Rec'd 11/24/2020 - NMOCD

Submit 1 Copy To Appropriate District Office
District I – (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II – (575) 748-1283
811 S. First St., Artesia, NM 88210
District III – (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV – (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

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

Form C-103
Revised July 18, 2013

WELL API NO. 30-015-46744

5. Indicate Type of Lease STATE ☐ FEE ☒

6. State Oil & Gas Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

7. Lease Name or Unit Agreement Name: Kaiser 18

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

8. Well Number 2H

2. Name of Operator: Redwood Operating LLC

9. OGRID Number 330211

3. Address of Operator: PO Box 1370 Artesia, NM 88211-1370

10. Pool name or Wildcat: Red Lake;Glorieta-Yeso

4. Well Location
Unit Letter F : 1970 feet from the North line and 2008 feet from the West line
Section 18 Township 18S Range 27E NMPM County Eddy, NM

11. Elevation *(Show whether DR, RKB, RT, GR, etc.)* 3290' GR

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

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
PERFORM REMEDIAL WORK	☐	PLUG AND ABANDON	☐	REMEDIAL WORK	☐	ALTERING CASING	☐
TEMPORARILY ABANDON	☐	CHANGE PLANS	☒	COMMENCE DRILLING OPNS.	☐	P AND A	☐
PULL OR ALTER CASING	☐	MULTIPLE COMPL	☐	CASING/CEMENT JOB	☐		
DOWNHOLE COMMINGLE	☐						
CLOSED-LOOP SYSTEM	☐						
OTHER: Move SHL & BHL, Casing Change	☒			OTHER:	☐		

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

Redwood Operating LLC request the following changes to the Kaiser 18 2H APD.

SHL has been moved 20' to the North. BHL location has changed. New horizontal plan attached.
Surface Casing-No Change.
Production Casing-Drill 8 3/4" hole to 9985', Run 7" 26# L-80 LT&C from 0-2100'. 7" 26# L-80 BT&C from 2100-3150'. 5 1/2" 17# L-80 BT&C from 3150-9985'. Cement w/Lead 200sx 35/65 Perlite C, Tail 1850sx PVL.

COA-Hold C-104 for 5.9 compliance (#inactive wells)

Spud Date: Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE [signature] TITLE Production Clerk DATE 11/24/2020

Type or print name Jerry W Sherrell E-mail address: jerrys@mec.com PHONE: 575-748-1288

For State Use Only

APPROVED BY: [signature] TITLE District III Geologist DATE 12/3/2020

Conditions of Approval (if any):

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-46744	51120	Red Lake; Glorieta-Yeso

[4] Property Code	[5] Property Name	[6] Well Number
323060	KAISER 18	2H

[7] OGRID No.	[8] Operator Name	[9] Elevation
330211	REDWOOD OPERATING LLC	3290.8

[10] Surface Location

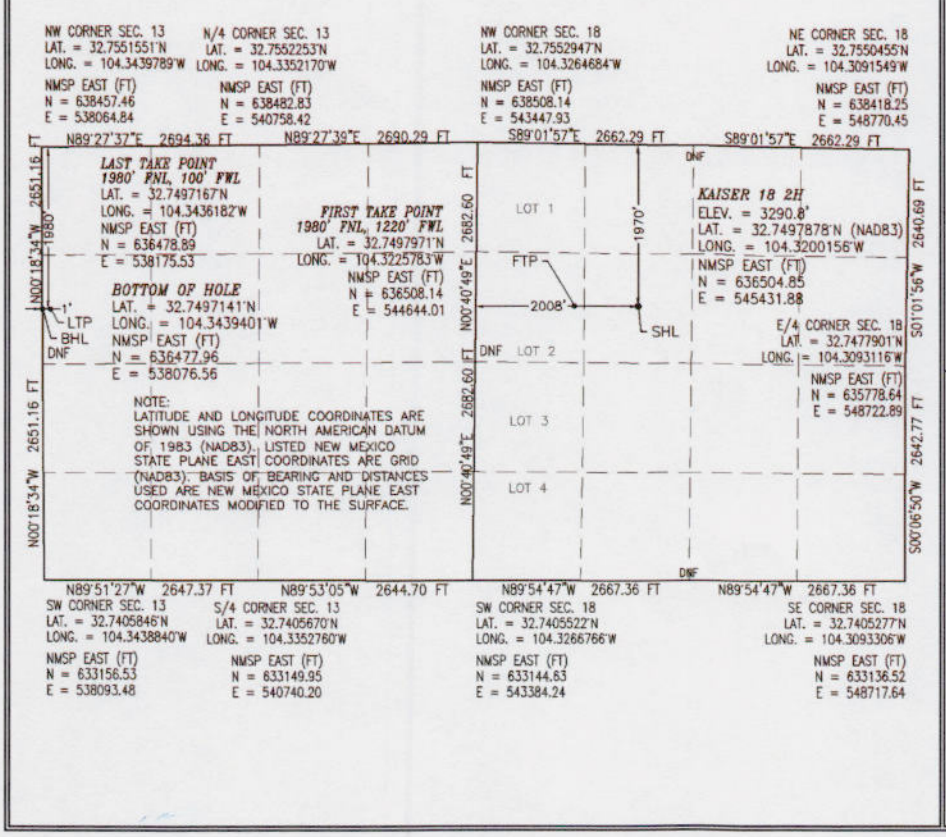
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	18	18 S	27 E		1970	NORTH	2008	WEST	EDDY

