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Maps showing porosity variations and geothermal gradients of
the upper part of the Tensleep Sandstone and equivalents, Bighorn,
Wind River, and Greater Green River Basins, Wyoming

By

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This report is preliminary and has not
been edited or reviewed for conformity
with U.S. Geological Survey standards
and nomenclature.

INTRODUCTION

This report consists of twelve Tensleep porosity distribution maps, four for each of the three basins studied in Wyoming (Bighorn, Wind River, and Greater Green River Basins). One geothermal gradient map of all three basins is also included. In addition, there are three tables, one for each basin, containing well name, location, porosity data, and temperature gradient data for each well shown on the maps.

The reader is referred to the Geologic Map of Wyoming to determine the United States Land Survey location of each well shown on the maps and listed on the tables.

The figures included in this report are as follows:

- Figure 1. Pennsylvanian Tensleep Sandstone, Bighorn Basin, map of average percent porosity.
- Figure 2. Pennsylvanian Tensleep Sandstone, Bighorn Basin, sixth order trend surface map of average percent porosity.
- Figure 3. Pennsylvanian Tensleep Sandstone, Bighorn Basin, sixth order residual map of average percent porosity.
- Figure 4. Pennsylvanian Tensleep Sandstone, Bighorn Basin, map of total thickness of strata in the upper part of the Tensleep with porosity greater than 8 percent.
- Figure 5. Pennsylvanian Tensleep Sandstone, Wind River Basin, map of average percent porosity.
- Figure 6. Pennsylvanian Tensleep Sandstone, Wind River Basin, sixth order trend surface map of average percent porosity.
- Figure 7. Pennsylvanian Tensleep Sandstone, Wind River Basin, sixth order residual map of average percent porosity.

- Figure 8. Pennsylvanian Tensleep Sandstone, Wind River Basin, map of total thickness of strata in the upper part of the Tensleep with porosity greater than 8 percent.
- Figure 9. Pennsylvanian Tensleep Sandstone, Greater Green River Basin, map of average percent porosity.
- Figure 10. Pennsylvanian Tensleep Sandstone, Greater Green River Basin, sixth order trend surface map of average percent porosity.
- Figure 11. Pennsylvanian Tensleep Sandstone, Greater Green River Basin, sixth order residual map of average percent porosity.
- Figure 12. Pennsylvanian Tensleep Sandstone, Greater Green River Basin, map of total thickness of strata in the upper part of the Tensleep with porosity greater than 6 percent.
- Figure 13. Geothermal gradient map and locations of oil and gas fields with production from the Tensleep Sandstone in the Bighorn, Wind River, and Greater Green River Basins, Wyoming.

The tables included in this report are as follows:

Table 1-A. Data from Bighorn Basin.

Table 1-B. Data from Wind River Basin.

Table 1-C. Data from Greater Green River Basin.

