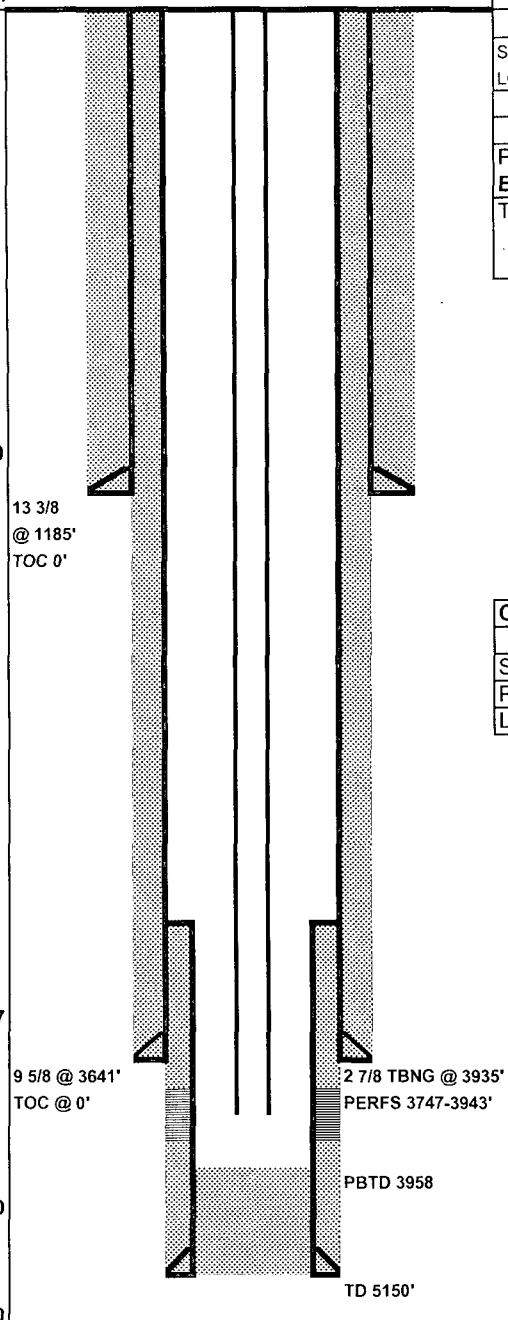
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	1121	1125 sxs	17	0' CIRC
PROD.	9 5/8	3749	600 sxs	12 1/4	Calc 1753'

PREPARED BY: | UPDATED 07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1090
Grayburg	3627
San Andres	4020
Glorieta est	5300



APINUM:	30-025-31587				
OPERATOR:	APACHE CORP				
LEASENAME:	NORTH MONUMENT G/SA UNIT			WELL NO	19
SURFACE LOCATION:	UL: C	SEC: 36	TWN: 19S	RNG:	36E
	81 FNL		1505 FWL		
TD: 5150	PBD 3958	KB		DF	
		GL 3610			
POOL				PERFS:	3747-3943
EUNICE MONUMENT GB-SA					
TEST (SHOW DATE)					
Feb-93	OIL 196	GAS 78	WATER 37		
	OIL	GAS	WATER		

CASING RECORD

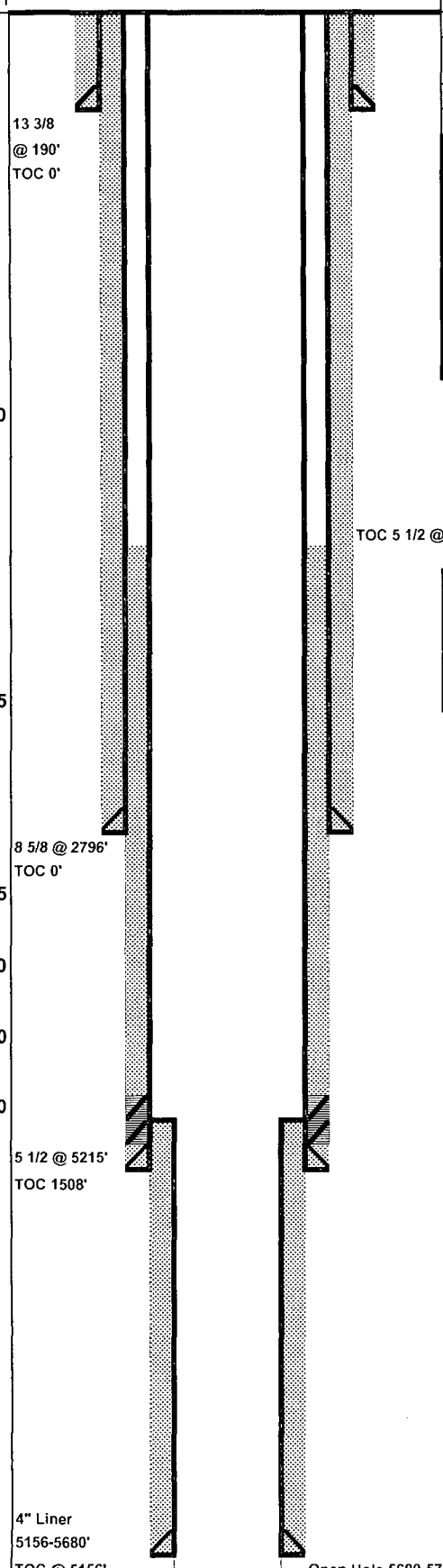
	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	1185	915 sxs	17 1/2	0' CIRC
PROD.	9 5/8	3641	925 sxs	12 1/4	Calc 0'
Liner 1	7	3482-5148	203 sxs	8 3/4	3482'

PREPARED BY:	UPDATED	07/17/06

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	940
Tansill	2225
Queen	3185
Grayburg	3570
San Andres	3800
Glorieta	5100



APINUM:	30-025-04143				
OPERATOR:	APACHE CORP				
LEASENAME:	STATE D			WELL NO.	5
SURFACE LOCATION:	UL: C	SEC: 1	TWN: 20S	RNG:	36E
	766 FNL		1874 FWL		
TD	5730	PBD	KB	DF	
			GL 3577		

POOL	PERFS: 5150-5207
Monument Paddock	abandoned 1952
TEST (SHOW DATE)	
Apr-48 OIL 192 GAS 774 WATER na	
OIL GAS WATER	
POOL	Open Hole: 5680-5730
Monument Paddock	
TEST (SHOW DATE)	
Nov-52 OIL 146 GAS 160 WATER na	
OIL GAS WATER	

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	190	200 sxs	17 1/2	0' CIRC
INT1	8 5/8	2796	1550 sxs	11	0' CIRC
PROD.	5 1/2	5215	500 sxs	7 3/4	1508 ts
Liner 1	4	5156-5680	100 sxs	4 3/4	5156

PREPARED BY:

UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1103
Tansill	2385
Yates	2521
7 Rivers	2735
Queen	3233
Grayburg	3585
San Andres	3715
Paddock	5570
Tubb	6550
Drinkard	6619
Abo	6823

APINUM:	30-025-34188				
OPERATOR:	APACHE CORP				
LEASENAME:	STATE A			WELL NO.	7
LOCATION: UL:	B	SEC: 2	TWN:	20S	RNG: 36E
	990 FNL		1650	FEL	
TD	7700	PBD 7603	KB		DF
			GL	3591	
POOL			PERFS		7255-7319
Monument Abo					

TEST (SHOW DATE)

Apr-98	OIL	30	GAS	31	WATER	34
	OIL		GAS		WATER	

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	8 5/8	1059	450 sxs	11	CIRC
PROD.	5 1/2	7700	1400 sxs	7 7/8	Calc 0'

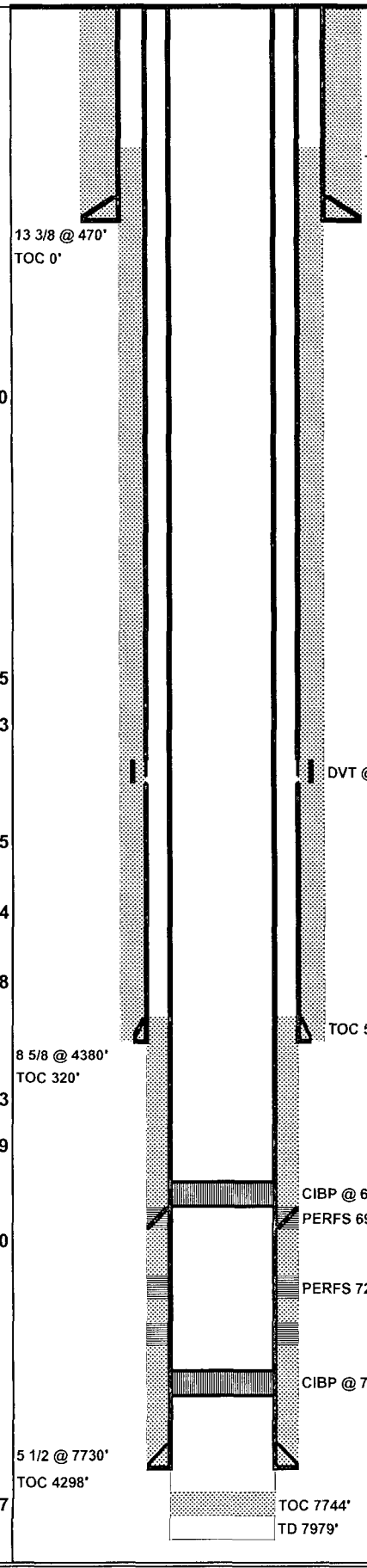
PREPARED BY: | UPDATED 7/31/2006

WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

APINUM:	30-025-26886				
OPERATOR:	APACHE CORP				
LEASENAME:	MONUMENT ABO UNIT			WELL NO	1
SURFACE LOCATION:	UL: C	SEC: 2	WN: 20S	RNG:	36E
	800 FNL		1750 FWL		
TD: 7979	PBD 7750	KB 3613	DF		
		GL 3598			

FORM	DEPTH
Rustler	1060
Tansill	2345
Yates	2483
Queen	3265
Grayburg	3644
San Andres	4058
Glorieta	5053
Tubb	6479
Abo	7040
Wolfcamp	7867



POOL	PERFS: 7283-7629
Monument Abo	TA'd CIBP @ 6923
TEST (SHOW DATE)	
Feb-81 OIL 230 GAS 188 WATER 13	
OIL GAS WATER	

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	470	500 sxs	17 1/2	0' CIRC
INT1	8 5/8	4380	2150 sxs	12 1/4	320' TS
PROD.	5 1/2	7730	675 sxs	7 7/8	4298' CBL

Aug-02 Well TA, tested to 520 psi for 30 min. TA expires 08/15/2007

PREPARED BY: | UPDATED 7/31/2006

CARDINAL LABORATORIES

PHONE (325) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
EDDIE SEAY CONSULTING
ATTN: EDDIE SEAY
601 W. ILLINOIS
HOBBS, NM 88242
FAX TO: (505) 392-6949

Receiving Date: 04/12/05
Reporting Date: 04/13/05
Project Owner: BEARDEN
Project Name: MONUMENT SWD
Project Location: MONUMENT, NM

Sampling Date: 04/11/05
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (u S/cm)	T-Alkalinity ($mgCaCO_3$/L)
ANALYSIS DATE:		04/12/05	04/12/05	04/12/05	04/12/05	04/12/05	04/12/05
H9698-1	COOPER #1	54	43	21	6.35	562	228
H9698-2	SECTION 30 #2	94	85	27	3.56	1014	288
Quality Control		NR	58	54	4.90	1322	NR
True Value QC		NR	50	50	5.00	1413	NR
% Recovery		NR	116	108	98.0	93.6	NR
Relative Percent Difference		NR	3.1	3.8	0.8	0.7	NR
METHODS:			SM3500-Ca-D	3500-Mg E	8049	120.1	310.1

LAB NUMBER	SAMPLE ID	Cl^- (mg/L)	SO_4 (mg/L)	CO_3 (mg/L)	HCO_3 (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:		04/12/05	04/12/05	04/12/05	04/12/05	04/12/05	04/13/05
H9698-1	COOPER #1	44	29	0	278	6.84	477
H9698-2	SECTION 30 #2	92	110	0	351	6.74	773
Quality Control		998	50.33	NR	961	7.11	NR
True Value QC		1000	50.00	NR	1000	7.00	NR
% Recovery		99.8	101	NR	96.1	102	NR
Relative Percent Difference		0.2	0.2	NR	1.6	0.1	1.4
METHODS:		SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1

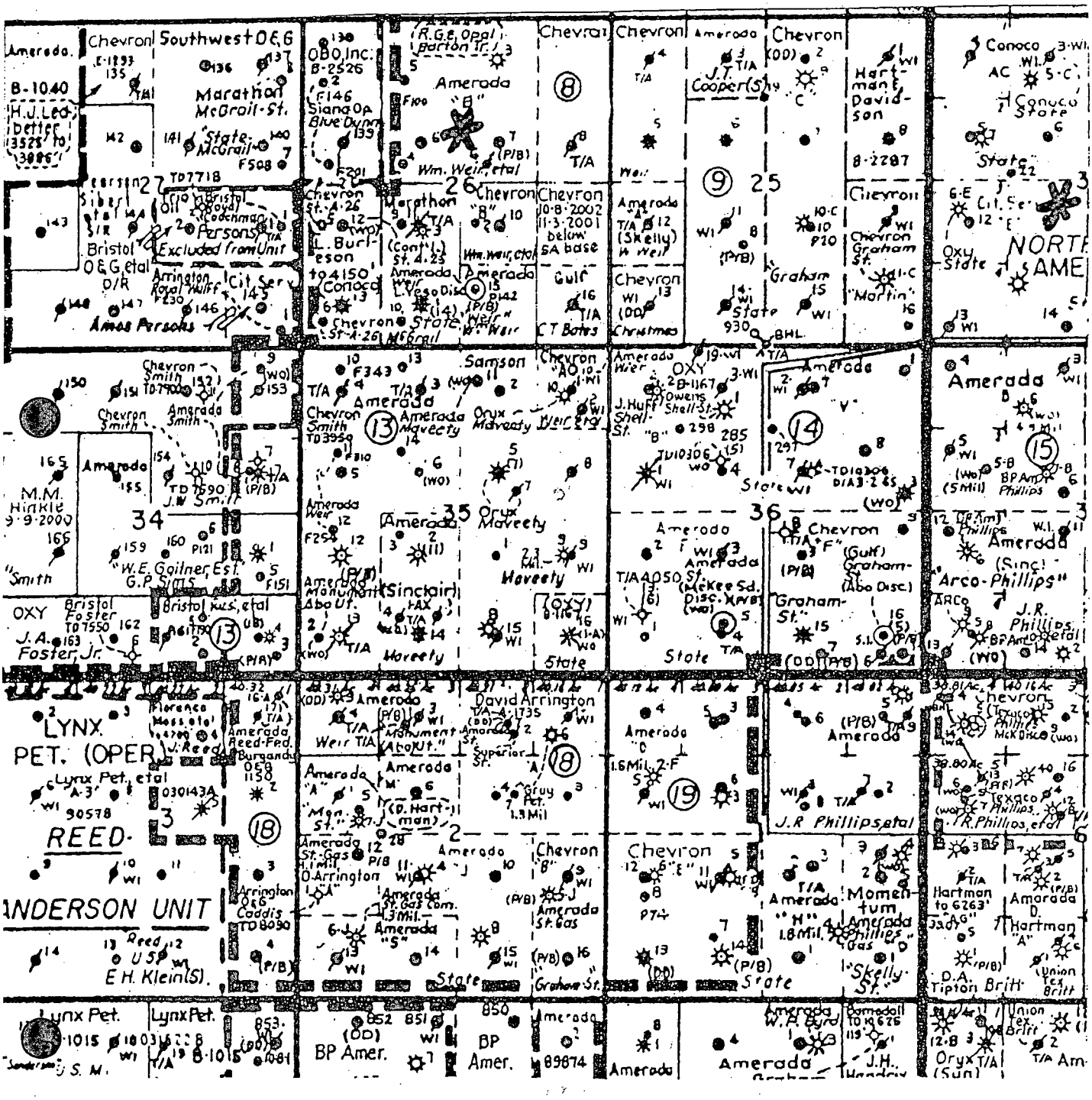
Amy Hill
Chemist

4/13/05
Date

H9698

XI

* water wells



LIST OF OFFSET OPERATORS

APACHE CORP
6120 S Yale, Ste 1500
Tulsa, OK 74136

CHEVRON U S A INC
15 Smith Rd
Midland, TX 79705

DAVID H ARRINGTON OIL & GAS INC
PO Box 2071
Midland, TX 79702

MARATHON OIL CO
PO Box 3497
Houston, TX 77056

TARGA MIDSTREAM SERVICES LTD PTR
1000 Louisiana, Ste 4700
Houston, TX 77002

MONUMENT DISPOSAL INC.
1314 Brittany
Hobbs, NM 88240

RE: Monument #1
Unit H, Sect. 35, T. 19 S., R. 36 E.

Dear Sirs:

In accordance with the Rules and Regulations of the Oil Conservation Division of the State of New Mexico, you are being provided a copy of the C-108 Application for Authorization to Inject into the above captioned well.

Any questions about the permit can be directed to Eddie W. Seay, (505)392-2236. Any objections or request for hearing must be filed with the Oil Conservation Division within fifteen (15) days from the date received. The OCD address is P. O. Box 6429, 1220 S. Saint Francis Drive, Santa Fe, NM 87504, (505)476-3440.

Thank you,

Eddie W Seay

Eddie W. Seay, Agent
601 W. Illinois
Hobbs, NM 88242
(505)392-2236

7005 1820 0001 6797 6375

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Certified Fee	240
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Postmark Here
EUNICE, NM 88231
OCT 27 2006
USPS

Sent To: Marathon Oil Co.
Street, Apt. No.; or PO Box No.: P.O. Box 3497
City, State, ZIP+4: Houston, TX 77056

PS Form 3800, June 2002 See Reverse for Instructions

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Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.56

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Sent To: Chevron USA Inc.
Street, Apt. No.; or PO Box No.: 15 Smith Rd.
City, State, ZIP+4: Midland, TX 79705

PS Form 3800, June 2002 See Reverse for Instructions

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Return Receipt Fee (Endorsement Required)	185
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.56

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Sent To: David H. Arrington Oil & Gas Inc.
Street, Apt. No.; or PO Box No.: P.O. Box 2071
City, State, ZIP+4: Midland, TX 79702

PS Form 3800, June 2002 See Reverse for Instructions

7005 1820 0001 6797 6382

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Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 632

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USPS

Sent To: Targa Midstream Services Ltd. PTR
Street, Apt. No.; or PO Box No.: 1000 Louisiana, Ste. 4700
City, State, ZIP+4: Houston, TX 77002

PS Form 3800, June 2002 See Reverse for Instructions

7005 1820 0001 6797 6344

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Certified Fee	240
Return Receipt Fee (Endorsement Required)	185
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.56

Postmark Here
EUNICE, NM 88231
OCT 27 2006
USPS

Sent To: Apache Corp.
Street, Apt. No.; or PO Box No.: 5120 S. Yale, Ste. 1500
City, State, ZIP+4: Tulsa, OK 74136

PS Form 3800, June 2002 See Reverse for Instructions

LEGAL NOTICE

Pursuant to the rules and regulations of the Oil Conservation Division of the State of New Mexico, Monument Disposal Inc., 1314 Brittany, Hobbs, NM 88240, is filing a C-108, Application for a Class I Non-Hazardous Disposal. The well being applied for is the Monument #1, located in Unit H, Section 35, Township 19 S., Range 36 E., Lea Co., NM. The injection formation is San Andres located from 4351′ to 5000′ below surface. Expected maximum injection rate is 3000 bpd. and the expected maximum injection pressure is 800 lbs. or what the OCD allows. Any questions about the application can be directed to Eddie W. Seay, (505)392-2236, or any objections or request for hearing must be directed to the Oil Conservation Division, (505)476-3440, 1220 South Saint Francis Drive, Santa Fe, NM 87504, within fifteen (15) days.

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that she is Advertisting Director of **THE LOVINGTON LEADER**, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Legal Notice

was published in a regular and entire issue of **THE LOVINGTON LEADER** and not in any supplement thereof, for one (1) day, beginning with the issue of October 28, 2006 and ending with the issue of October 28, 2006.

And that the cost of publishing said notice is the sum of $22.69 which sum has been (Paid) as Court Costs.

Joyce Clemens

Subscribed and sworn to before me this 31st day of October 2006

Debbie Schilling

Debbie Schilling
Notary Public, Lea County, New Mexico
My Commission Expires June 22, 2010

LEGAL NOTICE
Pursuant to the rules and regulations of the Oil Conservation Division of the State of New Mexico, Monument Disposal Inc., 1314 Brittany, Hobbs, NM 88240, is filing a C-108 Application for a Class I Non-Hazardous Disposal. The well being applied for is the Monument #1, located in Unit H, Section 35, Township 19 S., Range 36 E., Lea Co., NM. the injection formation is San Andres located from 4351' to 5000' below surface. Expected maximum injection rate is 3000 bpd. and the expected maximum injection pressure is 800 lbs. or what the OCD allows. Any questions about the application can be directed to Eddie W. Seay, (505)392-2236, or any objections or request for hearing must be directed to the Oil Conservation Division, (505)476-3440, 1220 South Saint Francis Drive, Santa Fe, NM 87504, within fifteen (15) days. Published in the Lovington Leader October 28, 2006.

MONUMENT DISPOSAL INC.

DISCHARGE PLAN
FOR CLASS I DISPOSAL

Prepared By
Eddie Seay Consulting
October 2006

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Oct 08, 2002

Submit Original Plus 1 Copy to Santa Fe
1 Copy to Appropriate District Office

DISCHARGE PLAN APPLICATION FOR CLASS I NON-HAZARDOUS WASTE INJECTION WELL FACILITY

☒ New ☐ Renewal

I. Facility Name: MONUMENT DISPOSAL

II. Operator: MONUMENT DISPOSAL INC

Address: 1314 Brittany, Hobbs, NM 88240

Contact Person: Darrell Bearden Phone: (505) 390-9576

III. Location: SE /4 NE /4 Section 35 Township 19S Range 36E
Submit large scale topographic map showing exact location.

IV. Attach the name and address of the landowner of the facility site.

V. Attach a description of the types and quantities of fluids at the facility.

VI. Attach a description of all fluid transfer and storage and fluid and solid disposal facilities.

VII. Attach a description of underground facilities (well diagrams etc. including a C-101 or C-103, and C-108).

VIII. Attach a contingency plan for reporting and clean-up of spills or releases.

IX. Attach geological/hydrological evidence demonstrating that operations will not adversely impact fresh water.

X. Attach such other information as is necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

XI. CERTIFICATION:

I hereby certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Name: Eddie W Seay Title: Agent

Signature: Eddie W Seay Date: 11/02/06

Item IV. Name and address of the land owner

Monument Disposal Inc
1314 Brittany
Hobbs, NM 88240

Item V. Types and quantities of fluids at facility

This facility will temporarily store and dispose of Non Hazardous Regulated Liquid waste such as spent acids or caustics, well treating chemical fluids, completion fluids, or waste that is approved under 40 CFR Part 261 Environmental Protection Agency. No other fluids will be stored at this facility. The non-hazardous regulated liquid waste will be stored in three (3), 500 bl. above ground tanks. These tanks will be located on and within a Polyethylene "CIM 1000" lined dike area (CIM 1000 see material data sheet attached). The dike area will be sized to hold more than 133% of the tanks combine capacity. The volume will vary from month to month. This volume could be 15,000 to 30,000 bls. per month.

Item VI. Transfer and storage

The facility will be located within a security fence. Fluid waste will be transported to the site by tanker truck. Any unloading will only occur after verification of proper documentation and approval. Tanker truck will then be admitted to the facility and the tanker truck will be positioned inside a polyethylene "CIM 1000" lined dike off loading area to retain fluids in event an accidental discharge or spill were to occur (CIM 1000 see material data sheet attached). Tank trucks will connect to a header valve by hose and pumps on the truck will pull the fluids from the tanker truck to the header valve. The fluid waste will flow from the header valve and header system to the tanks by piping positioned above the poly liner. When off loading is complete, the driver or operator will close the valve on the truck, followed by the header valve. As a precaution, an above ground drip tank will be located at the header valve to catch any drips that might occur during the off loading process. The operator or driver will be present during the off loading process and will fill out a run ticket for the volume source. These tickets will be used for billing and also for monitoring the volumes which will help in keeping up with the integrity of the system.

A flow meter will be located between the tanks and the disposal well. The physical and chemical characteristics of the injected fluids, monthly average, maximum and minimum values for injection pressure, flow rate and volume, flow rate and volume and annular pressure will be reported quarterly.

Tanks and piping will be above ground for rapid visual leak inspection and detection. The off loading area will be poly lined dike area to contain any spillage that may occur. Dike areas will prevent run-off of storm water. Any water that does accumulate will be vacuumed up and disposed into the system. Monument disposal personnel will be at the facility on a daily basis checking for leaks and/or spills. The inspection will be recorded and kept on file, any corrections or repairs will be noted on inspection file.

Prior to starting injection and after approval, the casing will be pressure tested for integrity. These "MIT" tests will be conducted on at least a five year schedule or as required by the OCD. MIT tests will also be conducted after any work-over is done on

Beneath the Ogallala Formation and the Quaternary Alluvium is the undifferentiated redbeds of the Dockum Group. The Santa Rosa Formation is the lowest formation of the Dockum Group. The redbeds are relatively impermeable and act as a barrier to downward or upward movement of ground water. In the Monument area only a few wells produce water from the Santa Rosa.

Geology

The proposed site is located on the Central Basin Platform of the Permian Basin. Beneath the Dockum Group is a sequence of evaporates consisting of the Rustler Formation and salt section. The Rustler and salt section are approximately 1350 feet thick. Below the base of the salt in descending order are the Tansill, Yates, Seven Rivers, Queen and Grayburg Formations. Beneath the Grayburg Formation at 4028' is the San Andres Formation the injection zone for this well.

The proposed site in the Rustler through San Andres Formations is on the west side of a structural high known as the Monument high. In this area these formations dip to the west and southwest. One of the main oil producing horizons in the Monument area is the Monument-Grayburg-San Andres Pool. The oil water contact in the Monument-Grayburg-San Andres Pool is at 3992'. At the site of the proposed disposal well the San Andres formation is below the oil water contact. In this area, the San Andres can be divided into an upper, middle and lower zones based on the porosity and permeability. The Monument-Grayburg-San Andres Pool is only productive of oil from the Grayburg and Upper San Andres Formations where these formations are above the oil water contact at 3992'.

The San Andres Formation consists of dolomite with some interbedded limestone. The Upper San Andres from 4028 to 4110 ranges from 4-16% porosity with an average porosity of 12% and a permeability of 50-70 md. The middle San Andres interval from 4110' to 4225' acts as a confining interval. This confining interval has a porosity less than 4% and permeability less than .02 md. The lower San Andres is the injection interval. The lower San Andres consists of 4 zones. From the top to the bottom they are L1, L2, L3 and L4. The porosity of L1 (340' thick) and L3 (350' thick) ranges from 4-16% porosity with permeability up to 30md. Zones L2 (20' thick) and L4 (250' thick) has porosity less than 4% and very low permeability. Zones L2 and L4 act as barrier zones and zones L1 and L3 being the primary disposal interval. Zone L4 isolates the disposal interval from Formations below the San Andres.

Item X. Monument Disposal Inc. will comply with any rule regulation or order which the OCD or WQCC currently has or any new rule and regulation that pertains to this type of facility that the OCD or WQCC may initiate in the future.

the well. Upon proper notification the facility will be open for regulatory inspection by OCD personnel.

No solids will be disposed of at this site.

Item VII. Description of Underground Facility

The only underground facilities will be the disposal well and its piping construction. Enclosed is the schematic of the existing and proposed wellbore.

The proposed construction will be:

13 3/8" surface casing set at 364' with cement circulated to surface.
9 5/8" intermediate casing set at 2809' with cement circulated to surface.
7" production casing from surface to 4319', 7" collar, 5 ½" swage, 5 ½ collar, 5 ½" Hastelloy C-176 liner from 4319' to 4359' with cement circulated to surface (see attached material data sheet for Hastelloy C-176 liner).
2 3/8' plastic lined tubing set at approximately 4355' with a packer set at approximately 4260'.

Item VIII. Contingency Plan for reporting and clean-up spills or releases

All above ground piping and tanks will be visually inspected for leaks by company personnel during each site visit. Any problems such as leaks, spills or well abnormality will be taken to the attention of Monument Disposal supervisor immediately. Supervisor will assess the problem and proceed with proper notification and repairs as OCD Rule 116 and WQCC Regulation 5208 requires. The onsite safety and contingency plan will be posted on site. Monument Disposal will adhere to any County, State and Federal regulations as it pertains to this facility.

Item IX. Site Characteristics

Location:
The proposed disposal well is located on Monument Disposal property at 8205 South Highway 322, approximately 3 ½ miles west of Monument, NM. (Section 35, Township 19 South, Range 36 East, Unit Letter H, 2582' from North line, 809' from East line, Latitude: 32°37'05", Longitude: 103°19'26") (see attached Location Map)

Hydrology:
There is no surface water in close proximity to the proposed site. Ground water in the Monument area is derived from three geologic units; the Ogallala Formation, Quaternary Alluvium and the Santa Rosa Formation. The Ogallala Formation is not present at the site and is present 2 miles north and 6 miles east of the proposed disposal well. In the Ogallala to the north and east of Monument, the saturated thickness ranges between 25 to 175'. The movement of ground water in the Ogallala is generally towards the southeast.

The saturated thickness of the Quaternary alluvium in the Monument area is 0' to 30' thick and ground water movement is towards the southeast. In the vicinity of the disposal well site, the saturated thickness ranges from 0' to 35'. The direction of ground water movement in the near vicinity of the disposal site is to the south.

Submit 3 Copies To Appropriate District Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
May 27, 2004

WELL API NO.
30-025-37918

5. Indicate Type of Lease
STATE ☐ FEE ☒

6. State Oil & Gas Lease No.

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.)

7. Lease Name or Unit Agreement Name
MONUMENT DISPOSAL (35738)

1. Type of Well: Oil Well ☐ Gas Well ☐ Other SWD

8. Well Number # 1

2. Name of Operator
MONUMENT DISPOSAL INC

9. OGRID Number 242044

3. Address of Operator
1314 BRITTANY, HOBBS, NM 88240

10. Pool name or Wildcat
SWD;SAN ANDRES

4. Well Location
Unit Letter H : 2582 feet from the N line and 809 feet from the E line
Section 35 Township 19S Range 36E NMPM LEA County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type _____ **Depth to Groundwater** _____ **Distance from nearest fresh water well** _____ **Distance from nearest surface water** _____

Pit Liner Thickness: _____ **mil** **Below-Grade Tank: Volume** _____ **bbls; Construction Material** _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER:	☒			OTHER:			☐

13. 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. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

1) Propose to convert this well from Class II SWD to a Class I Disposal well

2) Notify OCD Hobbs office at least 24 hors prior to working on well

3) RIH with tubing, set at approximately 4355' with packer at 4260'

4) Pressure test well to 500 psi w/ chart

4A) If well test successful submit follow up C-103 w/ chart to OCD

or

4B) If test unsuccessful follow up C-103 to OCD with plan of action to repair well.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. **I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☒ or an (attached) alternative OCD-approved plan ☐.**

SIGNATURE Eddie W Seay TITLE Agent DATE 11/2/06

Type or print name E-mail address: Telephone No.

For State Use Only

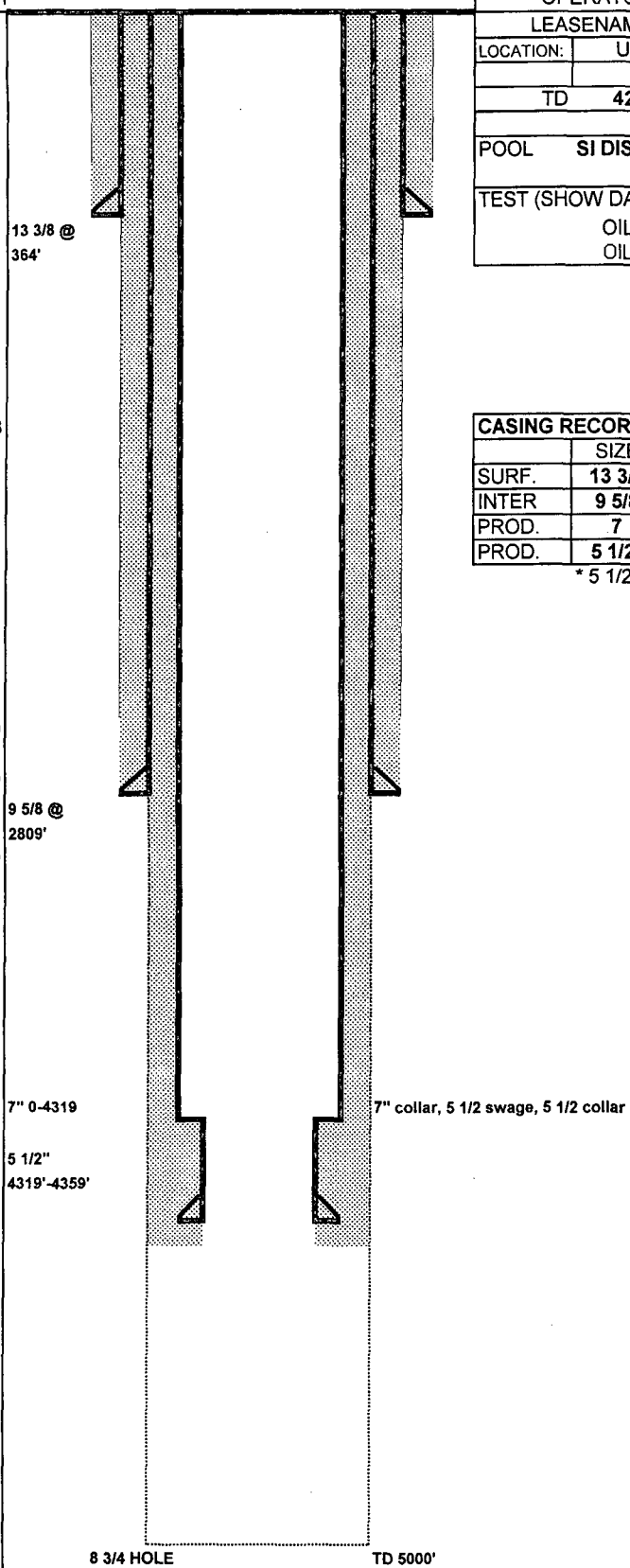
APPROVED BY: _____ TITLE _____ DATE _____

Conditions of Approval (if any):

PRESENT WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500



APINUM:	30-025- 37918
OPERATOR:	MONUMENT DISPOSAL INC
LEASENAME:	MONUMENT DISPOSAL — WELL NO 1
LOCATION:	UL: H SEC: 35 TWN: 19S RNG: 36E
	2582 FNL 809 FEL
TD 4240 PBD	KB 3651 DF
	GL 3641
POOL	SI DISPOSAL
PERFS	
OPEN HOLE	4351-5000
TEST (SHOW DATE)	
	OIL GAS WATER
	OIL GAS WATER

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

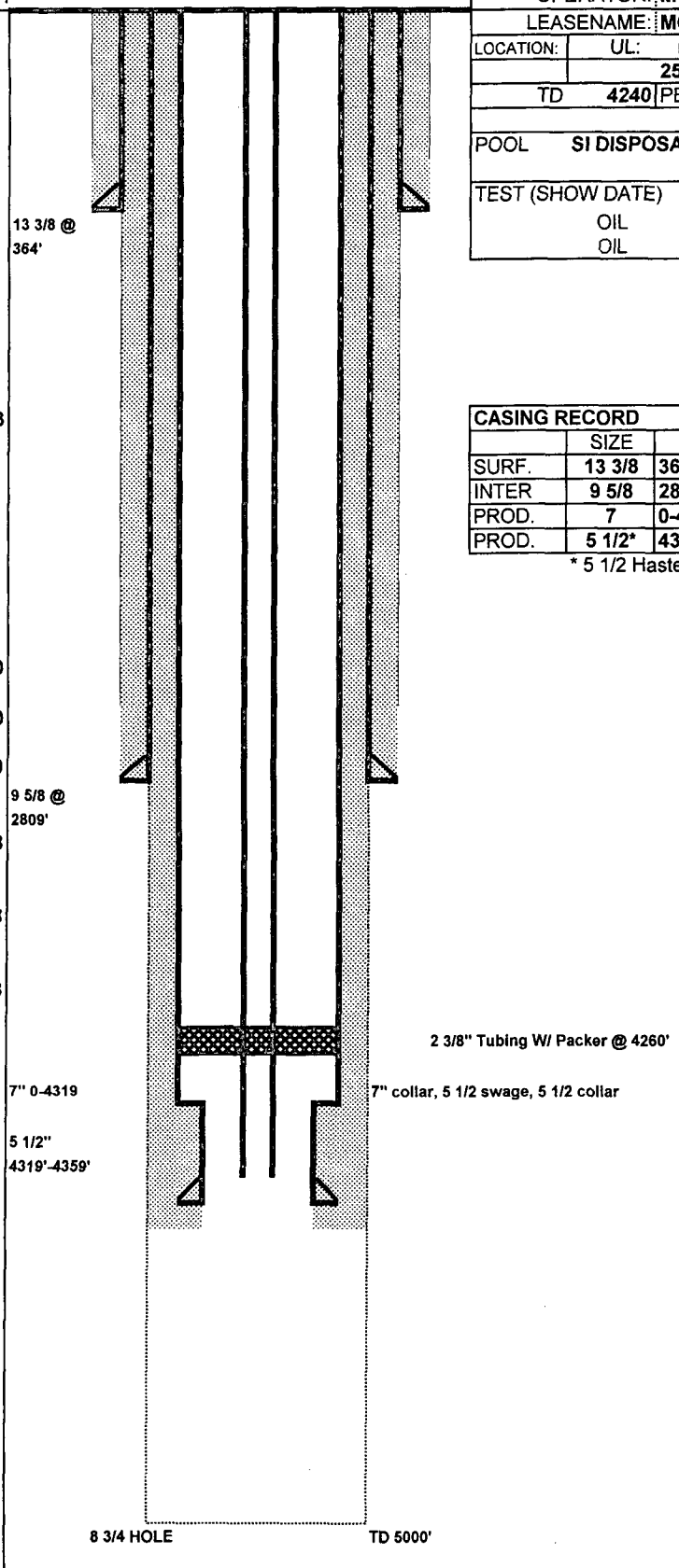
* 5 1/2 Hastelloy C-276 liner

PREPARED BY: UPDATED 7/31/2006

PROPOSED WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500



APINUM:	30-025-37918
OPERATOR:	MONUMENT DISPOSAL INC
LEASENAME:	MONUMENT DISPOSAL — WELL NO 1
LOCATION:	UL: H SEC: 35 TWN: 19S RNG: 36E
	2582 FNL 809 FEL
TD 4240	PBD — KB 3651 DF — GL 3641
POOL	SI DISPOSAL
PERFS	OPEN HOLE 4351-5000
TEST (SHOW DATE)	OIL GAS WATER
	OIL GAS WATER

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

* 5 1/2 Hastelloy C-276 liner

PREPARED BY: UPDATED 7/31/2006

Submit 3 Copies To Appropriate District Office
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District II
1301 W. Grand Ave., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
May 27, 2004

WELL API NO.
30-025-37918

5. Indicate Type of Lease
STATE ☐ FEE ☒

6. State Oil & Gas Lease No.

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.)

