State of California

(4)

FORM K

Memorandum

To : Si Cordova
Sacramento

Date : March 11, 1981

Subject: Application for Class II Primacy

From : **Department of Conservation—Division of Oil and Gas**

Place: Bakersfield

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DIVISION OF OIL & GAS
SACRAMENTO

In regard to your request for data concerning underground injection, attached is information from District 4 to be used in preparing the division's application for primacy over Class II projects.

David Mitchell

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Associate Oil & Gas Engineer

GWH/DM/mm

1. (a)-1980 Deficiencies

1) West Bellevue Western Continental Operating Co. "Wesco-Clark" 13-33 33 29S/26E
1/80: Holes in tubing and casing. Injection ceased until tubing replaced and packer installed 6/80. 10/80: Hole in tubing again, tubing replaced. 12/80: Survey indicates problem solved.

2) North Coles Levee ARCO Oil & Gas Co. "Coles Levee A" 41-32 32 30S/25E
10/80: Developed hole in tubing. Well shut-in until tubing repaired or replaced.

3) North Coles Levee ARCO Oil & Gas Co. "Coles Levee A" 43-32 32 30S/25E
3/80: Flow in annulus due to packer leak. Packer replaced.

4) North Coles Levee ARCO Oil & Gas Co. "Coles Levee A" 45-32 32 30S/25E
3/80: Flow in annulus due to packer leak. Packer replaced.

5) North Coles Levee ARCO Oil & Gas Co. "Coles Levee A" 46-32 32 30S/25E
3/80: Flow in annulus due to packer leak. Packer replaced.

6) North Coles Levee ARCO Oil & Gas Co. "Coles Levee A" 66-28 28 30S/25E
3/80: Flow in annulus due to packer leak. Packer replaced.

7) North Coles Levee ARCO Oil & Gas Co. "Coles Levee A" 84-30 30 30S/25E
3/80: Flow in annulus due to packer leak. Packer replaced.

8) North Coles Levee ARCO Oil & Gas Co. "Coles Levee A" 88-30 30 30S/25E
3/80: Flow in annulus due to packer leak. Packer replaced.

9) South Coles Levee Marathon Oil Co., Opr. "SCLU" 27-11 11 31S/25E
7/80: Flow in annulus due to packer leak. Packer replaced.

10) Fruitvale Mohawk Petroleum Inc. "Red Ribbon" 8 27 29S/27E
3/80: Casing split, migration to surf. Well squeezed with cement 6/80, split repaired, inj. resumed.

11) Kern River Tenneco Oil Co. "Comet" WDW 1 28 28S/28E
5/80: Injection line leaking. Repaired.

12) Poso Creek Marathon Oil Co. "Midway-Premier" 13 32 27S/27E
10/80: Shoe leak. Well idled indefinitely.

13) Poso Creek Shell Oil Co. "Conoco" 54 33 27S/27E
11/80: Slight migration behind pipe. Well to be used only as emergency stand-by for limited volume and duration injection.

14) Round Mountain Getty Oil Co. Well No. 14 18 28S/29E
12/80: Inj. line leak and tubing hole allowing migration. Well shut-in pending rework and repair.

15) Tejon ARCO Oil & Gas Co. "Tejon A" 58-35 35 11N/19W
8/80: Migration around packer. Well shut-in indefinitely.

1. (b)-1980 Violations

None

1. (c)-Mechanical-Integrity Failures

1.	Casing Failure/collapse	1
2.	Hole in casing	1
3.	Injection line leak	2
4.	Packer leak	10
5.	Shoe leak	2
6.	Hole in tubing	2

2. (a)-Possible causes of degradation of underground drinking water sources resulting from Class II well operations-1940 to present.

1)	West Bellevue	Ancora-Verde Corp.	Well No. 82-32	1970	Hole in casing (Discovered 6/70. Well idled until corrected on 8/7/70)
2)	Kern Bluff	Crestmont Oil & Gas Co.	"Union-Miller" 4	1975	Hole in casing (Discovered 30 days after injection started. Corrected and returned to active status 12/75)

2. (b)-Supplemental list to item 2 (a).

