

*D. G. Kernaghan*

May 30, 1984

Mr. Tom Kellahin  
117 North Guadalupe  
El Padio Building  
Santa Fe, New Mexico 87504

Dear Tom:

Enclosed are two copies of the C-108 and attachments for our Dagger Draw SWD Well #1 application.

A copy has been sent to the Artesia office of the N.M.O.C.D.

Sincerely,  
*D. G. Kernaghan*  
D. G. Kernaghan

DGK/dkn

encl.

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose:  Secondary Recovery  Pressure Maintenance  Disposal  Storage  
 Application qualifies for administrative approval?  yes  no

II. Operator: Anadarko Production Company

Address: Box 130, Artesia, New Mexico 88210

Contact party: Jerry Buckles Phone: 505/748-3368

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project?  yes  no  
 If yes, give the Division order number authorizing the project \_\_\_\_\_.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

  1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

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

Name: D. O. Kernaghan Title Division/Operations Manager  
 Signature: D. O. Kernaghan Date: 5/30/84

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

Name: D. J. Kernaghan Title Division/Operations Manager

Signature: Nikolee Van Date: 5/30/84

information required under Sections VI, VIII, X, and XI above has been previously

ted, it need not be duplicated and resubmitted. Please show the date and circumstance  
of your submission.

Carrier submitter. Logs will be filed when run.

**Final reports shall be sent to each one copy to the appropriate Division**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	930	931	932	933	934	935	936	937	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WELL AND OPERATING DATA  
PROPOSED  
ANADARKO DAGGER DRAW SWD #1 WELL

LOCATION: 1495' FNL & 225' FWL  
Sec. 22, T19S, R25E  
Eddy County, New Mexico

WELL DATA

Casing and Tubing: As shown on attached schematic subject to NMOCD rules and permit approval. Cement circulated on surface and intermediate casing. Cement calculated to reach surface on long string.

Packer: Tension packer set as close to perfs as practical.

Stimulation: NE HCL or other acid in sufficient volume to clean perfs and formation near wellbore.

Logs: To be filed when run.

FORMATION DATA

Injection Formation: Cisco-Canyon  
Thickness: 400 feet.  
Lithology: Limestone w/scattered dolomite  
Interval: Perforations from 7800' to 8030' approx.

Possible productive zones in area: Yeso - 2500'  
Wolfcamp - 6200'  
Strawn - 8300'  
Atoka - 9000'  
Morrow - 9300'

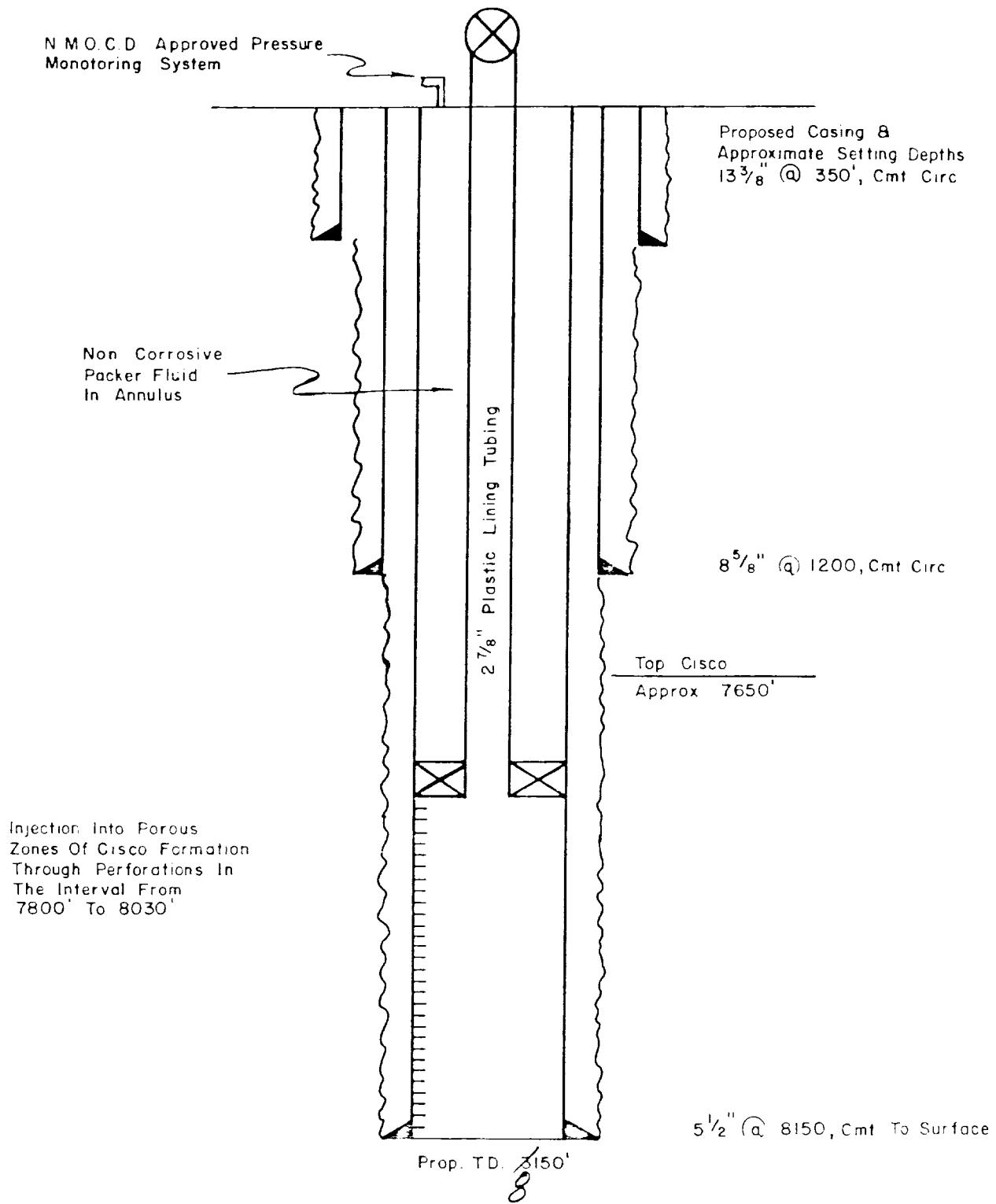
Lowest Fresh Water: 1100' est.

