

1R - 247

REPORTS

DATE:

1985 - 1986

different figures used
 values
 \$13.0
 47.2
 5.8

Cloride
 Wds 25-28

33.4 +
 43.4 +
 53.4 +
 52.6 +
 100.0 **
 100.0 +
 4. =
 47.2 **
 30.4 +
 43.4 +
 53.4 +
 52.6 +
 100.0 **
 100.0 +
 4. =
 47.2 **

Well 1-24
 Average Cl values

47.2
 30.16
 7.04

31. +
 27.67 +
 27.53 +
 28.93 +
 31.67 +
 31.8 +
 34. +
 29.67 +
 29.67 +
 31.33 +
 29. +
 30.25 +
 27.62 +
 28.5 +
 28.5 +
 29.83 +
 30.83 +
 34. +
 31. +
 31.17 +
 33. +
 32. +
 28.53 +
 27.1 +
 723.9 **

723.9 +
 24. =
 30.1523 **

SO4 Values
Well 25-28
SW P.S.-C6.

43.08 +
39.12 +
31.02 +
41.00 +
166.2 **

166.2 +
A. =
41.05 **

49.7 +
38.52 +
32.29 +
41.9 +
47.02 +
49.4 +
45.22 +
39.13 +
43.53 +
37.86 +
38.28 +
39. +

SO4 values
Wells 1-24
SW P.S. Co.

35.12 +
38.22 +
35.05 +
42.22 +
42.52 +
38.44 +
43.7 +
42.43 +
43.68 +
41.63 +
38.55 +
33.6 +

102.75 **

102.75 +
2A. =

10.00 10.1111 **

41.05
40.95
—
0.10

0. **

SW. Public
Service
area -
Average Cl.
Values

32.8	+	-
128.6	+	-
119.	+	-
37.6	+	-
50.2	+	-
37.4	+	-
62.4	+	-
64.2	+	-
61.6	+	
64.6	+	-
45.	+	-
703.4	**	

703.4 ÷

11. =

63.95 **

SW. Public
Service

area -
Average Cl.
Values
without
two(2) high
values

32.8	+
37.6	+
50.2	+
37.4	+
62.4	+
64.2	+
61.6	+
64.6	+
45.	+
655.8	**

655.8 ÷

9. =

63.95 **

SW. Public
Service area -

Average Cl.
Values without
two(2) low
values

128.6	+
119.	+
50.2	+
37.6	+
62.4	+
64.2	+
61.6	+
64.6	+
45.	+
655.2	**

655.2 ÷

9. =

63.95 **

63.95 ÷
70.35 =
0.9 **
100.62 **
50.64 ÷
63.95 =
0.7 **

CL Ratio average
504 Wells 1-24

0.68 +
0.72 +
0.69 +
0.69 +
0.67 +
0.64 +
0.72 +
0.76 +
0.68 +
0.83 +
0.76 +
0.78 +
0.78 +
0.75 +
0.81 +
0.7 +
0.73 +
0.88 +
0.71 +
0.74 +
0.76 +
0.77 +
0.74 +
0.81 +
17.8 **

17.8 ÷
24. =

0.74444 17.666 **

CL Ratio average
504 Wells 25-28

0.85 +
1.11 +
1.43 +
1.25 +
4.64 **
4.64 ÷
4. =
1.16 **

CL Ratio average
504 Wells 26-28

1.11 +
1.43 +
1.25 +
3.79 **
3.79 ÷
3. =
1.2633333 **

CL Ratio average
504 Wells 24-28

17.8 +
0.85 +
18.65 **
0.746 **
18.65 ÷
25. =
0.746 **

Well No. 1

<u>2-71</u> SO ₄ - 46.5 ppm Cl - 27 ppm <u>3-80</u> SO ₄ - 47 Cl - 28	<u>7-75</u> No Sample Analyses taken done <u>6-80</u> SO ₄ - 53.5 Cl - 35	<u>4-78</u> SO ₄ - 39.5 Cl - 33 Ave SO ₄ - 45.7 Ave Cl - 31.0	<u>8-79</u> SO ₄ - 42.1 Cl - 32 $\frac{Cl}{SO_4} = 0.68$
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Well No. 2

<u>2-71</u> SO ₄ - 47 Cl - 28 <u>3-80</u> SO ₄ - 44 Cl - 28	<u>7-75</u> SO ₄ - 28.4 Cl - 27 <u>6-80</u> SO₄ - 41.7 SO ₄ - 41.7 Cl - 27	<u>4-78</u> SO ₄ - 32 Cl - 28 Ave SO ₄ - 38.52 Ave Cl - 27.67	<u>8-79</u> SO ₄ - 38 Cl - 28 $\frac{Cl}{SO_4} = 0.72$
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Well No. 3

<u>2-71</u> SO ₄ - 41.8 Cl - 26.7 <u>3-80</u> SO ₄ - 45.1 Cl - 26.9	<u>7-75</u> SO ₄ - 33.3 Cl - 26 <u>6-80</u> SO ₄ - 37.5 Cl - 26	<u>4-78</u> SO ₄ - 35.5 Cl - 27 Ave SO ₄ - 39.25 Ave Cl - 27.33	<u>8-79</u> SO ₄ - 42.4 Cl - 29 $\frac{Cl}{SO_4} = 0.69$
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Well No. 4