7. Lease Name or Unit Agreement Name
MONUMENT DISPOSAL (35738)

1. Type of Well: Oil Well ☐ Gas Well ☐ Other SWD

8. Well Number # 1

2. Name of Operator
MONUMENT DISPOSAL INC

9. OGRID Number 242044

3. Address of Operator
1314 BRITTANY, HOBBS, NM 88240

10. Pool name or Wildcat
SWD;SAN ANDRES

4. Well Location
Unit Letter H : 2582 feet from the N line and 809 feet from the E line
Section 35 Township 19S Range 36E NMPM LEA County

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)*

Pit or Below-grade Tank Application ☐ or Closure ☐

Pit type _____ **Depth to Groundwater** _____ **Distance from nearest fresh water well** _____ **Distance from nearest surface water** _____

Pit Liner Thickness: _____ **mil** **Below-Grade Tank: Volume** _____ **bbls; Construction Material** _____

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☒	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☐	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
OTHER:			☒	OTHER:			☐

13. 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. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

1) Notify OCD Hobbs office at least 24 hors prior to rigging up on the well prior to commencing P&A
2) Pull tubing and packer
3) RIH with tubing, set retainer at 4260'. Pump 215 sxs cement. Cap retainer with 25 sx cement.
4) Load hole with 9.5 brine
5) Set 25 sx plug from 2860-2750 to cover 50' below/ 50' above intermediate shoe at 2809 Tag plug
6) Set 25 sx plug from 2500-2400 to cover base of salt.
7) Set 25 sx plug from 1143-1043 to cover top of salt
8) Set 24 sx plug from 414-314 to cover surface shoe @ 364' Tag plug
9) Set 60' plug at surface.
10) Set P&A marker

I hereby certify that the information above is true and complete to the best of my knowledge and belief. **I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☒ or an (attached) alternative OCD-approved plan ☐.**

SIGNATURE Eddie W Seay TITLE Agent DATE 11/2/04

Type or print name E-mail address: Telephone No.

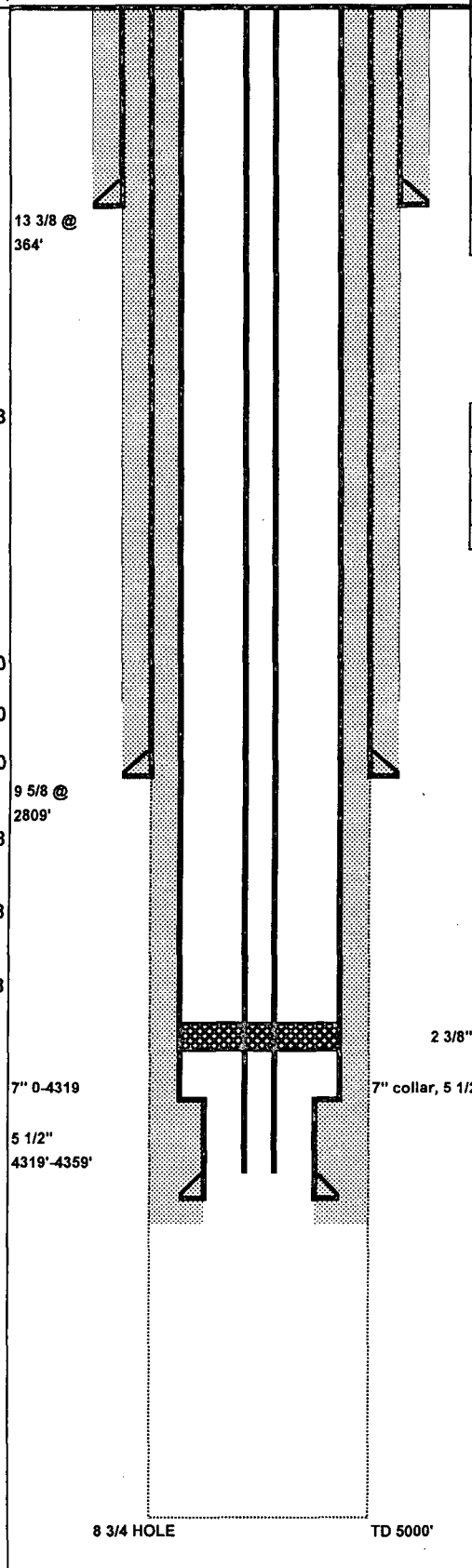
For State Use Only

APPROVED BY: _____ TITLE _____ DATE _____

Conditions of Approval (if any):

PROPOSED WELLBORE SCHEMATIC AND HISTORY *BEFORE P+A*

COMPLETION SCHEMATIC



FORM	DEPTH
Rustler	1093
Tansill	2450
Yates	2500
7 Rivers	2750
Queen	3258
Grayburg	3628
San Andres	4028
Estimated top Glorieta	5500

APINUM:	30-025-37918
OPERATOR:	MONUMENT DISPOSAL INC
LEASENAME:	MONUMENT DISPOSAL — WELL NO 1
LOCATION:	UL: H SEC: 35 TWN: 19S RNG: 36E
	2582 FNL 809 FEL
TD 4240 PBD	KB 3651 DF
	GL 3641
POOL	SI DISPOSAL
PERFS	
OPEN HOLE	4351-5000
TEST (SHOW DATE)	
	OIL GAS WATER
	OIL GAS WATER

CASING RECORD

	SIZE	DEPTH	CMT	HOLE SIZE	TOC
SURF.	13 3/8	364	350 sxs		CIRC
INTER	9 5/8	2809	2200 sxs	12 1/4	CIRC 400
PROD.	7	0-4319		8 3/4	
PROD.	5 1/2*	4319-4359	na		CIRC 200

* 5 1/2 Hastelloy C-276 liner

PREPARED BY: | UPDATED 7/31/2006

PROPOSED P&A WELLBORE SCHEMATIC AND HISTORY

COMPLETION SCHEMATIC

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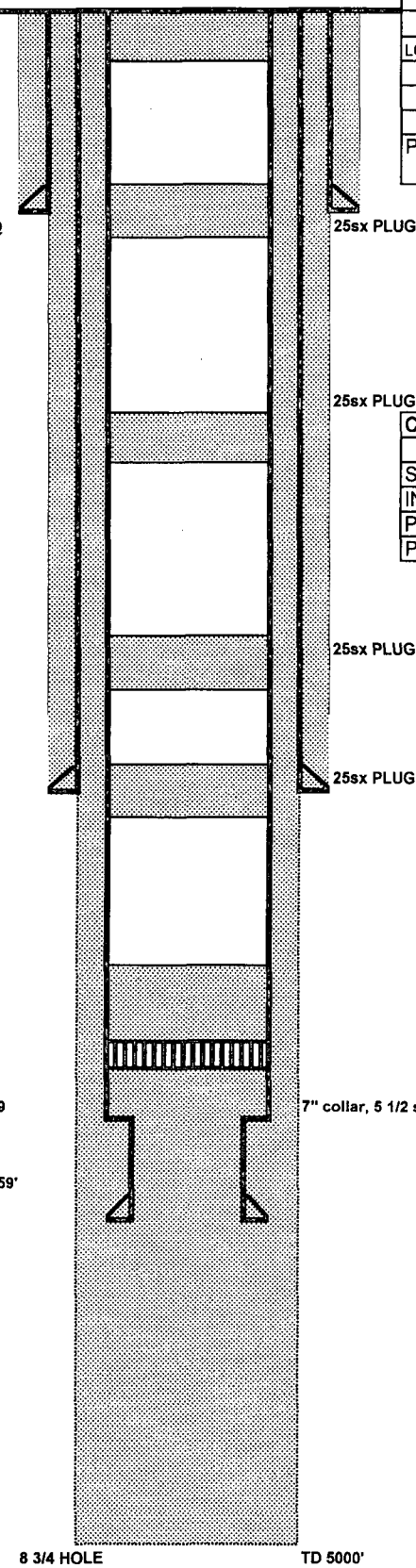

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PREPARED BY: | UPDATED 7/31/2006

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E
Director
Oil Conservation Divisio

ADMINISTRATIVE ORDER SWD-1035

APPLICATION OF MONUMENT DISPOSAL INC. FOR PRODUCED WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), Monument Disposal Inc. made application to the New Mexico Oil Conservation Division for permission to utilize for produced water disposal its Monument Well No. 1 (API No. 30-025-37918) located 2582 feet from the North line and 809 feet from the East line of Section 35, Township 19 South, Range 36 East, NMPM, Lea County, New Mexico.

THE DIVISION DIRECTOR FINDS THAT:

(1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;

(2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified;

(3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met; and

(4) No objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED THAT:

The applicant is hereby authorized to utilize its Monument Well No. 1 (API No. 30-025-37918) located 2582 feet from the North line and 809 feet from the East line of Section 35, Township 19 South, Range 36 East, NMPM, Lea County, New Mexico, in such manner as to permit the injection of produced water for disposal purposes into the San Andres formation through an open hole from approximately 4359 feet to 5000 feet and through plastic-lined tubing set in a packer located within 100 feet of the top of the injection interval.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

Prior to beginning commercial injection operations, the operator shall report the initial static fluid level in the well.

After installing injection tubing, the casing shall be pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

The wellhead injection pressure on the well shall be limited to **no more than 872 psi**. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Hobbs district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall provide written notice of the date of commencement of injection to the Hobbs district office of the Division.

The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

Approved at Santa Fe, New Mexico, on June 28, 2006.

MARK E. FESMIRE, P.E.
Director

MEF/wvjj

cc: Oil Conservation Division – Hobbs

Outstanding Corrosion Resistance in the As-Welded Condition — HASTELLOY alloy C-276 is an improved wrought version of HASTELLOY alloy C. Alloy C-276 has the same excellent corrosion resistance as alloy C with vastly improved fabricability. This alloy resists the formation of grain-boundary precipitates in the weld heat-affected zone, thus making it suitable for most chemical process applications in the as-welded condition. Alloy C-276 also has excellent resistance to pitting, stress-corrosion cracking and to oxidizing atmospheres up to 1900 deg. F (1038 deg. C).

HASTELLOY alloy C-276 has exceptional resistance to a wide variety of chemical process environments. These include strong oxidizers such as ferric and cupric chlorides, hot contaminated mineral acids, solvents, chloride-contaminated media (organic and inorganic), chlorine, formic and acetic acids, acetic anhydride, and sea water and brine solutions. It is also one of the few materials that will resist the corrosive effects of wet chlorine gas, hypochlorite, and chlorine dioxide solutions.

Precipitation Characteristics — The precipitation characteristics of alloy C-276 indicate that a much greater time is required to form precipitates in the grain boundaries than is required for alloy C. Precipitation does not occur in alloy C-276 until after several minutes, and then in a very narrow temperature range for short-time precipitate formation compared to alloy C.

Fabricated by a Variety of Methods — HASTELLOY alloy C-276 can be forged, hot-upset, and impact extruded. Although the alloy tends to work-harden, it can be successfully deep-drawn, spun, press formed or punched. All of the common methods of welding can be used to weld HASTELLOY alloy C-276, although the oxy-acetylene process is not recommended when the fabricated item is intended for use in corrosion service. Special precautions should be taken to avoid excessive heat in-put when welding especially with submerged-arc. Fluxes containing carbon or silicon should not be used when welding alloy C-276 by the submerged-arc method.

Detailed fabricating information is available in the booklet, F-30,126, "Fabrication of HASTELLOY Alloys."

Available in Wrought Form — HASTELLOY alloy C-276 is available in the form of sheet, strip, plate, bar, wire, pipe, welding electrodes and forging stock.

Heat-Treatment — Wrought forms of HASTELLOY alloy C-276 are furnished in the solution heat-treated condition unless otherwise specified. Alloy C-276 is solution heat-treated at an effective temperature of 2050 deg. F (1121 deg. C) and rapid quenched. Parts which have been hot-formed should be solution heat-treated prior to final fabrication or installation, if possible.

Specifications — For information on specifications to which this alloy can be ordered, please contact one of the locations shown on the back cover of this booklet. Ask for booklet F-30,556.

Properties Data — The properties listed in this booklet are average values based on laboratory tests conducted by the manufacturer. They are indicative only of the results obtained in such tests and should not be considered as guaranteed maximums or minimums. Materials must be tested under actual service conditions to determine their suitability for a particular purpose. All data represent the average of four or less tests unless otherwise noted. The secondary units (metric) used in this booklet are those of the SI system.

AVERAGE TENSILE DATA

Form	Condition	Test Temp. deg. F (deg. C)	Ultimate Tensile Strength, Ksi (MPa)	Yield Strength at 2% offset, Ksi (MPa)	Elongation in 2 in., (50.8 mm), percent
Sheet, 0.078 in. (2.0 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	Room	114.9 (792)	51.6 (356)	61
		400 (204)	100.6 (694)	42.0 (290)	59
		600 (316)	98.8 (681)	35.9 (248)	68
		800 (427)	94.3 (650)	32.7 (225)	67
Sheet, 0.094 in. (2.4 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	400 (204)	101.0 (696)	39.9 (275)	58
		600 (316)	97.6 (673)	33.5 (231)	64
		800 (427)	93.5 (645)	29.7 (205)	64
Sheet, 0.063 to 0.187 in. (1.6 to 4.7 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	400 (204)[1]	100.8 (695)	42.1 (290)	56
		600 (316)[2]	97.0 (669)	37.7 (260)	64
		800 (427)[2]	95.0 (655)	34.8 (240)	65
		1000 (538)[2]	88.9 (613)	33.8 (233)	60
Plate, 3/16 to 1 in. (4.8 to 25.4 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	400 (204)[3]	98.9 (682)	38.2 (263)	61
		600 (316)[3]	94.3 (650)	34.1 (235)	66
		800 (427)[3]	91.5 (631)	32.7 (225)	60
		1000 (538)[3]	87.2 (601)	32.8 (226)	59
Plate, 1 in. (25.4 mm) thick	Heat-treated at 2050 deg. F (1121 deg. C), Rapid Quenched	Room	113.9 (785)	52.9 (365)	59
		600 (316)	96.3 (664)	36.2 (250)	63
		800 (427)	94.8 (654)	30.5 (210)	61
Sheet, 0.094 in. (2.4 mm), original thickness	Cold-reduced				
	0 percent	Room	116.9 (806)	63.0 (434)	67
	10 percent	Room	129.7 (894)	92.2 (636)	48
	20 percent	Room	148.1 (1021)	129.1 (890)	26
	30 percent	Room	169.8 (1171)	157.1 (1083)	15
	40 percent	Room	193.8 (1336)	182.9 (1261)	9
	50 percent	Room	210.1 (1449)	195.4 (1347)	7

1-Average of 25 tests.
2-Average of 34-36 tests.
3-Average of 9-11 tests.

CHEMICAL COMPOSITION, PERCENT*

Nickel	Cobalt	Chromium	Molybdenum	Tungsten	Iron	Silicon	Manganese	Carbon	Others
Balance	2.50**	14.50-16.50	15.00-17.00	3.00-4.50	4.00-7.00	0.08**	1.00**	0.02**	V-0.35** P-0.04** S-0.03**

*The undiluted deposited chemical composition of alloy C-276 covered electrodes has 0.20 percent maximum silicon.
**Maximum

AVERAGE PHYSICAL PROPERTIES

Physical Properties	Temp., deg. C	Metric Units	Temp., deg. F	British Units
Density	22	8885 kg/m³	72	0.321 lb./in.³
Melting Temperature	1323-1371		2415-2500	
Electrical Resistivity	24	1.30 microhm-m	75	51 microhm-in. (779 ohms per cir. mil. ft.)
Mean Coefficient of Thermal Expansion	24-93	11.2 x 10^{-6}m/m·K	75-200	6.2 microinches/in.-deg. F
	24-204	12.0 x 10^{-6}m/m·K	75-400	6.7 microinches/in.-deg. F
	24-316	12.8 x 10^{-6}m/m·K	75-600	7.1 microinches/in.-deg. F
	24-427	13.2 x 10^{-6}m/m·K	75-800	7.3 microinches/in.-deg. F
	24-538	13.4 x 10^{-6}m/m·K	75-1000	7.4 microinches/in.-deg. F
	24-649	14.1 x 10^{-6}m/m·K	75-1200	7.8 microinches/in.-deg. F
	24-760	14.9 x 10^{-6}m/m·K	75-1400	8.3 microinches/in.-deg. F
	24-871	15.9 x 10^{-6}m/m·K	75-1600	8.8 microinches/in.-deg. F
	24-927	16.0 x 10^{-6}m/m·K	75-1700	8.9 microinches/in.-deg. F
Thermal Conductivity	-168	7.2 W/m·K	-270	50 Btu-in./ft.²-hr.-deg. F
	-73	8.6 W/m·K	-100	60 Btu-in./ft.²-hr.-deg. F
	32	9.4 W/m·K	0	65 Btu-in./ft.²-hr.-deg. F
	38	10.2 W/m·K	100	71 Btu-in./ft.²-hr.-deg. F
	93	11.1 W/m·K	200	77 Btu-in./ft.²-hr.-deg. F
	204	13.0 W/m·K	400	90 Btu-in./ft.²-hr.-deg. F
	316	15.0 W/m·K	600	104 Btu-in./ft.²-hr.-deg. F
	427	16.9 W/m·K	800	117 Btu-in./ft.²-hr.-deg. F
	538	19.0 W/m·K	1000	132 Btu-in./ft.²-hr.-deg. F
	649	20.9 W/m·K	1200	145 Btu-in./ft.²-hr.-deg. F
	760	22.9 W/m·K	1400	159 Btu-in./ft.²-hr.-deg. F
	871	24.9 W/m·K	1600	173 Btu-in./ft.²-hr.-deg. F
	982	26.7 W/m·K	1800	185 Btu-in./ft.²-hr.-deg. F
	1093	28.1 W/m·K	2000	195 Btu-in./ft.²-hr.-deg. F
Specific Heat (Calculated)	Room	427 J/kg·K	Room	0.102 Btu/lb.-deg. F
Dynamic Modulus of Elasticity	Room	205,000 MPa	Room	29.8 psi x 10^6
	204	195,000 MPa	400	28.3 psi x 10^6
	316	188,000 MPa	600	27.3 psi x 10^6
	427	182,000 MPa	800	26.4 psi x 10^6
	538	176,000 MPa	1000	25.5 psi x 10^6

C.I.M. Industries Inc.

CIM 1000

All information presented in this publication is believed to be accurate, but it is not to be construed as a guarantee of minimum performance. Test performance results are obtained in a controlled laboratory environment using procedures that may not represent actual operating environments.

TYPICAL PROPERTIES

Abrasion Resistance–Wt. Loss, Taber Abraser CS–17 Wheel 1000 gr./1000 rev. ASTM D4060	1.2 mg. Loss
Adhesion to Concrete (dry)	
Elcometer	350 psi
Deflection Temperature ASTM D648	below -60°F
Density (Approx.)	
Premix	8.0 lbs./gal.
Activator	10.1 lbs./gal.
Mixed & Cured	8.3 lbs./gal.
Elastomeric Waterproofing	
ASTM C836	exceeds all criteria
ASTM C957	exceeds all criteria
Extension to Break ASTM D412	400%
Flammability	
ASTM D2859	pass/combustible substrate
UL790	Class A[1]
Hardness, Shore A ASTM D2240 @ 77°F	60
Jet Fuel Resistance FS SS-S-200D	pass for joints
Liner Performance	
Crack Bridging	
10 cycles @ -15°F	greater than ⅛"
After heat aging	greater than ¼"
Liner Weight (60 mil wet film thickness)	31 lbs./100 sq. ft.
Mix Ratio	
Weight	7:1
Volume	9:1
Mullen Burst Strength ASTM D751, 50 mil	150 psi
Permeability to Water Vapor ASTM E96 Method E, 100°F, 100 mil sheet	0.03 perms
Recovery from 100% extension:	
after 5 minutes	98%
after 24 hours	100%
Salt Spray ASTM B117	pass 2000 hrs.
Service Temperature	-60°F to 220°F
Softening Point, Ring & Ball ASTM D36	>325°F
Tear Strength ASTM D624 (Die C)	150 lbs./in.
Tensile Strength ASTM D 412, 100 mil sheet	900 psi
Weathering ASTM D822	pass 5000 hrs.

[1]Contact C.I.M. Industries for details regarding UL fire ratings

CHEMICAL RESISTANCE

CIM 1000 is resistant to a broad range of acids and alkalis. Consult C.I.M. Industries for additional information regarding chemical resistance after reviewing CIM 1000 Chemical Resistance Chart.

THE INFORMATION PRESENTED IN THIS PUBLICATION IS SUBJECT TO CHANGE WITHOUT NOTICE.
CONTACT C.I.M. INDUSTRIES FOR CURRENT INFORMATION.
www.cimindustries.com

C.I.M. Industries Inc.

CIM 1000

GENERAL APPLICATION INFORMATION

USE **FOR PROFESSIONAL USE ONLY.**

PRECAUTIONS Avoid contamination with water or moisture. Keep all pails and jugs tightly closed until ready for use. All equipment, air supplies, and application substrates must be **ABSOLUTELY DRY.** Do not apply in wet weather or when rain is imminent or when the CIM 1000 or the substrate may become wet within 4 hours after coating. Use caution when applying CIM 1000 in confined spaces. See C.I.M. Industries' Instruction Guide, "Applying CIM Within Confined Spaces" (IG–9).

TEMPERATURE Surface should be at least 50°F (10°C) and must be 5°F (3°C) above the dew point. **DO NOT APPLY WHEN THE SUBSTRATE OR AMBIENT TEMPERATURE IS RISING OR COATING IS IN DIRECT SUNLIGHT.** CIM 1000 should be at least 60°F (15°C) when mixed and applied. CIM 1000 may be preheated to facilitate application at low temperatures, but working time will be reduced. See C.I.M. Industries' Instruction Guide "Applying CIM Liners in Cold Weather" (IG–11).

EQUIPMENT Spray equipment requires large diameter hose and air supplied mastic gun. Airless pump may be used to provide fluid side pressure. See "Spray Application of CIM" (IG–12) or contact C.I.M. Industries for specific recommendations. Roller, squeegee, and trowel may also be used.

POT LIFE About 30 minutes. Working time depends on temperature and method of application. Working time for spray application will be significantly shorter.

PRIMING Porous substrates such as wood and concrete may be primed with CIM 61BG Epoxy Primer to minimize outgassing. The recoat window for CIM 61BG Epoxy Primer shall be no longer than 48 hours. See CIM 61BG Epoxy Primer Coating Profile for additional information. Perform adhesion tests to confirm adequacy of adhesion to primer.

MIXING **DO NOT THIN. DO NOT HAND MIX.** Begin mixing each pail (4.5 gal.) of CIM 1000 Premix using a power mixer (e.g. ½" drill and an eight inch mud mixer). Do not draw air into the mix. While mixing, slowly add one jug (0.5 gal.) of CIM 1000 Activator to the pail. Once the CIM 1000 Activator has been added, mix thoroughly for **3 FULL MINUTES.** The proportions are premeasured. **DO NOT ESTIMATE.** Mixing Jigs and Timers from C.I.M. Industries help eliminate mixing errors and increase productivity on the job. See C.I.M. Industries' Instruction Guide, "Mixing CIM Premix and Activator" (IG–8).

APPLICATION Apply CIM 1000 directly to a clean and dry substrate. Vertical surfaces will require multiple coats. See C.I.M. Industries' specific substrate Instruction Guide for additional guidelines.

RECOATING CIM 1000 may be recoated in 1 hour and must be recoated soon after the coating no longer comes off on polyethylene (typically within 4 hours of mixing). If the liner has cured longer than this time, the surface must be severely abraded using surface grinder or other mechanical means, and be free of dust and debris. Use CIM Bonding Agent for better adhesion. For immersion conditions, all coats shall be applied within 4 hours of each other, except at joint lines.

SPREAD RATE **Note: Coverages are theoretical and do not account for waste, spillage, irregular surfaces, or application technique. Consult CIM 1000 coverage chart for additional coverage information.**

CURING TIME CIM 1000 may be placed in service within 24 hours for non-aggressive service. Severe service applications may require a cure time of 72 hours or more. Contact C.I.M. Industries for specific recommendations.

CLEAN-UP Use mineral spirits for clean-up of uncured material. Spray equipment must be flushed regularly during application to prevent material from setting up in the hose and pump. Cured material is very difficult to remove. Soaking in solvent will soften the material and may assist in its removal.

CONTACT C.I.M. INDUSTRIES FOR SPECIFIC RECOMMENDATIONS AND INSTRUCTION GUIDES.

C.I.M. Industries Inc.

CIM 1000

SHIPPING, STORAGE AND SAFETY DATA

WARNING **Flammable. Use only in well ventilated areas. Do not store or use near open flame, sparks or hot surfaces. Keep tightly closed. Avoid contact with moisture or water. Keep out of reach of children.**

SAFETY INFORMATION This product contains petroleum asphalt, petroleum distillates, amine compounds and/or other chemical ingredients. Adequate health and safety precautions should be observed during the storage, handling, application and curing. Refer to C.I.M. Industries' Material Safety Data Sheets for further details regarding the safe use of this product.

PACKAGING CIM 1000 is available in mixed units of **5** gallons. Each unit consists of a container of premix and a smaller container of activator. Quantities have been premeasured to provide the proper mixing ratio, leaving sufficient room in the premix container to facilitate adequate mixing. **Do not estimate proportions.**

SHIPPING	**Premix**	**Activator**
Weights		
5.0 gallon units	40 lbs. per pail	5.5 lbs. per jug (33 lbs. per case of 6)
Properties		
Flash Point	101°F	>250°F
Shipping Name	Coating Solution	Not Regulated
DOT Class	Class 3, UN1139, PG III	Not Regulated
STORAGE		
Temperature	20°F to 110°F	70°F to 95°F
Shelf Life	2 years	6 months
NFPA	Class II	Non Flammable

WARRANTY & LIMITATION OF SELLER'S LIABILITY

C.I.M. Industries Inc. (C.I.M.) warrants that for a period of five (5) years from the date of shipment to the initial purchaser, the products, when mixed in proper ratios for the proper length of time, (a) will not become brittle or crack and (b) will provide a water barrier. Due to application variables beyond C.I.M.'s control which may affect results, C.I.M. makes no warranty of any kind, expressed or implied, including that of merchantability, other than that the products conform to C.I.M.'s current quality control standards at time of manufacture. If breach of warranty is established, the buyer's exclusive remedy shall be repayment of the purchase price of the non-conforming CIM membrane product or, at C.I.M.'s option, resupply of conforming product to replace the non-conforming product. The buyer expressly waives any claim to additional damages, including consequential damages.

THE INFORMATION PRESENTED IN THIS PUBLICATION IS SUBJECT TO CHANGE WITHOUT NOTICE.

CONTACT C.I.M. INDUSTRIES FOR CURRENT INFORMATION.

FOR PROFESSIONAL USE ONLY.

www.cimindustries.com

C.I.M. Industries Inc.
23 Elm St., Peterborough, NH 03458
Tel: (800) 543-3458 (603) 924-9481
Fax: (603) 924-9482
Web site: www.cimindustries.com

C.I.M. Industries Inc.

CIM 1000

Information presented here is believed to be accurate, but it is not to be construed as a guarantee of minimum performance. Test performance results are obtained in a controlled laboratory environment under procedures that may not represent actual operating environments.

CHEMICAL RESISTANCE

The following chart is a general guide to the resistance of CIM 1000 liner to various types of exposure. Although we believe this information to be reliable, C.I.M. Industries Inc. has no control over any particular application, installation, or exposure of CIM 1000 liner; and suitable tests should be carried out by the user.

Where chemical concentrations are listed, the designated rating applies to all concentrations up to and including the concentration indicated.

Except as indicated by a footnote, the maximum service temperature is 140F (60C) for continuous service.

Consult C.I.M. Industries for additional information regarding chemical resistance.

Acetic Acid, Glacial	S	Hydrogen Sulfide,	
Acetic Acid, 25%	R2	Vapor Over Sat. Solution	R
Acetic Acid, 10%	R	Methanol	R1
Ammonium Hydroxide, 10%	R2	Nitric Acid, 10%	R2
Biological Oxidation Ponds	R	Outdoor Exposure	R
Chlorine,		Phosphoric Acid, 10%	R
Saturated Solution in Water	R1	Sewage Disposal Plant	
Citric Acid, 10%	R	(Act. Sludge Sed. Tanks)	R
Copper Sulfate (Sat.)	R	Sodium Hydroxide, 10%	R
Crude Oil	S	Sodium Hydroxide, 50%	R1
Diesel Fuel	S	Sodium Hypochlorite, 15%	R
Ethylene Glycol		Soil Burial	R
(Antifreeze Solution)	R1	Sodium Silicate, 34%	R
Ferric Chloride, 42%	R	Strawberry Juice	R
Hydrochloric Acid, 10%	R2	Sulfuric Acid, 30% or less	R
Hydrofluoric Acid, 10%	R2	Trisodium Phosphate, 10%	R
Hydrogen Sulfide,		Water, Salt	R
Saturated Solution in Water	R	Wine (for floor protection)	R

Footnote:

R Suitable for continuous immersion.
S Suitable for splash and spillage conditions.
R1 Maximum service temperature limited to 80F.
R2 Maximum service temperature limited to 120F.

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C.I.M. Industries Inc.

CIM 1000

COVERAGE CHART — MIXED GALLONS

Dry Thickness (mils)	Wet Thickness (mils)	Gal/SF	SF/Gal	Dry Thickness (mils)	Wet Thickness (mils)	Gal/SF	SF/Gal
20	23	0.014	71	18	20	0.012	80
25	28	0.018	57	22	25	0.016	64
30	34	0.021	47	26	30	0.019	53
35	40	0.025	40	31	35	0.022	46
40	45	0.028	35	35	40	0.025	40
45	51	0.032	31	40	45	0.028	36
50	57	0.035	28	44	50	0.031	32
55	62	0.039	26	48	55	0.034	29
60	68	0.042	24	53	60	0.037	27
65	74	0.046	22	57	65	0.041	25
70	79	0.050	20	62	70	0.044	23
75	85	0.053	19	66	75	0.047	21
80	91	0.057	18	70	80	0.050	20
85	96	0.060	17	75	85	0.053	19
90	102	0.064	16	79	90	0.056	18
95	108	0.067	15	84	95	0.059	17
100	114	0.071	14	88	100	0.062	16
105	119	0.074	13	92	105	0.065	15
110	125	0.078	13	97	110	0.069	15
115	131	0.081	12	101	115	0.072	14
120	136	0.085	12	106	120	0.075	13
125	142	0.088	11	110	125	0.078	13

COVERAGE FORMULAS

$$\text{Gallons Required} = \frac{\text{Theoretical Wet Film Thickness (Mils)} \times \text{Sq.Ft. To Be Covered}}{1604} = \frac{\text{Theoretical Dry Film Thickness (Mils)} \times \text{Sq.Ft. To Be Covered}}{1413}$$

1 MIL = .001 of an inch

Coverages are theoretical and do not account for waste, spillage, irregular surfaces, or application technique.

CIM BONDING AGENT

Porous Surface	1 gallon = 300 sq.ft. or .00333 gal/sq.ft.
Non Porous Surface	1 gallon = 600 sq.ft. or .00166 gal/sq.ft.

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C.I.M. Industries Inc.

CIM 1000

COATING PROFILE

DESCRIPTION CIM 1000 is a liquid applied urethane coating that cures in hours to form a tough elastomeric liner that adheres to most substrates, forming a chemical and abrasion resistant barrier for waterproofing, corrosion protection, and containment of water and most aqueous chemicals.

ADVANTAGES CIM 1000 has over 25 years of proven performance in demanding environments. It remains flexible and resilient and provides exceptional service in a broad range of applications.

- Forms a tough elastomeric liner able to bridge cracks and joints.
- Impervious to water and most aqueous chemicals, providing a long lasting tank and pond liner.
- Asphalt extended urethane formula provides superior wear and weatherability for parking decks and containment areas.
- Adheres to and bridges between common construction materials such as concrete, steel and other metals, asphalt pavement, glass, wood, and most coatings.
- Environmentally sound, complying with the toughest VOC regulations.
- Can be repaired when damaged.
- Excellent abrasion resistance for severe wear applications.
- UV stable.
- Liquid, two-component urethane can be applied to complex shapes, multiple penetrations or to most geotextiles.