SYSTEM DATA

Closed system  
Water Treatment: Corrosion inhibitors as needed  
Injection Pressure: Vac to 1500 psig  
Volume of Disposed Water: Up to 10,000 B/D.  
4000 B/D initially only from Cisco-Canyon

## PROPOSED COMPLETION

ANADARKO - DAGGER DRAW SWD #1 WELL  
1495' FNL & 225' FWL SEC. 22, T 19 S R 25 E  
EDDY COUNTY, NEW MEXICO



TABULATION OF WELL DATA

WELL NAME	LOCATION		DATE		CASING, DEPTH & CEMENT		PERFS	FORMATION
	FOOTAGE	STR	COMPL.	TD				
Anadarko Osage No. 1	1980' FN&EI,	21-19-25	Prod. Oil	9/23/82	7954 PBTD	13-3/8" @ 500' 8-5/8" @ 1299' 5-1/2" @ 7926'	w/500 sxs w/850 sxs w/475 sxs	7672-7704 Cisco
			D&A	8/16/73	9410 TD			

Orig. Coquina Osage No. 1

AFFIRMATIVE STATEMENT  
(ITEM XII)

I affirmatively state that I have thoroughly examined available geologic and engineering data and find no evidence of open faults, or any other hydrologic connection between the disposal zone and any underground source of drinking quality water.



Richard A. Erickson  
Staff Geological Engineer  
Anadarko Production Company

P O BOX 1488  
MONAHANS TEXAS 79750  
FM 943 3234 OR 503-1040

Martin Water Laboratories, Inc.

208 W INDIANA  
MIDLAND TEXAS 79701  
PHONE 683-4521

RESULT OF WATER ANALYSES

Anadarko Production Company  
TO P.O. Drawer 130, Artesia, NM

LAIRATORY NO. 2032B  
SAMPLE RECEIVED 2-2-83  
RESULTS REPORTED 2-4-83

COMPANY Anadarko Production Company LEASE Dagger Draw  
FIELD OR POOL  
SECTION BLOCK SURVEY COUNTY Eddy STATE NM  
SOURCE OF SAMPLE AND DATE TAKEN

NO. 1 Produced water - taken from Orange fl.

NO. 2

NO. 3

NO. 4

REMARKS:

CISCO

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0068			
pH When Sampled				
pH When Received	7.22			
Bicarbonate as $\text{HCO}_3$	1,147			
Supersaturation as $\text{CaCO}_3$				
Undersaturation as $\text{CaCO}_3$				
Total Hardness as $\text{CaCO}_3$	1,950			
Calcium as Ca	572			
Magnesium as Mg	126			
Sodium and/or Potassium	1,820			
Sulfate as $\text{SO}_4$	2,415			
Chloride as Cl	1,740			
Iron as Fe	0.04			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	7,820			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	700			
Resistivity, ohms/m at 77° F.	0.723			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks Our nearest records of Cisco water in the area are about 10 miles south. When we compare the above with those records, we do see some significant similarity in this water and Cisco. This results in a slightly unstable conclusion that this is natural carbonate Cisco.

Form No. 3

LLEGIBLE

Waylon C. Martin, M. A.

P O BOX 1408  
MONAHAN TEXAS 79770  
PH 843-3234 OR 883-1040

Martin Water Laboratories, Inc.

MIDLAND TEXAS 79701  
PHONE 843-4321

RESULT OF WATER ANALYSES

TO Anadarko Production Company  
P.O. Drawer 130, Artesia, NM 88210

LABORATORY NO. 583326

SAMPLE RECEIVED 5-20-83

RESULTS REPORTED 5-24-83

COMPANY Anadarko Production Company

LEASE \_\_\_\_\_

FIELD OR POOL \_\_\_\_\_

SECTION BLOCK SURVEY COUNTY Eddy

STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Raw water - taken from Section 15 windmill.

NO. 2 \_\_\_\_\_

NO. 3 \_\_\_\_\_

NO. 4 \_\_\_\_\_

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0035			
pH When Sampled				
pH When Received	7.68			
Bicarbonate as $\text{HCO}_3$	198			
Supersaturation as $\text{CaCO}_3$				
Undersaturation as $\text{CaCO}_3$				
Total Hardness as $\text{CaCO}_3$	1,280			
Calcium as Ca	386			
Magnesium as Mg	77			
Sodium and/or Potassium	1			
Sulfate as $\text{SO}_4$	1,026			
Chloride as Cl	38			
Iron as Fe	0.36			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	1,726			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	4.75			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

RECEIVED

May 25 1983

ARTESIA

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

cc: Mr. Bill Griffin, Midland  
Mr. Dan Kernaghan, Midland

By Maylan C. Martin, M. A.

P O BOX 1488  
MONAHANS TEXAS 79758  
PH 843-3234 OR 983-1040

Martin Water Laboratories, Inc.

708 W INDIANA  
MIDLAND TEXAS 79701  
PHONE 843-4321

RESULT OF WATER ANALYSES

LABORATORY NO. 583334

TO. Anadarko Production Company  
P O DRAWER 130, ARROYO, NM 88210

SAMPLE RECEIVED 5-20-83  
RESULTS REPORTED 5-24-83

COMPANY Anadarko Production Company LEASE  
FIELD OR POOL  
SECTION BLOCK SURVEY COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN

NO. 1 Raw water - taken from Section 22 windmill.

NO. 2

NO. 3

NO. 4

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0012			
pH When Sampled				
pH When Received	7.50			
Bicarbonate as $\text{HCO}_3$	95			
Supersaturation as $\text{CaCO}_3$				
Undersaturation as $\text{CaCO}_3$				
Total Hardness as $\text{CaCO}_3$	1,645			
Calcium as Ca	966			
Magnesium as Mg	117			
Sodium and/or Potassium	4			
Sulfate as $\text{SO}_4$	1,376			
Chloride as Cl	29			
Iron as Fe	1.5			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	2,187			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	3.40			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct  
to the best of his knowledge.