<u>2-71</u> SO ₄ - 47.8 Cl - 27 <u>3-80</u> SO ₄ - 41.2 Cl - 29	<u>7-75</u> SO ₄ - 33.3 Cl - 28 <u>6-80</u> SO ₄ - 40.8 Cl - 27	<u>4-78</u> SO ₄ - No Analyses Cl - 33 Ave SO ₄ - 41.9 Ave Cl - 28.83	<u>8-79</u> SO ₄ - 46.4 Cl - 29 $\frac{Cl}{SO_4} = 0.69$
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Well No. 5

<u>2-71</u> SO ₄ - 56.5 Cl - 27 <u>3-80</u> SO ₄ - 55.5 Cl - 35	<u>7-75</u> SO ₄ - 35.2 Cl - 29 <u>6-80</u> SO ₄ - 49.5 Cl - 29	<u>4-78</u> SO ₄ - 35 Cl - 38 Ave SO ₄ - 47.02 Ave Cl - 31.67	<u>8-79</u> SO ₄ - 50.4 Cl - 32 $\frac{Cl}{SO_4} = 0.67$
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Well No 6

<u>2-71</u> SO ₄ - 60 Cl - 33	<u>7-75</u> SO ₄ - 38.8 Cl - 32	<u>4-78</u> SO ₄ - 35 Cl - 33	<u>8-79</u> SO ₄ - 61.2 Cl - 33
<u>3-80</u> SO ₄ - No Anal Cl - No Anal	<u>6-80</u> SO ₄ - 52.0 Cl - 28.0	Ave SO ₄ - 49.4 Ave Cl - 31.8	$\frac{Cl}{SO_4} = 0.64$

Well No 7

<u>2-71</u> SO ₄ - 55.5 Cl - 33	<u>7-75</u> SO ₄ - 41.6 Cl - 37	<u>4-78</u> SO ₄ - 38.7 Cl - 35	<u>8-79</u> SO ₄ - 60.2 Cl - 34
<u>3-80</u> SO ₄ - 34.7 Cl - 36	<u>6-80</u> SO ₄ - 50.8 Cl - 29	Ave SO ₄ - 46.92 Ave Cl - 34.0	$\frac{Cl}{SO_4} = 0.72$

Well No 8

<u>2-71</u> SO ₄ - 46.5 Cl - 29	<u>7-75</u> SO ₄ - 38.8 Cl - 32	<u>4-78</u> SO ₄ - 29.5 Cl - 29	<u>8-79</u> SO ₄ - 49 Cl - 32
<u>3-80</u> SO ₄ - 23.9 Cl - 28	<u>6-80</u> SO ₄ - 47.1 Cl - 28	Ave SO ₄ - 39.13 Ave Cl - 29.67	$\frac{Cl}{SO_4} = 0.76$

Well No 9

<u>2-71</u> SO ₄ - 48 Cl - 28	<u>7-75</u> SO ₄ - 32.4 Cl - 30	<u>4-78</u> SO ₄ - No Anal Cl - 35	<u>8-79</u> SO ₄ - 41.8 Cl - 29
<u>3-80</u> SO ₄ - 52.3 Cl - 27	<u>6-80</u> SO ₄ - 43.2 Cl - 29	Ave SO ₄ - 43.54 Ave Cl - 29.67	$\frac{Cl}{SO_4} = 0.68$

Well No 10

<u>2-71</u> SO ₄ - 40.6 Cl - 30	<u>7-75</u> SO ₄ - 36.4 Cl - 39	<u>4-78</u> SO ₄ - No Anal Cl - 38	<u>8-79</u> SO ₄ - 35.4 Cl - 27
<u>3-80</u> SO ₄ - 31.9 Cl - 27	<u>6-80</u> SO ₄ - 45.0 Cl - 27	Ave SO ₄ - 37.86 Ave Cl - 31.33	$\frac{Cl}{SO_4} = 0.83$

Well No 11

<u>2-71</u> SO4 - 49 Cl - 30	<u>7-75</u> SO4 - 32.4 Cl - 27	<u>4-78</u> SO4 - 32.2 Cl - 29	<u>8-79</u> SO4 - 41 Cl - 34
<u>3-80</u> SO4 - 32.2 Cl - 28	<u>6-80</u> SO4 - 42.9 Cl - 26	Ave SO4 - 38.28 Ave Cl - 29.0 $\frac{Cl}{SO4} = 0.76$	

Well No 12

<u>2-71</u> SO4 - 45.2 Cl - 31	<u>7-75</u> SO4 - 34.0 Cl - 38.0	<u>4-78</u> SO4 - 32.2 Cl - 29.5	<u>8-79</u> SO4 - 41.2 Cl - 27
<u>3-80</u> SO4 - 49.2 Cl - 30	<u>6-80</u> SO4 - 32.2 Cl - 26	Ave SO4 - 39.00 Ave Cl - 30.25 $\frac{Cl}{SO4} = 0.78$	

Well No. 13

<u>2-71</u> SO4 - 41 Cl - 27	<u>7-75</u> SO4 - 36.0 Cl - 32	<u>4-78</u> SO4 - 28 Cl - 26.5	<u>8-79</u> SO4 - 37.0 Cl - 27
<u>3-80</u> SO4 - 36.2 Cl - 27	<u>6-80</u> SO4 - 32.5 Cl - 25	Ave SO4 - 35.12 Ave Cl - 27.42 $\frac{Cl}{SO4} = 0.78$	