	Field/Area	Operator	Year Discovered	Cause
1.	Canfield Ranch, East Gosford Area	Gulf Oil Corp. "Statex-KCL" 7313	1970	Hole in casing. Well idled.
2.	Greeley	Chevron U.S.A. Inc. "KCL Lease 11" 59	1958	Holes in casing & tubing. Injected only for short period of time. Well suspended.
3.	Mount Poso, Baker-Grover Area	John L. Sowers Olcese Zone	1979	Produced zone water (fresh) being injected into better quality water.
4.	Mount Poso, Main Area	Thomas Oil Co. Olcese Zone	1975	Produced zone water (fresh) being injected into better quality water.
5.	Mountain View, Arvin Area	Buttes Resources Co. "George" 19	1971	Annular migration. Well idled.
6.	Tejon, Central Area	Gulf Oil Corp. "OMB" 16 C-33 W.I.	1979	Hole in casing. Well idled.
7.	Tejon, Western Area	Gulf Oil Corp. "Tejon Ranch "525-5	1978	Casing failure. Well idled.
8.	Ten Section, Main Area	Shell Oil Co. "KCL-A" 61-30	1968	Annular migration. Well suspended.

2. (c)-Potential degradation situations continuing in excess of one year.

1) Mount Poso-Olcese Zone: Injection into the Olcese zone in this field has been confined to those wells already approved. No further expansion of injection projects is allowed.

3. (a), (b), & (c)-Data on Nonhydrocarbon Producing Zones

1) Alluvium: Broad, thin bed of Holocene sands and gravels. Extends over western one-half of Southern San Joaquin Valley.

2. Tulare: Thick formation of Pleistocene sands extending over entire West ½ of Southern San Joaquin Valley. Grades laterally eastward into Kern River Formation with no significant change in lithology but with noticeable thickening.

3. Kern River: Eastern extension of Tulare Formation described above. Bounded on East by the Sierra Nevada Range.

4. San Joaquin: Relatively thick zone underlying the Tulare Formation. Area extent covers slightly more than the western ½ of Southern San Joaquin Valley. Interfingers with and pinches out into Kern River Formation to east.

5. Echegoin: Massive Pliocene sand covering all but eastern-most portion of Southern San Joaquin Valley. Pinches out at basinal edges.

6. Chanac: Unconformably underlies the Etchegoin and Kern River Formations in the eastern 1/3 of the valley. Truncated to west by fault.

7. Santa Margarita: Directly underlies the Chanac in the eastern 1/3 of the valley. Also truncated by fault.

8. Olcese: Fairly limited zone found only in eastern-most fringe of Kern Co. Truncated on the east by the Kern River Fault and on west by natural pinch-out. Conformably overlain by the Round Mtn. Formation which unconformably underlies the Santa Margarita.

9. Vedder: Thick, Lower Moicene formation covering the eastern ½ of the Valley. Eastern limit interfingers with slightly older Walker zone. Upper limit is an unconformity with the Freeman-Jewett Formation.

10. Tumey: Very thin Oligocene zone found only in the center of the Valley. Truncated on East by a fault. Steeply dipping bed truncated by Tulare Formation angular unconformity approx. ½ mi NW of Blackwells Corner field limits.