RECEIVED

MAY 22 1983

A. K. R.

TEST

Form No. 3

cc: Mr. Bill Griffin, Midland  
Mr. Dan Kernaghan, Midland

By

Waylan C. Martin, M. A.



May 30, 1984

ADDRESS LIST ATTACHED

Gentlemen:

Anadarko Production Company is making application for Authority to Inject salt water into the Cisco-Canyon formation in a well to be drilled as a SWD well at a location 1495' FNL & 225' FWL of Section 22, T19S, R25E, Eddy County, New Mexico. A copy of the C-108 form and a map showing the proposed location are attached.

Anadarko intends to request permission to dispose of water from our Osage No.1 well and other company operated Cisco-Canyon wells in the area as well as possible outside water on a commercial basis. Total volume will range from 4000 BPD initially to 10,000 BPD at a later date. Surface pressure will be a maximum of 1500 psig.

A hearing will be required by the N.M.O.C.D. to consider this application. Anyone wishing to file an objection should notify the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico, 87501 within 15 days.

If you have any questions please contact me at 915/582-1666.

Sincerely,

D. G. Kernnaghan

DGK:gks

ATTACH.

- / A. J. Antweil  
814 W. Marland  
Hobbs, New Mexico
- / Armour Properties  
c/o R. E. Chambers  
1107 Oil & Gas Bldg.  
Wichita Falls, Texas 76301
- / D. E. Blackmar  
1407 Highland Road  
Roswell, New Mexico 88201
- / Conoco, Inc.  
P. O. Box 1959  
Midland, Texas 79702
- / Mary Elaine Cribbs  
231 East Iliff Ave 1/2  
Denver, Colorado 80210
- / Crown Central Petroleum Corporation  
731 West Wadley  
Building K, Suite 200  
Midland, Texas 79701
- / Flag-Redfern Oil Company  
P. O. Box 2280  
Midland, Texas 79702
- / Hondo Oil & Gas Co.  
P. O. Box 1610  
Midland, Texas 79702
- / Marshall & Winston, Inc.  
P. O. Box 874  
Midland, Texas 79702
- / Monsanto Company  
1330 Midland National Bank Tower  
Midland, Texas 7701
- / C. E. Nearburg  
P. O. Box 31405  
Dallas, Texas 75231
- / Reading & Bates Oil & Gas  
1100 Midcontinent Bldg.  
409 S. Boston Ave.  
Tulsa, Oklahoma 74103
- / T. J. Sivley  
214 Booker Bldg.  
Artesia, New Mexico 88210
- / Suburban Propane Gas Corp.  
P. O. Box 17689  
San Antonio, Texas 78217
- / Leslie and Jean Whitney  
12723 Richmond Ave. 1/2  
Grandview, MO 64030
- / Yates Petroleum Corp.  
207 South 4th  
Artesia, New Mexico 88201

## APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose:  Secondary Recovery  Pressure Maintenance  Disposal  Storage  
Application qualifies for administrative approval?  yes  no
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  2. Whether the system is open or closed;
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  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.).
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- I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- Name: D. G. Kernaghan Title Division/Operations Manager  
Signature: D. G. Kernaghan Date: 5/30/84

- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. Logs will be filed when run.

**ANADARKO PRODUCTION COMPANY  
MIDLAND DIVISION**

DAGGER DRAW NE  
EDDY CO., NEW MEXICO

015

PS Form 3811, Jan 1979

**② SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)  
 Show to whom and date delivered.....  
 Show to whom, date and address of delivery...  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.\$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
Reading & Bates Oil & Gas  
409 S. Boston Ave.  
Tulsa, Oklahoma 74103

3. ARTICLE DESCRIPTION:  
REGISTERED NO.    CERTIFIED NO.    INSURED NO.  
*5384913*

(Always obtain signature of addressee or agent)  
I have received the article described above.  
SIGNATURE  Addressee  Authorized agent  
*Renee Mart*

4. DATE OF DELIVERY  
*6-1-84*

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:  
CLERK'S INITIALS

POSTMARK  
JUN 1 1984

☆ GPO : 1979-288-848

PS Form 3811, Jan 1978

**② SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)  
 Show to whom and date delivered.....  
 Show to whom, date and address of delivery...  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.\$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
Mary Elaine Cribbs  
231 East Iliff Ave. 1/2  
Denver, Colorado 80210

3. ARTICLE DESCRIPTION:  
REGISTERED NO.    CERTIFIED NO.    INSURED NO.  
*5384913*

(Always obtain signature of addressee or agent)  
I have received the article described above.  
SIGNATURE  Addressee  Authorized agent  
*M.E.Cribbs*

4. DATE OF DELIVERY

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:  
CLERK'S INITIALS

POSTMARK

☆ GPO : 1979-288-848

PS Form 3811, Jan 1978

**② SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)  
 Show to whom and date delivered.....  
 Show to whom, date and address of delivery...  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.\$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
Yates Petroleum Corp.  
207 South 4th  
Artesia, New Mexico 88201

3. ARTICLE DESCRIPTION:  
REGISTERED NO.    CERTIFIED NO.    INSURED NO.  
*5384913*

(Always obtain signature of addressee or agent)  
I have received the article described above.  
SIGNATURE  Addressee  Authorized agent  
*Rhonda Birrell*

4. DATE OF DELIVERY  
*6-1-84*

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:  
CLERK'S INITIALS

POSTMARK

☆ GPO : 1979-288-848

PS Form 3811, Jan 1978

**② SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)  
 Show to whom and date delivered.....  
 Show to whom, date and address of delivery...  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.\$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
A.J. Antweil  
814 W. Marland  
Hobbs, New Mexico 88240

3. ARTICLE DESCRIPTION:  
REGISTERED NO.    CERTIFIED NO.    INSURED NO.  
*5384913*

(Always obtain signature of addressee or agent)  
I have received the article described above.  
SIGNATURE  Addressee  Authorized agent  
*L. J. Antweil*

4. DATE OF DELIVERY  
*5-31-84*

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:  
CLERK'S INITIALS  
*J. A. A.*

POSTMARK

☆ GPO : 1979-288-848

PS Form 3811, Jan. 1978

**1. SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)

Show to whom and date delivered.....¢  
 Show to whom, date and address of delivery...¢  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....¢  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.\$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
 Marshall & Winston, Inc.  
 P. O. Box 874  
 Midland, Texas 79702