Well No 14

<u>2-71</u> SO4 - 44 Cl - 29	<u>7-75</u> SO4 - 38.2 Cl - 29	<u>4-78</u> SO4 - 30 Cl - 27	<u>8-79</u> SO4 - 38 Cl - 26
<u>3-80</u> SO4 - 36.1 Cl - 34	<u>6-80</u> SO4 - 43.0 Cl - 26	Ave SO4 - 38.22 Ave Cl - 28.5 $\frac{Cl}{SO4} = 0.75$	

Well No. 15

<u>2-71</u> SO4 - 40.2 Cl - 28	<u>7-75</u> SO4 - 25.8 Cl - 32	<u>4-78</u> SO4 - 31 Cl - 30	<u>8-79</u> SO4 - 35.1 Cl - 26
<u>3-80</u> SO4 - 38.7 Cl - 29	<u>6-80</u> SO4 - 39.5 Cl - 26	Ave SO4 - 35.05 Ave Cl - 28.5 $\frac{Cl}{SO4} = 0.81$	

Well No. 16

2-71 SO4-45.3 Cl-30	7-75 SO4-38.6 Cl-31
3-80 SO4-42.8 Cl-28	6-80 SO4-45.0 Cl-28

4-78 SO4-33.8 Cl-30	8-79 SO4-52.0 Cl-32
Ave SO4-42.92	
Ave Cl-29.83 $\frac{Cl}{SO4} = 0.70$	

Well No. 17

2-71 SO4-47.4 Cl-31	7-75 SO4-34.6 Cl-32
3-80 SO4-40.1 Cl-29	6-80 SO4-44.5 Cl-29

4-78 SO4 - No Anal. Cl-34	8-79 SO4-46.0 Cl-30
Ave SO4-42.52	
Ave Cl-30.83 $\frac{Cl}{SO4} = 0.73$	

Well No. 18

2-71 SO4-43 Cl-32	7-75 SO4-30.4 Cl-33
3-80 SO4-37.3 Cl-31	6-80 SO4-41.8 Cl-29

4-78 SO4 - No Anal Cl-38	8-79 SO4-41.7 Cl-41
Ave SO4-38.84	
Ave Cl-34.0 $\frac{Cl}{SO4} = 0.88$	

Well No. 19

2-71 SO4-47.4 Cl-30	7-75 SO4-36.6 Cl-27
3-80 SO4-44.8 Cl-29	6-80 SO4 - No Sample Cl -

4-78 SO4 - No Anal Cl-40	8-79 SO4- 38 46.0 Cl- 38 29
Ave SO4-43.7	
Ave Cl-31.0 $\frac{Cl}{SO4} = 0.71$	

Well No. 20

2-71 SO4-44 Cl-31	7-75 SO4-36.6 Cl-30
3-80 SO4-43.4 Cl-30	6-80 SO4-49.8 Cl-28

4-78 SO4-39.8 Cl-39	8-79 SO4-41.0 Cl-29
Ave SO4-42.43	
Ave Cl-31.7 $\frac{Cl}{SO4} = 0.74$	

Well No 21

2-71
SO₄-47.4
Cl-31

7-75
SO₄-41.8
Cl-35

4-78
SO₄-37.7
Cl-35

8-79
SO₄-47.8
Cl-31

3-80
SO₄-No sample
Cl-1 sample

6-80
SO₄-no sample
Cl-1 sample

Ave SO₄-43.68
Ave Cl-33.0

$$\frac{Cl}{SO_4} = 0.76$$

Well No 22

2-71
SO₄-50.5
Cl-30

7-75
SO₄-29.0
Cl-38

4-78
SO₄-39.2
Cl-30

8-79
SO₄-48.6
Cl-30

3-80
SO₄-no sample
Cl-1 sample

6-80
SO₄-47.1
Cl-28

Ave SO₄-41.83
Ave Cl-32.0

$$\frac{Cl}{SO_4} = 0.77$$

Well No 23

2-71
SO₄-44
Cl-28(?)

7-75
SO₄-32.6
Cl-30

4-78
SO₄-36.0
Cl-30

8-79
SO₄-38.4
Cl-27

3-80
SO₄-41.0
Cl-28

6-80
SO₄-38.0
Cl-27

Ave SO₄-38.33

Ave Cl-28.33

$$\frac{Cl}{SO_4} = 0.74$$

Well No 24

2-71
SO₄-34.2
Cl-23

7-75
SO₄-29.0
Cl-37.6

4-78
SO₄-35.5
Cl-27

8-79
SO₄-34.1
Cl-24

3-80
SO₄-34.8
Cl-26

6-80
SO₄-34.0
Cl-25

Ave SO₄-33.6

Ave Cl-27.1

$$\frac{Cl}{SO_4} = 0.81$$

Well No 25

<u>2-71</u> SO ₄ > No sample Cl	<u>7-75</u> SO ₄ - 40.8 Cl - 27 32*	<u>4-78</u> SO ₄ - 40.5 Cl - 39	<u>8-79</u> SO ₄ - 44.5 Cl - 72
<u>3-80</u> SO ₄ - 54.4 Cl - 27	<u>6-80</u> SO ₄ - 45.2 Cl - 27	Ave SO ₄ - 45.08 Ave Cl - 38.4	$\frac{Cl}{SO_4} = 0.85$

Well No 26

<u>2-71</u> SO ₄ > no sample Cl	<u>7-75</u> SO ₄ - 38 Cl - 32 135*	<u>4-78</u> SO ₄ - 34.0 Cl - 52	<u>8-79</u> SO ₄ - 42.8 Cl - 71
<u>3-80</u> SO ₄ - 42.2 Cl - 36	<u>6-80</u> SO ₄ - 38.6 Cl - 26	Ave SO ₄ - 39.12 Ave Cl - 43.4	$\frac{Cl}{SO_4} = 1.11$