SURFACE PREPARATION

GENERAL: Substrates must be **clean and dry** with no oils, grease or loose debris. CIM Bonding Agent is recommended on all non-porous substrates. Perform adhesion tests to confirm adequacy of surface preparation. See C.I.M. Industries' specific substrate Instruction Guide for specific guidelines.

CONCRETE: ICRI-CSP 4-6 surface profile exposing aggregate. Concrete must exhibit minimum 3,000 psi compressive strength and be free of release agents and curing compounds. The substrate must be clean and dry (see CIM Instruction Guide IG-2), and free of contaminates.

STEEL: Minimum 3 mil profile.
Immersion service – SSPC-SP10 / NACE No. 2 Near White Blast.
Non-Immersion service – SSPC-SP6 / NACE No. 3 Commercial Blast.
Use CIM Bonding Agent for greater adhesion.

OTHER METALS: SSPC-SP1 solvent clean and abrasive blast to roughen and degloss the surface. Use CIM Bonding Agent for greater adhesion.

GLASS: Thoroughly clean. CIM Bonding Agent must be used for increased adhesion. For immersion service roughen the surface.

WOOD: Substrate must be clean, dry and free of surface contamination.

PREVIOUS COATINGS AND LININGS: CIM 1000 may be applied over some existing coatings and linings and achieve acceptable performance. CIM Bonding Agent is recommended for greater adhesion. Finished system results vary due to a variety of project specific factors, including the service conditions to which the system is exposed. Therefore, C.I.M. Industries does not accept responsibility for determining the suitability of an existing coating as a substrate for CIM products. Owner shall perform adhesion tests on any existing coating or lining to determine suitability.

EARTH: Use CIM Scrim.

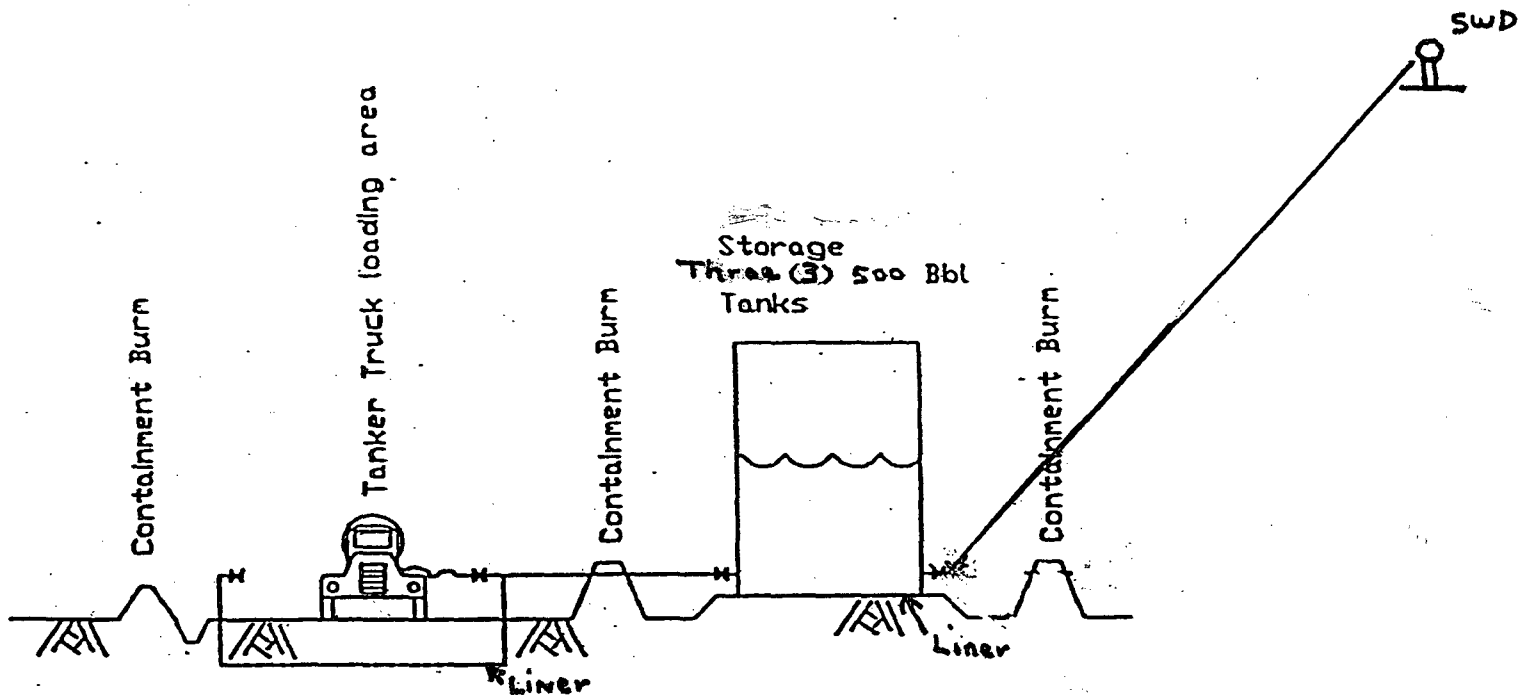
COLOR CIM 1000 is initially shiny black, turning dull over 3 to 6 months when exposed to direct sunlight. For a colored or reflecting surface finish, see C.I.M Industries' Instruction Guide, "Topcoats" (IG–7) for further instructions.

SOLIDS BY VOLUME 88% (1413 dry mils x sq. ft./gal.)

RECOMMENDED COVERAGE Recommended minimum thickness at all points of the coating is 60 wet mils. Higher coverages may be specified, but extended time is required to insure proper solvent release prior to placing the liner in service. Contact C.I.M. Industries for additional information.

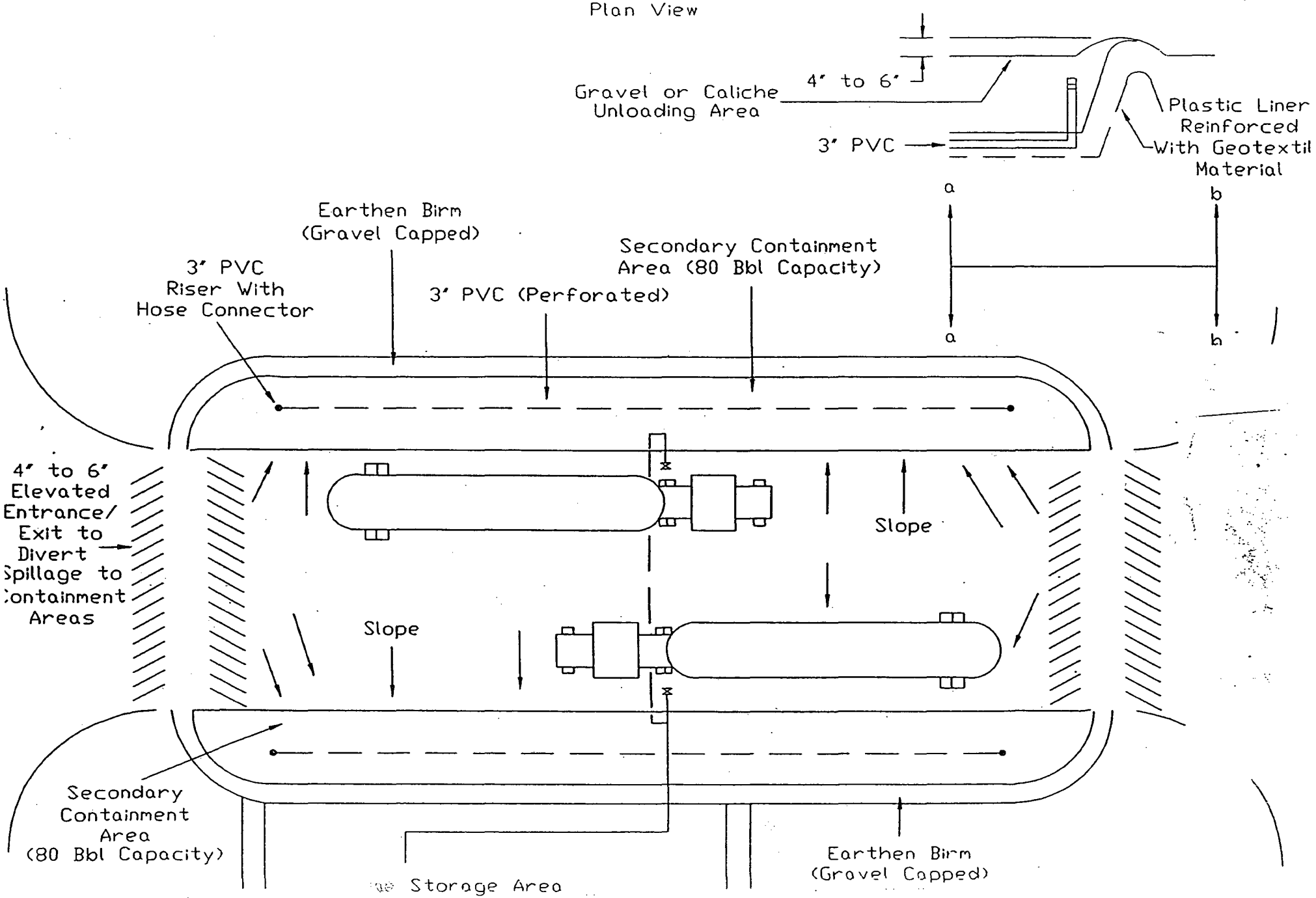
VOC 92 g/l (0.76 lb./gal.). CIM 1000 complies with the toughest VOC regulations.

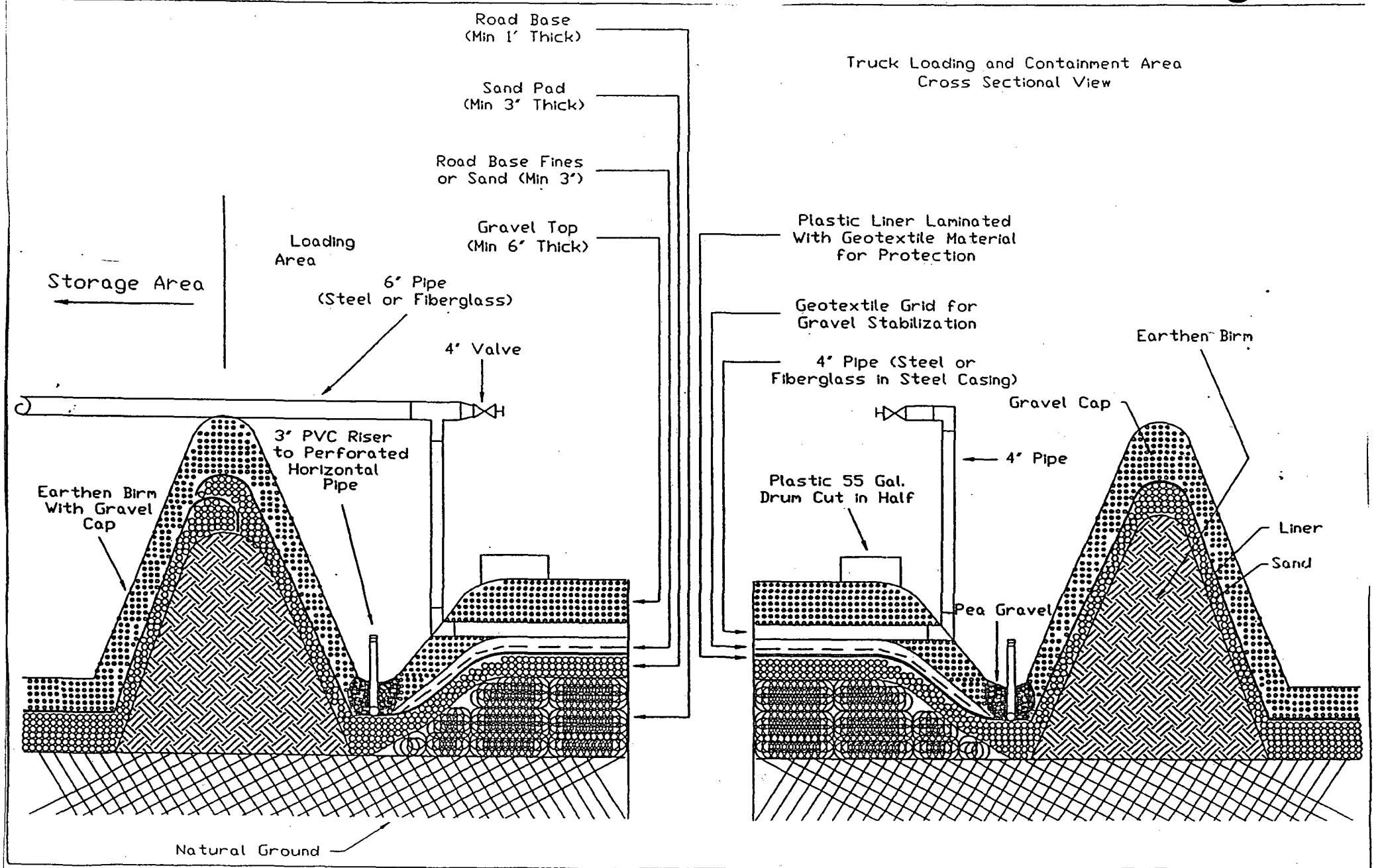
Unloading Area



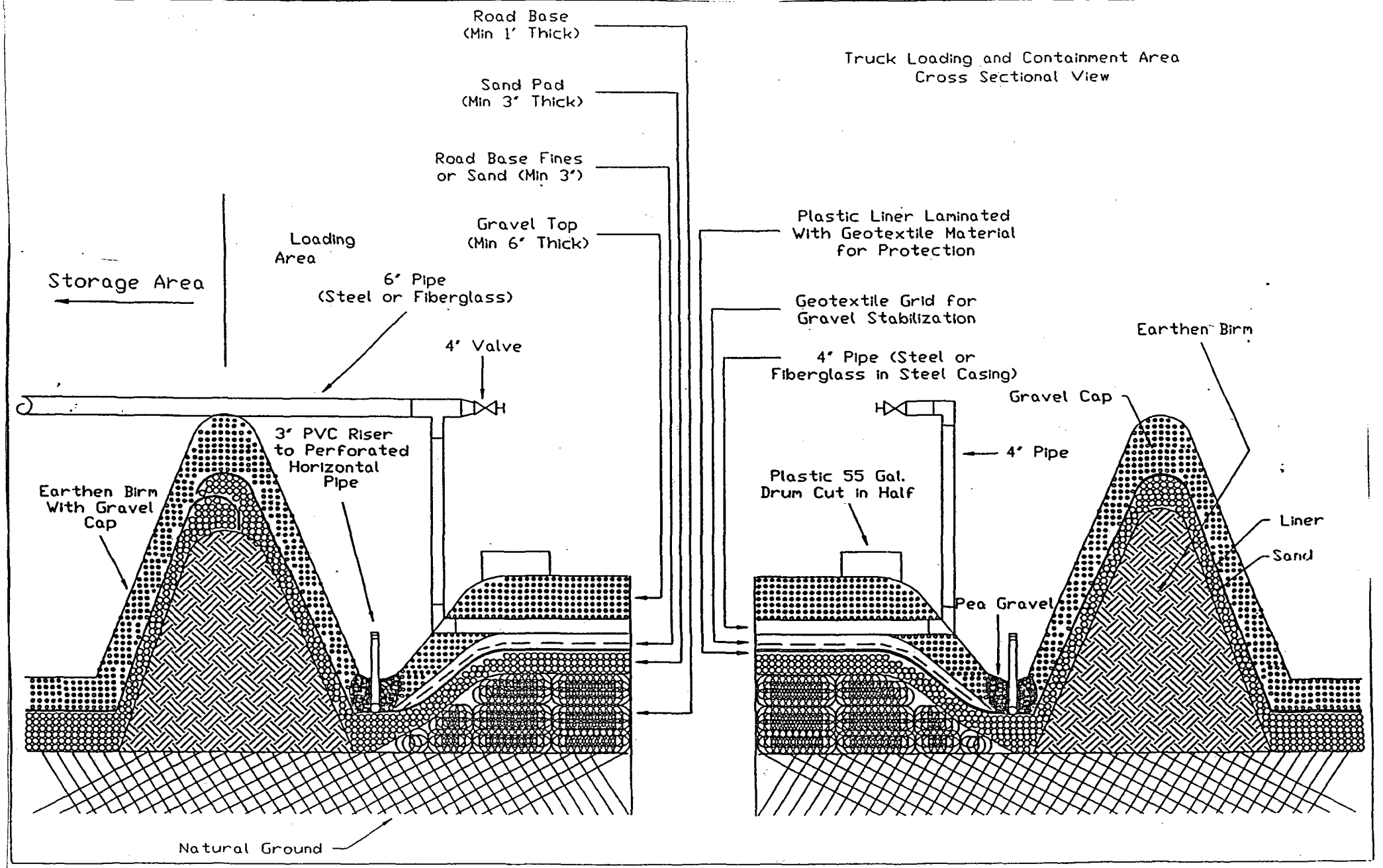
Area will be fenced

Truck Loading and Containment Area
Plan View

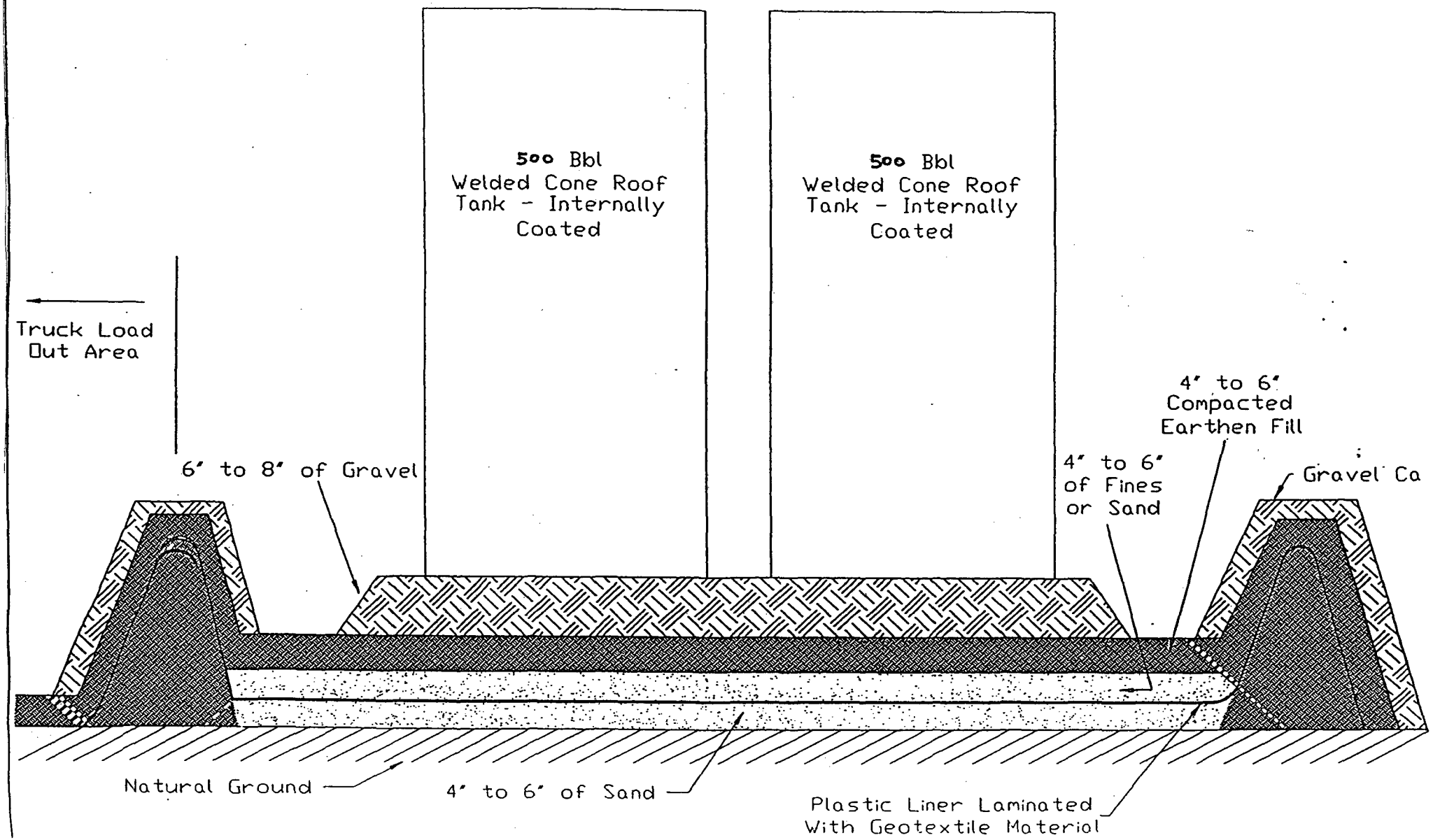



Road Base
(Min 1' Thick)
Sand Pad
(Min 3' Thick)
Road Base Fines
or Sand (Min 3')
Gravel Top
(Min 6' Thick)
Loading
Area
Storage Area
6" Pipe
(Steel or Fiberglass)
4" Valve
3" PVC Riser
to Perforated
Horizontal
Pipe
Earthen Birm
With Gravel
Cap
Natural Ground
Truck Loading and Containment Area
Cross Sectional View
Plastic Liner Laminated
With Geotextile Material
for Protection
Geotextile Grid for
Gravel Stabilization
4" Pipe (Steel or
Fiberglass in Steel Casing)
Earthen Birm
Gravel Cap
4" Pipe
Plastic 55 Gal.
Drum Cut in Half
Liner
Sand
Pea Gravel

Truck Loading and Containment Area
Cross Sectional View



Storage Containment Area Specification Drawing
(Containment Area Sized For 133% Of Tank Storage Capacity)



NOV 1997

New Mexico Environment Department
Ground Water Protection and Remediation Bureau
Ground Water Discharge Permit Application
Class I - Nonhazardous Injection Well
DLD Resources Inc., Monument, NM

NAME OF FACILITY:	DLD RESOURCES, INC.
LEGALLY RESPONSIBLE PERSON:	
	DARRELL BEARDEN, PRESIDENT
	P.O. DRAWER A, MONUMENT, NM 88265
OWNER OF FACILITY:	DLD RESOURCES, INC.
OWNER'S ADDRESS:	P.O. DRAWER A, MONUMENT, NM 88265
CONTACT PERSON:	JOHN C. GOOD, ENVIRONMENTAL MANAGER
	P.O. DRAWER A, MONUMENT, NM 88265
	(505) 397-1927, FAX (505) 393-9913

TABLE OF CONTENTS

INTRODUCTION

DLD Resources, Inc. submits this Application for a Class I Non-Hazardous Injection well permit following the New Mexico Water Quality Control Commission Regulations, Subpart V, amended through December 1, 1995. The injection well was previously installed by Climax Chemical Company on their property located approximately 3-½ miles west of Monument, New Mexico. Climax Chemical's consulting engineer on the project was Ken E. Davis & Associates, Houston, Texas.

The well was constructed in 1985 and permitting of the well was nearly complete at the time of Climax Chemical's bankruptcy and closure in September 1992. The well has remained unused and an annulus pressure of approximately 100-psi has been maintained (nitrogen gas) since that time. Most of Climax Chemical's facilities and real property, including the injection well, were purchased by DLD Resources, Inc. in 1996.

The injection well is located on DLD Resources' property located at 8205 South Highway 322, approximately 3 ½ miles west of Monument, NM. The well is approximately 1000 feet north of DLD's manufacturing plant. The injection well was installed under the supervision of Ken E. Davis Associates of Houston, TX in 1985. The well was installed to 5000-ft. depth to attain discharge in the San Andres zone, a limestone formation. A diagram of the well as constructed is contained in this application.

The original permit application was submitted by Ken E. Davis & Associates (KEDA) in August 1983 with subsequent revisions and additions as the project progressed. The KEDA materials are the definitive source of information regarding this injection well. Much of this permit application is taken directly from the KEDA documentation, or direct reference to the KEDA materials is made.

TYPE OF FACILITY or OPERATION

DLD Resources, Inc. manufactures hydrochloric acid (HCl) and sodium sulfate (Na_2SO_4). The hydrochloric acid varies in concentration from 31% to 35%. The sodium sulfate is approximately 99% pure.

The hydrochloric acid is utilized primarily in the production aspects of the petroleum industry, and the sodium sulfate is used in the manufacture of paper and detergents.

METHOD OF TREATMENT AND DISPOSAL OF EFFLUENT

The injection well will be utilized for subsurface injection of neutralized process effluent into the San Andres limestone formation (4350-5000 ft. depth from surface). The discharge from the facility is a brine solution.

The effluent consists primarily of (1) process water from the wet venturi scrubber used to meet air quality standards, (2) quench tank purge solution, and (3) wash water used for cleanup of the plant area. Prior to being discharged from the plant, the effluent is treated in an Elementary Neutralization Unit (ENU) with soda ash (Na_2CO_3) to maintain the pH above 3.0.

DISCHARGE CHARACTERISTICS

QUANTITY:

Design discharge rate (gpd):

When in full operation, the plant can produce effluent at an approximate maximum rate of 100-gpm (144,000-gpd). This maximum rate would be achieved under full operation of plant with a large quantity of water going into the sump pumps to wash down operations or heavy local precipitation.

Gallons per day computed on annual basis:

The flow characteristics of the system are based on the data obtained from several years of operation of the circular irrigation discharge system (previously DP-426, presently DP-1129).

The system discharge rate will vary from 50-gpm (72,000-gpd to 90-gpm (129,600 gpd), depending on the rate of production of the plant. We are estimating the systems average discharge rate to be around 72-gpm (103,680-gpd). The overall actual average for years 1991, 1990, and 1989 was 60.4-gpm (86,976-gpd).

Table 1 - Average Effluent Flow (GPM) for Calendar Years 1989 – 1991

1989 Discharge Rates Month	Avg. GPM	1990 Discharge Rates Month	Avg. GPM	1991 Discharge Rates Month	Avg. GPM
January	47	January	60	January	92
February	25	February	48	February	70
March	24	March	56	March	68
April	48	April	56	April	69
May	44	May	49	May	63
June	63	June	50	June	79
July	66	July	51	July	67
August	70	August	57	August	66
September	56	September	55	September	63
October	65	October	48	October	63
November	82	November	72	November	62
December	69	December	83	December	69
Tot. Avg. GPM	55	Tot. Avg. GPM	57	Tot. Avg. GPM	69

Number of days per year facility will be discharging

300-320 days per year. The plant is often shut down 1-2 days per week for maintenance work. During shut down periods, there is little or no effluent flow.

Design waste injection rate

The well, as installed by KEDA, was designed to receive a maximum injection rate of 200-gpm, with a projected average injection rate of 160-gpm. Actual step rate testing of the well after fracturing of the injection formation indicates that the well will take 160-gpm with gravity flow.

METHOD USED TO METER OR CALCULATE THE DISCHARGE RATE:

The effluent will be metered using a flow meter with a totalizer indication of gallons discharged. Totalizer readings will be logged daily.

FLOW CHARACTERISTICS

Daily or seasonal:

The plant will be operating 5 - 6 days per week, depending on maintenance needs and inventory capacities.

Continuous or intermittent:

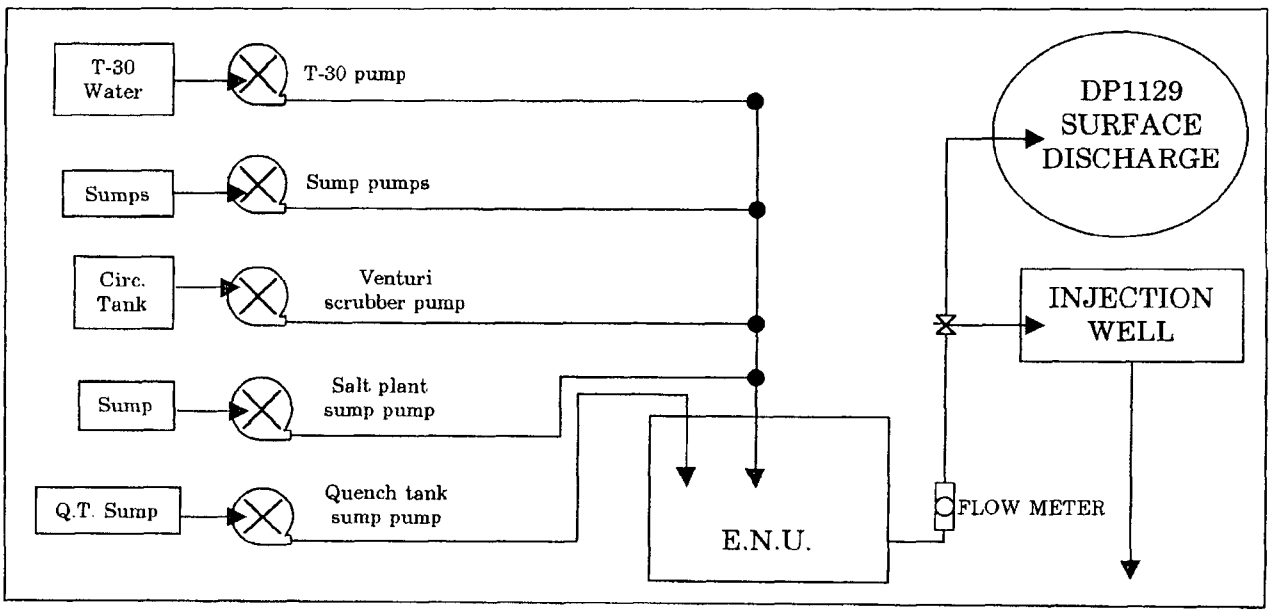
Discharge of wastewater will be continuous on the days of operation of the facility.

DISCHARGE QUALITY

Waste Composition

The effluent produced by the facility originates from five plant sources as depicted in Figure 1. The effluent is a brine solution with a pH less than 2.0 prior to neutralization in the Elementary Neutralization Unit (ENU). Ions contained in the un-neutralized effluent solution are H^+, Na^+, $SO_4^=$, and Cl^-. The neutralization reaction with soda ash (Na_2CO_3) in the ENU produces a brine mixture containing **NaCl and Na_2SO_4 in ionic states. CO_2 and H_2O are also produced in the reaction.**

Figure 1 – Plant Effluent Sources



Section 3103 Contaminants

The Section 3103 contaminants contained in the neutralized effluent to be injected are:

pH – range 4.0 to 6.5

Total Dissolved Solids (TDS) – 30,000-60,000 mg/l

Waste Compatibility and Stability

The formation (lower San Andres) fluid was sampled on 5-31-85 and analyzed by Unichem of Hobbs, NM. The results of the analyses are contained in Table IV, Vol. II, KEDA Project No. 10-0509, received by NMED 6-21-85.

The KEDA permit application discusses waste compatibility at length because it was the original intent to inject < 2.0-pH effluent into the well. It was concluded by KEDA that there would have been no problem with the injection of < 2.0-pH effluent into the formation. (See KEDA, Vol. I., pp. 63-74; and, KEDA Project No. 20-0581, page 7, received by NMED 7-30-85.) Since DLD's waste stream will be neutralized to > 2.0-pH, CO_2 generation and pressure build up in the injection zone should not be a factor in the operation of the well.

LOCATION INFORMATION

LOCATION OF DISCHARGE SITE:

The proposed injection well is located on DLD's property, approximately 3-½ miles east of Monument, Lea County, New Mexico. (Township 19S, Range 36E, Section 35; Latitude: 32°37'05", Longitude: 103°19'26"). See Figures 2, 3.

2 ½ MILE RADIUS ARTIFICIAL PENETRATION SURVEY

The KEDA artificial penetration survey was done in 1984 utilizing private and public sources of information. The KEDA survey indicates approximately 420 penetrations (oil wells, gas wells, oil & gas wells, salt water injection, LPG storage, SWD, and plugged or temporary abandoned.) The KEDA survey does not indicate water wells.