3. ARTICLE DESCRIPTION:  
 REGISTERED NO. **5384960** CERTIFIED NO. INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.  
 SIGNATURE  Addressee  Authorized agent

4. DATE OF DELIVERY **6-1-84** POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

☆ GPO : 1979-288-848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3811, Jan. 1978

**1. SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)

Show to whom and date delivered.....¢  
 Show to whom, date and address of delivery...**75¢**  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....¢  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.\$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
 D.E. Blackmar  
 1407 Highland Road  
 Roswell, New Mexico 88201

3. ARTICLE DESCRIPTION:  
 REGISTERED NO. **5384962** CERTIFIED NO. INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.  
 SIGNATURE  Addressee  Authorized agent

4. DATE OF DELIVERY **5/31/84** POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

☆ GPO : 1979-288-848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3811, Jan. 1979

**1. SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)

Show to whom and date delivered.....¢  
 Show to whom, date and address of delivery...**75¢**  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....¢  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.\$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
 Conoco, Inc.  
 P. O. Box 1959  
 Midland, Texas 79702

3. ARTICLE DESCRIPTION:  
 REGISTERED NO. **5384960** CERTIFIED NO. INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.  
 SIGNATURE  Addressee  Authorized agent

4. DATE OF DELIVERY **15-31-84** POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

☆ GPO : 1979-288-848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3811, Jan. 1979

**1. SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)

Show to whom and date delivered.....¢  
 Show to whom, date and address of delivery...**75¢**  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....¢  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.\$

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
 Flag-Redfern Oil Company  
 P. O. Box 2280  
 Midland, Texas 79702

3. ARTICLE DESCRIPTION:  
 REGISTERED NO. **125,5384972** CERTIFIED NO. INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.  
 SIGNATURE  Addressee  Authorized agent

4. DATE OF DELIVERY **15-31-84** POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: CLERK'S INITIALS

☆ GPO : 1979-288-848

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PS Form 3311, Jan 1978		RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL							
<p><b>1. SENDER:</b> Complete Items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.</p> <p>1. The following service is requested (check one.)</p> <p><input type="checkbox"/> Show to whom and date delivered..... e</p> <p><input checked="" type="checkbox"/> Show to whom, date and address of delivery... e</p> <p><input type="checkbox"/> RESTRICTED DELIVERY Show to whom and date delivered..... e</p> <p><input type="checkbox"/> RESTRICTED DELIVERY. Show to whom, date, and address of delivery. \$ _____</p>									
<b>(CONSULT POSTMASTER FOR FEES)</b>									
<p>2. ARTICLE ADDRESSED TO:</p> <p>Crown Central Petroleum Corp. 731 West Wadley, Bldg. K, Suite 200 Midland, Texas 79701</p>									
<p>3. ARTICLE DESCRIPTION:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">REGISTERED NO.</th> <th style="text-align: left;">CERTIFIED NO.</th> <th style="text-align: left;">INSURED NO.</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center; vertical-align: middle;">5584921</td> </tr> </tbody> </table> <p>(Always obtain signature of addressee or agent)</p>				REGISTERED NO.	CERTIFIED NO.	INSURED NO.	5584921		
REGISTERED NO.	CERTIFIED NO.	INSURED NO.							
5584921									
<p>I have received the article described above.</p> <p><b>SIGNATURE</b>    <input type="checkbox"/> Addressee    <input type="checkbox"/> Authorized agent</p> <p><i>[Signature]</i></p>									
<p>4. DATE OF DELIVERY</p>		<p>POSTMARK</p>							
<p>5. ADDRESS (Complete only if requested)</p>		<p>6. UNABLE TO DELIVER BECAUSE:</p>							
		<p>CLERK'S INITIALS</p>							

PS Form 3611, Jan. 1979  RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL	1. SENDER. Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.	
	1. The following service is requested (check one.) <input type="checkbox"/> Show to whom and date delivered. .... <input checked="" type="checkbox"/> e <input checked="" type="checkbox"/> Show to whom, date and address of delivery... <input checked="" type="checkbox"/> e <input type="checkbox"/> RESTRICTED DELIVERY Show to whom and date delivered. .... <input type="checkbox"/> e <input type="checkbox"/> RESTRICTED DELIVERY. Show to whom, date, and address of delivery. <input type="checkbox"/> e	
(CONSULT POSTMASTER FOR FEES)		
2. ARTICLE ADDRESSED TO:		
Hondo Oil & Gas Co. P. O. Box 1610 Midland, Texas 79702		
2. ARTICLE DESCRIPTION:		
REGISTERED NO.	CERTIFIED NO.	INSURED NO.
<i>P05.5384900</i>		
(Always obtain signature of addressee or agent)		
I have received the article described above.		
SIGNATURE	<input type="checkbox"/> Addressee <input type="checkbox"/> Authorized agent	
 4. DATE OF DELIVERY <input type="checkbox"/> <input type="checkbox"/>		
6/1/84 <span style="float: right;">JUN 1984</span> 5. ADDRESS (Complete only if requested) <input type="checkbox"/>		
6. UNABLE TO DELIVER BECAUSE: <input type="checkbox"/> <span style="float: right;">CLERK'S INITIALS <i>GW</i></span>		

PS Form 3811, Jan. 1978

**1. SENDER:** Complete items 1, 2, and 3.  
Add your address to the "RETURN TO" space on reverse.

1. The following service is requested (check one.)

Show to whom and date delivered.....  
 Show to whom, date and address of delivery...  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.\$1.00

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
 T.J. Sivley  
 214 Booker Bldg.  
 Artesia, New Mexico 88210

3. ARTICLE DESCRIPTION:  
 REGISTERED NO. | CERTIFIED NO. | INSURED NO.  
 5384959

(Always obtain signature of addressee or agent)

I have received the article described above.