Well No 27

<u>2-71</u> SO ₄ > no sample Cl	<u>7-75</u> SO ₄ - 35.6 Cl - 41 85*	<u>4-78</u> SO ₄ - 34.6 Cl - 70	<u>8-79</u> SO ₄ - 44.1 Cl - 70
<u>3-80</u> SO ₄ - 38.0 Cl - 54	<u>6-80</u> SO ₄ - 37.8 Cl - 37	Ave SO ₄ - 38.02 Ave Cl - 54.4	$\frac{Cl}{SO_4} = 1.43$

Well No 28

<u>2-71</u> No sample SO ₄ > sample Cl	<u>7-75</u> SO ₄ - 40.8 Cl - 36 58*	<u>4-78</u> SO ₄ - No Anal Cl - 58	<u>8-79</u> SO ₄ - 41.2 Cl - 48
<u>3-80</u> SO ₄ - 43.1 Cl - 64	<u>6-80</u> SO ₄ - 42.8 Cl - 57	Ave SO ₄ - 41.98 Ave Cl - 52.6	$\frac{Cl}{SO_4} = 1.25$

* - denotes pumping 48 hours
* Average for pumping test Cl - 77.5
without pumping test Cl - 34
43.87% increase ave Cl
when pumped

The ratio of chloride to sulfate ion was found ~~very~~ useful in determining the solution of salt (sodium chloride) through contamination

Ratio of $\frac{Cl}{SO_4}$ between
 0.64 to 0.88 indicate
 no ground water problems.

Ratio of $\frac{Cl}{SO_4}$ greater than
 0.88 indicate a ground
 water problem. ~~Probably~~ Probable
 cause from oil and gas production
 drilling waste pits

1.26	
.74	.74
.42	.52

1.80	12%
.88	
.92	

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS

Well Ownership: Southwest Public Service (OCD) Well No. 1

Land Status: State _____ Federal _____ Fee _____

Well Location: Unit Letter _____ Section 33 Township 17 Range 35

top water 45'

Type Well: observation well Depth 100 feet

Well Use: _____

Sample Number: _____ Date Taken: 4-16-85

Taken By: Ron Castleberry

Specific Conductance: _____ m/~

Total Dissolved Solids: _____ PPM.

Chlorides: 56.8 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: _____ V. LOW _____ LO _____ MED _____ HI

Sulfides: _____ NONE _____ LO _____ MED _____ HI

Date Analyzed: 5-8-85

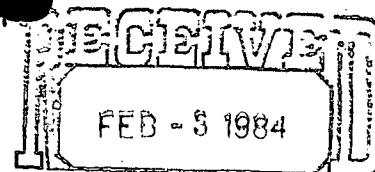
By: Eddie W. Seay
OIL CONSERVATION DIVISION
Eddie Seay

REMARKS: 25 ml 142 x .4 = 56.8 ppm

WATER ANALYSIS

REMARKS: 25 ml 142 x .3 = 42.6 ppm Cl

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO



OIL CONSERVATION DIVISION
SANTA FE

WATER ANALYSIS

WELL OWNERSHIP: Southwest Public Service (OCD) WELL NO. 1

LAND STATUS: State Federal Fee

WELL LOCATION: Unit Letter , Section 33, T 7 S, R 35 E
Top H₂O 49 ft.

Type well: observation well Depth 60 feet

Well Use:

Sample Number: 1

Date Taken: 1-25-84

Taken By: Ron Castleberry

Specific Conductance: m/~

Total Dissolved Solids PPM

Chlorides: 42.6 PPM

Sulfates: PPM

Water Level: from surface

Date Analyzed: 1-26-84

By: Eddie Wilson
Oil Conservation Division

REMARKS: 25 ml 142 x .3=42.6

Supervisor, District I

WATER ANALYSIS

REMARKS: 25 ml 142 x .2 = 28.4 ppm

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS

WELL OWNERSHIP: Southwest Public Service (OCD) WELL NO. 1

LAND STATUS: State Federal Fee

WELL LOCATION: Unit Letter , Section 33, T. 7 S. R. 35 E

Type well: observation well Depth 75 feet

Well Use:

Sample Number: 1

Date Taken: 11-9-82

Taken By: Eddie Seay

Specific Conductance: m/

Total Dissolved Solids PPM

Chlorides: 28.4 PPM

Sulfates: PPM

Water Level: 49 from surface

Date Analyzed: 11-22-82

By: Eddie W. Seay
Oil Conservation Division

REMARKS: 25 ml 142 x .2 = 28.4ppm

Supervisor, District I

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS

WELL OWNERSHIP: Southwest Public Service (OCD) WELL NO. #1

LAND STATUS: State Federal Fee

WELL LOCATION: Unit Letter , Section 33, T 7 S, R 35 E

Type well: observation well Depth 100 feet

Well Use:

Sample Number:

Date Taken: 6-8-82

Taken By: Eddie Seay

Specific Conductance: m/~

Total Dissolved Solids PPM

Chlorides: 42.6 PPM

Sulfates: PPM

Water Level: 62 from surface

Date Analyzed: 6-28-82

By: Eddie W Seay
Oil Conservation Division

REMARKS: 25 ml 142 x .3= 42.6 ppm

Supervisor, District I

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS

WELL OWNERSHIP: Southwest Public Service-OCD WELL NO. SW #1

LAND STATUS: State _____ Federal _____ Fee _____

WELL LOCATION: Unit Letter _____, Section 33, T 17 S, R 35 E

Type well: Observation well Depth 100 feet

Well Use: _____

Sample Number: _____

Date Taken: 2-9-82

Taken By: Eddie Seay

Specific Conductance: _____ m/~

Total Dissolved Solids _____ PPM

Chlorides: 46.6 PPM

Sulfates: _____ PPM

Water Level: 62 from surface

Date Analyzed: 3-11-82

By: Eddie W. Seay
Oil Conservation Division

REMARKS: 25 ml 142x .3= 42.6 ppm

Supervisor, District I

RECEIVED
SEP 14 1931
OIL CONSERVATION DIVISION
SANTA FE

REMARKS: 25m1 142 x .4 = 56.8

REGISTERED
JUN 15 1981
U.S. CUSTOMS AND BORDER PROTECTION
SANTA FE

WATER ANALYSIS

REMARKS: 25 ml sample $142 \times .2 = 28.4$ ppm

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS

Well Ownership: Southwest Public Service (OCD) Well No. 4

Land Status: State _____ Federal _____ Fee _____

Well Location: Unit Letter _____ Section 35 Township 17 Range 35

top water 50'

Type Well: observation well Depth 100 feet

Well Use: _____

Sample Number: _____ Date Taken: 4-16-85

Taken By: Ron Castleberry

Specific Conductance: _____ m/~

Total Dissolved Solids: _____ PPM.

Chlorides: 42.6 PPM.

Sulfates: _____ PPM.

Ortho-phosphates: _____ V. LOW _____ LO _____ MED _____ HI

Sulfides: _____ NONE _____ LO _____ MED _____ HI

Date Analyzed: 5-8-85

By: Eddie Seay

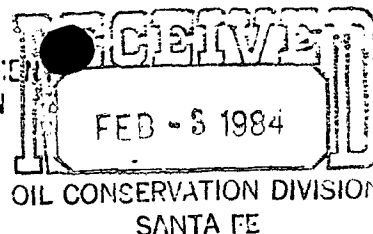
OIL CONSERVATION DIVISION
Eddie Seay

REMARKS: 25 ml 142 x .3 = 42.6 ppm

WATER ANALYSIS

REMARKS: 25 ml 142 x .4 = 56.8 ppm Cl

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO



WATER ANALYSIS

WELL OWNERSHIP: Southwest Public Service (OCD) WELL NO. 4

LAND STATUS: State Federal Fee

WELL LOCATION: Unit Letter , Section 35, T 17 S, R 35 E

Top H₂O 61 ft.

Type well: observation well Depth 76 feet

Well Use:

Sample Number:

Date Taken: 1-25-84

Taken By: Ron Castleberry

Specific Conductance: m/~

Total Dissolved Solids PPM

Chlorides: 42.6 PPM

Sulfates: PPM

Water Level: from surface

Date Analyzed: 1-26-84

By: Edd W. Dean
Oil Conservation Division

REMARKS: 25 ml 142 x .3=42.6

Supervisor, District I

WATER ANALYSIS

REMARKS: 25 ml 142 X .8= 113.6 ppm

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS

WELL OWNERSHIP: Southwest Public Service (OCD) WELL NO. 4

LAND STATUS: State Federal Fee

WELL LOCATION: Unit Letter , Section 35, T. 17 S. R. 35 E

Type well: observation well Depth 75 feet

Well Use:

Sample Number: 1

Date Taken: 11-9-82

Taken By: Eddie Seay

Specific Conductance: m/

Total Dissolved Solids PPM

Chlorides: 42.6 PPM

Sulfates: PPM

Water level: 49 from surface

Date Analyzed: 11-22-82

By: Eddie W. Seay
Oil Conservation Division

REMARKS: 25 ml 142 x .3=42.6ppm

Supervisor, District I

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS

WELL OWNERSHIP: Southwest Public Service (OCD) WELL NO. #4

LAND STATUS: State Federal Fee

WELL LOCATION: Unit Letter , Section 35, T 17 S, R 35 E

Type well: observation well Depth 100 feet

Well Use:

Sample Number:

Date Taken: 6-8-82

Taken By: Eddie Seay

Specific Conductance: m/

Total Dissolved Solids PPM

Chlorides: 28.4 PPM

Sulfates: PPM

Water Level: 48 from surface

Date Analyzed: 6-28-82

By: Eddie W Seay
Oil Conservation Division

REMARKS: 25 ml 142 x .2 = 28.4 ppm

Supervisor, District I

SEP 14 1931
OIL CONSERVATION DIVISION
SANTA FE

Well Ownership: OCD - SOUTHWEST PUBLIC SERVICE Well No. SW #4

Well Location: Unit Letter _____, Section 35, T 17S, R 35E

Top 48

Type Well: observation well Depth 100 feet.

Well Use: _____

Sample Number: 1 Date Taken: 8-21-81

Taken By: Eddie Seay

Specific Conductance: _____ m/m

Total dissolved Solids: PPM.

Chlorides: 35.5 PPM.

Sulfates: PPM.