11. Walker: Very thin Eocene formation unconformably overlaying basement in "pockets" along the eastern ½ of the valley.

FIELD	ZONE	DEPTH TO TOP OF INJECTION	THICKNESS OF INJECTION INTERVAL	AREAL EXTENT
Bellevue	Etchegoin	3474'	128'-477'	Underlies entire field and extends at least one mile beyond in all directions
Bellevue, West	Tulare-Etchegoin	2725' (Tulare) 4370' (Etchegoin)	75' (Tulare) 138'-550' (Etchegoin)	Both zones underlie the entire field and extend at least one mile beyond in all directions.
Blackwells Corner	Tumey	1473'	40'	Underlies entire field but is truncated by an angular unconformity approx. 1/2 mile NW of field.
Buena Vista	Tulare	538'	190'-1111'	Underlies entire field and extends at least one mile beyond in all directions.
Cal Canal	Tulare-San Joaquin	1505'	693'	Both zones underlie the entire field and extend at least one mile beyond in all directions but there is a gradual thinning trend in both zones towards the SW.
Canfield Ranch	Etchegoin	3212'	613'-1530'	Underlies entire field and extends at least one mile beyond in all directions.
Coles Levee, North	Tulare	1470'	434'	Underlies entire field and extends at least one mile beyond in all directions.
Coles Levee, North	San Joaquin-Etchegoin	2688'	187'-743'	Underlies entire field and extend at least one mile beyond in all directions.
Coles Levee, South	Tulare-San Joaquin	2189'	1171'	Both zones underlie the entire field and extend at least one mile beyond in all directions.
Greeley	Etchegoin	2802'	260'-2277'	Underlies entire field and extends at least one mile beyond in all directions.
Kern Bluff	Kern River	200'	150'	Underlies entire field and extends at least one mile beyond in all directions.
Kern Bluff	Vedder	4607'	166'	Underlies entire field and extends at least one mile beyond in all directions.
Kern Front	Santa Margarita	2548'	650'	Underlies entire field except the very northern-most limit which is approx. 3 miles from the nearest injector
Kern River	Chanac	1100'	568'	Underlies entire field and extends at least one mile beyond in all directions.
Kern River	Santa Margarita	1698'±	325'-515'	Underlies entire field and extends at least one mile beyond in all directions.

FIELD	ZONE	DEPTH TO TOP OF INJECTION	THICKNESS OF INJECTION INTERVAL	AREAL EXTENT
Kern River	Vedder	4850'	136'-375'	Underlies entire field and extends at least one mile beyond in all directions.
Lakeside	San Joaquin	3360'	30'	Underlies entire field and extends at least one mile beyond in all directions.
Los Lobos	Tulare (proposed)	1950'±	1550'±	Underlies entire field and extends at least one mile beyond in all directions.
Midway-Sunset	Alluvium	399'	125'-252'	Covers entire field and extends at least one mile beyond in all directions.
Mount Poso	Olcese	233'	94'-350'	Underlies entire field and extends at least one mile beyond but is fault-bounded approx. 4 miles to the east of field limits and pinches out to the west at a distance of 2-3 miles.
Mount Poso	Walker	1939' (top of Vedder*)	656'-661'	*Underlies only the NE one-half of the field but is injected into only in combination with the laterally interfingered Vedder Fm. which covers the entire field limits.
Mountain View	Kern River	2680'	1320'±	Underlies entire field and extends at least one mile beyond in all directions.
Pleito	Kern River-Chanac	2372' (Kern River) 2756' (Chanac)	384' (Kern River) 634' (Chanac)	Both zones underlie the entire field and extend at least one mile beyond in all directions.
Poso Creek	Vedder	3640'	95'	Not penetrated is the SW portion of the field but believed to still be present (at depth) over the entire field.
Rio Viejo	San Joaquin (proposed)	5400'	225'	Underlies entire field and extends at least one mile beyond in all directions.
Rosedale	Etchegoin	3767'	181'	Underlies entire field and extends at least one mile beyond in all directions
Round Mountain	Walker	2300'	270'-702'	Underlies entire field and extends at least one mile beyond in all directions.
Round Mountain	Olcese	450'	290'-1005'	Underlies entire field and extends at least one mile beyond but is fault-bounded on the east approx. 1½ miles from field and pinches out to the west at a distance of about 5 miles
Seventh Standard	Etchegoin	3580'	1101'-1353'	Underlies entire field and extends at least one mile beyond in all directions.
Strand	Etchegoin	3015'	70'-355'	Underlies entire field and extends at least one mile beyond in all directions.

FIELD	ZONE	DEPTH TO TOP OF INJECTION	THICKNESS OF INJECTION INTERVAL	AREAL EXTENT
Strand	San Joaquin	3090'	732'	Underlies entire field and extends at least one mile beyond in all directions.
Ten Section	San Joaquin	2298'	397'-1027'	Underlies entire field and extends at least one mile beyond in all directions.