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	13	18 S	26 E		1980	NORTH	1	WEST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
200			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Jerry W. Sherrell 11/24/2020
Signature Date

Jerry W Sherrell
Printed Name

jerrys@mec.com
E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

NOVEMBER 12, 2020
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number: SIMON F. JARAMILLO, P.L.S. 12797
SURVEY NO. 6786D

Intent [ ] As Drilled [ ]

API #

Operator Name:	Property Name:	Well Number
REDWOOD OPERATING LLC	KAISER 18	2H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
F	18	18S	27E		1970	NORTH	2008	WEST	EDDY

Latitude	Longitude	NAD
32.7497878	104.3200156	83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
	18	18S	27E	2	1980	NORTH	1220	WEST	EDDY

Latitude	Longitude	NAD
32.7497971	104.3225783	83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
E	13	18S	26E		1980	NORTH	100	WEST	EDDY

Latitude	Longitude	NAD
32.7497167	104.3436182	83

Is this well the defining well for the Horizontal Spacing Unit? [ ]

Is this well an infill well? [ ]

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

Operator Name:	Property Name:	Well Number

KZ 06/29/2018

Kaiser 18-2H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft		10:13 Friday, November 20, 2020 Page 1 of 5
Field	Red Lake	**County**	Eddy	**Vertical Section Azimuth**	269.74
Well Name	Kaiser 18-2H	**State**	New Mexico	**Survey Calculation Method**	Minimum Curvature
Plan	1	**Country**	USA	**Database**	Access

Location	SL: 1970 FNL & 2008 FWL Sec 18-T18S-R27E BHL: 1650 FNL & 1 FWL Sec 13-T18S-R26E		**Map Zone** UTM	**Lat Long Ref**	
Site			**Surface X** 1849488.3	**Surface Long**	
Slot Name		**UWI**	**Surface Y** 11888162.3	**Surface Lat**	
Well Number		**API**	**Surface Z** 3308.8	**Global Z Ref** KB	
Project		**MD/TVD Ref** KB	**Ground Level** 3290.8	**Local North Ref** Grid	

DIRECTIONAL WELL PLAN

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
*** TIE (at MD = 2074.00)										
2074.00	0.00	0.0	2074.00	0.00	0.00		0.00	1849488.30	11888162.30	1234.80
2100.00	0.00	0.0	2100.00	0.00	0.00	0.00	0.00	1849488.30	11888162.30	1208.80
2150.00	0.00	0.0	2150.00	0.00	0.00	0.00	0.00	1849488.30	11888162.30	1158.80
*** KOP 9 DEGREES (at MD = 2174.00)										
2174.00	0.00	0.0	2174.00	0.00	0.00	0.00	0.00	1849488.30	11888162.30	1134.80
2200.00	2.08	270.0	2199.99	0.00	-0.47	8.00	0.47	1849487.83	11888162.30	1108.81
2250.00	6.08	270.0	2249.86	0.00	-4.03	8.00	4.03	1849484.27	11888162.30	1058.94