Ortho-phosphates: ☐ V.Low ☐ Low ☐ Medium ☐ High

Sulfides: ☐ None ☐ Low ☐ Medium ☐ High

Date Analyzed: 8-31-81

By: Eddie W. Lee
Oil Conservation Division

REMARKS: 50ml 71 x .5 = 35.5 ppm

RECEIVED
JUN 15 1981
FEDERAL BUREAU OF INVESTIGATION
U.S. DEPARTMENT OF JUSTICE
OIL CONSERVATION DIVISION
SMITH FE

WATER ANALYSIS

REMARKS: 25 ml 142 x .2 = 28.4 ppm

(2)

ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS, NEW MEXICO

WATER ANALYSIS

WELL OWNERSHIP: Southwest Public Service-OCD WELL NO. SW #4

LAND STATUS: State Federal Fee

WELL LOCATION: Unit Letter , Section 35, T 17 S, R 35 E

Type well: Observation well Depth 100 feet

Well Use:

Sample Number:

Date Taken: 2-9-82

Taken By: Eddie Seay

Specific Conductance: m/

Total Dissolved Solids PPM

Chlorides: 42.6 PPM

Sulfates: PPM

Water Level: 48 from surface

Date Analyzed: 3-11-82

By: Eddie W. Seay
Oil Conservation Division

REMARKS: 25 ml 142 x .3= 42.6 ppm

Supervisor, District I

45.5 x
0.0499 =
2.27045 **

9.2 x
0.00224 =
0.755608 **

3.59 x
0.02553 =
0.0018722 **

47.9 x
0.0435 =
2.03315 **

172. x
0.01639 =
2.81908 **

1. x
0.03333 =
0.03333 **

32.8 x
0.0282 =
0.22496 **

22.5 x
0.02022 =
0.45845 **

SW-1

74.3 x
0.0499 =
3.70757 **

12.4 x
0.00224 =
1.019775 **

3.7 x
0.02553 =
0.094646 **

73.2 x
0.0435 =
3.1842 **

172. x
0.01639 =
2.81908 **

172. x
0.01639 =
2.81908 **

128.6 x
128.6 x
0.0282 =
454.370472 **

0. **

128.6 x
0.0282 =
3.62652 **

65. x
0.02022 =
1.3533 **

SW-2

82.6 *
0.0499 =
4.12174 **

14.3 *
0.03224 =
1.176032 **

3.9 *
0.02558 =
0.029762 **

56.7 *
0.0435 =
2.46645 **

168. *
0.01639 =
2.75552 **

119. *
0.0282 =
3.3558 **

30. *
0.02082 =
0.6246 **

SW-3

57.8 *
0.0499 =
2.88422 **

9.7 *
0.08224 =
0.797728 **

3.2 *
0.02558 =
0.081856 **

39.6 *
0.04350 =
1.7226 **

176. *
0.01639 =
2.83464 **

37.6 *
0.02820 *
1.069320 **

37.6 *
0.0282 =
1.06032 **

27.5 *
0.02082 =
0.57255 **

SW-4

50.5 *
0.0499 =
2.51295 **

9.5 *
0.03224 =
0.73128 **

3.1 *
0.02558 =
0.070298 **

57.2 *
0.04350 =
2.4882 **

176. *
0.01639 =
2.83464 **

50.2 *
0.0232 =
1.41564 **

60. *
0.02032 =
1.2492 **

SW-5

63.7 *
0.0499 =
3.17853 **

8.6 *
0.03224 =
0.707264 **

2.7 *
0.02558 =
0.069066 **

32.8 *
0.0435 =
1.4268 **

154. *
0.01639 =
2.52406 **

37.4 *
0.0232 =
1.05468 **

95.5 *
0.02032 =
1.93831 **

SW Public
Service
Well
#25

71.7 *
0.0492 =
3.57793 **

9.1 *
0.08224 =
0.749384 **

2.6 *
0.02958 =
0.066209 **

35.2 *
0.0435 =
1.5312 **

158. *
0.01639 =
2.58962 **

62.4 *
0.0282 =
1.75968 **

SW Public
Service
Well
#26

37.5 *
0.02082 =
0.78075 **

68.2 *
0.0499 =
3.40318 **

8.9 *
0.08224 =
0.731936 **

2.8 *
0.02958 =
0.071624 **

35.6 *
0.0435 =
1.5486 **

169. *
0.01639 =
2.76991 **

64.2 *
0.0282 =
1.81044 **

SW Public
Service
Well
#27

40. *
0.02082 =
0.8328 **

73.1	x
0.0499	=
3.64769	++

9.1	x
0.08224	=
0.748384	++

3.5	x
0.02558	=
0.08953	++

35.4	x
0.0435	=
1.5399	++

163.	x
0.01639	=
2.67157	++

SW Public	61.6	x
Service	0.0282	=
Well	1.73712	++
#28	32.5	x
	0.02082	=
	0.67665	++

88.7	x
0.0499	=
4.42613	++

9.1	x
0.08224	=
0.748384	++

2.7	x
0.02558	=
0.069066	++

22.6	x
0.04350	=
0.9831	++

172.	x
0.01639	=
2.81908	++

Water Well	64.6	x
NW 1/4 Sec 33	0.0282	=
T17S R3 SE	1.82172	++
	55.	x
	0.02082	=
	1.1451	++

95.4 x
0.0499 =
4.81035 **

10.7 x
0.03224 =
0.372268 **

3.3 x
0.02553 =
0.034614 **

38.9 x
0.04550 =
1.69215 **

215. x
0.01639 =
3.52385 **

R.D. Lee
Water Well NE $\frac{1}{4}$ 45. x
Sec 2 T18S 0.0282 =
R35E 1.269 **

95. x
0.02022 =
1.9779 **

Albuquerque Analytical, Inc.

[505] 266-9106
[505] 294-6310 Nights

Cations	meq/l	% of Total
Ca+2	2.27	43.65
Mg+2	0.75	14.42
Na+1 K+1	2.18	41.93
Total	5.20	

4115 Silver S.E.

Albuquerque, N.M. 87108

% of No.