SIGNATURE  Addressee  Authorized agent

4. DATE OF DELIVERY  
 5/31/84

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:

CLERK'S INITIALS

<b>1. SENDER:</b>		Complete items 1, 2, and 3. Add your address in the "RETURN TO" space on reverse.	
1. The following service is requested (check one.)			
<input type="checkbox"/> Show to whom and date delivered..... <input type="checkbox"/> Show to whom, date and address of delivery... <input checked="" type="checkbox"/> RESTRICTED DELIVERY Show to whom and date delivered..... <input type="checkbox"/> RESTRICTED DELIVERY. Show to whom, date, and address of delivery.\$_____			
(CONSULT POSTMASTER FOR FEES)			
<b>2. ARTICLE ADDRESSED TO:</b>			
Monsanto Company 1330 Midland National Bank Tower Midland, Texas 79701			
<b>3. ARTICLE DESCRIPTION:</b>			
REGISTERED NO.	CERTIFIED NO.	INSURED NO.	
POS 5354911			
(Always obtain signature of addressee or agent)			
I have received the article described above.			
SIGNATURE	<input checked="" type="checkbox"/> Addressee	<input type="checkbox"/> Authorized agent	
4. DATE OF DELIVERY			
5. ADDRESS (Complete only if requested)			
6. UNABLE TO DELIVER BECAUSE:			
		CLERK'S INITIALS	

PS Form 3811, Jan. 1978

**1. SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

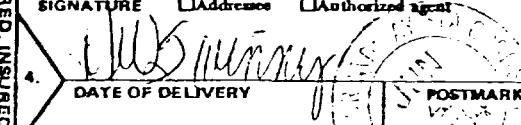
1. The following service is requested (check one.)  
 Show to whom and date delivered.....  
 Show to whom, date and address of delivery...**25¢**  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.**\$**

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
 Suburban Propane Gas Corp.  
 P. O. Box 17689  
 San Antonio, Texas 78217

3. ARTICLE DESCRIPTION:  
 REGISTERED NO. **5384958** CERTIFIED NO. INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.  
 SIGNATURE  Addressee  Authorized agent  


4. DATE OF DELIVERY **JUN 17 1984** POSTMARK **Waco TX 76701**

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:  
 CLERK'S INITIALS

★ GPO : 1979-268-848

PS Form 3811, Jan. 1978

**1. SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

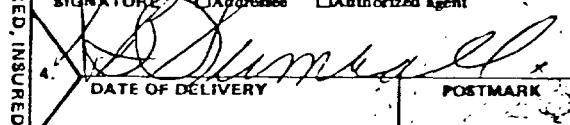
1. The following service is requested (check one.)  
 Show to whom and date delivered.....  
 Show to whom, date and address of delivery...**25¢**  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.**\$**

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
 C.E. Nearburg  
 P. O. Box 31405  
 Dallas, Texas 75231

3. ARTICLE DESCRIPTION:  
 REGISTERED NO. **5384961** CERTIFIED NO. INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.  
 SIGNATURE  Addressee  Authorized agent  


4. DATE OF DELIVERY **JUN 17 1984** POSTMARK **Waco TX 76701**

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:  
 CLERK'S INITIALS

★ GPO : 1979-268-848

PS Form 3811, Jan. 1978

**1. SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

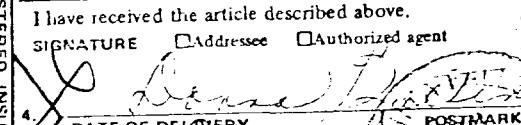
1. The following service is requested (check one.)  
 Show to whom and date delivered.....  
 Show to whom, date and address of delivery...**25¢**  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.**\$**

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
 Armour Properties  
 1107 Oil & Gas Bldg.  
 Wichita Falls, Texas 76301

3. ARTICLE DESCRIPTION:  
 REGISTERED NO. **15 5384973** CERTIFIED NO. INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.  
 SIGNATURE  Addressee  Authorized agent  


4. DATE OF DELIVERY **JUN 04 1984** POSTMARK **JUN 17 1984**

5. ADDRESS (Complete only if requested)  
**JUN 04 1984**

6. UNABLE TO DELIVER BECAUSE:  
 CLERK'S INITIALS

★ GPO : 1979-268-848

PS Form 3811, Jan. 1978

**1. SENDER:** Complete items 1, 2, and 3.  
Add your address in the "RETURN TO" space on reverse.

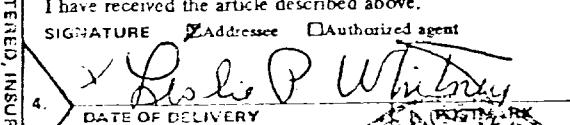
1. The following service is requested (check one.)  
 Show to whom and date delivered.....  
 Show to whom, date and address of delivery...**25¢**  
 RESTRICTED DELIVERY  
 Show to whom and date delivered.....  
 RESTRICTED DELIVERY.  
 Show to whom, date, and address of delivery.**\$**

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:  
 Leslie and Jean Whitney  
 12723 Richmond Ave. 1/2  
 Grandview, MO. 64030

3. ARTICLE DESCRIPTION:  
 REGISTERED NO. **5384967** CERTIFIED NO. INSURED NO.

(Always obtain signature of addressee or agent)

I have received the article described above.  
 SIGNATURE  Addressee  Authorized agent  


4. DATE OF DELIVERY **JUN 17 1984** POSTMARK **JUN 17 1984**

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE:  
 CLERK'S INITIALS

★ GPO : 1979-268-848

## APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose:  Secondary Recovery  Pressure Maintenance  Disposal  Storage  
Application qualifies for administrative approval?  yes  no

II. Operator: Anadarko Production Company

Address: Box 130, Artesia, New Mexico 88210

Contact party: Jerry Buckles Phone: 505/748-3368

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project?  yes  no  
If yes, give the Division order number authorizing the project \_\_\_\_\_.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

\* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

\*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

\* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

\* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

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

Name: D. G. Kernaghan

Title Division/Operations Manager

Signature: D. G. Kernaghan

Date: 5/30/84

\* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. Logs will be filed when run.