2300.00	10.08	270.0	2299.35	0.00	-11.06	8.00	11.05	1849477.25	11888162.30	1009.45
2350.00	14.08	270.0	2348.23	0.00	-21.52	8.00	21.52	1849466.78	11888162.30	960.57
2400.00	18.08	270.0	2396.27	0.00	-35.36	8.00	35.36	1849452.94	11888162.30	912.53
2450.00	22.08	270.0	2443.22	0.00	-52.53	8.00	52.53	1849435.77	11888162.30	865.58
2500.00	26.08	270.0	2488.86	0.00	-72.92	8.00	72.92	1849415.38	11888162.30	819.94
2550.00	30.08	270.0	2532.96	0.00	-96.45	8.00	96.45	1849391.85	11888162.30	775.84
2600.00	34.08	270.0	2575.32	0.00	-123.00	8.00	123.00	1849365.30	11888162.30	733.48
2650.00	38.08	270.0	2615.72	0.00	-152.44	8.00	152.44	1849335.86	11888162.30	693.08
2700.00	42.08	270.0	2653.97	0.00	-184.63	8.00	184.63	1849303.67	11888162.30	654.83
2750.00	46.08	270.0	2689.88	0.00	-219.40	8.00	219.40	1849268.90	11888162.30	618.92
2800.00	50.08	270.0	2723.28	0.00	-256.60	8.00	256.60	1849231.70	11888162.30	585.52
2850.00	54.08	270.0	2754.00	0.00	-296.04	8.00	296.03	1849192.26	11888162.30	554.80
*** 55 DEGREE TANGENT (at MD = 2861.50)										
2861.50	55.00	270.0	2760.67	0.00	-305.40	8.00	305.40	1849182.90	11888162.30	548.13
2900.00	55.00	270.0	2782.76	0.00	-336.94	0.00	336.94	1849151.36	11888162.30	526.04
2950.00	55.00	270.0	2811.44	0.00	-377.90	0.00	377.89	1849110.40	11888162.30	497.36
3000.00	55.00	270.0	2840.11	0.00	-418.86	0.00	418.85	1849069.44	11888162.30	468.69
3050.00	55.00	270.0	2868.79	0.00	-459.81	0.00	459.81	1849028.49	11888162.30	440.01
3100.00	55.00	270.0	2897.47	0.00	-500.77	0.00	500.77	1848987.53	11888162.30	411.33
*** 12 DEGREE BUILD (at MD = 3111.50)										
3111.50	55.00	270.0	2904.07	0.00	-510.19	0.00	510.19	1848978.11	11888162.30	404.73
3150.00	59.62	270.0	2924.86	-0.01	-542.58	12.00	542.58	1848945.72	11888162.29	383.94
3200.00	65.62	269.9	2947.84	-0.06	-586.96	12.00	586.96	1848901.34	11888162.24	360.96
3250.00	71.62	269.9	2966.06	-0.15	-633.50	12.00	633.49	1848854.80	11888162.15	342.74
3300.00	77.62	269.8	2979.32	-0.28	-681.69	12.00	681.68	1848806.61	11888162.02	329.48
3350.00	83.62	269.8	2987.46	-0.44	-731.00	12.00	730.99	1848757.30	11888161.86	321.34
3400.00	89.62	269.8	2990.41	-0.64	-780.89	12.00	780.88	1848707.41	11888161.66	318.39
*** LANDING POINT (at MD = 3417.76)										
3417.76	91.75	269.7	2990.20	-0.72	-798.64	12.00	798.64	1848689.66	11888161.58	318.60
3450.00	91.75	269.7	2989.21	-0.87	-830.87	0.00	830.86	1848657.43	11888161.43	319.59
3500.00	91.75	269.7	2987.68	-1.09	-880.84	0.00	880.84	1848607.46	11888161.21	321.12