This application incorporates an updated survey utilizing NM Oil Conservation Division records for oil, gas, LPG storage, SWD, and injection wells; and NM State Engineer records for water wells. Section maps with all oil, gas, injection, and water wells within the 2 ½ mile radius of the proposed waste injection well are contained in Appendix A of this application. A summary of this survey, completed in February 1997, is as follows:

- 299 oil wells
- 134 gas wells
- 70 salt water injection wells
- 2 LPG storage wells
- 3 drilled and abandoned (dry holes)
  Total = 508 (approximately 88 more than the 1984 survey)
- 76 water wells (all types, producing or abandoned)

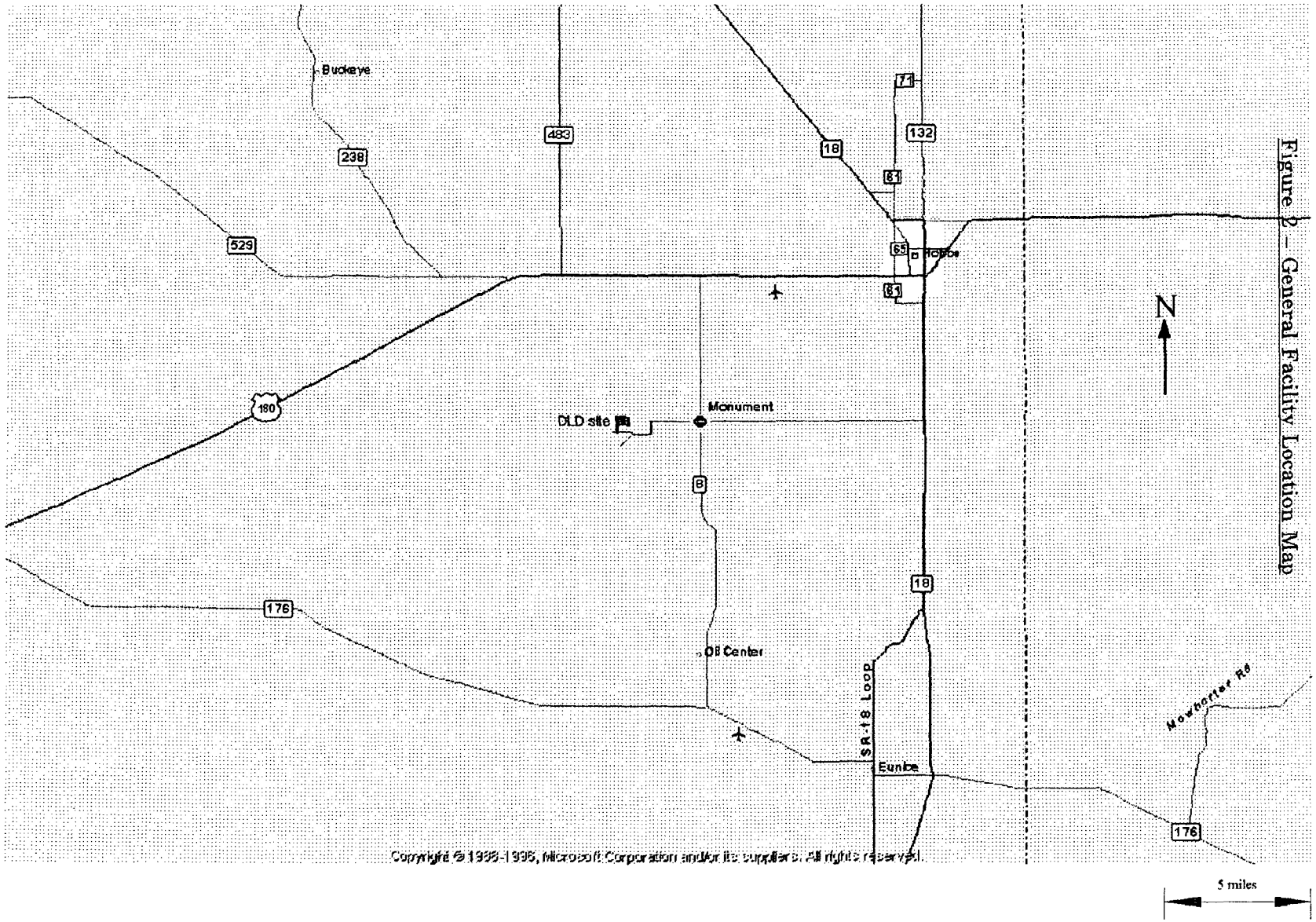


Figure 2 – General Facility Location Map

Figure 2 - General Location Map

Figure 3 – Detailed Facility Location Map

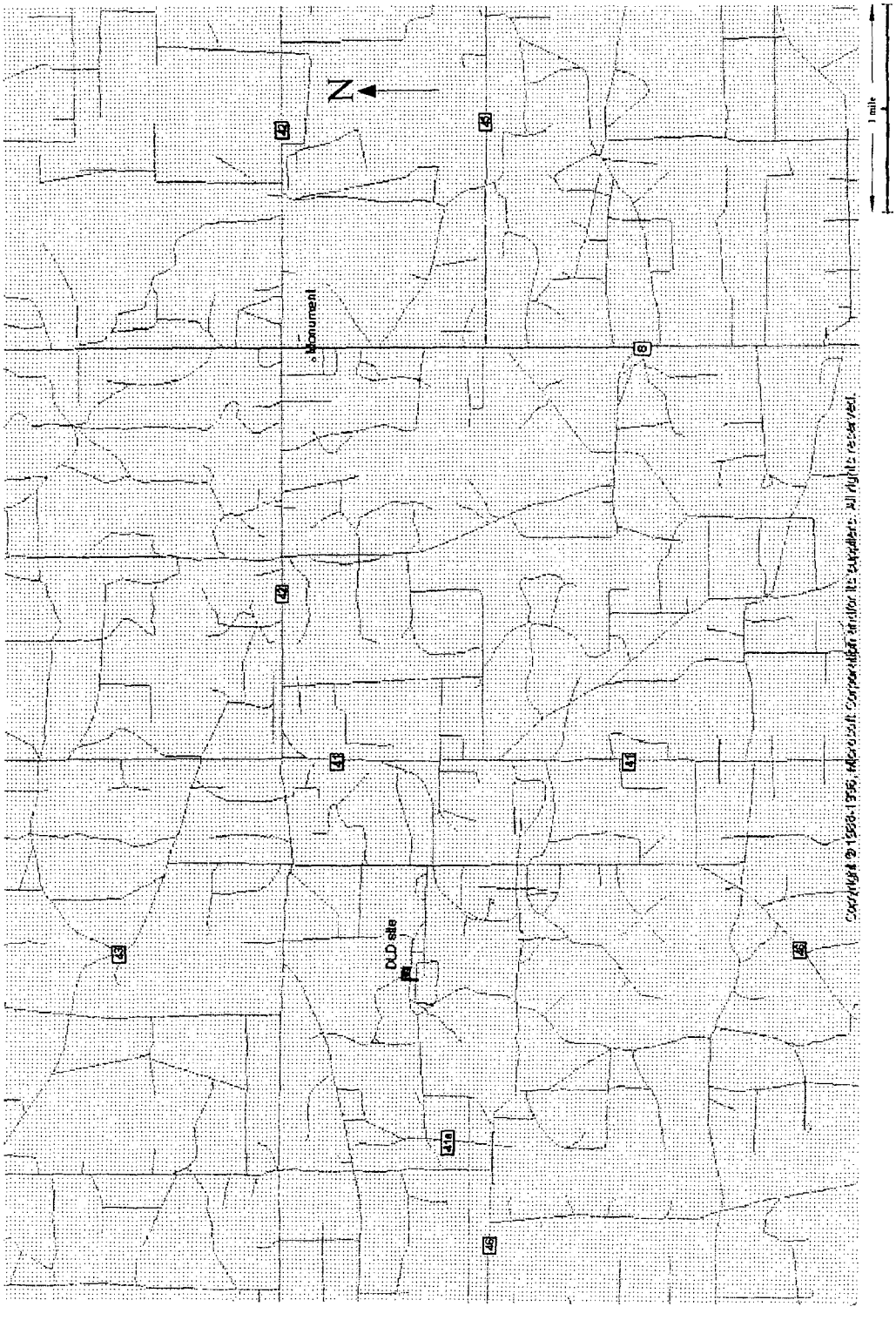


Figure 3 - Detailed Location Map

LOCATION OF GROUND WATER MONITORING WELLS

Figure 4 indicates the locations of all ground water monitoring wells within the confines of the DLD facilities.

HYDROLOGY OF DISCHARGE SITE

GROUND WATER

Ground water in the Monument area is derived from three geologic units; the Dockum Group, the Ogallala Formation and the Quaternary Alluvium. Beneath the Dockum Group, the undifferentiated redbeds are thought to act as an aquiclude between the evaporite bearing rocks of the Permian and the sandstone aquifers in the overlying Dockum. Because the redbeds are difficult to differentiate, the top of the underlying Rustler Formation (anhydrite) is considered the base of useable ground water since waters beneath this zone are highly mineralized[1].

Although several wells do produce water from the Dockum Group, they generally have low yields. The majority of ground water is withdrawn from the Ogallala Formation and Quaternary alluvium, which are more permeable and yield water of better chemical quality.

Southern Lea County is an important recharge area for the shallow aquifers: primarily by infiltration from playa lakes common to the area. The deeper aquifers are thought to receive recharge from downward leakage and from other parts of the county where they crop out.

A regional ground water map of southern Lea County prepared by Nicholson and Clebsch (1961) is presented in Figure 5. Although this map is based on mid-1950 data, studies done in the 1980's by Geohydrology Associates, Inc for Climax Chemical Company indicated that there was very little change in the water table in the area of concern since the earlier work was completed.

In addition to domestic, livestock, and industrial supply wells in the area, oil industry wells have been drilled in the area as temporary water supply wells for drilling operations. These wells are typically shallow and are plugged and abandoned upon completion of the production well. No fresh water wells are known to have been completed deeper than 180' within 2 ½ miles of the injection site. Deeper saline water wells used by the oil industry to provide a flooding medium for secondary recovery operations are treated in Section ?x.

Dockum Group Aquifers

In Lea County, water is obtained from both the Santa Rosa and Chinle Formations. In the western third of the county, the Santa Rosa is the principal aquifer. Throughout the county, aquifers are recharged by precipitation on sand dunes; by precipitation and runoff directly on the outcrops; and from the overlying Ogallala Formation and the alluvium.

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1 Nicholson, A. Jr. and Clebsch, A. 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.

Figure 4 – Ground Water Monitoring Wells

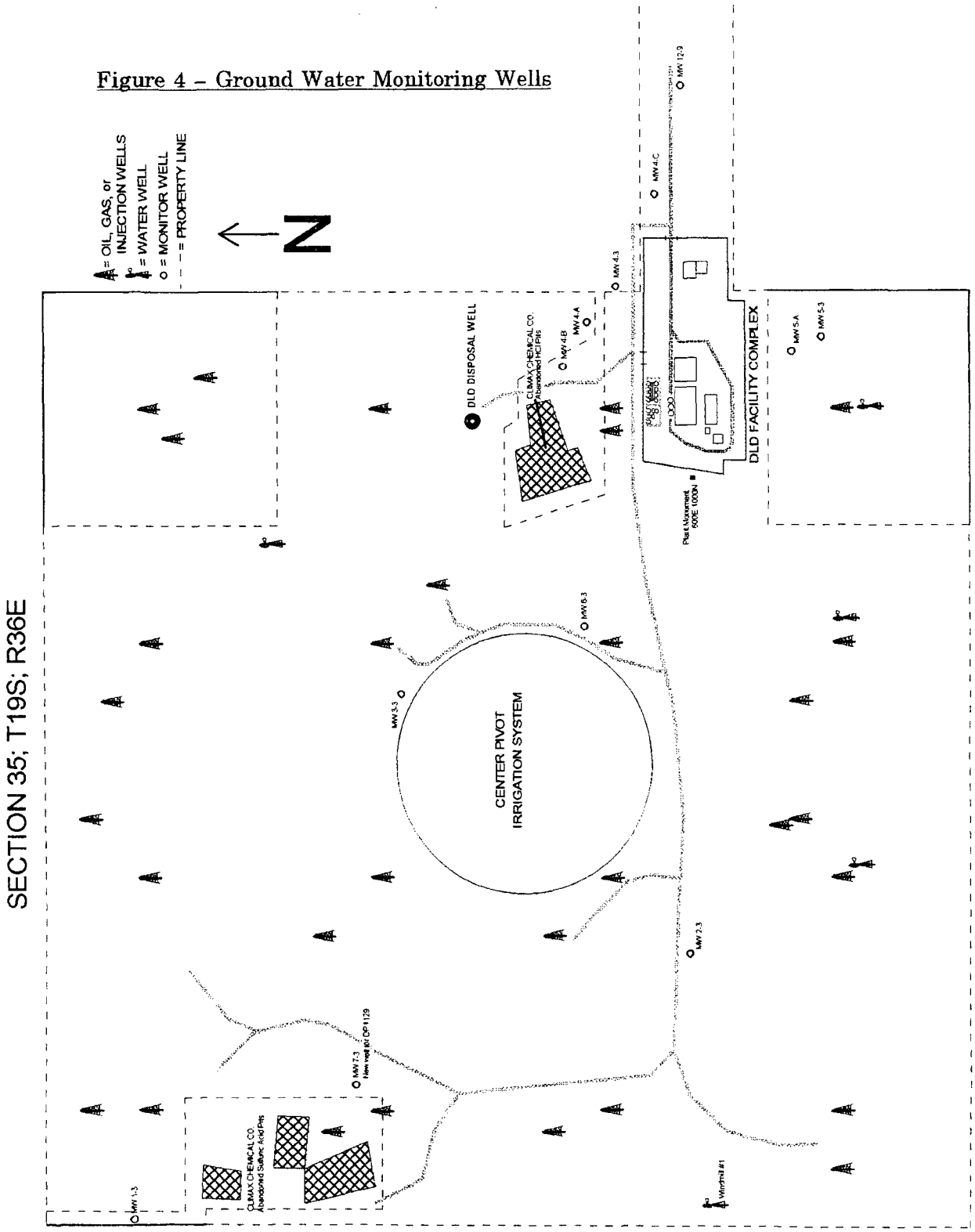

FIGURE 4

Due to the low permeability of the Santa Rosa and the Chinle, wells in the aquifers generally have very low yields. Pumping tests indicated that wells completed in this aquifer have specific capacities of less than 0.2 gallons per minute per foot of drawdown.[1]

Ogallala and Quaternary Aquifers

The Ogallala Formation covers the High Plains north of the Monument area where it is between 100' to 250' thick. Because of the underlying Triassic erosional surface, the saturated thickness of the aquifer ranges between 25' to 175'. Recharge to the Ogallala on the High Plains is entirely due to precipitation. Due to the southeastward slope of the Triassic redbeds surface, movement of the ground water beneath the High Plains is generally towards the southeast. From End Point to the Monument area, ground water generally leaves the Ogallala and flows into the Quaternary alluvium of the Laguna Valley and the Eunice Plain. In these areas, the Ogallala Formation is saturated only in valleys or isolated depressions formed in the erosional surface of the underlying redbeds.

The saturated thickness of the Quaternary alluvium in the Monument area is 15' to 30' thick and ground water movement is towards the southeast. In the Laguna Valley area, the water table is intersected by an impermeable barrier, formed by a rise in the redbeds, causing water to be diverted eastward towards Monument Draw. From the north end of Monument Draw, ground water again moves southward through both the Quaternary alluvium and the Ogallala where the two units are considered as one aquifer having a saturated thickness of approximately 30'. In the vicinity of the injection site, the saturated thickness ranges from 5' to 35'.[1]

Pumping tests conducted in wells completed in the alluvial aquifer indicated transmissivities on the order of 20,000 gpd/ft in the South Plains area. These tests, however, were made in wells that penetrated approximately 340' of saturated sediments.[2] Tests conducted near the injection site resulted in transmissivity values ranging from approximately 7 gpd/ft to 800 gpd/ft, reflecting the heterogeneity of the alluvium.[1]

SURFACE WATER

There are no surface water bodies in the Monument area. The only major drainage feature is Monument Draw (see Figure 6). Generally, the course of Monument Draw is almost perpendicular to regional topography and drainage cuts across normal drainage patterns. Monument Draw is described as being a well defined, sharply incised cut about 30' deep and 1800' to 2000' wide. There is no thoroughgoing drainage course and the draw is partly filled with dune sand, alluvium and vegetative overgrowth.

GRADIENT AND DIRECTION OF GROUND WATER FLOW

The direction of ground water flow in the near vicinity of the injection site is to the south and then east along the axis of a trough which acts as an impermeable barrier causing this diversion in the area of the DLD facility. This trough or ridge is due to a "redbed"

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1 Geohydrology Associates, Inc. (1982)

2 Nicholson and Clebsch, 1961

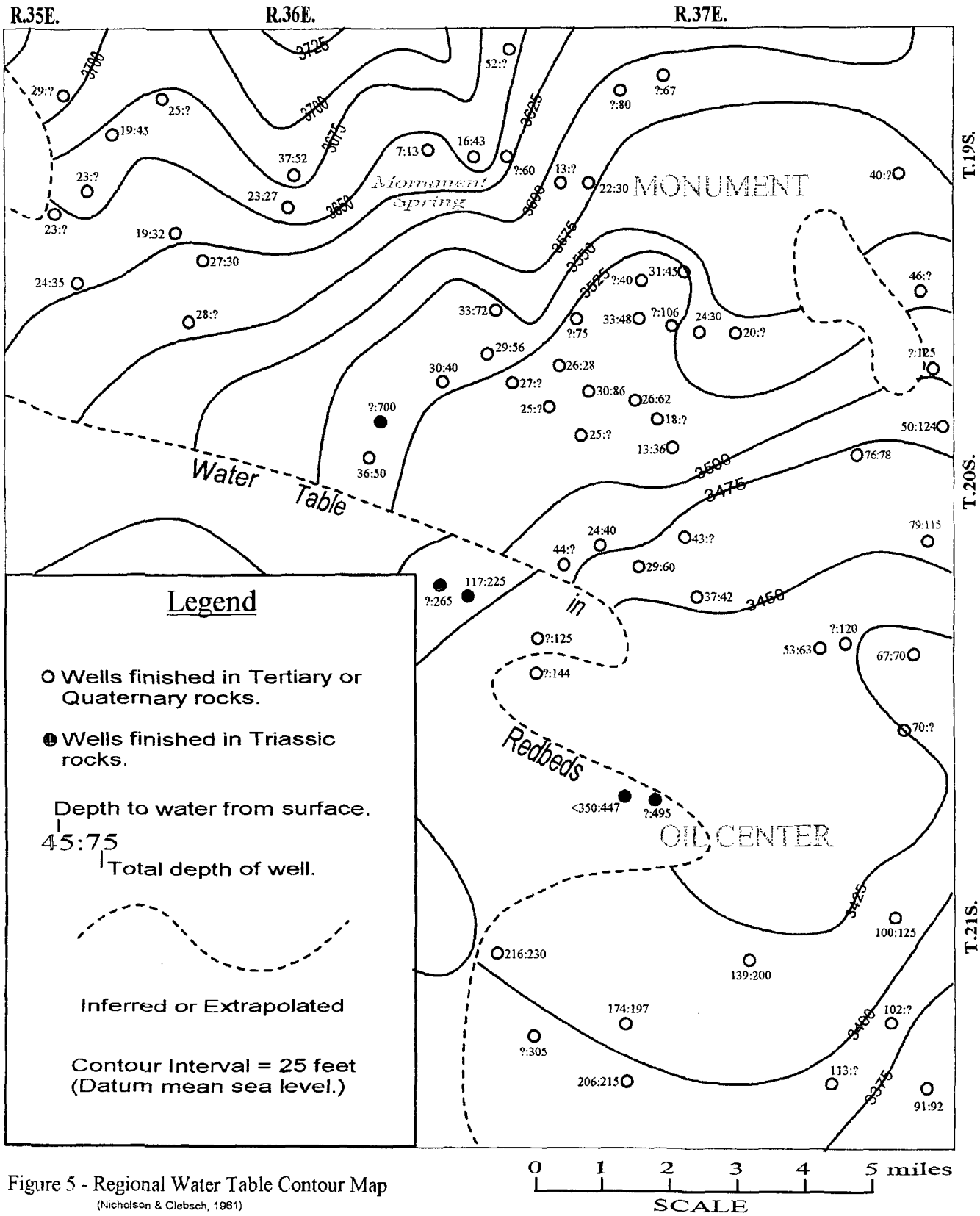

Figure 5 - Regional Water Table Contour Map
(Nicholson & Clebsch, 1961)

high" that exists northwest of the plant facility. This ridge acts as a ground water divide between the flow in Monument Draw and the water present beneath the DLD facility.

The regional water table contour map (Figure 5) shows that the water table surface, in the vicinity, slopes toward the southeast regionally. The average gradient is approximately 35 feet per mile.

A cross-section of the water table and underlying redbed formation immediately down-gradient to the injection well can be obtained by comparing surveyed and measured data from wells 4-A, 4-B, 4-C, 4-3, 12-9, and 10-10. The following table contains the data for this analysis:

Table 2 – Monitor Well Elevation Data

Well #	Surface Elevation	Water Elevation	Redbed Elevation	Surface to Water (ft)	Thickness of Aquifer (ft)
4-B	3592.02	3565.58	3560.18	26.44	5.4
4-A	3590.47	3564.58	3559.68	25.89	4.9
4-3	3589.18	3564.03	3559.18	25.15	4.85
4-C	3587.79	3559.99	3555.91	27.8	4.08
12-9 *	3587.63	3556.43	3552.63	31.2	3.8
10-10	3584.78	3551.21	3544.78	33.57	6.43

The straight-line distance between Well 4-B and Well 10-10 is 1735 ft. The gradient of the water table derived from the above measurements is 14.37 vertical ft. per 1735 linear ft., or a southeasterly slope of 43.73 ft/mile. The gradient in this immediate area is probably higher than the 35'/mile average noted by Nicholson and Clebsch (1961) due to the dome of waste water present in the immediate plant area as a result of Climax Chemical's disposal practices prior to 1986.

** Monitor well #12-9 has been infiltrated by crude oil. The thickness of the oil layer has not been determined. The water elevation for this well is actually the elevation of the top of the oil layer.*

WATER QUALITY

Southern Lea County

The chemical quality of ground water is determined largely by the lithologic characteristics of the aquifer and the source areas. Other factors that influence water chemistry are permeability, hydraulic gradient, distance from the recharge area, and chemical character of the rainfall.

In the area of investigation, the Ogallala Formation and alluvium derived from the Ogallala result in water of similar chemical quality. The Triassic aquifers and the alluvial aquifers derived from the weathering of Triassic rocks have distinctively different

characteristics. Although a wide range of chemical constituents are found in all the aquifers, the apparent distinctions are as follows:[1]

- The Quaternary alluvium yields water of moderately high dissolved solids and is generally high in silica, moderately high in calcium and magnesium, low in sodium and potassium, and moderately low in sulfate and magnesium.
- The Ogallala aquifer water is typically high in silica, contains moderate concentrations of calcium and magnesium, is low in sodium and chloride, very low in sulfate, and the typical TDS is <1000 ppm.
- The Triassic aquifers have TDS levels that are generally higher than in the water derived from the overlying aquifers. They are low in silica, show a wide range in calcium and magnesium, are high in sodium, moderately high in sulfate, and moderately low in chloride.

Contamination of the potable aquifer from brine water produced during oil production has historically occurred. Typically, brine water was disposed of in unlined evaporation ponds and leakage from the ponds caused localized contamination. Disposal of brine by deep-well injection into the native formation or other brine aquifers has reduced the danger of contamination.

Immediate Vicinity

The TDS varies widely in the immediate area from 950 mg/l from Well 2-3 near the proposed discharge site to 49,000 mg/l in Well 4-3 east of the abandoned HCl surface impoundments.

The TDS of the ground water in the immediate area of the discharge location is indicative of the past activities of Climax Chemical Co. TDS can be measured directly by evaporation at 180°C, or can be closely approximated by multiplying the Specific Conductance of a sample (μmohs) by a factor of 0.65. The most recent actual or approximate TDS and Chloride values for the Monitor Wells utilized for Climax Chemical's RCRA Assessment Program are summarized in the following table (* - denotes calculated from Spec. Conductance):

Table 3 - TDS and Chloride sampling data from DLD Monitoring Wells:

Well	Location to Discharge Site	Sample Date	TDS (mg/l)	Cl (mg/l)
Windmill #1	Up-gradient, SW	8-3-90	1003*	270
MW 1-3	Up-gradient, NW	5-29-97	1280	324
MW 2-3	Side-gradient, SSW	5-29-97	1070	220
MW 4-3	Down-gradient, SE	5-29-97	66140	20493
MW 5-3	Down-gradient, SSE	5-29-97	25320	7598
MW 6-3	Up-gradient, W	5-29-97	59500	14595
MW 12-9	Down-gradient, SE	12-13-90	37774*	19147
MW 10-10	Down-gradient, SE	5-29-97	21360	8297

[1] Nicholson and Clebsch, 1961.

Water from Injection Zone

Water quality data was gathered from wells producing for the San Andres formation within the area of review. As expected, water quality is poor and TDS values are >10000 ppm. All information gathered indicates that water quality at and below 3600' has TDS >10000 ppm. (Tables showing sample locations, depths, dates, and TDS values are contained in the KEDA Application, Vol. I, pages 33-33.2, and the control points are plotted on a review area map in Figure 4.1, page 34.) (The water from the injection zone was collected at the time of well drilling and analyzed by Unichem International, Hobbs. Results of the formation fluid analysis by Unichem are contained in the KEDA Application, Vol. II, Table IV.)

FLOODING

Flooding Potential of the Site

There are no flood plain maps available for the area. The only maps available for the area are within the city limits of Hobbs, NM, which is 16 miles distant. The area generally is gradually sloped (0% - 2%) to the southeast. Flooding would be due to Hortonian Overland Flow. This type of flow occurs when the rainfall rate exceeds the soil's capacity to absorb water and is most common in arid or semi-arid climates where the hydraulic conductivity of the soil is low.

Flood Control Measures

The acid storage facility of the plant is entirely contained within a 2-½ ft. earthen berm. In addition, the entire plant area is protected by a 2-½ ft. berm on the north and west boundaries. Flood protection at the well head, other than proper construction of the surface structures, should not be necessary.

GEOLOGY OF DISCHARGE SITE

PHYSIOGRAPHY

The DLD Resources, Inc. plant is located 3-½ miles west of Monument, Lea County, New Mexico, approximately 20 miles west of the Texas-New Mexico border (Figures 2 & 3). The nearest population center is Hobbs, approximately 10 miles northeast of Monument. The climate of the area ranges from dry sub-humid to arid, and is characterized by low annual precipitation, low humidity and high annual average temperature. Mean annual precipitation ranges from 15.68" to 12.63" and the mean annual temperature is approximately 62°F.[1]

Lea County is divided into two physiographic subdivisions of the Great Plains physiographic province, the Pecos Valley section and the High Plains section. As illustrated in Figure 6, the well location is in the Pecos Valley section that is divided into the Querecho Plains, Laguna Valley, Grama Ridge Area, Eunice Plains, San Simon Swale, Antelope Ridge Area and the South Plain.[1]

1 Nicholson & Clebsch, 1961.

Figure 6 – Physiographic Map of Southern Lea County[1]

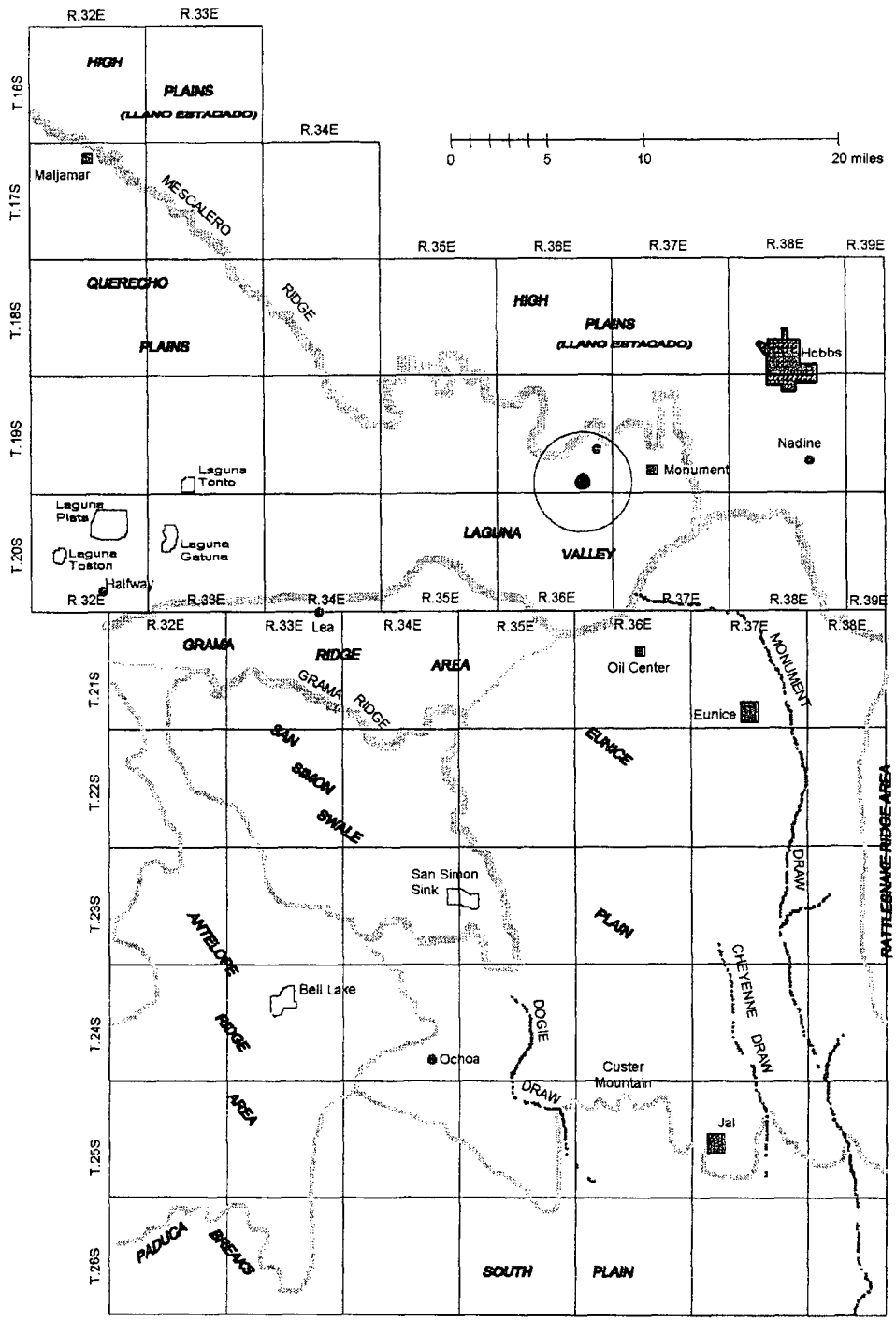

Figure 6 - Physiographic Map of Southern Lea County, NM

[1] Physiographic Subdivisions of Southern Lea County after Ground Water Report 6, State Bureau of Mines and Mineral Resources. (Modified from Long, 1953.)

To the north of DLD Resources, the southern extent of the High Plains section is marked by the Mescalero Ridge of the Llano Estacado. An abrupt change in topography is the primary contrast between the Llano Estacado and the Pecos Valley. The Llano Estacado is an almost uniform depositional surface of low relief sloping to the southeast. In contrast, the Pecos Valley is a very irregular erosional surface sloping to the west toward the Pecos River. Total relief of the area is about 1300', having altitudes ranging from 4000' mean sea level (MSL) to 2900' MSL. The physiographic subdivisions of southern Lea County are described as follows:

Mescalero Ridge and High Plains

The Mescalero Ridge is the most prominent topographic feature in southern Lea County and marks the southern limit of the High Plains section. The ridge is a nearly perpendicular cliff capped by a thick layer of resistant caliche, locally called caprock.

The High Plains is a uniformly flat surface with a southeast slope of about 17' per mile. The only significant relief features are small sand dunes and shallow playa lakes called "buffalo wallows." These depressions range in size from a few feet to more than a quarter of a mile and can be up to 20' deep. These playa lakes collect rainfall and contain it until removed by evaporation or seepage.

Querecho Plains and Laguna Valley

Immediately southwest and south of the Mescalero Ridge is a vast sand dune area of approximately 400 square miles. It is called Querecho Plains (to the west) and Laguna Valley (to the east). As shown in Figure 6, the DLD Resources facility is located in the Laguna Valley. The Querecho Plains-Laguna Valley area is almost entirely covered by dune sand which is stable or semi-stable over most or the area. The sand is generally underlain by recent alluvium and may be underlain by caliche in places. Drilling logs indicate surface sand underlain by caliche is found to depths of about 35'.

The most significant feature of the area is a group of four playa lakes. These playas are irregularly shaped, flat-bottomed, and are underlain by fine sediments with some pebble gravel and precipitated salt and gypsum.

Grama Ridge Area

The Grama Ridge Area is directly south of the Querecho Plains-Laguna Valley area and is topographically higher, indicating it may be a detached portion of the High Plains. It is characterized by a hard caliche surface with a texture and composition indicating it was once part of the Llano Estacado. The surface of the Grama Ridge Area has many shallow depressions that do not have integrated drainage.

Eunice Plain

The area east of Laguna Valley and Grama Ridge is referred to as the Eunice Plain. It is bounded on the north by the Llano Estacado and on the southwest by the San Simon Ridge and the Antelope Ridge. The westward extension of the Eunice Plain is the Grama Ridge area. Dune sands almost entirely cover the Eunice Plain and it is usually underlain by a hard caliche surface. In some places, however, it is underlain by alluvial sediments. A sand cover is generally 2' to 5' thick, but may be 20' to 30' thick locally.

Rattlesnake Ridge

Toward the east, the Eunice Plain rises into a north-trending topographic high called Rattlesnake Ridge. It parallels the Texas-New Mexico border for most of its length. It is regarded as the drainage divide between the Pecos Basin and the Colorado River Basin, Texas.

San Simon Swale

To the west of the Eunice Plain is the San Simon Swale, a large depression covering approximately 100 square miles. Most of the San Simon Swale is covered by stabilized dune sand and it shows no apparent drainage pattern. The deepest point of the swale is San Simon Sink, being 100' deep and ½ mile across. Calcareous silt and fine sand are the predominant fill material in the sink.

Antelope Ridge Area

The area to the west and southwest of Antelope Ridge has been called the Antelope Ridge Area, located in southwestern Lea County. The area is a relatively flat, sand-covered surface similar to the Eunice Plain and it is also partially underlain by caliche. Towards the south, the area appears to be underlain by Quaternary fill and loamy soil similar to the San Simon Swale. Because the Antelope Ridge is an anomalous geographic feature similar to the High Plains, it is thought to be an outlying remnant of the High Plains.

HISTORICAL GEOLOGY

The Precambrian history of Southern Lea County is a complex history of mountain building, metamorphism and erosion. Active deposition was taking place in the area during most of the Paleozoic Era. In later Paleozoic time, the south-central United States was a region of crustal unrest with the most significant activity in the West Texas-New Mexico area taking place during the Pennsylvanian Period. During this time and earlier in the Paleozoic, a geosyncline (the Llanoria geosyncline) formed across West Texas and adjacent states. (A geosyncline is a linear trough that has subsided through time and has accumulated large volumes of clastic sediment). Strong compression forces from the southeast caused the geosynclinal area to be raised into mountain ranges which some refer to as the Marathon folded belt. Although much of the folded belt was eroded, it remained high during most of the Permian Period. During the Pennsylvanian Period, what is now the Central Basin Platform was emergent in the form of mountain ranges and the area was subject to erosion.

At the close of the Pennsylvanian Period, the major features of the Permian Basin formed as the entire area subsided. The Central Basin Platform subsided more slowly than the Delaware and Midland Basins and received less sediment under different depositional conditions. The basins were areas of accumulation of large amounts of sediment. Limestone tended to form in higher areas, such as the Central Basin Platform, while the formation of evaporites took place at the fringes of the sea. At the very edge of the seas, redbeds were formed by the deposition of sediments from nearby landmasses.

During Wolfcamp time, the early Permian, seas spread over the region. Later the seas became restricted causing deposition of evaporites and limestones. The final event of the Permian was the retreat of evaporite-depositing waters from the West Texas region which caused the deposition of a thin layer of redbeds known as the Ochoan Series.

The end of the Permian, and therefore the end of the Paleozoic Era, marks a major time break in the geologic column. During most of the Triassic (except late Triassic) and Jurassic, most of southern Lea County was emergent and undergoing erosion.

During early to middle Cretaceous time, southeastern New Mexico was covered by a large shallow sea, which deposited a thick sequence of Cretaceous rocks. In the late Cretaceous, during the uplift of the Rocky Mountains, seas retreated from the Lea County area and intense erosion took place removing almost all Cretaceous rocks.

In the Pliocene Age, the Ogallala Formation was evenly deposited across the High Plains area, effectively removing the irregular surface formed by previous episodes of erosion. A cycle of erosion began again during the Quaternary, removing much of the Ogallala Formation and eroding Triassic rocks for the third time at some locations. Accordingly, erosion by the major rivers of New Mexico and Texas caused the isolation of a large remnant of the Ogallala Formation, the Llano Estacado. The climate of the region became more arid in the late Quaternary, and detrital material was reworked by wind creating the large sand dune deposits in the area.

STRATIGRAPHY

The DLD Resources, Inc. plant is located in the Central Basin Platform of the Permian Basin. Approximately 8000' of geologic strata overlie the Precambrian basement rocks in the Central Basin Platform.[1] Only strata of middle Permian age and younger are pertinent to this application. Figure 7 is a generalized stratigraphic column for Southeastern New Mexico[2]. In addition, colored stratigraphic columns based on drilling logs near the site are depicted in Figures 8 and 9[3]. Following in ascending order is a description of the stratigraphy beneath the well site.

Guadalupian Series (Middle Permian)

The Guadalupian Series in the Central Basin Platform consists of the San Andres Formation and the Whitehorse Group. The Whitehorse Group consists of a fine-grained sandstone with thin layers of black shale and argillaceous limestone and can also be referred to as the Artesia or Chalk Bluff Group.[4] The Whitehorse Group of the Central Basin Platform is correlative to the Delaware Mountain Group of the Delaware Basin. In the Monument are, it is a sequence of evaporites, redbeds, dolomitic limestone and sandstone ranging from 1000' to more than 2000' thick. The Whitehorse Group can be subdivided, in descending order into the Tansill, Yates, Seven Rivers, Queen and Grayburg. These formation tops in the site area are at estimated depths of 2360', 2480', 2760', 3280', and 3650' respectively. The Queen and Yates Formations are chiefly sandstone while the others are dolomitic limestone and anhydrite.

Beneath the Whitehorse Group is the San Andres Formation, the injection zone for this well. The top of the San Andres is an erosional unconformity and consists of dolomite beds with subordinate limestone members. It is divided into an upper, light-colored, non-

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[1] Nicholson and Clebsch, 1961.

[2] NM Oil Conservation Division

[3] KEDA, Vol. I.