INFORMATION: One copy to the operator and one copy to Santa Fe with one copy to the appropriate Division

**ANADARKO PRODUCTION COMPANY  
MIDLAND DIVISION**

DAGGER DRAW NE  
EDDY CO., NEW MEXICO

015

WELL AND OPERATING DATA  
PROPOSED  
ANADARKO DAGGER DRAW SWD #1 WELL

LOCATION: 1495' FNL & 225' FWL  
Sec. 22, T19S, R25E  
Eddy County, New Mexico

WELL DATA

Casing and Tubing: As shown on attached schematic subject to NMOCD rules and permit approval. Cement circulated on surface and intermediate casing. Cement calculated to reach surface on long string.

Packer: Tension packer set as close to perfs as practical.

Stimulation: NE HCL or other acid in sufficient volume to clean perfs and formation near wellbore.

Logs: To be filed when run.

FORMATION DATA

Injection Formation: Cisco-Canyon

Thickness: 400 feet.

Lithology: Limestone w/scattered dolomite

Interval: Perforations from 7800' to 8030' approx.

Possible productive zones in area: Yeso - 2500'  
Wolfcamp - 6200'  
Strawn - 8300'  
Atoka - 9000'  
Morrow - 9300'

Lowest Fresh Water: 1100' est.

SYSTEM DATA

Closed system

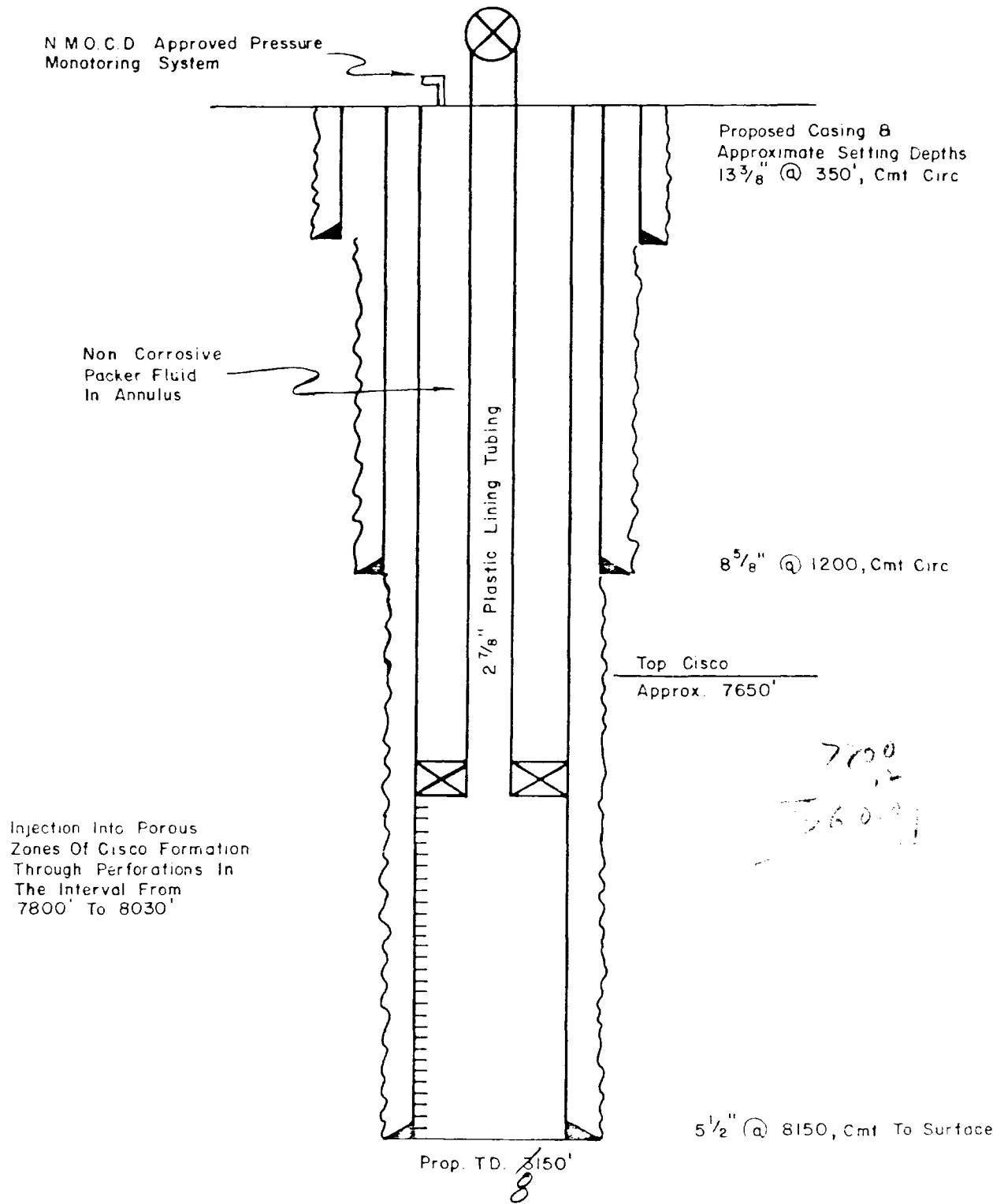
Water Treatment: Corrosion inhibitors as needed

Injection Pressure: Vac to 1500 psig

Volume of Disposed Water: Up to 10,000 B/D.  
4000 B/D initially only from Cisco-Canyon

# PROPOSED COMPLETION

ANADARKO - DAGGER DRAW SWD # 1 WELL  
1495' FNL & 225', FWL SEC. 22, T 19 S R 25 E  
EDDY COUNTY, NEW MEXICO



TABULATION OF WELL DATA

WE	LOCATION		STATUS	DATE COMPL.	TD	CASING, DEPTH & CEMENT	PERFS	FORMATION
	FOOTAGE	STR						
2 Osage No. 1	1980' FN&EL	21-19-25	Prod. Oil	9/23/82	7954 PBTID	13-3/8" @ 500' w/500 sxs 8-5/8" @ 1299' w/850 sxs 5-1/2" @ 7926' w/475 sxs	7672-7704	Cisco
Oequina Osage No. 1			D&A	8/16/73	9410 TD			

AFFIRMATIVE STATEMENT  
(ITEM XII)

I affirmatively state that I have thoroughly examined available geologic and engineering data and find no evidence of open faults, or any other hydrologic connection between the disposal zone and any underground source of drinking quality water.