Kaiser 18-2H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft	**Vertical Section Azimuth**	269.74
Field	Red Lake	**County**	Eddy	**Survey Calculation Method**	Minimum Curvature
Well Name	Kaiser 18-2H	**State**	New Mexico	**Database**	Access
Plan	1	**Country**	USA		

Location	SL: 1970 FNL & 2008 FWL Sec 18-T18S-R27E BHL: 1650 FNL & 1 FWL Sec 13-T18S-R26E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1849488.3	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11888162.3	**Surface Lat**	
Well Number	**API**	**Surface Z**	3308.8	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3290.8	**Local North Ref**	Grid

DIRECTIONAL WELL PLAN

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
3550.00	91.75	269.7	2986.16	-1.32	-930.82	0.00	930.82	1848557.48	11888160.98	322.64
3600.00	91.75	269.7	2984.63	-1.55	-980.80	0.00	980.79	1848507.50	11888160.75	324.17
3650.00	91.75	269.7	2983.10	-1.77	-1030.77	0.00	1030.77	1848457.53	11888160.53	325.70
3700.00	91.75	269.7	2981.58	-2.00	-1080.75	0.00	1080.75	1848407.55	11888160.30	327.22
3750.00	91.75	269.7	2980.05	-2.23	-1130.73	0.00	1130.72	1848357.57	11888160.07	328.75
3800.00	91.75	269.7	2978.52	-2.45	-1180.70	0.00	1180.70	1848307.60	11888159.85	330.28
3850.00	91.75	269.7	2977.00	-2.68	-1230.68	0.00	1230.68	1848257.62	11888159.62	331.80
3900.00	91.75	269.7	2975.47	-2.91	-1280.65	0.00	1280.65	1848207.65	11888159.39	333.33
3950.00	91.75	269.7	2973.94	-3.13	-1330.63	0.00	1330.63	1848157.67	11888159.17	334.86
4000.00	91.75	269.7	2972.42	-3.36	-1380.61	0.00	1380.61	1848107.69	11888158.94	336.38
4050.00	91.75	269.7	2970.89	-3.59	-1430.58	0.00	1430.58	1848057.72	11888158.71	337.91
4100.00	91.75	269.7	2969.36	-3.81	-1480.56	0.00	1480.56	1848007.74	11888158.49	339.44
4150.00	91.75	269.7	2967.83	-4.04	-1530.53	0.00	1530.54	1847957.77	11888158.26	340.97
4200.00	91.75	269.7	2966.31	-4.27	-1580.51	0.00	1580.51	1847907.79	11888158.03	342.49
4250.00	91.75	269.7	2964.78	-4.49	-1630.49	0.00	1630.49	1847857.81	11888157.81	344.02
4300.00	91.75	269.7	2963.25	-4.72	-1680.46	0.00	1680.47	1847807.84	11888157.58	345.55
4350.00	91.75	269.7	2961.73	-4.95	-1730.44	0.00	1730.44	1847757.86	11888157.35	347.07
4400.00	91.75	269.7	2960.20	-5.17	-1780.42	0.00	1780.42	1847707.88	11888157.13	348.60
4450.00	91.75	269.7	2958.67	-5.40	-1830.39	0.00	1830.40	1847657.91	11888156.90	350.13
4500.00	91.75	269.7	2957.15	-5.63	-1880.37	0.00	1880.37	1847607.93	11888156.67	351.65
4550.00	91.75	269.7	2955.62	-5.85	-1930.34	0.00	1930.35	1847557.96	11888156.45	353.18
4600.00	91.75	269.7	2954.09	-6.08	-1980.32	0.00	1980.33	1847507.98	11888156.22	354.71
4650.00	91.75	269.7	2952.57	-6.31	-2030.30	0.00	2030.30	1847458.00	11888155.99	356.23
4700.00	91.75	269.7	2951.04	-6.54	-2080.27	0.00	2080.28	1847408.03	11888155.76	357.76
4750.00	91.75	269.7	2949.51	-6.76	-2130.25	0.00	2130.26	1847358.05	11888155.54	359.29
4800.00	91.75	269.7	2947.98	-6.99	-2180.22	0.00	2180.23	1847308.08	11888155.31	360.82
4850.00	91.75	269.7	2946.46	-7.22	-2230.20	0.00	2230.21	1847258.10	11888155.08	362.34
4900.00	91.75	269.7	2944.93	-7.44	-2280.18	0.00	2280.19	1847208.12	11888154.86	363.87
4950.00	91.75	269.7	2943.40	-7.67	-2330.15	0.00	2330.16	1847158.15	11888154.63	365.40
5000.00	91.75	269.7	2941.88	-7.90	-2380.13	0.00	2380.14	1847108.17	11888154.40	366.92
5050.00	91.75	269.7	2940.35	-8.12	-2430.11	0.00	2430.12	1847058.19	11888154.18	368.45
5100.00	91.75	269.7	2938.82	-8.35	-2480.08	0.00	2480.09	1847008.22	11888153.95	369.98
5150.00	91.75	269.7	2937.30	-8.58	-2530.06	0.00	2530.07	1846958.24	11888153.72	371.50
5200.00	91.75	269.7	2935.77	-8.80	-2580.03	0.00	2580.05	1846908.27	11888153.50	373.03
5250.00	91.75	269.7	2934.24	-9.03	-2630.01	0.00	2630.02	1846858.29	11888153.27	374.56
5300.00	91.75	269.7	2932.72	-9.26	-2679.99	0.00	2680.00	1846808.31	11888153.04	376.08
5350.00	91.75	269.7	2931.19	-9.48	-2729.96	0.00	2729.98	1846758.34	11888152.82	377.61

Kaiser 18-2H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft	**Vertical Section Azimuth**	269.74
Field	Red Lake	**County**	Eddy	**Survey Calculation Method**	Minimum Curvature
Well Name	Kaiser 18-2H	**State**	New Mexico	**Database**	Access
Plan	1	**Country**	USA		

Location	SL: 1970 FNL & 2008 FWL Sec 18-T18S-R27E BHL: 1650 FNL & 1 FWL Sec 13-T18S-R26E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1849488.3	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11888162.3	**Surface Lat**	
Well Number	**API**	**Surface Z**	3308.8	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3290.8	**Local North Ref**	Grid