[4] King, Phillip B., 1942, *Permian of West Texas and Southeastern New Mexico*, AARG, pp. 533-763

cherty member and a lower, dark, cherty member. The San Andres thins out north and northeast of the Central Basin Platform and is replaced by gypsum and redbed members. The San Andres is approximately 1460' thick in Lea County. Beneath the DLD Resources plant site, the top of the San Andres occurs at about 3880' and appears to be about 1300' thick. In the Monument area, the top of the San Andres is encountered at from 4000' to 4500', depending on structure. The first 75' to 100' is generally a dense dolomite with anhydrite plugging the pore spaces. The San Andres in the Monument area ranges in thickness from 500' to 900'.

After penetrating the hard, dense upper San Andres, porosity zones occur at irregular intervals. These zones do not occur with regularity and they can be correlated only short distances. When porosity does occur, it ranges from 10% to 20% with generally good permeability. Where no oil is present, these zones make good disposal intervals.

Beneath the San Andres is the Glorieta sandstone. It consists of about 130' of white, gray and buff medium to coarse-grained sandstone. The Glorieta thins to the southwest and may be only 10' thick in the Monument area, with the top at approximately 5100' below surface.[1]

Ochoan Series (Upper Permian)

The lowermost formation of the Ochoan Series is the "Salt" Formation, consisting of anhydrite and some halite. It rests unconformably on the Whitehorse Group in the Central Basin Platform but does not extend beyond the basin margins. Total thickness of the anhydrite and halite at the plant site is approximately 1200'. Halite was mined by Climax Chemical Company in the subsurface interval between 1400' to 2616'. Three brine wells previously used to leach salt were plugged and abandoned by Climax Chemical Company. The base of mineable salt was found to be at a depth of approximately 2610'.

The "Salt" Formation is unconformable in places with the overlying Rustler Formation. The top of the Rustler is considered to be the top of the first continuous anhydrite bed penetrated by oil and gas wells in southeastern New Mexico and occurs at a depth of 1008' in the DLD Resources area. The Rustler is characterized as dolomitic limestone with some sandstone and chert pebble conglomerates at the base. Eastward, in the Monument area, the limestone is overlain by anhydrite, redbeds, and halite, which is considered an upper member. In Lea County, the Rustler is between 90' to 360' thick and appears to 100'+ thick at the well site.

The "Salt" Formation and Rustler Formation together compose the Salado Group or Ochoan Series as shown in Figures 7 and 9.

Upper Permian or Triassic

Above the Rustler formation are the undifferentiated redbeds of Permian or Triassic age. They consist of micaceous red siltstone, sandstone, shale, and are cemented with gypsum. They are thought to retard the movement of water between the rocks of the Permian and the overlying aquifers.[2] The Middle and Upper Triassic consists of a sequence of redbeds,

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[1] Kinney, Edward E., 1969, *The San Andres Formation in New Mexico.*, Symposium of the New Mexico Geological Society Special Publication No. 3, pp. 3-4.

[2] Nicholson and Clebsch, 1961.

the Dockum Group, which rest unconformably on the lower undifferentiated redbeds. The Dockum can usually be differentiated into the Santa Rosa Formation and the uppermost Chinle Formation. The Santa Rosa is a fine-to-coarse-grained sandstone containing minor shale layers and ranging in thickness from 140' to 300'. The Santa Rosa and the Chinle are similar lithologically and in some places have been mapped as the Dockum Group, undifferentiated.

The Chinle Formation consists of red and green claystone that is interbedded with fine-grained sandstone and siltstone. The Chinle has been eroded in the west, however, it reaches a thickness of 1270' in the Monument area. About 2 miles southeast of Monument, the Chinle grades into a micaceous red clay.[2]

Both the Dockum Group and the undifferentiated redbeds are estimated to 888' thick at the well site with the top at approximately 120' below the surface.

Cretaceous

The rocks of Cretaceous age, although once present in Lea County, have been almost entirely removed by erosion. The only known exposure of Cretaceous rocks in Lea County are found in a gravel pit about seven miles south of Hobbs. At the site, the limestone is white, light gray, or buff, and is highly fossiliferous. There are no known deposits of Jurassic rocks in Lea County.

Tertiary

Beneath the surface deposits, at the well location, are rocks of the Tertiary System represented by the Ogallala Formation of Pliocene age. It is a heterogeneous complex of terrestrial sediments, consisting chiefly of calcareous, unconsolidated sand containing clay, silt, and gravel. Conditions of deposition varied rapidly during Ogallala time causing well-sorted sediments to be interbedded with poorly sorted sediments. The Ogallala Formation ranges form a few feet to as much as 300' thick and is major aquifer where it has sufficient thickness.

Quaternary System

In the Monument area, sediments of the Quaternary System exist in the form of alluvial deposits of Pleistocene and Recent age and dune sands of Recent age. The older alluvium is exposed locally in small duneless patches or in pits and it underlies the areas of Querecho Plans, Laguna Valley, San Simon Swale and several small areas. The alluvium ranges from a few inches to more than 400' thick in San Simon Sink.

The most extensive Quaternary unit is the cover of red dune sand called the Mescalero Sands. This fine-to-medium grained, reddish-brown sand covers 80% of Lea County, parts of Eddy County, and West Texas. It was probably derived from the Permian and Triassic rocks of the Pecos Valley. Near DLD's facility, the alluvial deposits consist of unconsolidated fine to coarse sand and gravel with stringers of silt and clay. Eaolian sands cover the surface.[1]

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[1] Geohydrology Associates, 1982.

Table 4 – Geologic Cross Section at DLD Resources Plant Site[1]

From – To	Thickness (ft)	Formation	TDS (mg/l)
0 – 2	2	Soil	
2 – 22	20	Caliche	
22 – 45	23	Ogallala	600 - >3250
45 – 1008	963	Redbeds	
Top of anhydrite (1008)			
1008 – 1160	152	Dockum Group	
1160 – 2303	1143	Salt	
2303 – 2423	120	Tansill	
2423 – 2853	430	Yates	
2853 – 3225	372	7-Rivers	
3225 – 3570	345	Queen	
Top of Penrose (3380)			13 - 19000
3570 – 3800	230	Grayburg	15 - 34000
3800 – 5150	1350	San Andres	>15000
Top of Oil-Water Contact (3995)	Disposal Zone (4300-5150)		
5150 – 5244	94	Glorieta	
5244 – 5695	451	Paddock	~26000 – ~87000
5695 – 6316	621	Blinebry	~74000
6316 – 6334	18	Tubb	
6334 – 7075	741	Drinkard	
7075 – 7843	768	Abo	~78000
7843 – 8120	277	Wolfcamp	
8120 – 8362	242	Pennsylvanian	
8362 – 9207	845	Devonian-Silurian	
9207 – 9875	668	Montoya	
9875 – 10147	272	Simpson Group	
10147 – 10216	69	Ellenburger	
10216 – ---		Granite	

[1] KEDA, Vol. I., Table 3.1, p. 12.2, 12.3.

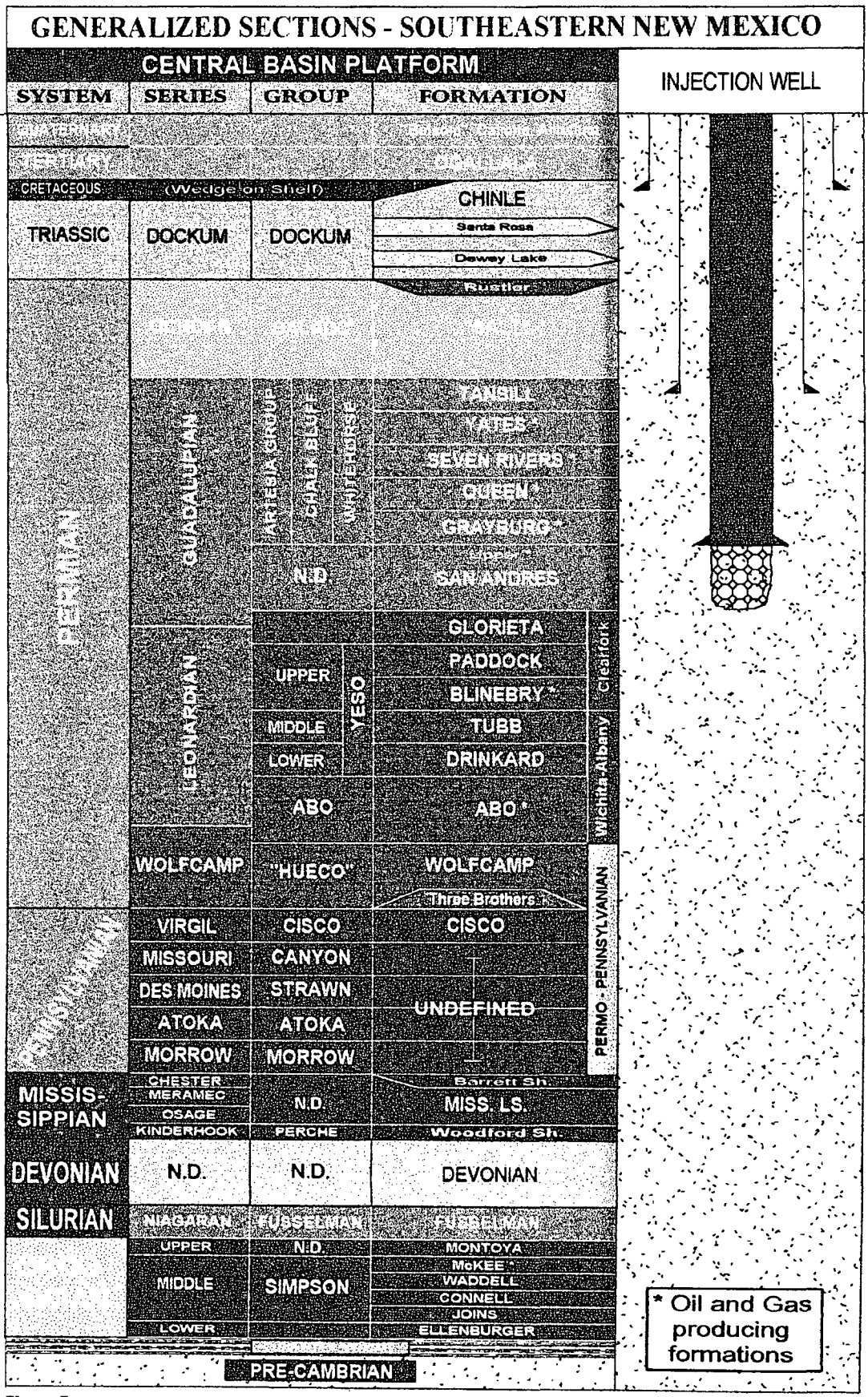
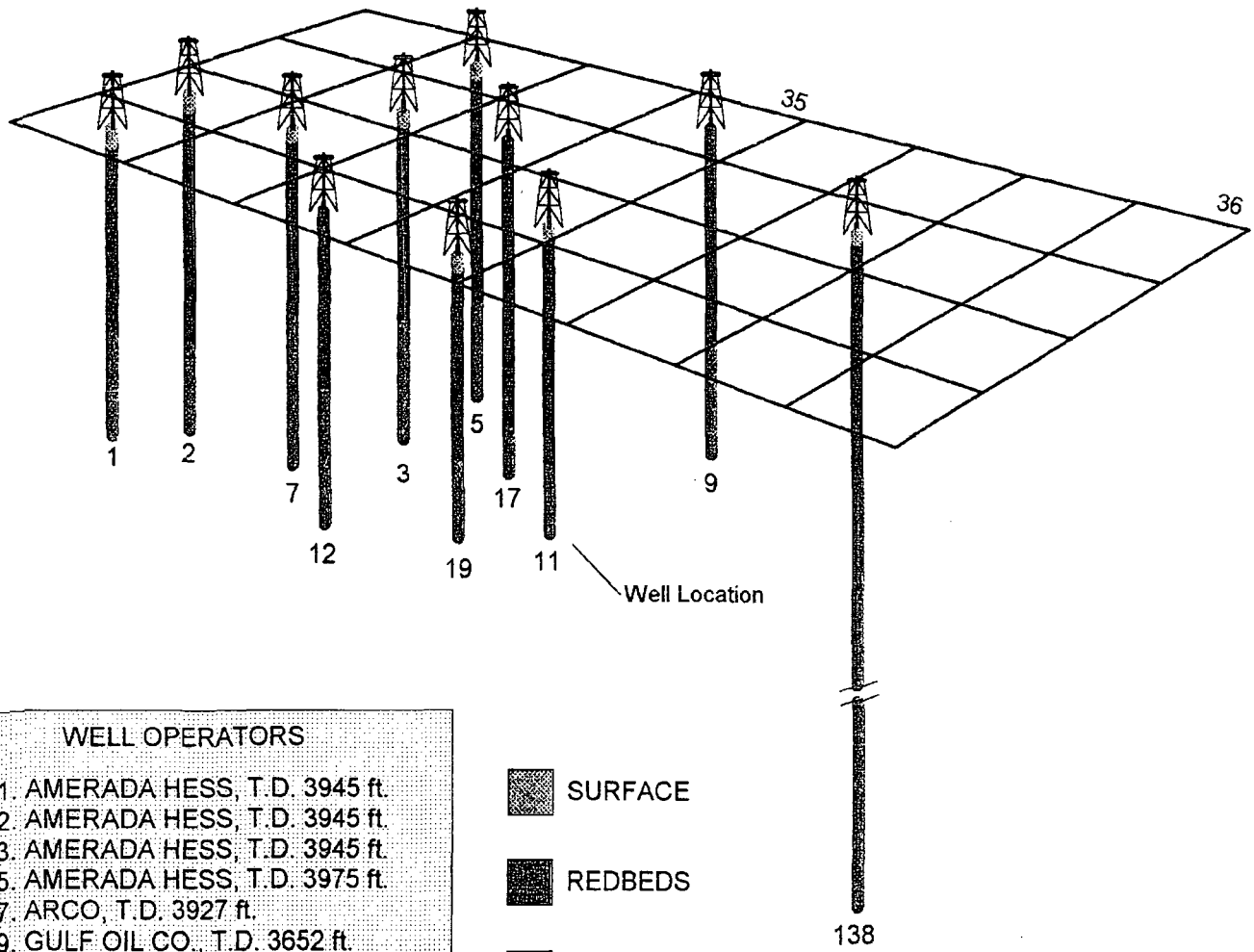

GENERALIZED SECTIONS - SOUTHEASTERN NEW MEXICO
CENTRAL BASIN PLATFORM
INJECTION WELL
SYSTEM
SERIES
GROUP
FORMATION
CRETACEOUS
(Wedge on Shelf)
TRIASSIC
DOCKUM
DOCKUM
CHINLE
Santa Rosa
Dewey Lake
Rustler
PERMIAN
GUADALUPIAN
ARTESIA GROUP
SHELF
MIDDLE
WHITEHORSE
TANSILL
YATES
SEVEN RIVERS
QUEEN
GRAYBURG
N.D
SAN ANDRES
GLORIETA
LEONARDIAN
UPPER
YESO
PADDOCK
BLINEBRY *
Clearfork
MIDDLE
TUBB
LOWER
DRINKARD
Wichita-Albany
ABO
ABO *
WOLFCAMP
"HUECO"
WOLFCAMP
Three Brothers
PENNSYLVANIAN
VIRGIL
CISCO
CISCO
MISSOURI
CANYON
DES MOINES
STRAWN
UNDEFINED
ATOKA
ATOKA
MORROW
MORROW
PERMO - PENNSYLVANIAN
CHESTER
MERAMEC
Barrett Sh
MISSIS-SIPPIAN
OSAGE
N.D
MISS. LS.
KINDERHOOK
PERCHE
Woodford Sh.
DEVONIAN
N.D.
N.D.
DEVONIAN
SILURIAN
NIAGARAN
FUSSELMAN
FUSSELMAN
UPPER
N.D
MONTOYA
MIDDLE
SIMPSON
McKEE
WADDELL
CONNELL
JOINS
LOWER
ELLENBURGER
PRE-CAMBRIAN
* Oil and Gas producing formations

Figure 7

Figure 8 – Stratigraphic Column #1



WELL OPERATORS

1. AMERADA HESS, T.D. 3945 ft.
2. AMERADA HESS, T.D. 3945 ft.
3. AMERADA HESS, T.D. 3945 ft.
5. AMERADA HESS, T.D. 3975 ft.
7. ARCO, T.D. 3927 ft.
9. GULF OIL CO., T.D. 3652 ft.
11. SUN EXP & PROD., T.D. 3935 ft.
12. SUN EXP & PROD., T.D. 3936 ft.
17. SUN EXP & PROD., T.D. 4000 ft.
19. SHELL OIL, T.D. 3929 ft.
138. SHELL OIL, T.D. 10305 ft.

SURFACE

REDBEDS

ANHYDRITE

LIMESTONE DOLOMITE

STRATIGRAPHY TAKEN FROM DRILLERS LOGS

FIGURE 8

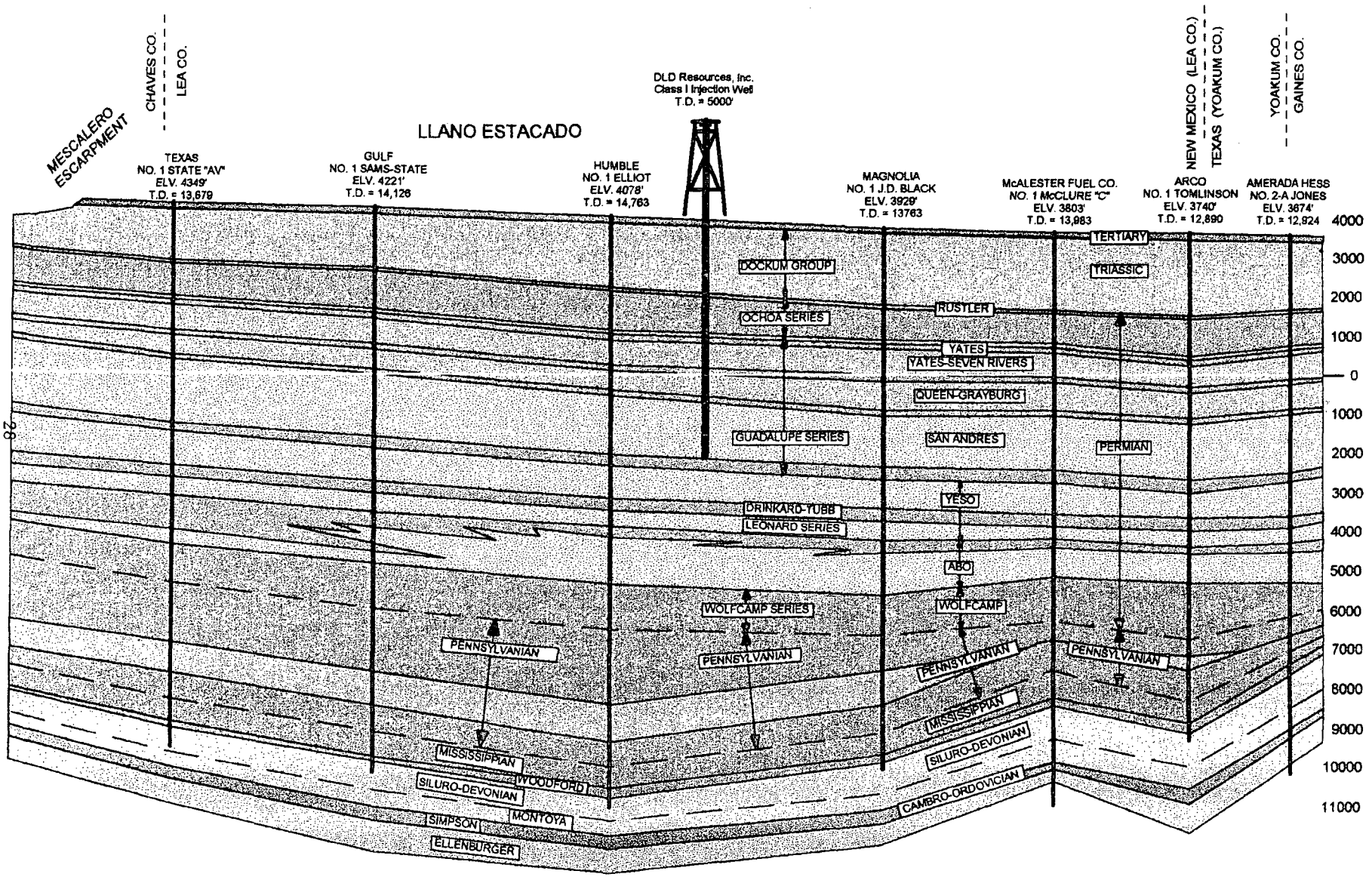


Figure 9 - Stratigraphic Column #2

STRUCTURAL GEOLOGY

Regional Structure

West Texas and half of southern New Mexico is part of a large subsurface structural feature known as the Permian Basin, which is subdivided into several smaller areas. DLD Resources is located on the Central Basin Platform (see Figure 10). The Central Basin Platform is bounded by the Northwestern Shelf on the north, the Delaware Basin on the west, the Sheffield Channel and Southern Shelf on the south, and the Midland Basin on the east.[1] Basins are depressed areas varying in size and shape and are formed by subsidence of an area and/or uplift of the surrounding regions. In most cases, basins probably result from both subsidence and uplift.[2]

Within the Permian Basin are several basins, however, the most important to the Monument area are the Delaware Basin, the Central Basin Platform, and the Midland Basin. Also present are shelf, platform, and uplift areas. The basins were dominantly negative features, which are believed to be 100 miles or more across.[3] Due to subsidence, the basins received larger amounts of sediments than the surrounding areas. Strata in the basins are found at greater depths than the equivalent beds on the shelves and platforms. The platforms and shelves were positive areas that rose as narrow, elongated masses between the basins.

During Permian time, the basin areas were covered by deeper water than the shelf and platform areas accounting for the contrast in facies. These contrasts suggest that sedimentation was not keeping pace with subsidence and the two processes were independent of each other. Shallow water over the shelves and platforms is indicated by the presence of evaporites and carbonate deposits.

These Permian Basin structures are reflected indirectly in Mesozoic and Cenozoic rocks since there has been no major tectonic movement within the basin since the end of Permian time.

Local Structure

A structural contour map has been constructed for the top of the San Andres Formation using electric logs.[4] This map indicates that a general westward dip occurs with a more pronounced dip to the southwest and the northwest. A structural high is exhibited to the east, which is concurrent with the trapping of hydrocarbons in the Monument Field. The interval (1380') between the top of the Glorieta Formation and the top of the San Andres Formation was contoured using isopack values computed from the inspection of the available electric log control.[5]

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[1] Jones, T. S., 1953, *Stratigraphy of the Permian Basin of West Texas,* West Texas Geological Society, p. 3.

[2] Huffington, Roy, 1951, *Introduction to the Petroleum Geology of the Permian Basin of West Texas and Southeastern New Mexico,* p. 51.

[3] King, Phillip B., 1942

[4] KEDA, Vol. I., Plate 4

[5] KEDA, Vol. I, 1984, p. 23 and Plate 5.

Figure 10 – Permian Basin Structure

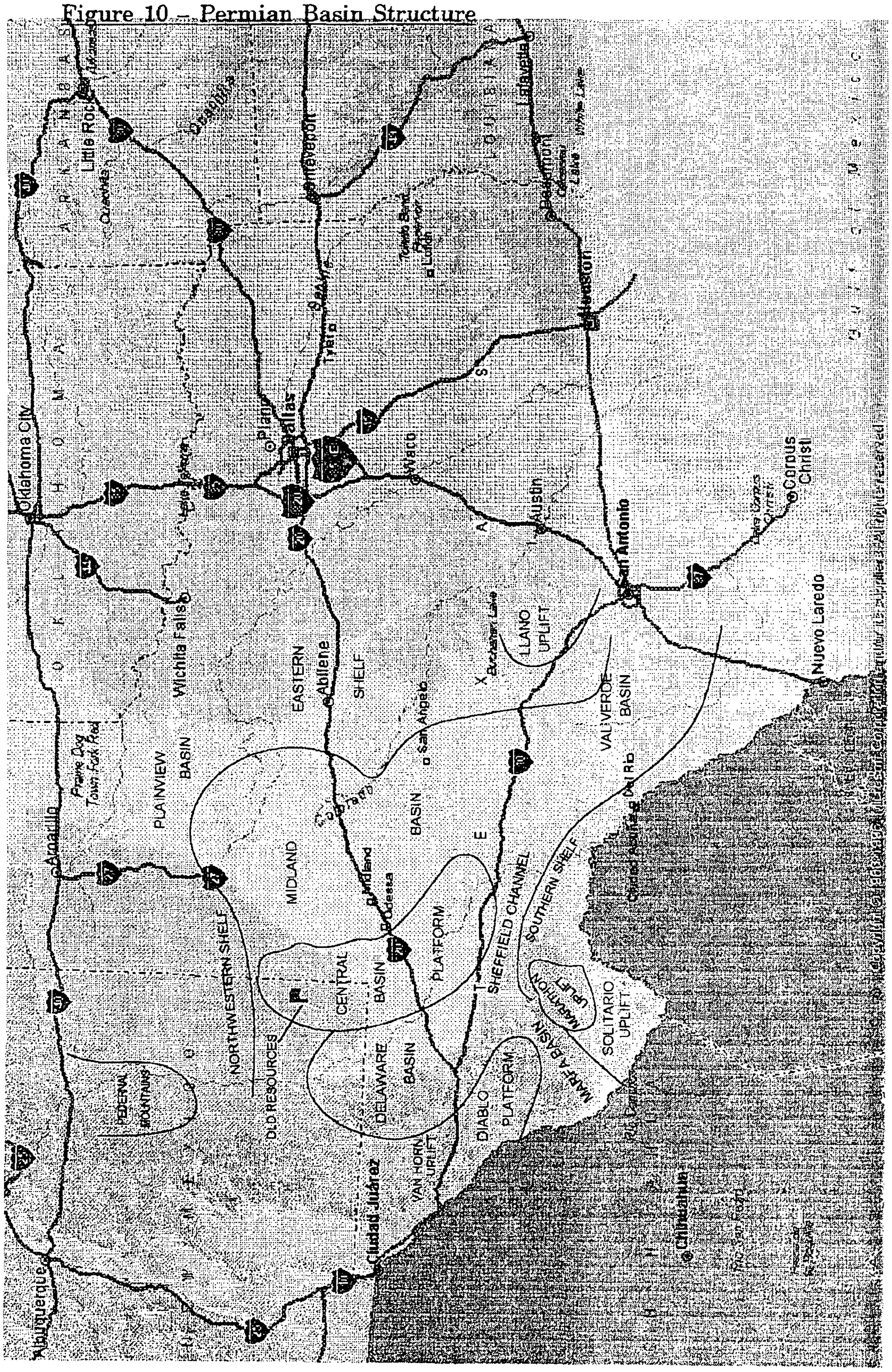

Figure 10 - Permian Basin Structure

To further exhibit the structure of the area, north-south and east-west cross sections were drafted and depicted in KEDA, Vol. I. as Plates 6 and 7. Analysis of the logs was limited to the picking of certain formation tops. Information regarding confining zones is best depicted on a porosity type log. A detailed analysis of the sonic log of the Amerada State "V" #5 was provided by KEDA to address the confining intervals. This log is of good quality and is typical of the project area. An index map illustrating locations of all the cross sections is contained in KEDA, Vol. I., as Figure 3.6, page 24.

Besides the Delaware Basin and the Central Basin Platform, other structural features in southern Lea County are unconformities. As defined, an unconformity is an erosional surface separating younger strata form older strata. They are indicative of an area which was emergent and undergoing erosion that later became submergent and an area of renewed deposition.

Contact between the Permian and Triassic is represented by an erosional unconformity sloping to the southeast. This unconformity represents the lower limit of potable and industrial ground water. In areas underlain by redbeds, this lower boundary is indefinite and in general, the top of the underlying Rustler Formation is used as the lower limits of ground water.[1]

The surface of the undifferentiated redbeds associated with the unconformity was formed in part by features referred to as closed depressions. These features probably formed when overlying Triassic rocks collapsed into cavities in the underlying Permian salt beds. Gradual subsidence due to removal of salt by the ground water may also have been a contributing factor to the formation of closed depressions.

An erosional unconformity is also present between rocks of Triassic and Tertiary age. The surface is high irregular with moderate relief and has undergone tow or three episodes of erosion truncating the southeastward dipping formations. Triassic rocks beneath the unconformity thicken southeastward.

Seismic History

DLD Resources is located in a seismically stable area of the United States. The Monument area is considered to be in Zone 1 of seismic risk (see Figure 11).[2]

SURFACE SOIL TYPES:

The following soil types are associated with DLD's property: KO (Kimbrough gravelly loam, 0-3% slope); TF (Tonuco loamy fine sand); BE (Berino-Cacique loamy fine sands association); BF (Berino-Cacique fine sandy loams association).[3]

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[1] Nicholson and Clebsch, 1961.

[2] Algermissen, S.T., 1969, *Seismic Risk Studies in the United States,* Reprint from Proceeding of the Fourth World Conference on Earthquake Engineering, Chilean Association for Seismology and Earthquake Engineering, Santiago, Chile, 20 p.

[3] Information taken from *Soil Survey, Lea County New Mexico*, United States Department of Agriculture, Soil Conservation Service, in cooperation with New Mexico Agricultural Experiment Station, issued January 1974. (DLD location shown on pages 124-125.)

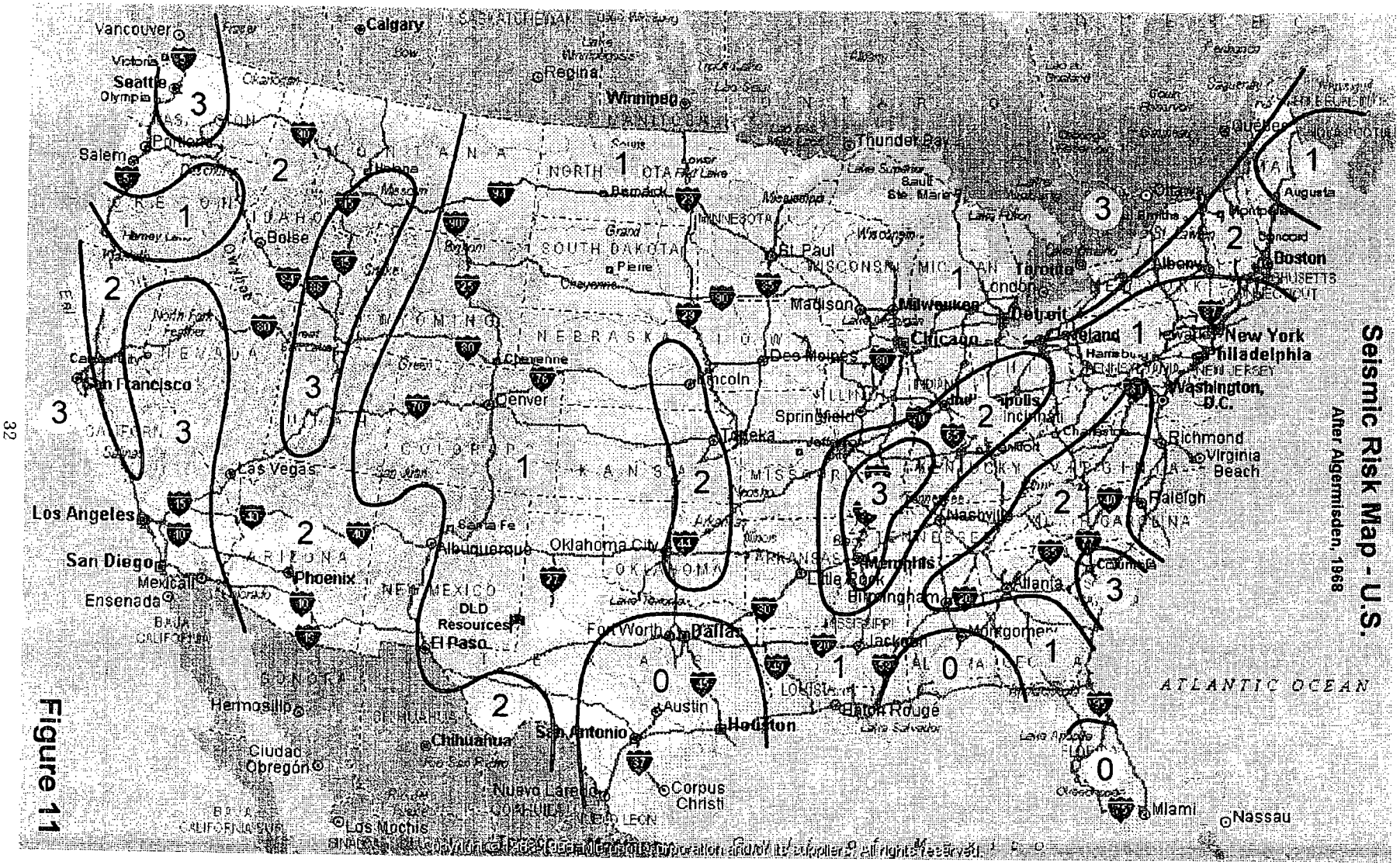
Seismic Risk Map - U.S.
After Algermissen, 1968
Vancouver
Calgary
Seattle
Olympia
Portland
Salem
Regina
Winnipeg
Thunder Bay
Bismarck
Minneapolis
St. Paul
Boise
Pierre
Madison
Milwaukee
Detroit
Toronto
Chicago
Cleveland
Buffalo
New York
Philadelphia
Boston
Augusta
Montpelier
Concord
Ottawa
Albany
Lincoln
Denver
Cheyenne
Des Moines
Springfield
Indianapolis
Cincinnati
Washington, D.C.
Richmond
Virginia Beach
Raleigh
Nashville
Memphis
Little Rock
Atlanta
Columbia
Birmingham
Jackson
Montgomery
Baton Rouge
New Orleans
Topeka
Oklahoma City
Fort Worth
Dallas
Austin
Houston
San Antonio
Albuquerque
Santa Fe
El Paso
Las Vegas
San Francisco
Los Angeles
San Diego
Phoenix
Tucson
Mexicali
Ensenada
Hermosillo
Chihuahua
Ciudad Obregón
Nuevo Laredo
Corpus Christi
Los Mochis
Miami
Nassau
DLD Resources
ATLANTIC OCEAN
0 No Damage
1 Minor Damage
2 Moderate Damage
3 Heavy Damage

Figure 11

Kimbrough Series

The Kimbrough series consists of well-drained loams, gravelly loams, or gravelly fine sandy loams overlying indurated caliche at a depth of 6 - 20 inches. These soils formed in wind-deposited and water-deposited sediments on uplands in the northern half of Lea County. Slopes are 0 - 3%. The vegetation consists of short and mid grasses and shrubs. The average annual precipitation is 12 - 15 inches, the average annual air temperature is 58° to 60° F., and the frost-free season is 195 to 205 days. Elevations range from 3,600 to 4,200 feet. Kimbrough soils are associated with Lea, Stegall, Portales, and Arvana soils.

Typically, the surface layer is dark grayish-brown gravelly loam about 6 inches thick. In places it is loam. The substratum is white indurated caliche.

Kimbrough soils are used for range, wildlife, and limited irrigated farming. They are a source of crushed caliche for use in construction.

Kimbrough gravelly loam, 0 to 3 percent slopes (KO): This soil is on low ridges in the northern part of Lea County. Included in mapping are areas of Lea, Sharvana, Stegall, and Slaughter soils.

A representative profile of Kimbrough gravelly loam, on the north edge of a caliche pit, SW ¼ NE ¼ sec. 16, T. 17 S., R. 37 E.:

A11 - 0 to 2 inches; dark grayish-brown (10YR 4/2) gravelly loam, very dark grayish-brown (10YR 3/2) when moist; moderate, thin, platy structure; slightly hard, friable when moist, sticky and slightly plastic when wet; few caliche fragments on the surface and intermixed; mildly alkaline (pH 7.8), slightly calcareous; abrupt boundary. 2 to 6 inches thick.