12686

meq/l	% of Total
0.92	21.75
0.46	10.87
2.85	67.38
Total	42.3

WATER ANALYSIS
Cl-1
SO4-1
CO3-2+HCO3-1

September 19, 1980

Owner Oil Conservation

Address

P.O. Box 2088

Santa Fe, NM 87501

Appearance and Data

SW-1

Chemist

J.M. Grover, M.S.

[Signature]

mg/l

meq/l

Aluminum
Ammonium
Arsenic
Barium
Cadmium
Calcium
Chromium (CrO3)
Cobalt
Copper
Gold
Iron
Lead
Lithium
Magnesium
Manganese
Mercury T
Nickel
Potassium
Silver
Sodium
Uranium (U3O8)
Zinc

Beryllium (BeO3)
Bicarbonate
Boron (BO2)
Bromide
Carbonate
Chloride
Cyanide
Fluoride
Hydroxide
Iodide
Molybdenum (MoO4)
Nitrate
Nitrite
Phosphate (Tot.)
Phosphate (Meta)
Phosphate (Ortho)
Selenium (SeO4)
Sulfate
Sulfite
Tellurium (TeO3)
Vanadium

Acidity
Alkalinity
BOD
Chlorine
COD
Color
Conductance
Dissolved O2
Hardness
H2S
Hydrazine
Odor
pH
Phenols
Silica
Solids (Tot.)
Solids (Tot. Diss.)
Solids (Tot. Susp.)
Solids ()
Surfactant
Turbidity
Volatile Acids

$$\frac{Cl}{SO_4} = 1.46$$

384.0

Albuquerque Analytical, Inc.

[505] 266-9106
[505] 294-6310 Nights

4115 Silver S.E.

Albuquerque, N.M. 87108

12686

No. of

September 19, 1980

Cations	mg/l	% of Total
Ca+2	2.88	52.55
Mg+2	0.80	14.60
Na+1 + K+1	1.80	32.84
Total	5.48	100

Owner Oil Conservation

Anions	mg/l
Cl-1	1.06
SO4-2	0.57
CO3-2 + HCO3-1	2.89
Total	4.52

WATER ANALYSIS

Address

P.O. Box 2088

Santa Fe, NM 87501

Appearance and Data

SW-4

Chemist

J.M. Grover, M.S.

mg/l	meq/l		mg/l	meq/l		ppm
Aluminum		Beryllium (BeO ₃)	176.0	2.88	Acidity	ppm
Ammonium		Bicarbonate			Alkalinity	ppm
Arsenic		Boron (BO ₂)			BOD	ppm
Barium		Bromide			Chlorine	ppm
Cadmium		Carbonate	40.1	0.00333	COD	ppm
Calcium	57.8	Chloride	37.6	1.06032	Color	ppm
Chromium (CrO ₃)		Cyanide			Conductance	ppm
Cobalt		Fluoride			Dissolved O ₂	ppm
Copper		Hydroxide			Hardness	ppm
Gold		Iodide			H ₂ S	ppm
Iron		Molybdenum (MoO ₄)			Hydrazine	ppm
Lead		Nitrate			Odor	ppm
Lithium		Nitrite			pH	ppm
Magnesium	9.7	Phosphate (Tot.)			Phenols	ppm
Manganese		Phosphate (Meta)			Silica	ppm
Mercury T		Phosphate (Ortho)			Solids (Tot.)	ppm
Nickel		Selenium (SeO ₄)			Solids (Tot. Diss.)	ppm
Potassium	3.2	Sulfate	27.5	0.57255	Solids (Tot. Susp.)	ppm
Silver		Sulfite			Solids ()	ppm
Sodium	39.6	Tellurium (TeO ₃)			Surfactant	ppm
Uranium (U ₃ O ₈)		Vanadium			Turbidity	ppm
Zinc					Volatiles Acids	ppm

$$\frac{Cl}{SO_4} = 1.37$$

Albuquerque Analytical, Inc.

[505] 266-9106

[505] 294-6310 Nights

4115 Silver S.E.

Albuquerque, N.M. 87104

No. 12686

Rec'd. September 19, 1980

% of

Total

58.9959

13.77

27.8328

meq/l

3.18

0.71

1.50

5.39

Cations

Ca⁺⁺

Mg⁺⁺

Na⁺ K⁺

Total

Oil Conservation

Owner

meq/l

1.05

1.99

2.53

5.57

% of

Total

18.85

35.7336

45.42

Cl⁻

SO₄⁻

CO₃⁻ HCO₃⁻

Total

P.O. Box 2088

Santa Fe, NM 87501

Address

SW Public Service Well #25

Chemist

J.M. Grover, M.S.

Appearance and Data

Acidity

Alkalinity

BOD

Chlorine

COD

Color

Conductance

Dissolved O₂

Hardness

H₂S

Hydrazine

Odor

pH

Phenols

Silica

Solids (Tot.)

Solids (Tot. Diss.)

Solids (Tot. Susp.)