DIRECTIONAL WELL PLAN

MD* ft	INC* deg	AZI* deg	TVD* ft	N* ft	E* ft	DLS* °/100ft	V. S.* ft	MapE* ft	MapN* ft	SysTVD* ft
5400.00	91.75	269.7	2929.66	-9.71	-2779.94	0.00	2779.95	1846708.36	11888152.59	379.14
5450.00	91.75	269.7	2928.13	-9.94	-2829.91	0.00	2829.93	1846658.39	11888152.36	380.67
5500.00	91.75	269.7	2926.61	-10.16	-2879.89	0.00	2879.91	1846608.41	11888152.14	382.19
5550.00	91.75	269.7	2925.08	-10.39	-2929.87	0.00	2929.88	1846558.43	11888151.91	383.72
5600.00	91.75	269.7	2923.55	-10.62	-2979.84	0.00	2979.86	1846508.46	11888151.68	385.25
5650.00	91.75	269.7	2922.03	-10.84	-3029.82	0.00	3029.84	1846458.48	11888151.46	386.77
5700.00	91.75	269.7	2920.50	-11.07	-3079.80	0.00	3079.81	1846408.50	11888151.23	388.30
5750.00	91.75	269.7	2918.97	-11.30	-3129.77	0.00	3129.79	1846358.53	11888151.00	389.83
5800.00	91.75	269.7	2917.45	-11.52	-3179.75	0.00	3179.77	1846308.55	11888150.78	391.35
5850.00	91.75	269.7	2915.92	-11.75	-3229.72	0.00	3229.74	1846258.58	11888150.55	392.88
5900.00	91.75	269.7	2914.39	-11.98	-3279.70	0.00	3279.72	1846208.60	11888150.32	394.41
5950.00	91.75	269.7	2912.87	-12.20	-3329.68	0.00	3329.70	1846158.62	11888150.10	395.93
6000.00	91.75	269.7	2911.34	-12.43	-3379.65	0.00	3379.67	1846108.65	11888149.87	397.46
6050.00	91.75	269.7	2909.81	-12.66	-3429.63	0.00	3429.65	1846058.67	11888149.64	398.99
6100.00	91.75	269.7	2908.28	-12.89	-3479.60	0.00	3479.63	1846008.70	11888149.41	400.52
6150.00	91.75	269.7	2906.76	-13.11	-3529.58	0.00	3529.60	1845958.72	11888149.19	402.04
6200.00	91.75	269.7	2905.23	-13.34	-3579.56	0.00	3579.58	1845908.74	11888148.96	403.57
6250.00	91.75	269.7	2903.70	-13.57	-3629.53	0.00	3629.56	1845858.77	11888148.73	405.10
6300.00	91.75	269.7	2902.18	-13.79	-3679.51	0.00	3679.53	1845808.79	11888148.51	406.62
6350.00	91.75	269.7	2900.65	-14.02	-3729.49	0.00	3729.51	1845758.81	11888148.28	408.15
6400.00	91.75	269.7	2899.12	-14.25	-3779.46	0.00	3779.49	1845708.84	11888148.05	409.68
6450.00	91.75	269.7	2897.60	-14.47	-3829.44	0.00	3829.46	1845658.86	11888147.83	411.20
6500.00	91.75	269.7	2896.07	-14.70	-3879.41	0.00	3879.44	1845608.89	11888147.60	412.73
6550.00	91.75	269.7	2894.54	-14.93	-3929.39	0.00	3929.42	1845558.91	11888147.37	414.26
6600.00	91.75	269.7	2893.02	-15.15	-3979.37	0.00	3979.39	1845508.93	11888147.15	415.78
6650.00	91.75	269.7	2891.49	-15.38	-4029.34	0.00	4029.37	1845458.96	11888146.92	417.31
6700.00	91.75	269.7	2889.96	-15.61	-4079.32	0.00	4079.35	1845408.98	11888146.69	418.84
6750.00	91.75	269.7	2888.43	-15.83	-4129.30	0.00	4129.32	1845359.01	11888146.47	420.37
6800.00	91.75	269.7	2886.91	-16.06	-4179.27	0.00	4179.30	1845309.03	11888146.24	421.89
6850.00	91.75	269.7	2885.38	-16.29	-4229.25	0.00	4229.28	1845259.05	11888146.01	423.42
6900.00	91.75	269.7	2883.85	-16.51	-4279.22	0.00	4279.25	1845209.08	11888145.79	424.95
6950.00	91.75	269.7	2882.33	-16.74	-4329.20	0.00	4329.23	1845159.10	11888145.56	426.47
7000.00	91.75	269.7	2880.80	-16.97	-4379.18	0.00	4379.21	1845109.12	11888145.33	428.00
7050.00	91.75	269.7	2879.27	-17.19	-4429.15	0.00	4429.18	1845059.15	11888145.11	429.53
7100.00	91.75	269.7	2877.75	-17.42	-4479.13	0.00	4479.16	1845009.17	11888144.88	431.05
7150.00	91.75	269.7	2876.22	-17.65	-4529.10	0.00	4529.14	1844959.20	11888144.65	432.58
7200.00	91.75	269.7	2874.69	-17.87	-4579.08	0.00	4579.11	1844909.22	11888144.43	434.11
7250.00	91.75	269.7	2873.17	-18.10	-4629.06	0.00	4629.09	1844859.24	11888144.20	435.63

Kaiser 18-2H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft	**Vertical Section Azimuth**	269.74
Field	Red Lake	**County**	Eddy	**Survey Calculation Method**	Minimum Curvature
Well Name	Kaiser 18-2H	**State**	New Mexico	**Database**	Access
Plan	1	**Country**	USA		

Location	SL: 1970 FNL & 2008 FWL Sec 18-T18S-R27E BHL: 1650 FNL & 1 FWL Sec 13-T18S-R26E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1849488.3	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11888162.3	**Surface Lat**	
Well Number	**API**	**Surface Z**	3308.8	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3290.8	**Local North Ref**	Grid