A12 - 2 to 6 inches, dark grayish-brown (10YR 4/2) gravelly loam, very dark grayish-brown (10YR 3/2) when moist; moderate, medium, subangular blocky structure; slightly hard, very friable when moist, sticky and slightly plastic when wet; many, sharp-angled, hard caliche fragments intermixed; mildly alkaline (pH 7.8), strongly calcareous; abrupt boundary. 4 to 10 inches thick.

Ccam - 6 inches, white (10YR 8/1), indurated caliche, fragmental and indurated to a depth of about 30 inches, graded to weakly cemented, white caliche below. Several feet to many feet thick.

The "A" horizon ranges from gravelly loam to gravelly fine sandy loam in texture and from 7.5YR to 10YR in hue. It is dark grayish-brown when dry and very dark grayish-brown when moist. In areas where this horizon is gravelly, the depth to indurated caliche is 6 - 16 inches. The caliche is either fragmentary or massive.

This soil is moderately permeable. Runoff is slow to medium. Water intake is moderate, and the available water holding capacity is 1 to 2 inches. Roots penetrate to a depth of 6 to 16 inches. Erosion is a slight hazard.

This soil is too shallow to be suitable for crops. It is used for range and wildlife. It is also a source of crushed caliche for use in construction.

Tonuco Series

The Tonuco series consists of excessively drained loamy fine sands 10 to 20 inches thick over indurated caliche. The surface layer is loamy fine sand to fine sand and is underlain by loamy fine sand. These non-calcareous, coarse textured soils formed in wind-deposited sands over thick sloping ridges throughout the shallow sand country in the southern part

of Lea County. Slopes are 0 to 3 percent. The vegetation consists of mid-grasses, forbs, and shrubs. The annual precipitation is 10 to 13 inches, the annual average air temperature is 59° - 62° F., and the frost-free season is 190 to 205 days. Elevations range from 3,200 to 3,900 feet. These soils are associated with Palomas, Cacique, and Simona soils.

Typically, the surface layer is yellowish-red loamy sand about 12 inches thick. In places it is fine sand. The next layer is yellowish-red loamy sand about 5 inches thick. The substratum is indurated caliche.

Tonuco soils are used as range, wildlife habitat, and recreational areas. Indian artifacts can be found in some areas.

Tonuco loamy fine sand, 0 - 3% slopes (TF): This gently undulating soil is on uplands, ridges, and level prairies. Included in mapping are areas of Simona, Berino, and Cacique soils.

A representative profile of Tonuco loamy fine sand, about 0.2 mile west of the entrance road to gas plant in the southeastern part of Eunice, about half a mile west of the southeast corner of sec. 34, T. 21 S., R. 37 E.:

A1 - 0 to 12 inches, yellowish-red (5YR 5/6) loamy fine sand, yellowish red (5YR 4/6) when moist; very weak, medium, subangular blocky and weak, fine, granular structure; soft, very friable when moist, nonsticky and nonplastic when wet; few small pockets of lighter colored sand intermixed; many fine roots; few organic stains; neutral (pH 7.1), noncalcareous; clear boundary. 8 to 12 inches thick.

AC - 12 to 17 inches, yellowish-red (5YR 5/6) loamy sand, yellowish-red (5YR 4/6) when moist; weak, medium, subangular blocky and weak, coarse, prismatic structure; soft, very friable when moist, nonsticky and nonplastic when wet; many fine roots; common organic stains; neutral (pH 7.3), noncalcareous; abrupt boundary. 4 to 8 inches thick.

IICcam - 17 inches, white (5YR 8/1), indurated caliche, fractured in places.

The soil ranges from 10 - 20 inches in thickness. The "A" horizon ranges from 5YR to 7.5YR in hue, and the AC horizon from 2.5YR to 7.5YR. Typically, the soil is neutral, but ranges from neutral to mildly alkaline. There are a few segregated lime films on some peds. In places quartzose gravel and caliche fragments occur above the indurated caliche.

Permeability is very rapid. Runoff is very slow, and water intake is rapid. The available water holding capacity is 1 to 2 inches. The effective rooting depth is 10 to 20 inches. Soil blowing is a severe hazard.

The soil is used as range, wildlife habitat, and recreational areas.

Berino Series

The Berino series consists of well-drained soils that have a light sandy clay loam subsoil. These are undulating to hummocky soils on upland plains in the "deep sand country" in the southern part of Lea County. They formed in wind-worked sands of mixed origin overlying alluvial, sandy, calcareous sediments. Slopes are 0 to 3 percent. The vegetation consists of mid and tall grasses and shrubs. The average annual precipitation is 10 to 13 inches, the average annual air temperature is 60° to 62°F., and the frost-free season is 195 to 205 days. Elevations range from 3,000 to 3,400 feet above sea level. These soils are closely associated with Maljamar, Palomas, and Cacique soils.

Typically, the surface layer is reddish-brown loamy fine sand about 6 inches thick. The subsoil is red light sandy clay loam about 42 inches thick. The substratum, to of depth of 60 inches and more, is pink light sandy clay loam that has a high lime content.

Berino soils are used as wildlife habitat, range, and recreational areas. Indian artifacts can be found in some areas.

Berino-Cacique loamy fine sands association, 0 - 3% slopes (BE): About 50 percent of this association is Berino soils and about 40 percent is Cacique soils. The rest is Maljamar, Palomas, and Tonuco soils. This association is mostly in the southern part of Lea County.

A representative profile of Berino loamy fine sand in an area of Berino-Cacique loamy fine sand association, northeast quarter of sec. 16, T24S, R34E, about ¾ mile north of highway:

A1 - 0 to 6 inches, reddish-brown (5YR 4/4 loamy fine sand, dark reddish brown (5YR ¾) when moist; weak, fine, granular structure; soft, friable when moist, non-sticky and non-plastic when wet; many fine roots; neutral (pH 7.0), non-calcareous; smooth, abrupt boundary. 4 to 10 inches thick.

B1 - 6 to 16 inches, red (2.5YR 4/6) light sandy clay loam, dark red (2.5YR 4/6) when moist; moderate, medium sub-angular blocky structure; soft, friable when moist, non-sticky and non-plastic when wet; many medium roots; neutral (pH 7.0), non-calcareous; smooth, clear boundary. 4 to 12 inches thick.

B2t - 16 to 30 inches, red (2.5YR 5/6) light sandy clay loam, red (2.5YR 4/6) when moist; strong, medium, sub-angular blocky structure; slightly hard, friable when moist, sticky and slightly plastic when wet; common medium and fine roots; moderately thick clay films; neutral (pH 7.1), non-calcareous; gradual boundary. 12 to 20 inches thick.

B3 - 30 to 48 inches, red (2.5YR 5/6) light sandy clay loam, red (2.5YR 5/8) when moist; weak, coarse, prismatic and weak, fine, granular structure; slightly hard, friable when moist, sticky and slightly plastic when wet; few fine roots; neutral (pH 7.3), non-calcareous; clear boundary. 7 to 20 inches thick.

Cca - 48 to 60 inches, pink (7.5YR 7/4) light sandy clay loam, light brown (7.5YR 6/4) when moist; massive; soft, friable when moist, slightly sticky and slightly plastic when wet; moderately alkaline (pH 8.4), strongly calcareous.

The "A" horizon ranges from brown to reddish brown. It is loamy sand to loamy fine sand and in places has a thin layer of fine sand on the surface. Reaction of the "A" horizon is neutral to mildly alkaline. The "B" horizon ranges from reddish brown to yellowish red or red. It is heavy fine sandy loam to sandy clay loam. The clay content is 18 to 30 percent. The B2t horizon is generally neutral but in places is mildly alkaline in the lower part. The Cca horizon is commonly at a depth of 29 to 60 inches, and lime content ranges from moderate to high. The Cca horizon is soft or strongly cemented caliche in some areas where Berino soils are associated with Cacique soils.

The Berino soil is moderately permeable. Runoff is very slow. Water intake is rapid. Available water holding capacity is 7 to 10 inches. Roots penetrate to a depth of 60 inches or more. Soil blowing is a severe hazard.

The Cacique soil is moderately permeable. Runoff is very slow. Water intake is rapid, and the available water holding capacity is 3 to 6 inches. Root penetration is restricted by the indurated caliche at a depth of 20 to 34 inches. Soil blowing is a severe hazard.

The soils in this association are used as range, wildlife habitat, and recreational areas.

Berino-Cacique fine sandy loams association, 0 - 3% slope (BF): This mapping unit is about 50% Berino fine sandy loam, 40% Cacique fine sandy loam, and 10% Pyote, Kermit, and Wink soils.

The Berino soil is similar to Berino loamy fine sand, but is surface layer is fine sandy loam about 8 inches thick. The Cacique soil is similar to Cacique loamy fine sand, but is surface layer is fine sandy loam about 8 inches thick.

Runoff is slow. Water intake is moderate. Soil blowing is a moderate hazard.

These soils are used as range, wildlife habitat, and recreational areas.

MONITOR WELL LITHOLOGICAL DATA

Lithologic Log 1 - Monitor Well #2-3 (drilled 3/4/81); T19S, R36E, Sec. 35.323

Interval Thickness (feet)	Description
0 - 5	sand and soil; buff in color, unconsolidated; medium-coarse grained
5 - 10	sand; light-brown, medium-fine grained
10 - 15	caliche; some sand; light brown to gray; calcium carbonate cement; dry
15 - 20	sand; light brown, fine grained, calcium carbonate cement; caliche or limey sand fragments; dry
20 - 25	sand and caliche; brown, poorly cemented caliche fragments; calcium carbonate cement
25 - 30	sand; brown, very poorly cemented, caliche fragments; calcium carbonate cement; dry
30 - 35	same as above; dry
35 - 40	sand; light brown, fine grained; dry
40 - 45	sand, light brown to buff; some clay present, medium to fine grained, with caliche fragments; dry
45 - 50	sand and caliche; light brown, mostly sand; medium grained, with caliche fragments; dry
50 - 52	red bed; dry; sandy mudstone with larger quartz inclusions; mostly clay
52 - 55	same as above
55 - 58	moist, mudstone, red, gypsum and caliche fragments; mostly clay
58 - 60	mudstone; dark red to brown; sandy, moist; gypsum and caliche fragments present
60 - 65	shaley mudstone, slightly moist, deep red to brown, sandy; mostly clay
65	TOTAL DEPTH

Lithologic Log 2 - Monitor Well #3-3 (drilled 3/4/81); T19S, R36E, Sec. 35.234

Interval Thickness (feet)	Description
0 - 5	soil, very sandy; red grained, poorly cemented; clay abundant; light brown; caliche fragments
5 - 10	sand; buff in color; fine grained gypsum and caliche fragments, some clay
10 - 15	sand and caliche; light brown to buff
15 - 20	sand and caliche; light brown, calcium carbonate cement
20 - 30	same as above
30 - 35	red siltstone and mudstone, dry, mostly silt
35 - 39	red siltstone, dry; no calcium carbonate at all
39	TOTAL DEPTH

Lithologic Log 3 - Monitor Well #4-3 (drilled 3/4/81); T19S, R36E, Sec. 35.442

Interval Thickness (feet)	Description
0 - 5	soil, brown, sandy with a lot of clay
5 - 10	sand and caliche; brown, abundant clay
10 - 15	same as above except moist
15 - 20	same as above
20 - 25	soil and caliche; light brown; saturated
25 - 30	sand and caliche with gypsum fragments, brown, very coarse grained; saturated
30 - 35	mudstone and shale, brown red, large caliche fragments; saturated
35 - 39	mudstone and shale; abundant clay, deep red, caliche fragments; saturated
39	TOTAL DEPTH

Lithologic Log 4 - Monitor Well #5-3 (drilled 3/4/81); T19S, R36E, Sec. 36.313

Thickness (feet)	Description
0 - 5	caliche with some sand, light brown
5 - 10	same as above
10 - 15	sand with caliche fragments, some gypsum fragments, light brown, calcium carbonate cement
15 - 20	same as above; slightly moist
20 - 25	caliche rock and sand; some gypsum fragments, light brown; saturated
25 - 30	same as above
30 - 35	same as above
35 - 39	red beds, shale and mudstone, caliche fragments, saturated
39	TOTAL DEPTH

Note: The wells were drilled using an air rotary drilling rig, making approximately a 5-7/8" hole. Prior to inserting the 4" PVC casing, the bottom was perforated with twelve 6" X 1/8" slots. After placing the casing into the hole, soil was packed around the annular space between the hole and the casing.

RESERVOIR ANALYSIS

RESERVOIR DESCRIPTION

Scope

It is requested that the injection well should be capable of handling an injection volume of 84 million gallons per year (160 gpm average flow) and a maximum instantaneous injection rate of 200 gpm. In view of this requirement, reservoir pressure analysis and process design aspects are presented to cover the flow range of 160 – 200 gpm.

The summary data on maximum allowable surface injection pressures as related to well design and flow rates are presented in Table 5.1 (KEDA, Vol. I, p. 36). The well was constructed utilizing 3 ½ inch injection tubing, thus KEDA's projections indicate that the maximum allowable surface injection pressure should be 1010 psi.

Proposed Formation

It is important to define the injection reservoir in order to model its pressure behavior. Table 5 presents the thickness data on the injection interval and confining strata. According to electric logs from Artificial Penetration #125, about 71.6% of the San Andres Formation between 4340' ± and 4920' ± is permeable and porous.[1]

Permeability cannot be estimated from the log. This determination has been done based on an injectivity fall-off test reported for a Browning-Ferris Industry disposal well located at Odessa, Texas. This well has been completed into the San Andres.

The porosity of the San Andres Formation (10% - 12%) is well known from several density logs in the study area. Therefore, the net useable thickness for all pressure estimates is projected to be 415 feet.

[1] KEDA, Vol. I, Table 5.2; Plate 10, p. 37.

Table 5 – Correlative Injection Zone Thickness[1]

STRATA	DEPTH, FT.	THICKNESS, FT.
a) Overlying strata with low porosity	4105 – 4340	235
b) Proposed injection interval	4340 – 4920	580
c) Underlying strata with low porosity	4920 – 5850	930
d) Total depth	5000	

Electric logs of the overlying strata (235 feet) indicate very low porosity. These strata should act as a barrier between upper aquifers and the injection interval. The strata underlying the injection interval are about 930 feet thick. It also appears to be non-porous. Published data of confining zones immediately above and below the disposal zone and log interpretation indicates adequate confinement to prevent vertical fluid movement.

Confining zones are typically evaluated based on porosity and permeability of the reservoir rock. KEDA's approach in the original study was to evaluate the porosity of the confining intervals from geophysical logs and to correlate the porosity to permeability values from generic curves.

As an example, an analysis is presented of the log from the Amerada Hess State "V" #5 (KEDA control #120), located in Sec. 36, T-19S, R-36E, 2800'+ from the well site. The objective of this log was to determine porosity of the reservoir rock. (A copy of the log is contained in KEDA, Vol. I, Appendix H).

The top of the San Andres is indicated from the gamma ray portion of the log to be at 3910'. The oil-water contact in this area is known to occur at 400' below mean sea level.[2] Since the surface elevation of this well is 3592', all San Andres production must occur above 3992'.

The interval from 3992' to 4110' is represented by erratic shifts in the transit time curve of the sonic log indicating scattered porosity.

The interval from 4110' to 4225' is of primary interest as a confining unit. This interval is 116' thick and falls between the oil/water contact and the top of the disposal zone at 4335'. In the confining interval, the sonic transit time ranges between 43 and 50± microseconds per foot. This corresponds to a porosity in limestone reservoirs of 0-4% (KEDA, Vol. I, Figure 5.0A, p. 38.4).

The petrophysical relationship between permeability and porosity in several formations is shown in Figure 5.0B, KEDA, Vol. I, p. 38.5). At a porosity value of 4%, the permeability in the confining interval is close to zero.

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[1] Schlumberger Data Induction Waterlog, Amerada Hess – State "V", Monument-McKee, sec. 36, 19S, 36E.

[2] Babcock, C.V., 1956, Symposium of Oil and Gas Fields of Southeast New Mexico, Roswell Geological Society, p. 164-165.

A similar analysis was applied to the remainder of the San Andres to identify receptive disposal intervals and interbedded confining units. This data is summarized in Table 6.[1] As indicated in Table 6, a 260' confining barrier is located beneath the disposal zone.

It is notable on the log that the evaporite section from the top of the Rustler formation (1040') to the top of the Yates formation (2440') provides a massive confining unit between the disposal zone and the Ogallala water bearing formation above.

Table 6 – San Andres Formation Porosity Data

Interval Ft.	Thickness Ft.	Porosity %	Comments
3939 – 4160	250	4 - 16%, avg. 12%	Top of San Andres at 3910'; Potential oil production above 4000'
4160 – 4276	116	Less than 4%	Barrier zone; Permeability probably less than .02md
4276 – 4335	59	4 – 12%	Top of disposal zone
4335 – 4370	35	16 – 18%	Primary Receptor Interval
4370 – 4620	250	Scattered, avg. 12%	
4620 – 4640	20	Less than 4%	
4640 – 4720	80	12 – 16%	Primary Receptor Interval
4720 – 4850	210	4 – 12%	
4850 – 4910	60	12 – 16%	Primary Receptor Interval
4910 – 5170	260	Less than 4%	Barrier Zone; Top of Glorieta 5130'

Formation Properties and Operating Parameters

The reservoir calculations performed by KEDA in the original study incorporated the reference data given in Tables 7 and 8.[2]

Liquid Permeability (K): An average liquid permeability of the San Andres formation was estimated to be 30 millidarcies. Two wells of Rice Engineering Co. in the same injection zone indicated permeability from 50 – 70 millidarcies after acid stimulation.

Porosity (0): The best estimate from electric logs of offset wells shows San Andres porosity to be about 10%. (Actual core porosity average was 9%).

Compressibility [c]: The total compressibility of the formation and connate fluid was estimated to be 3 X 10^{-6} psi^{-1}, for the carbonate rock at a depth of 4340'.

Reservoir Hydrostatic Gradient: Two wells in the study area were examined to estimate the hydrostatic gradient. Rice Engineering Well #5 indicated a gradient of 0.32 psi/ft and another well in Odessa, TX indicated a gradient of 0.4 psi/ft. As a conservative estimate, a gradient of 0.4 psi/ft was considered reasonable. The bottom-hole pressure at the Odessa

[1] KEDA, Vol. I, p. 38.3.

[2] KEDA, Vol. I, Tables 5.3A & 5.3B, p. 40-41

well was reported to be 2150-psi @ 5380'. (Actual hydrostatic gradient of the completed well was 0.413-psi/ft).

Reservoir Temperature: Electric log data indicated the bottom-hole temperature to be 107°F. at 4340'.

Flow Rate: The average flow rate was estimated to be 160 gpm while the maximum flow rate was not to exceed 200 gpm.

Viscosity: Viscosity was assumed to be that of water.

Specific Gravity: Estimated to be 1.05 (saline solution)

Table 7 – Formation Properties Used For Calculations

Description	Typical	Range
Liquid Permeability, millidarcy	30	20 – 50
Proposed Formation, ft.	4350 to 4950	N/A
Well Completion Thickness, ft.	580 (open hole)	200 – 600
Net Useable Thickness, %	71.6	50 – 80
Net Useable Thickness, ft.	415	100 – 600
Porosity, %	10	10 – 15
Compressibility, l/psi	3.0×10^{-6}	10-6±
Distance/Radius, ft.	0.33	0.3±
Skin Factor, dimensionless	0	0 – 20
Hydrostatic gradient, psi/ft	0.4	N/A
Specific Gravity	1.02	N/A
Bottom-Hole Temp, °F.	107	N/A

Table 8 – Operating Parameters Used For Calculations

Description	Data
Average Flow rate, gpm	106
Viscosity @ 72oF, cp water	1
Viscosity @ Bottom-Hole, cp	0.7
Injection time, yr.	20
Specific Gravity of Material	1.05

BOTTOM HOLE PRESSURE INCREASE

Reservoir Mechanics

In order to model the hydrodynamics of the underground injection of fluids, it was necessary to make four assumptions.

The first assumption is that the injection reservoir is a horizontally layered homogeneous, porous and permeable aquifer with low porosity and low permeability layers located above and below the injection zone. Historically, the San Andres formation has been used for deep well disposal, and it conforms to the above criteria.

The second assumption is that the physical properties of the injected fluids at reservoir temperatures and pressures do not differ significantly from the connate waters.

The third assumption is that the injection fluids can move out uniformly and radially in all directions and that, the relative thickness of the disposal reservoir remains constant.

The fourth assumption is that overlying and underlying layers remain constant over similar distances.

Most reservoirs are layered because of stratification; therefore, overlying and underlying strata are layers having transmissivity and porosity lower than the zone of interest.

This concept in KEDA's modeling of the reservoir was based on the cross-sectional mapping and the logs from the nearest wells to the site. In KEDA's estimation, cross-flow between these layers should be negligible. It was pointed out that the underlying and overlying layers are not shale strata, but rather dense carbonate layers. On the basis that cross-flow does not take place, KEDA made the basic assumption that the injection zone was homogeneous for estimating pressure buildup in the reservoir. Furthermore, KEDA assumed a net effective injection interval of 415 ft out of an available 580 ft based on this formula:

$$\lambda = \frac{\Sigma K_i \bullet h_i}{\Sigma h_i}$$

where λ = effective (or equivalent) permeability of the total interval estimated to be 32 millidarcies.

K = permeability of the i^{th} interval

h_i = height of the i^{th} interval

To describe the mechanics of waste fluid injection it is necessary to visualize the disposal reservoir before injection begins. The injection reservoir is primarily composed of calcium carbonate with 10% porosity and 30 millidarcy permeability values. The pore spaces are completely saturated with native brine. Storage of wastes in the injection reservoir is not available except by displacement of the native fluid. In subsurface saline aquifers, storage is obtained by compression of the reservoir and native fluid. Most injection wells require sufficient surface injection pressures to displace the native fluid outward in a radial flow pattern.

As soon as injection begins, a cone of pressure elevation develops immediately with its apex at the wellbore. The amount of pressure build-up is determined by the injection flowrate and reservoir properties. The long-term effects are transmitted to the hydrologic boundaries of the disposal reservoir. In this case, the pressure effects are spread over a very large area. The area of investigation (2-½ mile radius) is so large that when waste fluid injection stops, the disposal reservoir comes to equilibrium with very small residual pressure effects.

RESERVOIR PRESSURE BUILD-UP MODEL

Matthews and Russel Equation

KEDA calculated the projected pressure increase in the injection zone for the DLD well using an equation developed by Matthews and Russel, (1967)[1]. KEDA, Vol. I, page 46 presents the Matthews and Russel equation and is reproduced as follows:

$$\Delta p = \frac{70.6\, q\mu}{kh}\left[\ln\left(\frac{kt}{70.4\,\mu\,\phi\,cr^2}\right) + 2S\right]$$

Where:

Δp = bottom hole pressure increase, psi
q = injection rate, bbl/day
Φ = viscosity, cp
r = radius, ft.
t = time, days
k = permeability, md
h = net reservoir thickness, ft.
Φ = porosity, fraction
c = total compressibility, psi-1
S = skin factor

(note: this equation and symbol definitions were taken exactly as presented in KEDA, Vol. I, pg 46.

Single Injector, Bottom Hole Pressure Build-Up

Considering the injection and operating variables (Tables 7 and 8), the projected bottom hole pressure increase would be about 558 psi in 20 years. If operating conditions differed from the assumed conditions, the bottom hole pressure could increase in the range 176 psi to 1160 psi. The calculated changes in bottom hole pressure as a function of skin factor, net useable disposal zone thickness, and formation permeability are presented in Table 5.5 of KEDA, Vol. I., page 48.

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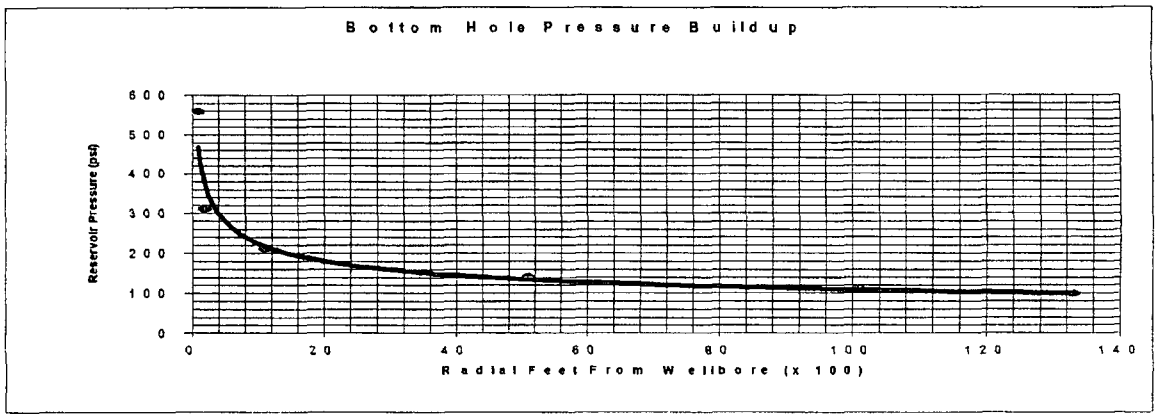
[1] Matthews, C. S., and Russel, D. G., 1967, Pressure Buildup and Flow Tests in Wells Monograph Series, Society of Petroleum Engineers or AIME, Dallas, TX.

The amount of bottom hole pressure build-up due to proposed injection would be greatest at the borehole and would fall off significantly as the radial distance from the borehole increased. KEDA projected that the pressure build-up at the 2-½ mile radius would be 97 psi after 20 years of operation @ an average injection rate of 160 gpm. These figures are presented in Table 5.6 of KEDA, Vol. I., page 49, and graphically as Figure 12 of this application.

Figure 12 - Artificial Penetrations and Multiple Well Pressures



By using the principle of super-imposing pressures, it is possible to estimate the pressure at a point due to the influence of multiple wells. KEDA considered three models in their study:

- Pressure imposed by the DLD well on those injection wells that are completed in the injection zone.
- Pressure imposed by the DLD well on those wells that penetrate the strata overlying the injection zone. (The purpose of this model is to illustrate that the overlying strata will act as a barrier to vertical movement of the injected fluid).
- Pressures at the well and probable operating wellhead pressures.

Table 5.7, KEDA, Vol. I., page 51, presents the projected pressures exerted by the DLD well on surrounding penetrations. In the case of the two injection wells operated by Rice Engineering in the same injection zone, a bottom hole pressure increase of 100 – 125 psi over a 20-year period would not adversely affect these wells. It is common that several permits are granted for injection into the same reservoir. For example, the Miocene Sands near Texas City, Texas are permitted for more than 10 Class I injection wells.

It was KEDA's judgement that the San Andres reservoir has the capacity for additional users in the study area. The KEDA study concluded that the DLD well will not over-pressurize the reservoir. The bottom hole pressure increase of approximately 120 psi indicates that the rise in the reservoir pressure gradient would be in the order of 0.025 psi/ft in 20 years.

During the original permitting process for the well in the late 1980's, no objections were raised by Rice Engineering.

Table 5.4A (KEDA, Vol. I., pages 43, 43A, 43B) contains a 1984 list of artificial penetrations within the 2-½ mile radius. These penetrations either were completed below the injection zone or were completed within the overlying strata of the injection zone (4100' – 4340'). From this table, it may be noted that several wells are plugged and

abandoned. All of the operating wells in the overlying strata that are listed are approximately 2 miles from the DLD well. The closest well listed is an injection well at a distance of 9387', operated by Gulf Oil Co.

The injection interval in the San Andres Formation, 4150' – 5000', is assumed to be homogenous (wastewater movement is not restricted in this section). The overlying strata (4150' – 4340') are assumed a barrier for vertical movement. If this barrier is confining, a reservoir pressure increase will not be transferred to the other side of the barrier.

A problem or questionable well is one that is abandoned without any cement plugs or for which no records are available to substantiate plugging. The following is a determination of whether the hydrostatic pressure of the fluid in such a well bore is sufficient to overbalance reservoir pressure increases in the study area.

KEDA Control Well #399, belonging to Conoco, is the only improperly abandoned well in the study area. For calculating purposes, it is assumed that the pressure increase due to the DLD's injection operation would be realized at this well since it penetrates through the injection zone although the well is greater than 2 ½ miles away. The fluid or drilling mud in this well will oppose vertical migration because the hydrostatic pressure of the mud exceeds the reservoir pressure. The NM Oil Conservation Division requires a salt gel mud consisting of 10 lb/gal brine mixed with 25 pounds of gel per barrel in all plugging and abandonment programs. For this well, a mud weight of only 9.5 lb/gal is assumed. The pressure overbalance due to the mud is estimated to be 414 psi, as shown in Table 9.

It can be concluded that the DLD well will exert negligible pressure on the Conoco well. In addition, it should be noted that the waste front radius at 200 gpm would be only 2179' (dispersion effect included) in 20 years, whereas, the Conoco well is at a distance of 13,000'+ from the DLD well.

Table 9 – Pressure Overbalance at Conoco Abandoned Injection Well (KEDA #399)

1. Reference Depth*, ft.	4,340
Total Depth, ft	8,656
Distance from DLD Well, ft	13,322
Mud Weight, lb/gal	9.5
2. Mud Pressure, psi (0.494 psi/ft)	2,143
3. Reservoir Pressure	
3.1 Hydrostatic Pressure @ 0.4 psi/ft	1,736
3.2 Bottom Hole Pressure Increase	54
(Darcy's radial pressure, psi)	
3.3 Radial Pressure on the unplugged hole	0
Total Reservoir Pressure, psi, (3.1+3.2+3.3)	1,790
4. Pressure overbalance, psi	353
(Mud pressure – Reservoir pressure)	
5. Shear strength of mud**, psi	61
6. Pressure overbalance w/gel strength, psi	414
* top of proposed injection zone	
** additional safety factor	

Operating Wellhead Pressures:

The foregoing bottom hole pressures calculated by using Darcy's Law, act upon the area covered by the thickness of the injection zone in all directions. In order to determine the wellhead pressures at the DLD location it is important to superimpose the bottom-hole pressure increases caused by the Rice Engineering wells. An analysis of the operating wellhead injection pressures for 3 ½ inch injection tubing is presented as Table 5.8B, KEDA, Vol. I, page 54.

The wellhead pressure is dependent on three differential pressures (1) bottom hole pressure increase, (2) static head difference between the weight of the fluid column inside the injection pipe and the hydrostatic weight of the formation fluids and, (3) frictional losses due to flow through the injection pipe. These differential pressures are algebraically added to estimate the wellhead pressures for various flow rates. On the basis of information available to KEDA at the time of the original study, it was concluded that there was a high probability that the well would take the average waste stream on a vacuum. Subsequent development and testing of the well confirmed that the well will take 160 gpm on a vacuum (gravity flow)

WASTE FRONT RADIUS

A good estimate of the minimum distance of waste front travel in an injection well can be made by assuming that the wastewater will uniformly occupy an expanding cylinder with the well at the center. Based in this concept, KEDA calculated the waste front radius as a function of time (Table 5.9, KEDA, Vol I, page 56). By factoring in dispersion, density segregation, and channeling, KEDA concluded that the 20-year waste front radius would be between 1313 ft. - 1985 ft. (from the well bore), with a average 160 gpm flowrate.

MAXIUMUM ALLOWABLE SURFACE INJECTION PRESSURE

The following discussion is presented to determine the maximum allowable surface injection pressure which can be sustained without initiating fractures of the disposal zone or extending any natural joints or fractures that may have been present prior to drilling of the well. The requested maximum surface injection pressure based on a measured reservoir pressure of 1929 psi at 4675 ft, and a 200 gpm flowrate through 3 ½ inch tubing, is 1050 psi.

Determining Fracture Treatment Gradient

Hubbert and Willis (1957)[1] published a paper that included the development of an equation used to predict the fracture-treating gradient. The fracture-treating gradient is the pressure required to maintain and extend fractures and not the pressure required to break down the formation. In the San Andres Formation near Odessa, Texas, the break down pressure is much greater than the pressure required to extend fractures. Results from a formation test performed on the El Paso Products Mize Number 4 show that the break

[1] Hubbert, M. King and Willis, D. G. 1957, Mechanics of Hydraulic Fracturing, Trans., AIME 210 pp. 153-166.

down pressure was 659 psi higher than the fracture treating, or "pump in", pressure at a depth of approximately 4750 ft.[1]

The equation developed by Hubbert and Willis is widely used to determine the limiting pressure on waste injection wells because of the above inherent safety factor. Injection treating gradient (P_t) is a function of the overburden stress gradient (P_{ob}), reservoir pressure gradient (P_r), and Poisson's ratio for rocks (υ). The equation is expressed as follows:

$$P_t = \left(P_{ob} - P_r\right) \frac{\upsilon}{1 - \upsilon} + P_r$$

Substituting the following typical values for the San Andres Formation in Lea County:

P_{ob} = 1.0 psi/ft (Lea County Density Log)

P_r = 0.4 psi/ft (estimated)

υ = .284 (Halliburton fracture treatment data)

The fracture treating gradient for the proposed well at initial reservoir conditions is calculated to be 0.637 psi/ft.

The equation indicates that the fracture treating pressure changes under different reservoir pressure conditions. Table 10 predicts the fracture treating pressure for the San Andres at various reservoir pressures.

Table 10 – Bottom Hole Fracture Treating Pressure in Relation to Reservoir Pressure

Depth = 4675' (middle of disposal interval)

P_{ob} = 1.0 psi/ft

υ = .284

Reservoir Pressure, P_r psi (psi/ft)	Bottom Hole Fracture Gradient, P_t, psi/ft	Bottom Hole Fracture Pressure, psi
1496 (.32)	.589	2754
1590 (.34)	.601	2810
1683 (.36)	.613	2866
1777 (.38)	.625	2922
1870 (.40)	.637	2978
1964 (.42)	.649	3034
2057 (.44)	.661	3090
2151 (.46)	.673	3146

[1] Jones, T. A., 1980, Fracture Gradient Determination for Amendment to Permit WDW-146, Browning-Ferris Industrial Chaparral Project; TDWR Disposal Well File WDW-146, BFI.

Surface Injection Pressure Limitations

The surface injection limitation widely used for waste disposal well is the surface pressure expression of the bottom hole fracture pressure. The surface injection pressure is defined as the sum of the bottom hole pressure (P_t), tubing pressure loss (P_f), and pressure loss due to skin damage (P_S), less fluid head (P_h), and a safety factor (P_{SF}).

Surface Injection Pressure = $(P_t) + (P_f) + (P_S) - (P_h) - (P_{SF})$

The pressure loss due to skin damage is usually offset by the safety factor so these terms cancel each other. The tubing friction loss is usually calculated at the lower value for new pipe (to introduce an additional safety factor). The above equation thus reduces to:

Surface Injection Pressure = $(P_t) + (P_f) - (P_h)$

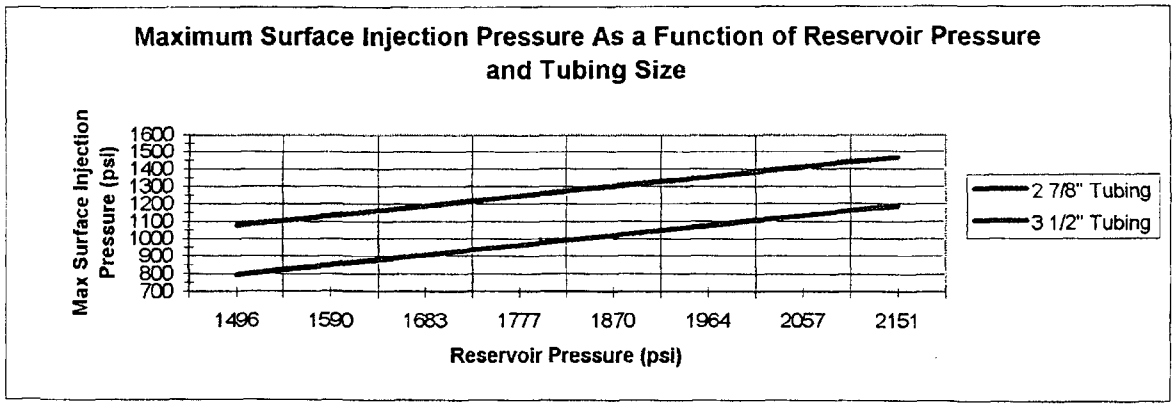
Fracture Treating Pressure (P_t) – as calculated in Table 10 the fracture treating pressure varies with the injection history of the well. As reservoir pressure increases, the fracture treating pressure increases proportionately.