Richard A. Erickson  
Staff Geological Engineer  
Anadarko Production Company

P O BOX 1488  
MONAHANS TEXAS 79756  
PH 843 3234 OR 503-1040

Martin Water Laboratories, Inc.

797 W DIVISION  
MIDLAND TEXAS 79701  
PHONE 843-4521

RESULT OF WATER ANALYSES

TO Anadarko Production Company  
P.O. Drawer 130, Artesia, NM

LABORATORY NO. 2B32B  
SAMPLE RECEIVED 2-2-83  
RESULTS REPORTED 2-4-83

COMPANY Anadarko Production Company LEASE Obago  
FIELD OR POOL Dagger Draw  
SECTION BLOCK SURVEY COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN

NO. 1 Produced water - taken from Obago fl.

NO. 2

NO. 3

NO. 4

REMARKS: Cisco

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0068			
pH When Sampled				
pH When Received	7.22			
Bicarbonate as $\text{HCO}_3$	1,147			
Supersaturation as $\text{CaCO}_3$				
Undersaturation as $\text{CaCO}_3$				
Total Hardness as $\text{CaCO}_3$	1,950			
Calcium as Ca	572			
Magnesium as Mg	126			
Sodium and/or Potassium	1,820			
Sulfate as $\text{SO}_4$	2,415			
Chloride as Cl	1,740			
Iron as Fe	0.04			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	7,820			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	700			
Resistivity, ohms/m at 77° F.	0.728			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks Our nearest records of Cisco water in the area are about 10 miles south. When we compare the above with those records, we do see some significant similarity in this water and Cisco. This results in a slightly unstable conclusion that this is natural connate Cisco.

Form No. 3

ILLEGIBLE

Waylon C. Martin, M. A.

P. O. BOX 1498  
MONAHANS, TEXAS 79758  
PH. 843-3234 OR 883-1040

Martin Water Laboratories, Inc.

1000 N. 10th Street  
MIDLAND, TEXAS 79701  
PHONE 843-4521

RESULT OF WATER ANALYSES

TO Anadarko Production Company  
P.O. Drawer 130, Artesia, NM 88210

LABORATORY NO. 583326

SAMPLE RECEIVED 5-20-83

RESULTS REPORTED 5-24-83

COMPANY Anadarko Production Company LEASE \_\_\_\_\_

FIELD OR POOL \_\_\_\_\_

SECTION BLOCK SURVEY COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN

NO. 1 Raw water - taken from Section 15 windmill.

NO. 2 \_\_\_\_\_

NO. 3 \_\_\_\_\_

NO. 4 \_\_\_\_\_

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0035			
pH When Sampled				
pH When Received	7.68			
Bicarbonate as HCO <sub>3</sub>	198			
Supersaturation as CaCO <sub>3</sub>				
Undersaturation as CaCO <sub>3</sub>				
Total Hardness as CaCO <sub>3</sub>	1,280			
Calcium as Ca	386			
Magnesium as Mg	77			
Sodium and/or Potassium	1			
Sulfate as SO <sub>4</sub>	1,026			
Chloride as Cl	38			
Iron as Fe	0.36			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	1,726			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	4,75			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

cc: Mr. Bill Griffin, Midland  
Mr. Dan Kernaghan, Midland

By Maylan C. Martin, M. A.

P O BOX 1488  
MONAHANS TEXAS 79750  
PH 843-3234 OR 982-1040

Martin Water Laboratories, Inc.

TOP W INDIANA  
MIDLAND TEXAS 79701  
PHONE 843-4321

RESULT OF WATER ANALYSES

LABORATORY NO. 583334

TO. Anadarko Production Company  
P.O. Drawer 130, Artesia, NM 88210

SAMPLE RECEIVED 5-20-83  
RESULTS REPORTED 5-24-83

COMPANY Anadarko Production Company  
LEASE \_\_\_\_\_  
FIELD OR POOL \_\_\_\_\_  
SECTION \_\_\_\_ BLOCK \_\_\_\_ SURVEY \_\_\_\_ COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN

NO. 1 Raw water - taken from Section 22 windmill.

NO. 2

NO. 3

NO. 4

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0012			
pH When Sampled				
pH When Received	7.50			
Bicarbonate as HCO <sub>3</sub>	95			
Supersaturation as CaCO <sub>3</sub>				
Undersaturation as CaCO <sub>3</sub>				
Total Hardness as CaCO <sub>3</sub>	1,645			
Calcium as Ca	966			
Magnesium as Mg	117			
Sodium and/or Potassium	4			
Sulfate as SO <sub>4</sub>	1,376			
Chloride as Cl	29			
Iron as Fe	1.5			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	2,187			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	3,40			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct  
to the best of his knowledge.

Form No. 3

cc: Mr. Bill Griffin, Midland  
Mr. Dan Kernaghan, Midland

By *[Signature]*  
Waylan C. Martin, M. A.



May 30, 1984

ADDRESS LIST ATTACHED

Gentlemen:

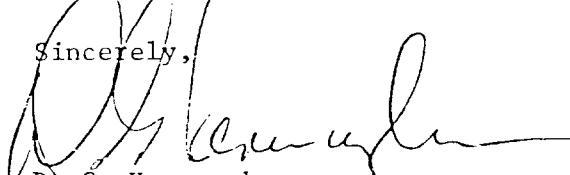
Anadarko Production Company is making application for Authority to Inject salt water into the Cisco-Canyon formation in a well to be drilled as a SWD well at a location 1495' FNL & 225' FWL of Section 22, T19S, R25E, Eddy County, New Mexico. A copy of the C-108 form and a map showing the proposed location are attached.

Anadarko intends to request permission to dispose of water from our Osage No.1 well and other company operated Cisco-Canyon wells in the area as well as possible outside water on a commercial basis. Total volume will range from 4000 BPD initially to 10,000 BPD at a later date. Surface pressure will be a maximum of 1500 psig.

A hearing will be required by the N.M.O.C.D. to consider this application. Anyone wishing to file an objection should notify the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico, 87501 within 15 days.

If you have any questions please contact me at 915/682-1666.

Sincerely,

  
D. G. Kernnaghan

DGK:gks

ATTACH.