DIRECTIONAL WELL PLAN

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
7300.00	91.75	269.7	2871.64	-18.33	-4679.03	0.00	4679.07	1844809.27	11888143.97	437.16
7350.00	91.75	269.7	2870.11	-18.56	-4729.01	0.00	4729.04	1844759.29	11888143.75	438.69
7400.00	91.75	269.7	2868.58	-18.78	-4778.99	0.00	4779.02	1844709.31	11888143.52	440.22
7450.00	91.75	269.7	2867.06	-19.01	-4828.96	0.00	4829.00	1844659.34	11888143.29	441.74
7500.00	91.75	269.7	2865.53	-19.24	-4878.94	0.00	4878.97	1844609.36	11888143.06	443.27
7550.00	91.75	269.7	2864.00	-19.46	-4928.91	0.00	4928.95	1844559.39	11888142.84	444.80
7600.00	91.75	269.7	2862.48	-19.69	-4978.89	0.00	4978.93	1844509.41	11888142.61	446.32
7650.00	91.75	269.7	2860.95	-19.92	-5028.87	0.00	5028.90	1844459.43	11888142.38	447.85
7700.00	91.75	269.7	2859.42	-20.14	-5078.84	0.00	5078.88	1844409.46	11888142.16	449.38
7750.00	91.75	269.7	2857.90	-20.37	-5128.82	0.00	5128.86	1844359.48	11888141.93	450.90
7800.00	91.75	269.7	2856.37	-20.60	-5178.79	0.00	5178.83	1844309.51	11888141.70	452.43
7850.00	91.75	269.7	2854.84	-20.82	-5228.77	0.00	5228.81	1844259.53	11888141.48	453.96
7900.00	91.75	269.7	2853.32	-21.05	-5278.75	0.00	5278.79	1844209.55	11888141.25	455.48
7950.00	91.75	269.7	2851.79	-21.28	-5328.72	0.00	5328.76	1844159.58	11888141.02	457.01
8000.00	91.75	269.7	2850.26	-21.50	-5378.70	0.00	5378.74	1844109.60	11888140.80	458.54
8050.00	91.75	269.7	2848.73	-21.73	-5428.68	0.00	5428.72	1844059.62	11888140.57	460.07
8100.00	91.75	269.7	2847.21	-21.96	-5478.65	0.00	5478.69	1844009.65	11888140.34	461.59
8150.00	91.75	269.7	2845.68	-22.18	-5528.63	0.00	5528.67	1843959.67	11888140.12	463.12
8200.00	91.75	269.7	2844.15	-22.41	-5578.60	0.00	5578.65	1843909.70	11888139.89	464.65
8250.00	91.75	269.7	2842.63	-22.64	-5628.58	0.00	5628.62	1843859.72	11888139.66	466.17
8300.00	91.75	269.7	2841.10	-22.86	-5678.56	0.00	5678.60	1843809.74	11888139.44	467.70
8350.00	91.75	269.7	2839.57	-23.09	-5728.53	0.00	5728.58	1843759.77	11888139.21	469.23
8400.00	91.75	269.7	2838.05	-23.32	-5778.51	0.00	5778.55	1843709.79	11888138.98	470.75
8450.00	91.75	269.7	2836.52	-23.54	-5828.48	0.00	5828.53	1843659.82	11888138.76	472.28
8500.00	91.75	269.7	2834.99	-23.77	-5878.46	0.00	5878.51	1843609.84	11888138.53	473.81
8550.00	91.75	269.7	2833.47	-24.00	-5928.44	0.00	5928.48	1843559.86	11888138.30	475.33
8600.00	91.75	269.7	2831.94	-24.22	-5978.41	0.00	5978.46	1843509.89	11888138.08	476.86
8650.00	91.75	269.7	2830.41	-24.45	-6028.39	0.00	6028.44	1843459.91	11888137.85	478.39
8700.00	91.75	269.7	2828.88	-24.68	-6078.37	0.00	6078.41	1843409.93	11888137.62	479.92
8750.00	91.75	269.7	2827.36	-24.91	-6128.34	0.00	6128.39	1843359.96	11888137.40	481.44
8800.00	91.75	269.7	2825.83	-25.13	-6178.32	0.00	6178.37	1843309.98	11888137.17	482.97
8850.00	91.75	269.7	2824.30	-25.36	-6228.29	0.00	6228.34	1843260.01	11888136.94	484.50
8900.00	91.75	269.7	2822.78	-25.59	-6278.27	0.00	6278.32	1843210.03	11888136.71	486.02
8950.00	91.75	269.7	2821.25	-25.81	-6328.25	0.00	6328.30	1843160.05	11888136.49	487.55
9000.00	91.75	269.7	2819.72	-26.04	-6378.22	0.00	6378.27	1843110.08	11888136.26	489.08
9050.00	91.75	269.7	2818.20	-26.27	-6428.20	0.00	6428.25	1843060.10	11888136.03	490.60
9100.00	91.75	269.7	2816.67	-26.49	-6478.17	0.00	6478.23	1843010.13	11888135.81	492.13

Kaiser 18-2H, Plan 1

Operator	Redwood Operating LLC	**Units**	feet, °/100ft	**Vertical Section Azimuth**	269.74
Field	Red Lake	**County**	Eddy	**Survey Calculation Method**	Minimum Curvature
Well Name	Kaiser 18-2H	**State**	New Mexico	**Database**	Access
Plan	1	**Country**	USA		

Location	SL: 1970 FNL & 2008 FWL Sec 18-T18S-R27E BHL: 1650 FNL & 1 FWL Sec 13-T18S-R26E	**Map Zone**	UTM	**Lat Long Ref**	
Site		**Surface X**	1849488.3	**Surface Long**	
Slot Name	**UWI**	**Surface Y**	11888162.3	**Surface Lat**	
Well Number	**API**	**Surface Z**	3308.8	**Global Z Ref**	KB
Project	**MD/TVD Ref** KB	**Ground Level**	3290.8	**Local North Ref**	Grid