Friction Loss in Tubing (P_f) – the friction loss for 3-½ inch injection tubing at 4670' is 107-psi @ 160-gpm and 173-psi @ 200-gpm.

Hydrostatic Head (P_h) – the hydrostatic head varies with the density of the fluid column. The DLD effluent will have a specific gravity of approximately 1.05 (8.8 lbs/gal) which corresponds to a hydrostatic gradient of .4571 psi/ft. At a vertical depth of 4675' the hydrostatic pressure exerted by the fluid weight will be 2137 psi (assuming that the tubing is completely full).

Figure 13 gives the wellhead pressure limit as a function of the reservoir pressure and tubing size at a maximum injection rate of 200-gpm. A maximum surface injection pressure of 1050 psi corresponds to the measured reservoir pressure of 1929 psi at 4675' depth for 3-½ inch injection tubing.

Figure 13 – Maximum Surface Injection Pressure as a Function of Reservoir Pressure and Tubing Size



EFFLUENT AND FORMATION MATRIX REACTION

The DLD effluent to be injected into the well will be acidic with an average pH of 3.5. It is well known that hydrochloric acid reacts readily with limestone or dolomite zones such as the San Andres Formation according to the following:

$$CaCO_3 + 2HCl \rightarrow H_2O + CO_2 + CaCl_2$$

The above chemical equation shows calcium carbonate reacting with hydrochloric acid to yield carbon dioxide, calcium chloride, and water.

The slightly acidic effluent injected into the disposal zone will move through the carbonate and encounter enough rock to spend itself. Two consequences of this reaction are 1) the dissolution of the rock matrix and 2) the evolution of carbon dioxide gas. The consequences of the reaction will be discussed with respect to the DLD injection well in the following sections.

Cavity Development for the Injection Well

Cavity development is not expected to be a problem with the DLD injection well because of the low concentration of acid in the waste stream and the density of the reservoir material. Some bore hole enlargement may occur over time. The KEDA study, Vol. I, pages 64-68 goes into detail describing four case studies of cavity development in injection wells located in other areas of the country. In all four cases, acidic wastewater was injected into limestone formations.

Cavity Growth for the DLD Injection Well

Considering the dimensions of DLD's well and the properties of the carbonate rock it is possible to estimate the order of magnitude of the eventual cavity. In the present application, a reservoir model can be described as follows:

A carbonate rock cylinder having a useable thickness of 415' receives wastewater at an average rate of 160-gpm. The weight rate (lb./min) of hydrochloric acid injected into the formation at a given flow rate depends on the concentration of acid in the wastewater. Part of this acid contributes to the enlargement of the well bore and the formation of a cavity. The remainder of the acid is flushed away from the well bore.

According to the chemical reaction (stoichiometry) of hydrochloric acid with calcium carbonate, 1.36 lbs. of calcium carbonate rock would be dissolved per pound of acid injected. Knowing the bulk density of the rock, the weight of the reacted carbonate can be converted to volumetric units. The amount of rock reacting at the well bore with hydrochloric acid will depend on several parameters. In effect, radial growth of the cavity is mainly the function of flow rate, acid concentration, and years of injection.

The radial cavity growth as a function of time may be visualized from the data presented in Table 11. On the basis of the cavity growth model presented by Shannon and Wilson[12], it appears reasonable to project that large portions of the injection acid will be reacting within the formation and away from the well bore. This assumption will be discussed in detail below. Based on this assumption, the well bore radius is calculated to be an average of 4.5 feet in 20 years assuming a 0.2 percent concentration (2000-ppm) of hydrochloric

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[1] Shannon and Wilson, Inc. 1976, Evaluation of Cavity Development and Stability, Disposal Well No. 1, Mulberry, Florida: Consultant's Report for Kaiser Aluminum and Chemical Corporation.

[2] Shannon and Wilson, Inc. 1980, Evaluation of Cavity Development and Stability, Injection Wells A and B, Pensacola, Florida: Consultant's Report for Monsanto Company, p. 70

acid in the wastewater. The order of magnitude of this growth is not sufficient to cause casing damage, formation collapse or vertical migration of wastewater.

Table 11 – Cavity Growth Data for the DLD Injection Well

Model Parameters:

Carbonate rock shape: cylindrical
Net thickness: 415 feet
Radius: changing proportional to flow rate
Flow Rate: 160-gpm (avg)
Injection Rate: lb/min dependent on acid concentration
Rock Bulk Density: 156-lb/ft^3

Injection Time (Years)	0.05% (500 ppm) acid Cavity radius (ft)	0.2% (2000 ppm) acid Cavity radius (ft)
One year	0.5	1.0
Ten years	1.6	3.2
Twenty years	2.2	4.5
Avg. growth, ft^3/yr	315	1260

The increase in porosity caused by rock dissolution will be negligible due to the relative volumes of acid and carbonate rock in the formation. The existing rock is in excess of the stoichiometric requirement by a factor of 2000. The acid may form channels and vugs. If this occurs, the transmissivity of the injection well will be improved.

It was assumed that only a portion of the injected acid could contribute to enlarge the well bore radius. The radius of wastewater neutralization was not predicted. This prediction is complex, especially in the absence of reaction kinetics data. The reaction rates in turn depend on matrix properties. It is necessary to characterize the pore structure and determine the change in this structure as acid reaction proceeds. In projecting the acid neutralization radius, on page 71 of Volume I, KEDA referred to a monograph on "Acidizing Fundamentals" by B.B. Williams, J.L. Gidley and R.S. Schechler, SPE, Dallas 1979, which was submitted as Appendix G of the original KEDA study.

Referencing this monograph, it was noted that acid penetration distances are reported in the range of a few feet to a few hundred feet depending upon the controlling variables, especially the number of enlarged flow channels (worm holes) that occur.

In order to estimate the radius of neutralization, a simple model is considered:

Step 1 – Estimate the average velocity of the wastewater near the well bore area (ft/day).

Step 2 – From the laminar flow heterogeneous reaction model (page 23 of the referenced monograph) estimate the reaction time to neutralize acid form pH 1.0 to pH 7.0.

Step 3 – Assume that wastewater would be neutralized when the waste front travel time is equal to the time calculated per Step 2.

Table 12 presents the application of the above model to the DLD well. It may be noted that the assumed values concerning carbonate and HCl reactions are typical and the

estimate is conservative. The radius of neutralization, estimated according to the above methodology, is approximately 41 feet. This distance corresponds to worm holes growing in radial directions, i.e. possible changes occurring in porosity and permeability of the reservoir.

Table 12 – Approximate Radius of Neutralization

1. Predict the average velocity of wastewater:

Basis:	Use expanding cylinder model
Flow:	160 gpm
Formation thickness:	415 feet
Porosity:	10%

   Using the above data the waste front radius will be 15.37 feet after 24 hours. This figure (15.37 ft/day) is used as the average velocity of the wastewater near the well bore.

2. Predict the reaction time for the acid to reach a neutral pH (7.0):

   A correlation table contained on page 26 of the referenced monograph (Appendix G of the original KEDA submittal) was used to estimate the reaction time for hydrochloric acid to change from pH 1.0 to pH 7.0. The time of reaction for pH 2.0 acid was estimated to be 63.75 hours. (Note: it was the original intention of Climax Chemical to inject un-neutralized, < 2.0 pH, effluent into the injection well).

3. Calculate the approximate radius of neutralization:

   Radius = 15.37 ft/day X 63.75 hours X 24 hours/day = 41 feet

Table 12 above reflects an estimate of a neutralization radius for un-neutralized effluent injected into the formation. DLD intends to partially neutralize the wastewater with soda ash to bring the pH up to a 3.5 – 4.0 range. This would have to reduce the neutralization radius significantly below the Table 12 estimate of 41 feet.

Conclusion: With an estimated neutralization radius of less than 41 feet, the possibility of DLD's acidic waste reaching and affecting the cementing and casing of artificial penetrations completed within the same formation is negligible.

Carbon Dioxide Generation

A primary concern when injecting acids into any carbonate reservoir is the potential buildup of pressure due to the release of carbon dioxide during the reaction with the formation matrix.

As shown in Figure 14 carbon dioxide can exist in three physical states depending on temperature and pressure. The critical temperature for carbon dioxide is about 85°F. The equilibrium curve indicates that CO_2 can be liquefied by increasing the pressure if the temperature is below 85°F. Above this temperature, CO_2 cannot be liquefied by increasing pressure. Since the bottom-hole temperature will be around 107°F, carbon dioxide will be in the gaseous state when it exceeds the solubility limit in the wastewater, or the naturally occurring formation fluids.

Figure 15 shows the solubility of carbon dioxide in water at various temperatures and pressures. The solubility of carbon dioxide in the DLD wastewater should be nearly equal to that of fresh water. With a bottom-hole temperature of 107oF and pressure approximately 3000-psi, water can dissolve 184-scf/bbl (4.38-scf/gal). This value is approximately 6.2% CO_2 by weight in water. As long as CO_2 generation does not exceed this solubility, gaseous CO_2 will not exist.

At the anticipate bottom-hole conditions of the DLD injection well, it appears that the dissolution of limestone bearing rock will not generate carbon dioxide in quantities that will exert abnormal back pressures. It is anticipated that the safe limit of injectable hydrochloric acid concentration is 5% by weight. DLD's effluent is approximately 1.5% HCl by weight prior to any neutralization. When the pH is raised to 3.5 – 4.0 prior to injection, the concentration will be less than 0.2%.

REGIONAL FLOW OF SAN ANDRES FORMATION WATER

Orr and Dutton (1983) developed a geostatistical model to map the potentiometric surface for the San Andres Formation in west Texas and southeast New Mexico.[1] KEDA, Vol. I, page 75B reproduces two figures (5.5A and 5.5B). Figure 5.5A is a hydraulic head map for the San Andres Formation in west Texas and southeast New Mexico which was generated using geostatistical data. Figure 5.5B is a hydraulic head map for the same area utilizing 342 actual data points to generate the map.

Figure 5.5A indicates that the regional ground water flow is in a southeast direction. The hydraulic gradient in east central Lea County is relatively flat with a 500-foot change in head over approximately 40 miles.

Considerable variance in the hydraulic head of wells in the project area is actually reported, thus, Figure 5.5B was generated using 342 actual data points. Part of the variance in head reflects the regional differences in reservoir development. This transient state caused by oil and gas production could remain for thousands of years.

Given the formation properties reported in Table 7 and considering the regional hydraulic gradient (Figure 5.5A, KEDA, Vol. I., page 75B), the velocity of the water due to the differential head of potentiometric surfaces is estimated to be in the order of 0.6 feet/year in a southeast direction. This regional velocity is of such a low order of magnitude that for all practical purposes the San Andres Formation water may be assumed stagnant. This reinforces the concept that the mechanism of reservoir storage is by compression of the connate fluids.

[1] Orr, Elizabeth D. and Alan R. Dutton, 1983. An Application of Geostatistics to Determine Regional Ground Water Flow in the San Andres Formation, Texas and New Mexico. Ground Water, vol 21, no. 5, pp. 619-624.

Figure 14 – Carbon Dioxide Equilibrium Curve[1]

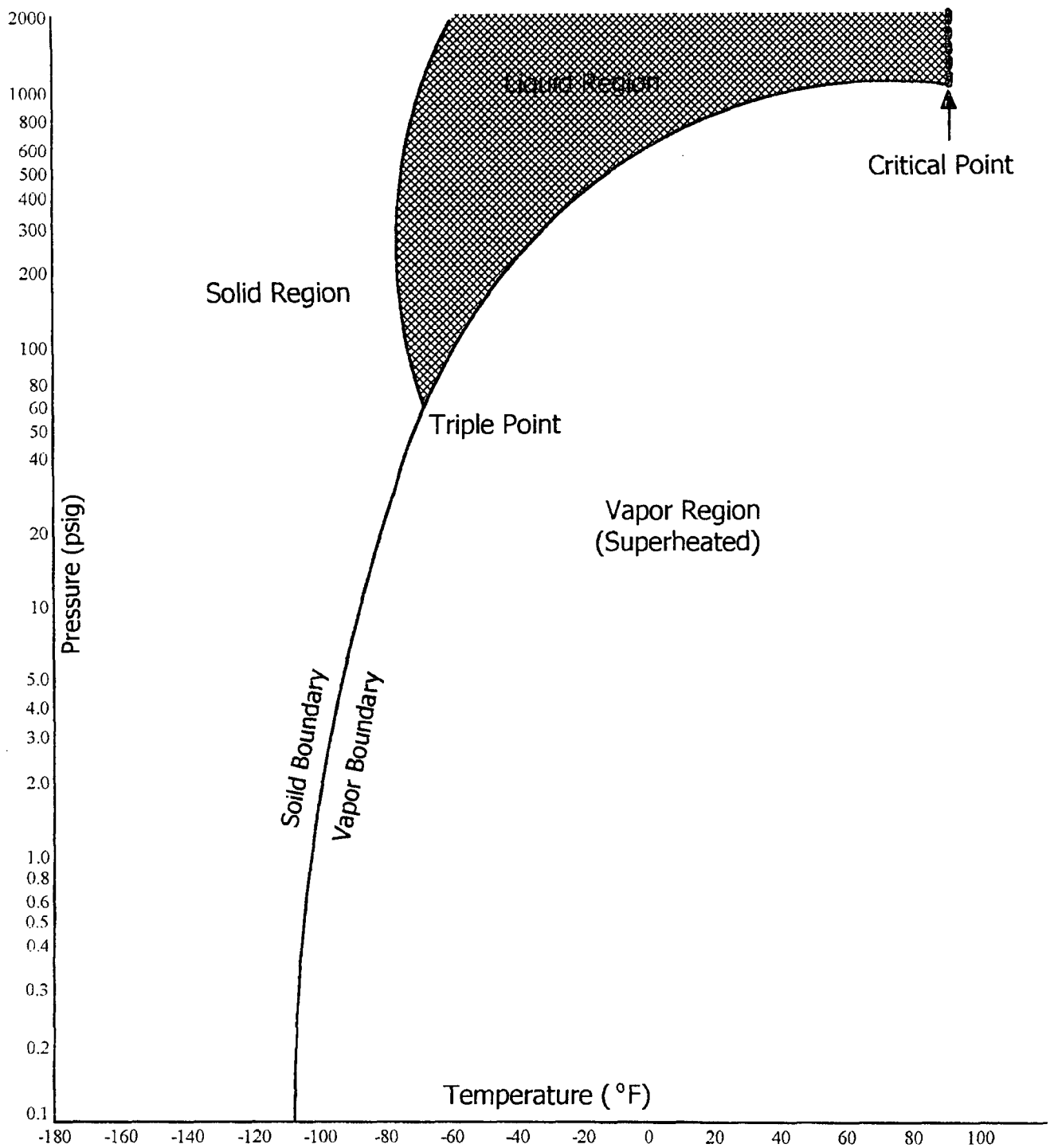
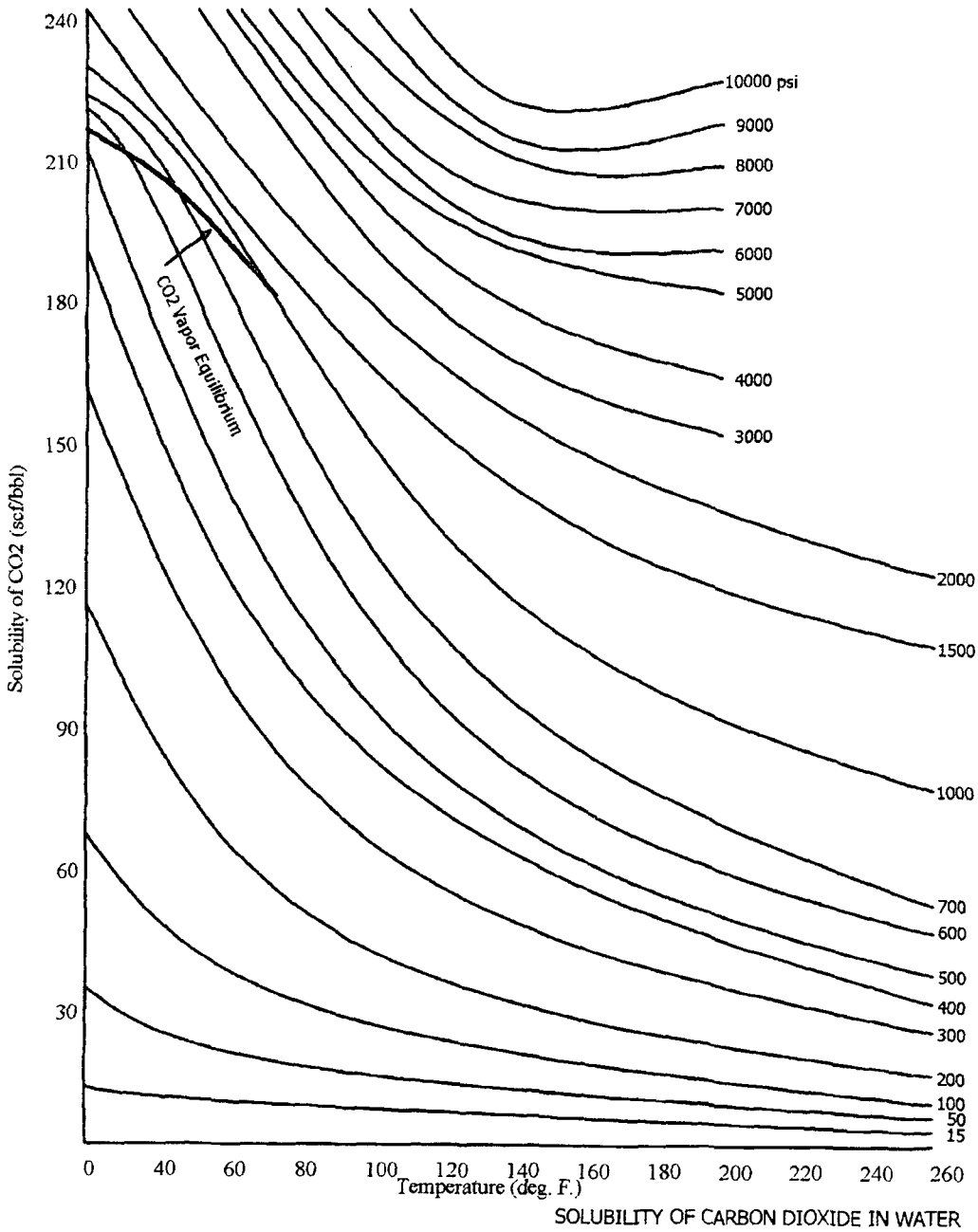


FIGURE 14 - CARBON DIOXIDE EQUILIBRIUM CURVE

[1] KEDA, Vol. I, Figure 5.3, p. 74

Figure 15 – Solubility of Carbon Dioxide in Water[1]



[1] KEDA, Vol. I, Figure 5.4, p. 75 (Taken from Oil Field Carbon Dioxide Services Handbook, Halliburton Company, 1980, page I-11

WELL DESIGN AND CONSTRUCTION

GENERAL

The DLD Resources, Inc. Class I injection well is located on DLD's property, approximately 1000 feet north of the manufacturing plant. This well was originally installed by Climax Chemical Company to conform with state specifications as presented in the original permit application for a new well, and subsequently approved by the New Mexico Environment Department. The installation was performed by Ken E. Davis Associates under Project No. 10-509. The well is designed and installed for injection of a low pH waste stream into the lower San Andres Formation.

WELL DRILLING

The well was successfully drilled to a total depth of 5,000 feet by Cactus Drilling Company, Rig No. 63. Drilling began on April 15, 1985 and was completed on June 3, 1985. Deviation surveys were run every 500 feet and are shown in Table 13[1].

Table 13 – Record of Inclination (Garlin Taylor, Drilling Technician, Cactus Drilling Co.,

Measured Depth (feet)	Course Length (ft. X 100)	Angle of Inclination (degrees)	Displacement per 100 ft (Sine of Angle X 100)	Course Displacement (feet	Accumulative Displacement (feet)
367	367	0.50	0.87	3.1929	3.1929
844	477	0.50	0.87	4.1499	7.3428
1062	218	0.75	1.31	2.8558	10.1986
1563	501	0.75	1.31	6.5631	16.7617
2064	501	1.00	1.75	8.7675	25.5292
2450	386	1.25	2.18	8.4148	33.9440
2810	360	1.75	3.05	10.9800	44.9240
3287	477	1.50	2.62	12.4974	57.4214
3760	473	1.50	2.62	12.3926	69.8140
4140	380	1.25	2.18	8.2840	78.0980
4638	498	1.00	1.75	8.7150	86.8130
5000	362	1.00	1.75	6.3350	93.1480

Climax Chemical Company prepared the location and rat hole, mouse hole and conductor hole were drilled prior to moving in the rig. A 17 ½ inch hole was drilled to 365' and 13 3/8" casing was run to 365', and cemented to the surface with Class "C" cement. The casing was tested to 1,000-psi with no loss of pressure.

A 12 ¼" hole was drilled to 2,810' with a saturated salt gel mud system. A Dual Guard – Micro Guard with Gamma Ray and Compensated Density-Dual Spaced Neutron logs were run from 2,810 to the surface. After completing the logging, the 9 5/8" casing was run to 2,809'

[1] KEDA, (1985), Rework Report, Table I

and cemented to the surface with Class "C" cement. The 9 5/8" casing was tested to 1,000 psi for one hour with no loss of pressure.

The 9 5/8" casing was drilled out and a 8 ¾" was drilled to 4,170'. At this point a full hole core was taken from 4170' to 4,186'. The core hole was then drilled out and drilling continued to 4,677' at which point Core No. 2 was cut from 4,677' to 4,707'. The core recovery was 100%.

The 8-¾" hole was drilled with 9.0-ppg mud with 40,000-ppm chloride. No loss of circulation was observed while drilling to 4,707'. Welex performed the log Run No. 2 at this depth, which consisted of the same type logs run at 2,810'.

The core analyses of the San Andres Formation compared favorably with calculated log porosity. The porosity ranged from 5% to 11% and the permeability averaged 0.8 millidarcy. Core analyses and field porosity calculations are provided in the Appendix section.

The hole was filled with 12-20-mesh sand from 4,350' to 5,000' to prevent cement damage and plugging of the injection zone after confirming the top of the sand at the proper depth.

The 7" casing was then run with one joint of 5-½" Hastelloy C-276 at the bottom (4,319' to 4,349'). The physical properties and characteristics of Hastelloy C-276 are contained in the Appendix section. The cementing was performed using a inner string method. This was accomplished by running a tubing string inside the casing and stringing into the inner string baffle collar on the bottom of the 5-½" Hastelloy casing. Howco Lite cement was mixed and pumped until cement returns were observed at the surface. After getting cement to the surface, 100 sacks of Class "C" cement was pumped and followed by 840 gallons of Howco Epseal (acid resistant cement). The Epseal was placed across the hole to the casing annulus from 4,140' to 4,351'. There was no evidence of loss of circulation while cementing. The drilling rig was released. Table 14 presents the casing tallies and details for thirteen (13) 3/8", 9-5/8" and 7" casings.

Table 14 – Tubular Tallies and Casing Details

105 joints, 7", 20#, J-55, LT & C	4,122.34'
4 joints, 7", 23#, J-55, LT & C	157.80'
1 7" Howco innerstring, baffle collar with insert float	1.25'
1 joint, 7", 23#, J-55, LT & C	29.19'
1 7" collar, 7" X 5 ½" swage, 5 ½" collar	1.95'
1 5-½" 0.250" wall Hastelloy tube (4.812 I.D. drift)	29.40'
1 5-½" collar and all thread nipple carbon steel	.80'
1 5-½" float shoe, carbon steel	1.75
TOTAL STRING	4,354.48'
ABOVE K.B.	3.48'
LANDED DEPTH	4,351'
5-½" Hastelloy C-276 liner from 4,319' to 4,349'.	

WELL CONSTRUCTION

Detailed cross-sectional well schematics are presented as Figures 16 and 17.[1] The wellhead schematic is presented as Figure 18.[2] The drawing of the surface facilities (Figure 19) is a new drawing not contained in the KEDA materials. Figure 20 is detailed drawing of the Louisiana Oil Tools Model 12 packer.

WELL COMPLETION

A DA&S Service Co. work-over rig was moved in and the 7" casing was pressure tested to 1,000 psi for one hour with no loss of pressure. The cement was drilled to 4,340' (10' above shoe) and re-tested to 1,150 psi with loss of 5 psi in one hour.[3] The balance of Epseal was drilled and sand was circulated out of the hole to a depth of 5,000' by reverse circulation. A Welex bond log was then run which indicated adequate bonding of the Epseal cement at the confining zone. Lite water bonding results were typical.

WELL TESTING AND EVALUATION

The well was jetted with nitrogen and coil tubing through a packer on a 2-7/8" workstring. The well produced an estimated three barrels per hour after jetting to 5,000'. A sample of the formation fluid was collected and analyzed by Unichem International. The analysis results are included as Table 15.[4] The formation was cleaned with 2,500 gallons of 15% hydrochloric acid and an additional 10,000 gallons of 15% hydrochloric acid were used in five stages to treat the formation. This was performed through a tubing with 3,200 psi at 10 barrels per minute using a total of 3,250 pounds of rock salt as diverting agent.

To evaluate the effect of acid treatment a series of step-rate injection tests were conducted by John West Engineering Company, Hobbs. After each test the well was acidized to improve its receptivity. All test data are presented in Appendix C.

Step-Rate Test #1 was conducted on May 11, 1985 with an injection rate of 160-gpm at 1,433-psi injection pressure, which included approximately 295-psi friction loss inside the 2-7/8" tubing. Since injectivity was unsatisfactory, the formation was re-acidized with 2,500 gallons of 28% HCl to alleviate any possible skin damage. The excess acid was swabbed out of the hole and Step-Rate Test #2 was performed on May 15, 1985. The test showed a slight reduction of injection pressure to 1,300-psi for an injection rate of 160-gpm. For further improvement of injectivity, the well was swabbed for five days in a clean-up effort. The injection test tubing was placed 570' deeper, which increased the friction loss, by an additional 38-psi. Step-Rate Test #3 conducted on May 23, 1985 showed 1,447-psi injection pressure for an injection rate of 160-gpm. These efforts did not result in improved injectivity.

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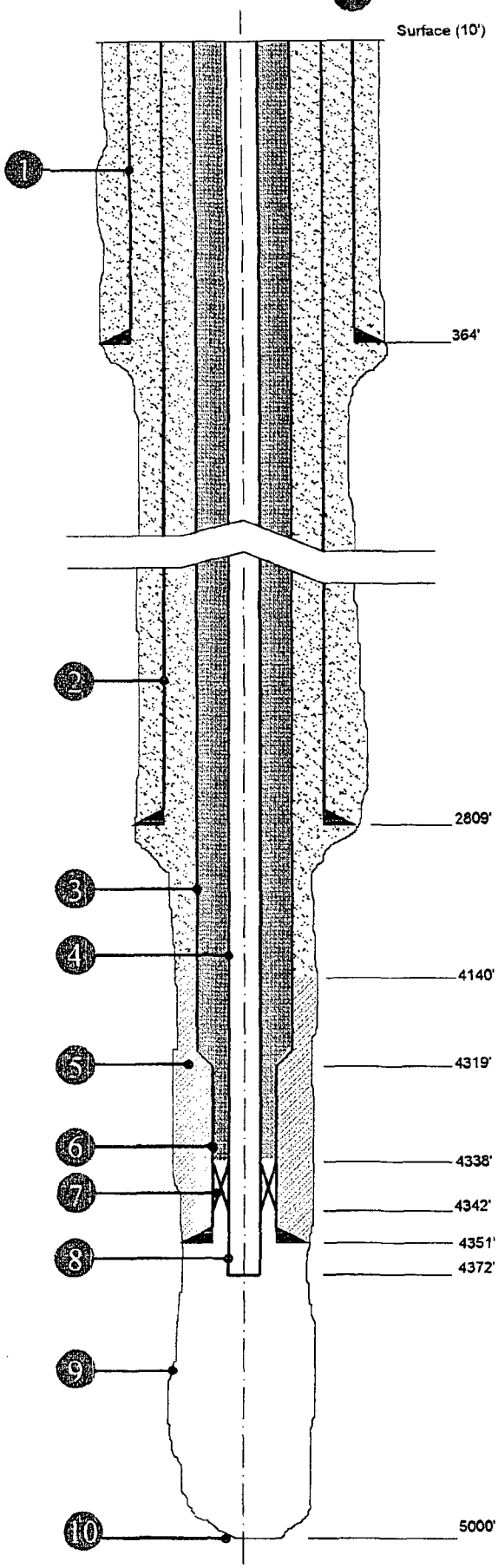
[1] KEDA, (1985) Rework Report, Figures 1, 3

[2] KEDA, (1985) Rework Report, Figure 2

[3] KEDA, (1985) Rework Report, Table III

[4] KEDA, (1985) Rework Report, Table IV



1. Surface Casing: 13-3/8" O.D., 54.5#/ft, J-55, ST & C set to 364' in 17-1/2" hole. Cemented to surface with 350 sacks of Class "C" cement with 2% calcium chloride and 1/4#/sack Flocele.
2. Intermediate casing: 9-5/8" O.D. 36#/ft, K-55, ST & C set to 2809' in 12-1/4" hole. Cemented to surface with a lead slurry of 2050 sacks of light cement with 15# salt plus 1/4#/sack Flocele plus 5#/sack Gilsonite and tail-in slurry of 150 sacks Class "C" cement plus 2% calcium chloride. Cement top side annulus with 50 sacks of Class "C" cement.
3. Protection casing: combination string consisting of 4317', 7" O.D., 20# and 23#/ft, J-55, ST & C and 30', 5-1/2" O.D. 250" W.T. Hastelloy C-276 threaded 8rd ST & C set to 4351' in 8-3/4" hole, cemented as follows: 750 sacks of Howco lite cement with 1/4#/sack Flocele and 100 sacks of Class "C" cement (4140' to surface) followed by 840 gallons of Howco Epseal acid resistant cement from 4351' to 4140'.
4. Injection tubing: 3-1/2" Texas Fiberglass Products, 2100-L premium set to 4338'.
5. Howco Epseal cement 4351' to 4140'
6. Casing: 5-1/2", .250" wall, Hastelloy C-276 from 4319' to 4349'.
7. Packer: 5-1/2" X 3-1/2" Louisiana Oil Tools Model 12 w/Hastelloy wetted parts set from 4338' to 4342'.
8. Tail Pipe: 3-1/2" Texas Fiberglass Products tubing, 4342' to 4372'.
9. Disposal Interval: open hole 8-3/4", 4351' to 5000' (basal San Andres).
10. Total Depth: 5000'

Note: All measurements are in reference to the Kelly Bushing (10' above ground).

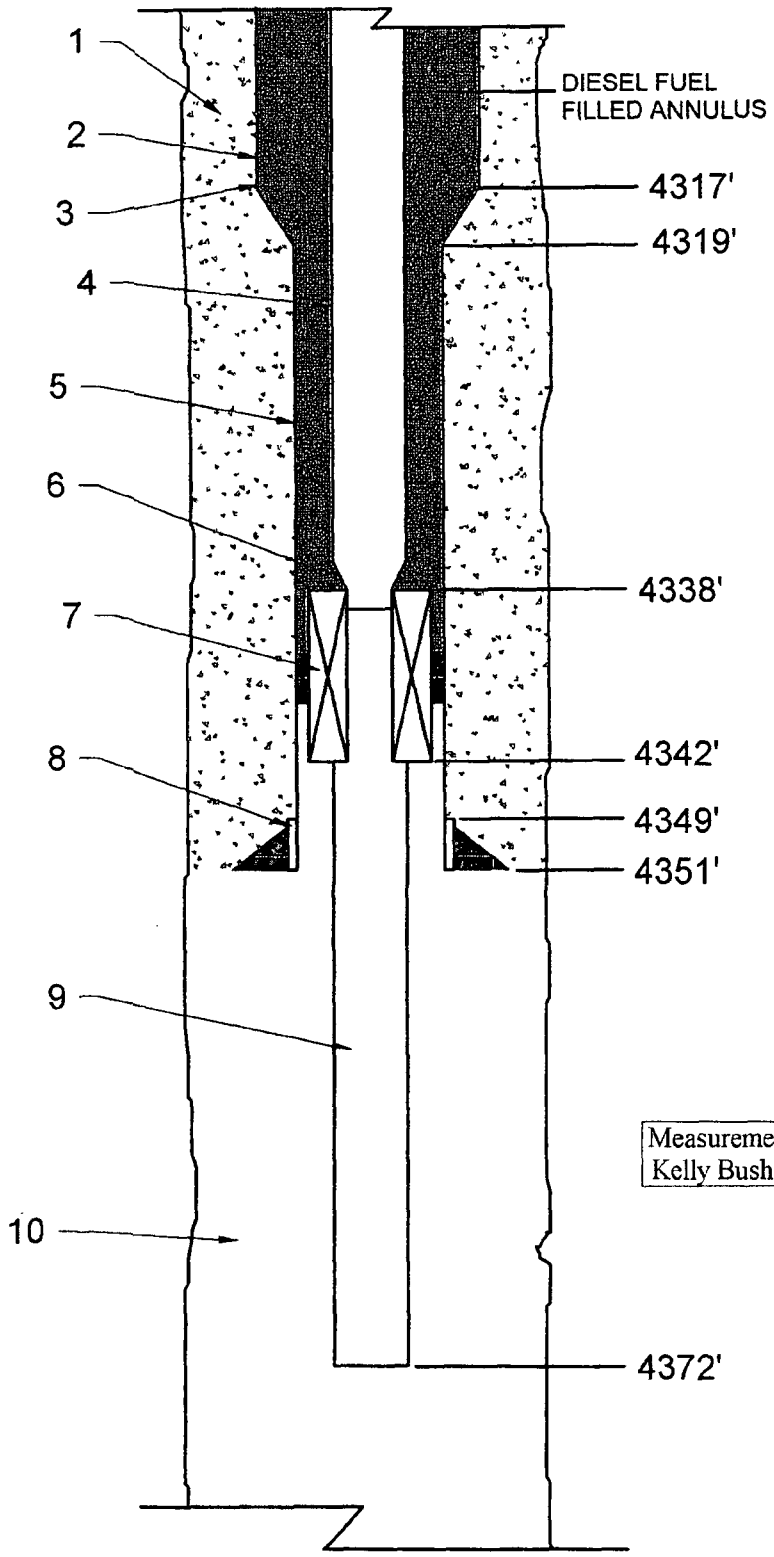
DLD RESOURCES, INC.