Solids ()

Surfactant

Turbidity

Volatile Acids

mg/l

meq/l

154.0

2.52406

<0.1

0.0333

37.4

1.05468

mg/l

meq/l

95.5

1.98831

mg/l

meq/l

154.0

2.52406

<0.1

0.0333

37.4

1.05468

Aluminum

Ammonium

Arsenic

Barium

Cadmium

Calcium

Chromium (CrO₃)

Cobalt

Copper

Gold

Iron

Lead

Lithium

Magnesium

Manganese

Mercury T

Nickel

Potassium

Silver

Sodium

Uranium (U₃O₈)

Zinc

Beryllium (BeO₃)

Bicarbonate

Boron (BO₂)

Bromide

Carbonate

Chloride

Cyanide

Fluoride

Hydroxide

Iodide

Molybdenum (MoO₄)

Nitrate

Nitrite

Phosphate (Tot.)

Phosphate (Meta)

Phosphate (Ortho)

Selenium (SeO₄)

Sulfate

Sulfite

Tellurium (TeO₃)

Vanadium

Acidity

Alkalinity

BOD

Chlorine

COD

Color

Conductance

Dissolved O₂

Hardness

H₂S

Hydrazine

Odor

pH

Phenols

Silica

Solids (Tot.)

Solids (Tot. Diss.)

Solids (Tot. Susp.)

Solids ()

Surfactant

Turbidity

Volatile Acids

61.5039
504

[505] 266-9106

[505] 294-6310 Nights

4115 Silver S.E.

Albuquerque, N.M. 87108

No
12686

Rec'd. September 19, 1980

Cations	meq/l	% of Total
Ca ⁺²	3.40	59.13
Mg ⁺²	0.73	12.70
Na ⁺ + K ⁺	1.62	28.17
Total	5.75	

Oil Conservation

	Ammonia	mg/l	% of Total
WATER ANALYSIS	Cl ⁻	1.81	33.46
	SO ₄ ⁻	0.83	15.31
	CO ₃ ⁻² & HCO ₃ ⁻	2.77	51.20
	Total	5.41	

Oil Conservation
Owner

Address

P.O. Box 2088

Santa Fe, NM 87501

Appearance and Data

SW Public Service Well #27

Chemist

J. M. Grover, M. S.

Aluminum			Beryllium (BeO ₃)			Acidity	ppm
Ammonium			Bicarbonate			Alkalinity	ppm
Arsenic			Boron (BO ₂)			BOD	ppm
Barium			Bromide			Chlorine	ppm
Cadmium			Carbonate			COD	ppm
Calcium	68.2	3.40318	Chloride	<0.1	0.0333	Color	ppm
Chromium (CrO ₃)				64.2	1.81044	Conductance	PCU
Cobalt			Cyanide				μmole/cm
Copper			Fluoride			Dissolved O ₂	ppm
Gold			Hydroxide			Hardness	ppm
Iron			Iodide			H ₂ S	ppm
Lead			Molybdenum (MoO ₄)			Hydrazine	ppm
Lithium			Nitrate			Odor	T.O.
Magnesium	8.9	0.731936	Nitrite			pH	
Manganese			Phosphate (Tot.)			Phenols	ppm
Mercury T			Phosphate (Meta)			Silica	ppm
Nickel			Phosphate (Ortho)			Solids (Tot.)	ppm
Potassium	2.8	0.071624	Selenium (SeO ₄)			Solids (Tot. Diss.)	ppm
Silver			Sulfate	40.0	0.8328	Solids (Tot. Susp.)	ppm
Sodium	35.6	1.5486	Sulfite			Solids ()	ppm
Uranium (U ₃ O ₈)			Tellurium (TeO ₃)			Surfactant	ppm
Zinc			Vanadium			Turbidity	JTU
						Volatile Acids	ppm

$$\frac{Cl}{500} = 1.61$$

Albuquerque Analytical, Inc.

[505] 266-9106
[505] 294-6310 Nights

4115 Silver S.E.
Albuquerque, N.M. 87108

No. 12686

Rec'd. September 19, 1980

Cations	mg/l	% of Total
Ca ⁺⁺	3.58	60.57
Mg	0.75	12.65
Na ⁺ + K ⁺	1.60	26.98
Total	5.93	

Anions	mg/l	% of Total
Cl ⁻	1.76	34.34
SO ₄ ⁻¹	0.78	15.20
CO ₃ ⁻² HCO ₃ ⁻¹	2.59	50.49
Total	5.13	

WATER ANALYSIS

Address P.O. Box 2088 Santa Fe, NM 87501

SW Public Service Well #26

Appearance and Data

Chemist

J.M. Grover, M.S.

mg/l meq/l

Aluminum
Ammonium
Arsenic
Barium
Cadmium
Calcium
Chromium (CrO₃)
Cobalt
Copper
Gold
Iron
Lead
Lithium
Magnesium
Manganese
Mercury T
Nickel
Potassium
Silver
Sodium
Uranium (U₃O₈)
Zinc

Beryllium (BeO₃)
Bicarbonate
Boron (BO₂)
Bromide
Carbonate
Chloride
Cyanide
Fluoride
Hydroxide
Iodide
Molybdenum (MoO₄)
Nitrate
Nitrite
Phosphate (Tot.)
Phosphate (Meta)
Phosphate (Ortho)
Selenium (SeO₄)
Sulfate
Sulfite
Tellurium (TeO₃)
Vanadium

mg/l meq/l

158.0 2.58962
0.1 0.0333
62.4 1.75968
37.5 0.78075

Acidity
Alkalinity
BOD
Chlorine
COD
Color
Conductance
Dissolved O₂
Hardness
H₂S
Hydrazine
Odor
pH
Phenols
Silica
Solids (Tot.)
Solids (Tot. Diss.)
Solids (Tot. Susp.)
Solids ()
Surfactant
Turbidity
Volatile Acids

Cl = 1.666
SO₄