DIRECTIONAL WELL PLAN

MD*	INC*	AZI*	TVD*	N*	E*	DLS*	V. S.*	MapE*	MapN*	SysTVD*
ft	deg	deg	ft	ft	ft	°/100ft	ft	ft	ft	ft
9150.00	91.75	269.7	2815.14	-26.72	-6528.15	0.00	6528.20	1842960.15	11888135.58	493.66
9200.00	91.75	269.7	2813.62	-26.95	-6578.13	0.00	6578.18	1842910.17	11888135.35	495.18
9250.00	91.75	269.7	2812.09	-27.17	-6628.10	0.00	6628.16	1842860.20	11888135.13	496.71
9300.00	91.75	269.7	2810.56	-27.40	-6678.08	0.00	6678.14	1842810.22	11888134.90	498.24
9350.00	91.75	269.7	2809.03	-27.63	-6728.06	0.00	6728.11	1842760.24	11888134.67	499.77
9400.00	91.75	269.7	2807.51	-27.85	-6778.03	0.00	6778.09	1842710.27	11888134.45	501.29
9450.00	91.75	269.7	2805.98	-28.08	-6828.01	0.00	6828.07	1842660.29	11888134.22	502.82
9500.00	91.75	269.7	2804.45	-28.31	-6877.98	0.00	6878.04	1842610.32	11888133.99	504.35
9550.00	91.75	269.7	2802.93	-28.53	-6927.96	0.00	6928.02	1842560.34	11888133.77	505.87
9600.00	91.75	269.7	2801.40	-28.76	-6977.94	0.00	6978.00	1842510.36	11888133.54	507.40
9650.00	91.75	269.7	2799.87	-28.99	-7027.91	0.00	7027.97	1842460.39	11888133.31	508.93
9700.00	91.75	269.7	2798.35	-29.21	-7077.89	0.00	7077.95	1842410.41	11888133.09	510.45
9750.00	91.75	269.7	2796.82	-29.44	-7127.86	0.00	7127.93	1842360.44	11888132.86	511.98
9800.00	91.75	269.7	2795.29	-29.67	-7177.84	0.00	7177.90	1842310.46	11888132.63	513.51
9850.00	91.75	269.7	2793.77	-29.89	-7227.82	0.00	7227.88	1842260.48	11888132.41	515.03
9900.00	91.75	269.7	2792.24	-30.12	-7277.79	0.00	7277.86	1842210.51	11888132.18	516.56
9950.00	91.75	269.7	2790.71	-30.35	-7327.77	0.00	7327.83	1842160.53	11888131.95	518.09
*** TD (at MD = 9984.76)										
9984.76	91.75	269.7	2789.65	-30.51	-7362.51	0.00	7362.57	1842125.79	11888131.79	519.15

Kaiser 18 2H

Surface- 12 ¼" hole 1,230'
9 5/8"-36#-J-55

Stage 1	Slurry	Density	Yield	Mix H2O Gals./sk	# of Sacks	% Excess	Slurry Top
Lead	Class C +4%PF20+1% PF1+0.125#/skPF29+.4%PF 45	13.5	1.72	9.102	250	100	Surface
Tail	Class C+.1%PF1	14.8	1.34	6.307	200	100	1,800'

Comments	20bbls Gel Spacer. 50 sacks of 11# Scavenger cement.	Cu/Ft per lin/Ft 385.23

Production-9,985' 7"-26#-L-80
LT&C and BTC (3,150') XO 5 ½"
17# L-80 BTC (6,835')

Stage 1	Slurry	Density	Yield	Mix H2O Gals./sk	# of Sacks	% Excess	Slurry Top
Lead	35/65 Perlite/C 5% PF44+6%PF20+.2%PF13+3ppsPF 42+.4ppsPF45+.125ppsPF29	12.9	1.82	9.21	200	35	Surface
Tail	PVL+1.3%PF44(BWOW)+5%PF1 74+.5%PF506+0.1%PF153+.4#PF 45	13	1.48	7.57	1850	35	2,000'

Comments	20bbls Gel Spacer. 50 sacks of 11# Scavenger cement.	Cu/Ft per lin/Ft 2522.21

Casing Design **Well:** Kaiser 18 2H

String Size & Function: 5 1/2"x 7" in Production x

Total Depth: 9985 ft **TVD:** 2790 ft

Pressure Gradient for Calculations **(While drilling)**

Mud weight, collapse: 10.3 #/gal Safety Factor Collapse: 1.125

Mud weight, burst: 10.3 #/gal Safety Factor Burst: 1.25

Mud weight for joint strength: 10.3 #/gal Safety Factor Joint Strength 1.8

BHP @ TD for: collapse: 1494.324 psi Burst: 1494.324 psi, joint strength: 1494.324 psi