MONUMENT, NEW MEXICO

CLASS I INJECTION WELL

SCHEMATIC

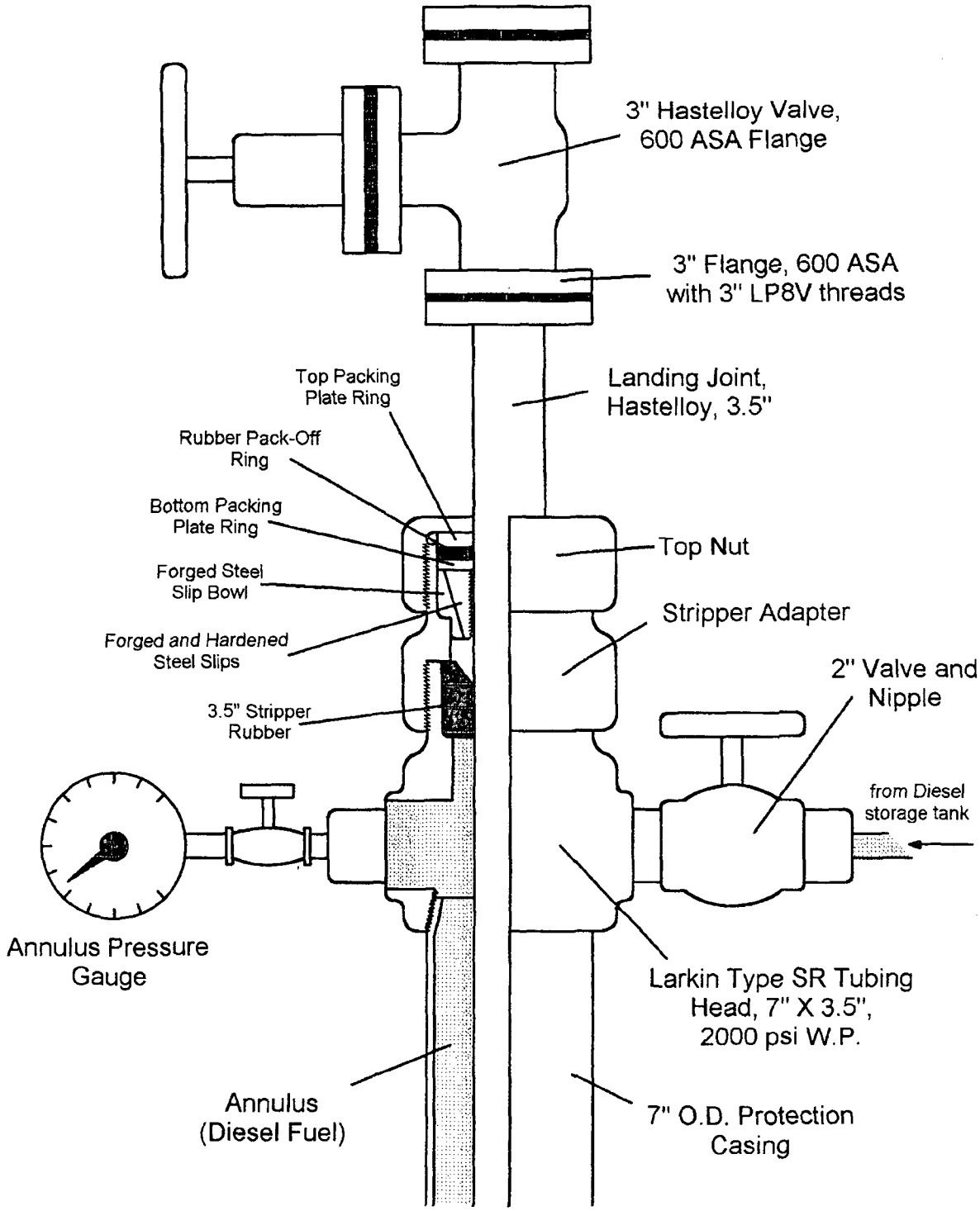
Figure 16



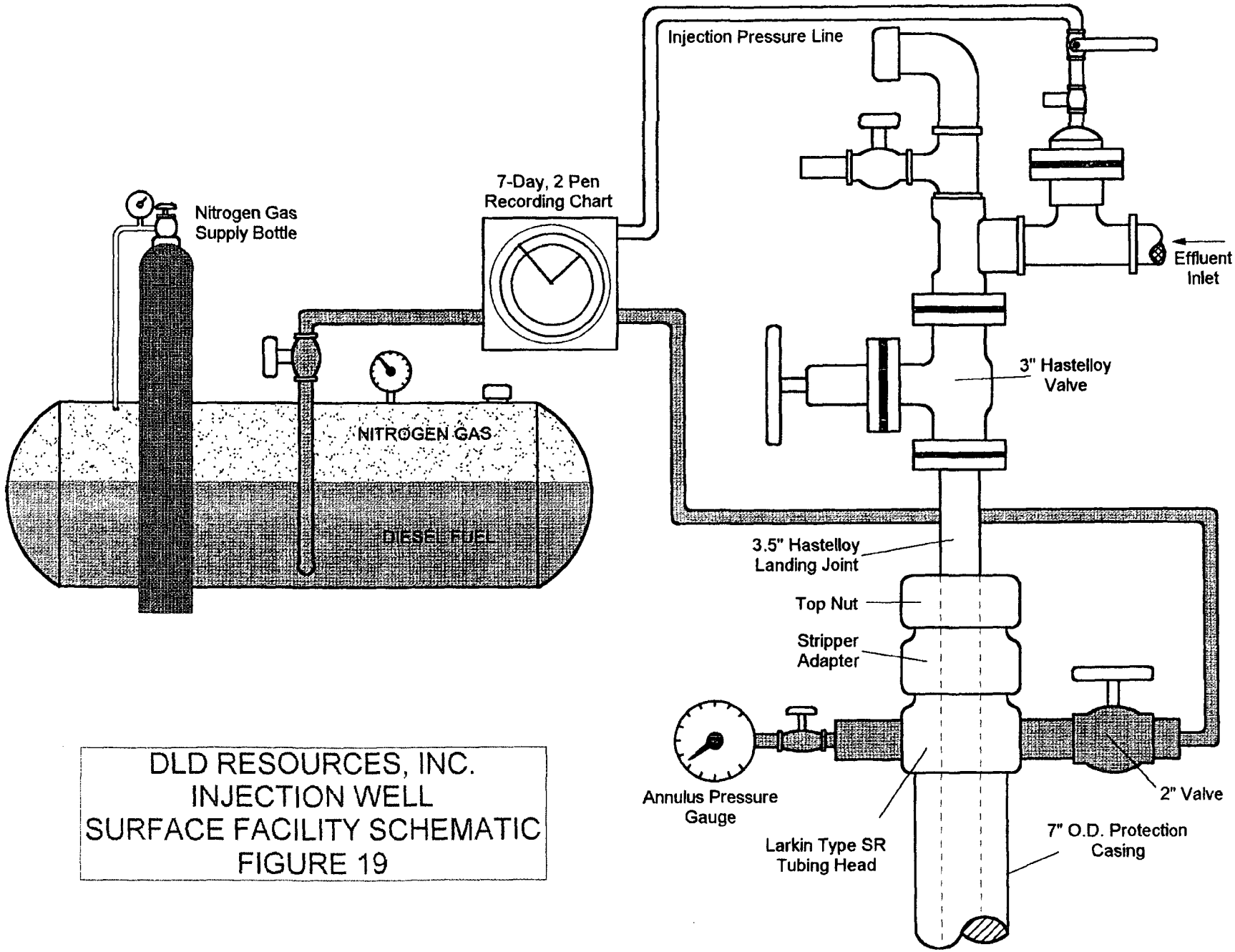
1. Cement, Howco Epseal
2. Protection Casing: 7" O.D., 20# and 23#/ft., J-55, ST & C
3. 7" collar, 7" X 5.5" swage, 5.5" collar
4. Injection Tubing, 3.5" Texas Fiberglass Products, premium 2100-L, resin rich lining
5. Casing 5.5" Hastelloy, C-276, .250" wall
6. Seal assembly, 3.5" EUE, 8rd, Louisiana Oil Tool latch in
7. Packer, Louisiana Oil Tool, Model 12, Hastelloy wet parts and teflon-viton seals
8. Collar carbon steel nipple and float shoe
9. One 3.5" TFP joint of tubing on bottom of packer
10. Open hole to ~5000'

Measurements are in relation to the Kelly Bushing (10' above ground).

DLD RESOURCES, INC.
INJECTION WELL
PACKER SECTION DETAIL
FIGURE 17



DLD RESOURCES, INC.
INJECTION WELL
WELLHEAD ASSEMBLY DETAILS
FIGURE 18



DLD RESOURCES, INC.
INJECTION WELL
SURFACE FACILITY SCHEMATIC
FIGURE 19

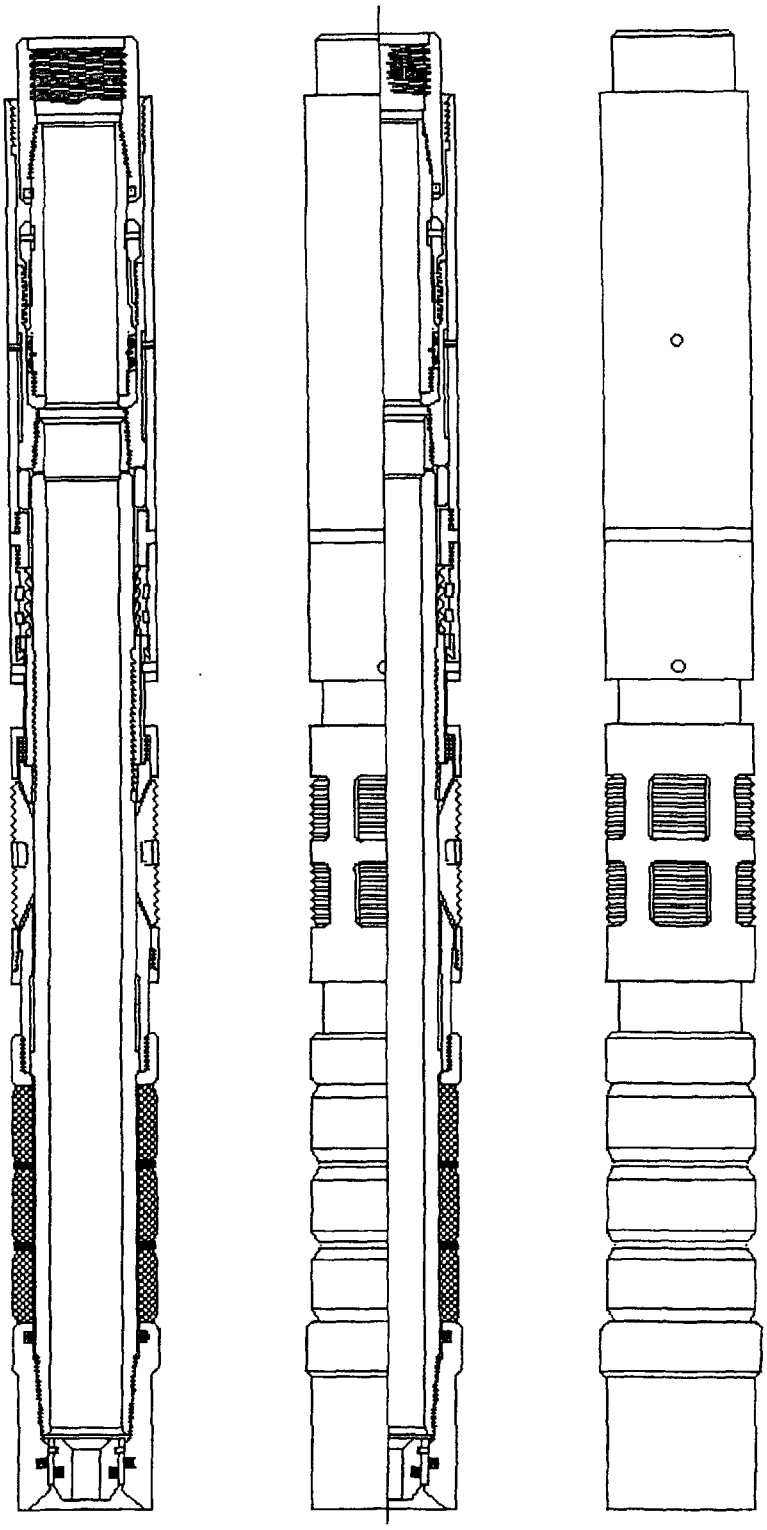


Figure 20 - Louisiana Oil Tools Packer

The open hole interval 4,351' to 5,000' was fracture treated with a Howco 100,000 gallon Mighty Acid – Alpha Phase type treatment. Appendix C contains this treatment report. Maximum pressure was 1,650-psi. Average treatment was at 1,500-psi and a 59-barrel per minute injection rate.

Treatment Sequence:	20,000 gallon gel water
	20,000 gallon gel 28% HCl acid
	20,000 gallon gel water
	20,000 gallon gel 28% HCl acid
	20,000 gallon slick flush

Instant Shut-in Pressure -	1,200-psi	180 minutes -	1,110-psi
10 minutes -	1,150-psi	300 minutes -	1,050-psi
30 minutes -	1,140-psi	1,260 minutes -	600-psi

After bleeding off the pressure, the tubing was run to 5,000' and then reversed out to 4,970'. The spent acid was recovered with some formation fine particles. Step-Rate Test #4 was performed on May 30, 1985. Injection pressure was measured at 1,100-psi with a rate of 160-gpm. Tubing pressure was acceptable at 1,435-psi.

A Welex tracer survey was performed by first recording a base gamma ray log prior to injecting radioactive material at 4,200' (base of casing 4,351'). Increments of water were injected and subsequent log runs were recorded. The material passed the shoe of the casing going down with no evidence of upward vertical migration. The survey indicated that a large percentage of the fluid exits the borehole near 4,450' with only a small portion travelling as low as 4,600'. No fluid movement at or below 4,700' was observed. (See Appendix C)

The packer (Louisiana Oil Tool, Model 12) was set at 4,338'-4,342' (Figure 16). A description of this packer is included as Appendix F. The packer was tested to 1,300-psi without any loss. After removing the workstring and BOP, the Louisiana Oil Tool Latch-in-Seal assembly and 28 joints of 3-1/2" Texas Fiberglass Products (TFP) 2100L premium resin-rich lined tubing were installed. Prior to setting the packer the annulus was displaced with a packer fluid of water containing 55 gallons of Champion Chemical Control R-2264 (a 3 in 1, bactericide, corrosion inhibitor, and oxygen scavenger). All tubing joints were internally tested to 1,700-psi. 145 joints of 3-1/2" TFP tubing plus 2 subs and Hastelloy landing joints were latched into the packer with 8,000 pounds of tension. The specifications of the TFP fiberglass tubing are presented as Appendix G. The wellhead was assembled. The casing and the annulus was pressure tested successfully to 1,300-psi.[1]

The annulus fluid was displaced with air to 15' and then filled with diesel fuel. The valves were installed. A bottom hole pressure test was run by John West Engineering Company. The test indicated 1,929-psi at 4,675'.[2]

The well was ready for service and returned to Climax Chemical Company.

Appendix H provides the rig inventory of the Cactus Drilling Rig No. 63.

[1] KEDA (1985), Rework Report, Table III – Test No. 2.)

[2] KEDA (1985), Rework Report, Table VII

KEDA CONCLUSIONS AND RECOMMENDATIONS (MAY 1985)

The San Andres formation encountered in this well is very dense dolomitic limestone with anhydrite deposited in the pore spaces. Permeability is reduced to a low range not capable of accepting fluid at required rates without pressure. Injection tests indicate that the pressure required to inject at a rate of 160-gpm will be at least 1,200-psi (Howco instant shut-in) plus 105-psi friction pressure in the 3-1/2" tubing. The tracer survey showed no upward vertical migration and the survey was performed after the fracture treatment. The logic here is that if a rate of 59 barrels per minute was contained in the zone, then a rate of 4 barrels per minute should certainly follow the same path as the fracture treatment.

KEDA recommended "that the waste stream be filtered and pumped in the well a pressures less than the fracture pressures exerted by Howco (max 1,650-psi) during the fracture treatment. Tracer surveys can be performed to ensure against vertical migration. Annular pressure (3-1/2" X 7") should be monitored to detect tubing leaks. Continuous recording of tubing and annulus pressure should be performed. Monthly review of operating data should be performed to detect irregularities. Wastewater should be monitored daily for volume, temperature, pH, specific gravity, and suspended solids".

OPERATIONAL PLAN

A series of sumps collect runoff from the plant process area. These, along with process effluent discharges from the venturi scrubber system, are pumped to an Elementary Neutralization Unit (ENU) where soda ash (Na_2CO_3) is added to neutralize the acidic waste stream. Refer to Figures 21, 22, and 23.

The chemical reaction in the neutralization unit is as follows:

- Sodium Carbonate (Na_2CO_3) goes into solution with water in the slurry tank at a ratio of approximately 1 part soda ash to 3.5 parts water (1:3.5). The slurry is then added to the neutralization tank where the following reaction takes place:

$$Na_2CO_3 + 2HCl \rightarrow 2NaCl + CO_2 + H_2O$$

In case of an ENU failure, DLD has three optional operational responses.

- The first response would be to simply shut the plant down and stop the flow of effluent.
- The second option is manual neutralization of the waste stream to maintain the pH above 4.0. This will be accomplished by plant personnel by the manual addition of soda ash into a number of vessels such as T-11, the neutralization tank, scrubber tank, or the sumps. The small quench tank neutralization vessel can also be used to mix the slurry, which could then be gradually fed into the neutralization system via the salt plant sump.
- The third option is to pump the un-neutralized effluent to tank T-11. This tank as a capacity of 50,000 gallons which would be sufficient to store process effluent for 8-12 hours, depending on the rate of plant operation (100-gpm = 8.3 hours; 72-gpm = 11.5 hours).

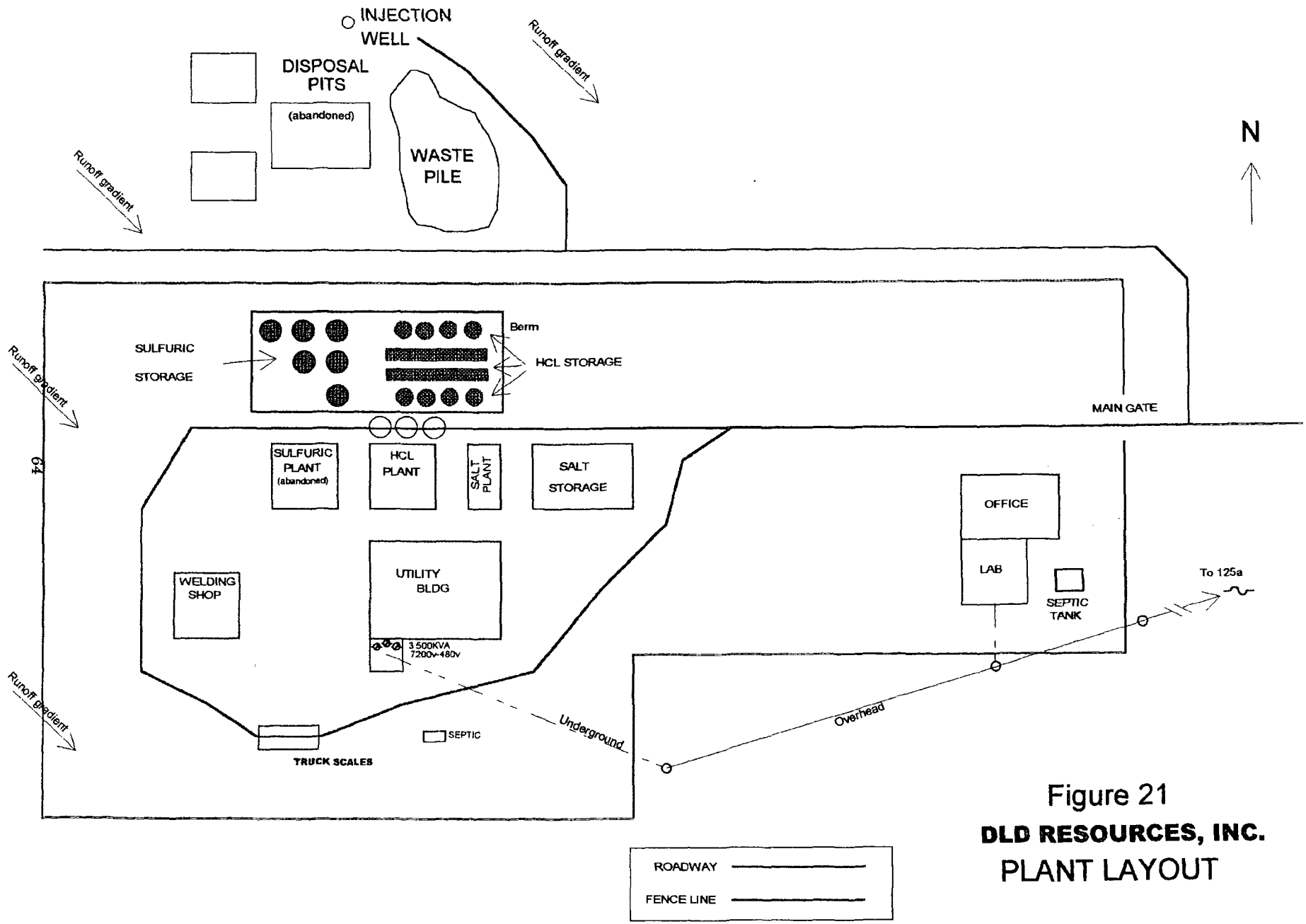
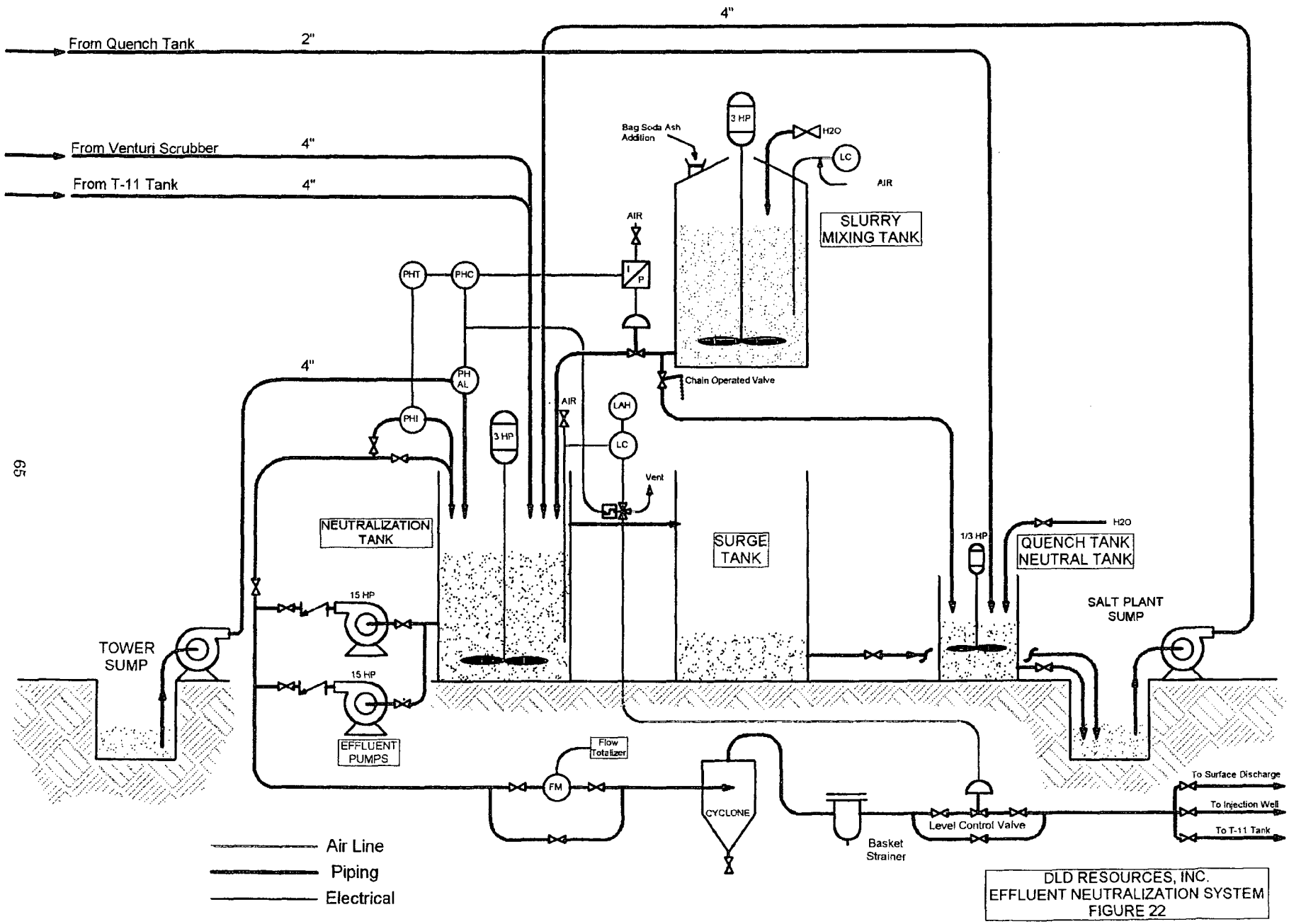


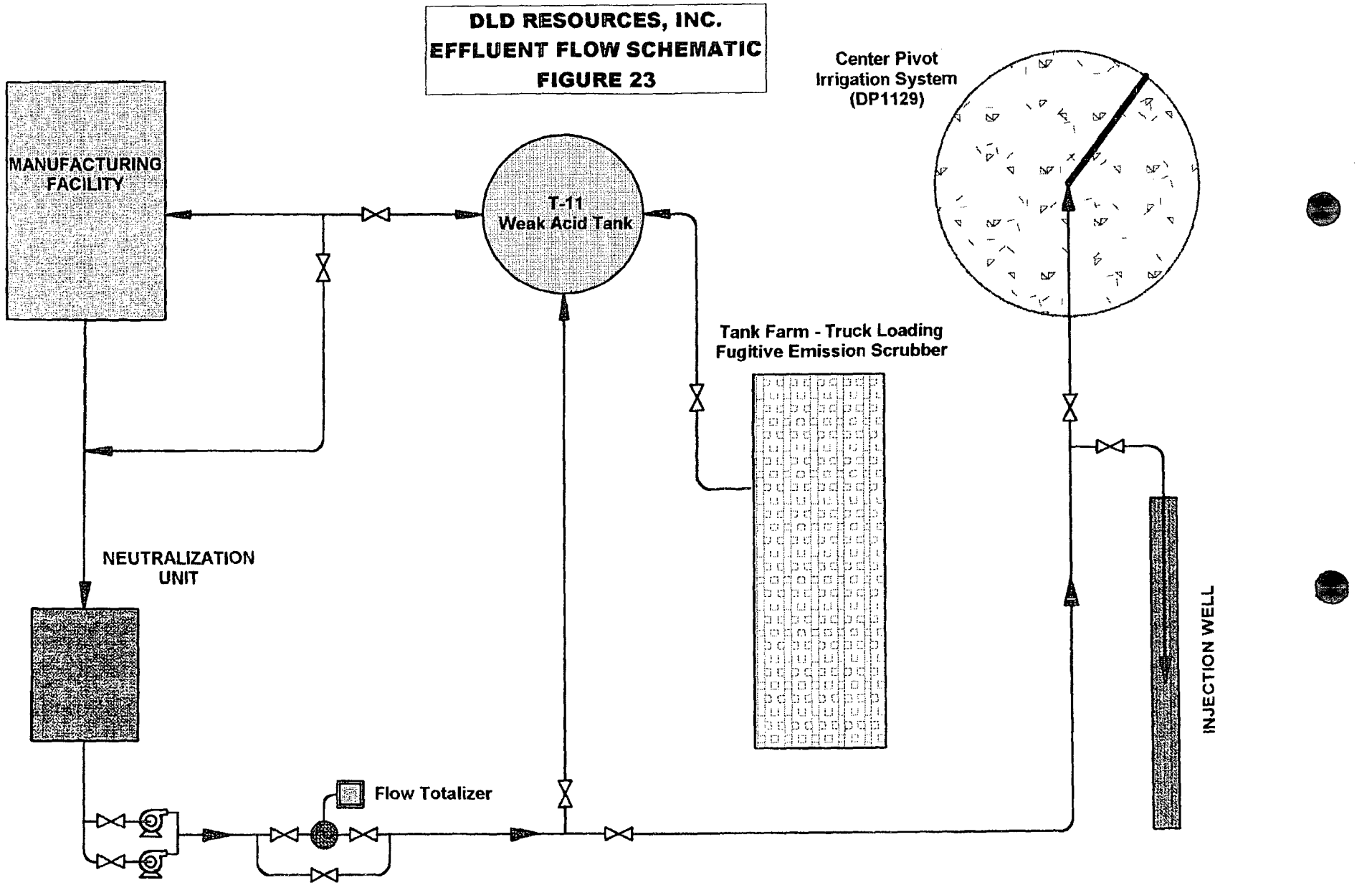
Figure 21

DLD RESOURCES, INC.

PLANT LAYOUT



DLD RESOURCES, INC.
EFFLUENT NEUTRALIZATION SYSTEM
FIGURE 22


DLD RESOURCES, INC.
EFFLUENT FLOW SCHEMATIC
FIGURE 23
Center Pivot
Irrigation System
(DP1129)
MANUFACTURING
FACILITY
T-11
Weak Acid Tank
Tank Farm - Truck Loading
Fugitive Emission Scrubber
NEUTRALIZATION
UNIT
Flow Totalizer
INJECTION WELL

Extended shutdown of the neutralization system is unlikely because of the redundancy built into the system and because of the spare parts inventory kept on hand. Equipment critical to the ENU operation includes the neutralization tank agitator, effluent discharge pump, and pH instrumentation.

In the case of the agitator, DLD maintains one operational spare motor and the manufacturer's recommended spare parts for the gearbox. The entire soda ash tank agitator is a duplicate of the neutralization tank agitator, excepting the PVC coated agitator. In a crisis, the soda ash tank agitator could be removed and installed in the neutralization tank if needed. In this event, the slurry suspension would be maintained using air lances.

A stand-by effluent pump is included in the neutralization system (see Figure 22). Either pump is capable of handling the plant's effluent flow. The spare parts inventory for both pumps is maintained onsite.

Under this Discharge Permit, pH 3.5+ effluent from the ENU will be discharged to the Class I injection well for disposal into the San Andres Formation injection zone (4,350' – 5,000').

CONTINGENCY PLAN

The facility contingency plan is submitted in this permit application as Appendix J.

As regards alternate disposal options, the following options will be available:

ENU FAILURE:

- Shut the plant down and block effluent flow; or
- Accomplish adequate neutralization of effluent with manual procedures; or
- Divert low pH effluent to weak acid tank T-11 (50,000 gallon capacity, 8-12 hours depending on operating rate). Divert back through the ENU once repairs have been facilitated.

ENU PRIMARY PUMP FAILURE:

- Switch to secondary ENU inline pump.

INJECTION WELL NON-OPERATIONAL:

- Shut the plant down and block effluent flow; or
- Divert neutralized effluent to weak acid tank T-11; or
- Increase neutralization of effluent to >6.0 and divert to land application system (DP1129)

MONITORING AND SAMPLING PLAN

EFFLUENT CHEMISTRY

Effluent will be sampled and logged by DLD personnel once daily and analyzed for pH and Specific Conductance. Effluent pH is also monitored within the ENU system and a continuous chart is generated in the plant control room.

Effluent will be sampled quarterly and analyzed by an independent laboratory for pH, TDS @ 180°F, Chloride, and Sulfate.

EFFLUENT VOLUME

Effluent flow will be through a magnetic flow totalizer. Readings will be logged daily.

INJECTION WELL PRESSURES

Injection well annulus and tubing head pressures are constantly monitored at the wellhead. Readouts are recorded on a double-pen, 7-day circular chart.

REPORTING

Quarterly reports will be submitted to NMED. Reports shall include: daily pH, daily Specific Conductance, daily volumes, quarterly lab analysis of effluent, and photocopies of pressure charts.

MECHANICAL INTEGRITY TESTING

Class I injection wells are required by Federal and New Mexico regulations to have Mechanical Integrity Tests (MIT) performed on them at a minimum interval of five years. The MIT requirement is implemented to ensure that there is no vertical migration of injected fluids along the cement-wellbore seal or the cement-casing seal.

TESTING METHODS

Mechanical integrity testing is routinely done on oil and gas producing wells. Several major oil field service companies specialize in this type of service. The most commonly used methods are:

Acoustic Cement Bond Log

This method utilizes an acoustic emitter and sensor combination to test the integrity of the cement bonding along the entire length of the well casing. This method requires that the injection tubing be removed from the well. The packer is then plugged and the entire well casing is filled with water. Due to the necessity to pull the injection tubing, this method is very expensive and time consuming.

Radioactive Tracer

This method utilizes the injection of a radioactive isotope (generally Iodine-131) into the injection zone. A sensor is then moved within the injection tubing to detect the presence of radioactivity along the cement bonds. The presence of radioactivity above the open borehole indicates vertical migration of injected fluids.

Due to the severe environmental and safety concerns inherent with the handling of radioisotopes, companies generally have ceased the performance of this test.

Water Flow Log (Activated Oxygen)

This method utilizes the fact that when an oxygen atom absorbs a neutron it will emit gamma radiation in the process (see Appendix K). The test involves the placement of a neutron emitter and a gamma radiation detector inside the injection tubing. Water is then injected into the well and the neutron emitter is activated. If gamma radiation is detected, vertical migration is occurring.

PRIOR TESTING ON THE WELL

Climax Chemical Company performed two MITs on this well. The first was in 1985 upon completion of well construction. The second was in 1990.

1985 - Welex

Welex (now Halliburton Logging Services) performed five surveys on the injection well upon its completion in 1985. These five surveys were:

- Dual Guard Micro Guard Log; (4-22 to 4-30-85)
- Compensated Density Dual Spaced Neutron Log; (4-22 to 4-30-85)
- Micro-Seismogram Log Cased Hole; (4-22 to 4-30-85)
- Acoustic Cement Bond Log; (5-7-85)
- Radioactive Tracer Survey (5-31-85)

None of these tests indicated any anomalies in the well construction.[1]

1990 – Halliburton Energy Services

On October 11, 1990, Halliburton Logging Services performed an Acoustic Cement Bond Log on the well. One anomaly was noted at around 200 feet below surface level. It is not known if there is a degeneration of the cement at this location, or if there was interference with the instrumentation due to a constituent of the cement. Regardless of the cause, this anomaly will not have any effect on the integrity of the well since it is extremely confined in size and over 4,000 feet above the injection zone of the well (See Appendix L).

PROPOSED MECHANICAL INTEGRITY TESTING

DLD Resources proposes to perform a Water Flow Log (Appendix K) on the well to prove mechanical integrity and lack of vertical migration. This survey will be performed prior to approval of this permit by NMED. The survey will be run by Schlumberger Well Services with the crew and equipment coming out of Midland, Texas.

CLOSURE PLAN

SURFACE EQUIPMENT

See Figure 19 for a schematic diagram of the injection well surface facilities. The only system components that will be discontinued during the term of the permit are those components that

[1] KEDA, Rework Report, 1985, Exhibit B

would have to be replaced for maintenance reasons. Since the nature of the effluent is non-hazardous or non-toxic, no special treatment of hardware will be necessary.

PLUGGING AND ABANDONMENT

In the event that DLD Resources decides to permanently discontinue use of the injection well, the well will plugged and abandoned as described in the Halliburton Services Cost Estimate for Plugging and Abandonment (Appendix M).

FINANCIAL ASSURANCE

DLD Resources shall establish a Plugging and Abandonment Trust Agreement with Western Commerce Bank, Hobbs, NM (see Appendix N). The Trust shall be initially funded in the amount $14,000 to cover the cost of the well P&A and two years of ground water monitoring of wells associated with DP-1129 (surface discharge system). The sole beneficiary of the Trust shall be NMED. The instrument for funding of the Trust shall be 5-year Certificates of Deposit.

PROPERTY AND MINERAL OWNERS

The list of property and mineral owners within the 2-½ mile radius area of review is included as Appendix O. A copy of the letter of notification is also included.

CERTIFICATIONS

I certify that I have the authority to sign this document as an Officer/Director for DLD Resources, Inc., the legal owner of the property in which all discharges will occur.

Signature of authorized person	Title	Date

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

Signature of person legally responsible for the discharge	Title	Date

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