- / A. J. Antweil  
814 W. Marland  
Hobbs, New Mexico
- / Armour Properties  
c/o R. E. Chambers  
1107 Oil & Gas Bldg.  
Wichita Falls, Texas 76301
- / D. E. Blackmar  
1407 Highland Road  
Roswell, New Mexico 88201
- / Conoco, Inc.  
P. O. Box 1959  
Midland, Texas 79702
- / Mary Elaine Cribbs  
231 East Iliff Ave 1/2  
Denver, Colorado 80210
- / Crown Central Petroleum Corporation  
731 West Wadley  
Building K, Suite 200  
Midland, Texas 79701
- / Flag-Redfern Oil Company  
P. O. Box 2280  
Midland, Texas 79702
- / Hondo Oil & Gas Co.  
P. O. Box 1610  
Midland, Texas 79702
- / Marshall & Winston, Inc.  
P. O. Box 874  
Midland, Texas 79702
- / Monsanto Company  
1330 Midland National Bank Tower  
Midland, Texas 7701
- / C. E. Nearburg  
P. O. Box 31405  
Dallas, Texas 75231
- / Reading & Bates Oil & Gas  
1100 Midcontinent Bldg.  
409 S. Boston Ave.  
Tulsa, Oklahoma 74103
- / T. J. Sivley  
214 Booker Bldg.  
Artesia, New Mexico 88210
- / Suburban Propane Gas Corp.  
P. O. Box 17689  
San Antonio, Texas 78217
- / Leslie and Jean Whitney  
12723 Richmond Ave. 1/2  
Grandview, MO 64030
- / Yates Petroleum Corp.  
207 South 4th  
Artesia, New Mexico 88201

## APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose:  Secondary Recovery  Pressure Maintenance  Disposal  Storage  
Application qualifies for administrative approval?  yes  no
- II. Operator: Anadarko Production Company
- Address: Box 130, Artesia, New Mexico 88210
- Contact party: Jerry Buckles Phone: 505/748-3368
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project?  yes  no  
If yes, give the Division order number authorizing the project \_\_\_\_\_.
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- \* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- \*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- \* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- \* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification

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

Name: D. C. Kernaghan Title Division/Operations Manager  
Signature: D. C. Kernaghan Date: 5/30/84

- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. Logs will be filed when run.

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

**ANADARKO PRODUCTION COMPANY  
MIDLAND DIVISION**

DAGGER DRAW NE  
EDDY CO., NEW MEXICO

## LAND PLAT

stated herein, viz:

- (1) to require dry or abandoned wells to be plugged in such a way as to confine the crude petroleum oil, natural gas or water in the strata in which they are found, and to prevent them from escaping into other strata; the division may require a bond of not to exceed ten thousand dollars (\$10,000) conditioned for the performance of such regulations;
- (2) to prevent crude petroleum oil, natural gas or water from escaping from strata in which they are found into another stratum or other strata;
- (3) to require reports showing locations of all oil or gas wells, and for the filing of logs and drilling records or reports;
- (4) to prevent the drowning by water of any stratum or part thereof capable of producing oil or gas, or both oil and gas, in paying quantities, and to prevent the premature and irregular encroachment of water, or any other kind of water encroachment, which reduces or tends to reduce the total ultimate recovery of crude petroleum oil or gas, or both such oil and gas, from any pool;
- (5) to prevent fires;
- (6) to prevent "blow-outs" and "caving" in the sense that the conditions indicated by such terms are generally understood in the oil and gas business;
- (7) to require wells to be drilled, operated and produced in such manner as to prevent injury to neighboring leases or properties;
- (8) to identify the ownership of oil or gas producing leases, properties, wells, tanks, refineries, pipelines, plants, structures and all transportation equipment and facilities;
- (9) to require the operation of wells with efficient gas-oil ratios and to fix such ratios;
- (10) to fix the spacing of wells;
- (11) to determine whether a particular well or pool is a gas or oil well, or a gas or oil pool, as the case may be, and from time to time to classify and reclassify wells and pools accordingly;
- (12) to determine the limits of any pool or pools producing crude petroleum oil or natural gas or both, and from time to time redetermine such limits;
- (13) to regulate the methods and devices employed for storage in this state of oil or natural gas or of any other substance into any pool in this state for the purpose of repressuring, cycling, pressure maintenance or secondary recovery operation;
- (14) to permit the injection of natural gas or of any other substance into any pool in this state for the purpose of repressuring, cycling, pressure maintenance or secondary recovery operation;
- (15) to regulate the disposition of water produced or used in connection with the drilling for or producing of oil or gas, or both, and to direct surface or subsurface disposal of such water in a manner that will afford reasonable protection against contamination of fresh water supplies designated by the state engineer;
- (16) to determine the limits of any area containing commercial potash deposits and from time to time redetermine such limits; or
- (17) to regulate and where necessary prohibit drilling or producing operations for oil or gas within any area containing commercial deposits of potash where such operations would have the effect unduly to reduce the total quantity of such commercial deposits of potash which may reasonably be recovered in commercial quantities or where such operations would interfere unduly with the orderly commercial development of such potash deposits.

**History:** Laws 1935, ch. 72, § 10; 1941 Comp., § 69-211; Laws 1949, ch. 168, § 10; 1953 Comp., § 65-3-11; Laws 1961, ch. 61, § 1; 1965, ch. 58, § 3; 1977, ch. 237, § 2; 1977, ch. 255, § 47.

**Cross-references.** — For filing rules and regulations, see 14-4-1 NMSA 1978. As to public utilities commission's lack of power to regulate sale price at well head, see 62-6-4 NMSA 1978.

**1977 amendments.** — Laws 1977, ch. 237, § 2, substituting "shall require a corporate surety bond in a sum" for "may require a bond of" in Subsection (1),

substituting "fifty thousand dollars (\$50,000)" for "ten thousand dollars (\$10,000)" in that subsection, substituting "location" for "locations" in Subsection (3), substituting "product including the subsurface storage of natural gas" for "other substance into any pool in this state for the purpose of repressuring, cycling, pressure maintenance or secondary recovery operation; or" at the end of Subsection (13), adding Subsection (18), relating to spending the oil and gas reclamation fund and plugging dry and abandoned wells in accordance with the Oil and Gas Act and the