Partially evacuated hole? Pressure gradient remaining: 10 #/gal

Max. Shut in surface pressure: 3000 psi

9985

1st segment ~~10417~~ ft to 3150 ft Make up Torque ft-lbs Total ft = 7267

O.D.	Weight	Grade	Threads	opt.	min.	mx.
5.5 inches	17 #/ft	L-80	BTC	3410	2560	4260
Collapse Resistance	**Internal Yield**	**Joint Strength**		**Body Yield**		**Drift**
6,290	7,740 psi	338 ,000 #		397 ,000 #		4.767

2nd segment 2100 ft to 3150 ft Make up Torque ft-lbs Total ft = 1150

O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	26 #/ft	L-80	BTC	5110	3830	6390
Collapse Resistance	**Internal Yield**	**Joint Strength**		**Body Yield**		**Drift**
5,410 psi	7,240 psi	511 ,000 #		604 ,000 #		6.151

3rd segment 2100 ft to 0 ft Make up Torque ft-lbs Total ft = 2100

O.D.	Weight	Grade	Threads	opt.	min.	mx.
7 inches	26 #/ft	L-80	LT&C	5110	3830	6390
Collapse Resistance	**Internal Yield**	**Joint Strength**		**Body Yield**		**Drift**
5,410 psi	7,240 psi	511 ,000 #		604 ,000 #		6.151

4th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	**Internal Yield**	**Joint Strength**		**Body Yield**		**Drift**
psi	psi	,000 #		,000 #		

5th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	**Internal Yield**	**Joint Strength**		**Body Yield**		**Drift**
psi	psi	,000 #		,000 #		

6th segment 0 ft to 0 ft Make up Torque ft-lbs Total ft = 0

O.D.	Weight	Grade	Threads	opt.	min.	mx.
inches	#/ft					
Collapse Resistance	**Internal Yield**	**Joint Strength**		**Body Yield**		**Drift**
psi	psi	,000 #		,000 #		

Select 1st segment bottom 9985

9985 ft to 3150 ft
5.5 26 L-80 BTC

Top of segment 1 (ft) 3150

Select 2nd segment from bottom

3150 ft to 2100 ft
7 26 L-80 BTC

S.F.	Actual		Desire
collapse	4.209261	>=	1.125
burst-b	2.721295	>=	1.25
burst-t	2.622964		
S.F.	**Actual**		**Desire**
collapse	3.031993	>=	1.125
burst-b	2.453522	>=	1.25
burst-t	2.439978		
jnt strngth	3.453073	>=	1.8

	Top of segment 2 (ft)	2100	S.F.	Actual		Desire
Select	3rd segment from bottom		collapse	4.468959	>=	1.125
			burst-b	2.439978	>=	1.25
2100 ft	to 0 ft		burst-t	2.413333		
7	26 L-80 LT&C		jnt strngth	4.227276	>=	1.8
	Top of segment 3 (ft)	0	S.F.	Actual		Desire
Select	4th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to 0 ft		burst-t	0		
0	0 0 0		jnt strngth	4.22728	>=	1.8
	Top of segment 4 (ft)		S.F.	Actual		Desire
Select	5th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to ft		burst-t	0		
0	0 0 0		jnt strngth	0	>=	1.8
	Top of segment 5 (ft)		S.F.	Actual		Desire
Select	6th segment from bottom		collapse	#DIV/0!	>=	1.125
			burst-b	0	>=	1.25
0 ft	to ft		burst-t	0		
0	0 0 0		jnt strngth	0	>=	1.8
	Top of segment 6 (ft)		jnt strngth		>=	1.8

use in collapse calculations across different pressured formations

Three gradient pressure function

Depth of evaluation:	1,200 ft		516	psi @	1,200 ft
Top of salt:	2,400 ft	fx #1	516		
Base of salt:	3,700 ft	fx #2	900		
TD of intermediate:	4,600 ft	fx #3	540		

Pressure gradient to be used above each top to be used as a function of depth. ex. psi/ft

fx #1	fx #2	fx #3
0.43	0.75	0.45

1) Calculate neutral point for buckling with temperature affects computed also
2) Surface burst calculations & kick toferance in surface pressure for burst
3) Do a comparison test to determine which value is lower joint strength or body yield to use in tensile strength calculations
4) Raise joint strength safety factor up to next level on page #2
5) Sour service what pipe can be used with proper degrading of strength factors and as function of temp

Adjust for best combination of safety factors

	Secondary
S.F. Collapse bottom of segment:	
S.F. Collapse top of segment:	3.382
S.F. Burst bottom of segment:	
S.F. Burst top of segment	
S.F. Joint strength bottom of segment:	473.389
S.F. Joint strength top of segment:	
S.F. Body yield strength bottom of segment:	556.022
S.F. Body yield strength top of segment:	4.05583

Collapse calculations for 1st segment - casing evacuated

Buoyancy factor collapse:	0.84241		
calculations for bottom of segment @	2790	ft	
hydrostatic pressure collapse - backside:	1494.32	psi	
Axial load @ bottom of section	0	lbs	previous segments
Axial load factor:	0		load/(pipe body yield strength)
Collapse strength reduction factor:	1		Messrs, Westcott, Dunlop, Kemler,1940
Adjusted collapse rating of segment:	6290	psi	
Actual safety factor	4.20926		adjusted casing rating / actual pressure