Table 2-A.--Data from Big Horn Basin

Well Name	Section	Location Township	Range	Depth (feet)	Average Porosity (%)	Minimum Porosity (%)	Number of feet with Porosity \geq 6%	Temperature Gradient ($^{\circ}$ F/100 feet)
Continental Oil Malone Ranch #1	35	43N	99W	7256	8.2	11.	36	1.29
Estate of William G. Hollis 34-1 Gov't	34	44N	92W	5394	11.9	14.6	71	1.33
Coronado Oil Company Schwegmann--Gov't #1	4	41N	91W	2293	12.2	14.	69	1.74
Pan American Petroleum Corporation EDET Unit #1 Well 276	36	38N	100W	6164	12.1	13.8	33	1.23
Kimberly Operating Company #1 Federal Pepper	22	33N	97W	7494	6.2	8.2	28	1.0
Musky Oil Company Western Giant #13	4	34N	94W	243	14.	16.2	30	--
Cardinal Petroleum #1 Medicine Wheel Unit	30	34N	92W	2982	9.6	13.7	21	1.82
Shrute, McKinn and Kuebel Gov't #1	31	33N	92W	1602	3.9	11.	16	--
Chevron Oil #1 Federal	30	32N	91W	3821	16.2	18.9	62	1.26
Musky Oil Company Harrison #7	26	31N	102W	3353	13.2	18.8	73	1.83
Marathon Oil #14 Orchard	28	31N	100W	3978	12.4	14.4	20	1.39
Mobil Oil Company State Sullivan #714-43	4	30N	103W	6430	12.8	14.3	72	1.86
Tripped Oil Company Masterton Gov't #1	28	49N	99W	11368	8.9	12.4	29	1.11
Pan American Petroleum Corporation USA U.S. Brown #1	29	47N	99W	7030	18.2	13.2	76	1.24
Pan American Petroleum Corporation LBS Unit #342	7	47N	99W	4992	11.6	12.5	61	1.24
Sun Oil Company Drouillard--Federal #1	17	47N	89W	2744	17.3	20.4	86	1.74
Continental Oil Company Federal #1B-1	18	46N	90W	9838	11.2	12.6	74	.96
Sinclair Oil and Gas Steel Unit #1	9	46N	89W	7374	12.6	13.7	82	1.83
Tennessee Oil Company #1 Federal-Tuffy	13	43N	92W	11018	3.9	6.8	44	.91
Spelman-Prontice #1	33	44N	93W	4328	9.8	14.8	22	1.92
Empire State Oil Company State #26	36	43N	94W	1085	14.1	18.3	74	--
The Coronado Company Catterton Anderson Gov't #1	3	43N	90W	4229	11.	16.1	66	1.38
Murphy Oil Company State #1	36	43N	90W	4312	6.4	12.3	17	1.32
C. E. Strahl Gov't #16-22	23	33N	96W	7612	4.7	6.4	0	1.38
MCC Exploration #1 Battle Mountain	12	42N	90W	4256	11.5	17	32	1.9
Phillips Petroleum Corporation Mayer Ranch #1	23	42N	91W	3334	13.8	17	77	1.93
Farmers Union Central Exchange Shad #23	9	43N	91W	4872	11.5	13.2	82	1.34
Farmers Union Central Exchange Rose #3	1	43N	92W	4634	11.0	13.3	83	1.82
Delta Drilling Company Gov't Tensleep #1	33	44N	89W	7459	6.6	14.3	43	1.18
Union Oil Company of California Worland Unit #477 328	28	44N	92W	10324	8.1	8.8	40	.84
Pan American Petroleum Corporation LBS-2W Dome #3	27	44N	100W	3076	11.2	13.3	69	1.49
True Oil Company Whitney 41-23	23	44N	101W	6328	11	13	84	1.13

Table 1-A--Data from Big Horn Basin

Well Name	Location			Depth (feet)	Average Porosity (%)	Maximum Porosity (%)	Number of feet with Porosity \geq 01	Temperature Gradient ("F/100 feet)
	Section	Township	Range					
Bushy Oil Company Saloon #9	2	44N	96W	6090	7	10	24	1.24
Bushy Oil Company Shoshone #6	21	33W	101W	4682	11	24.2	83	1.34
Occidental Petroleum Corporation Gov't--Dohany #1	30	44N	97W	2328	20.5	22	100	2.44
Shamrock Oil and Gas Corporation Ogle--Federal #1	19	44N	96W	3061	10.9	13.1	45	2.9
Texas Pacific Oil Company USA B #1	14	43N	90W	8780	10.5	13.1	64	1.04
Colorado Oil and Gas Federal Mercer #1	4	30N	90W	1691	19.8	25	91	2.2
Hollon Enterprises, Incorporated State #1	23	34N	103W	2378	14.2	20	84	1.48
True Oil Medicine Wheel Unit #3	23	35N	93W	2040	15.2	18.5	78	2.17
Teneco Oil Company #1 Court--Federal	24	45N	92W	10610	4.8	5.5	0	1.0
Coronado Oil Company Kimball Gov't #1	23	43W	93W	2363	14.8	20.8	100	1.57
Coronado Company #1 Yankee Dome Gov't	15	42N	96W	864	13.9	18	92	--
Stoltz and Company Barnett--Serie #2-29	29	31N	92W	3944	13.6	19.5	37	1.23
Arrowhead Exploration 14-27 Federal	27	44N	92W	3302	13.2	14.6	81	1.33
Pan American Petroleum Corporation Wagon Prong Unit #1	26	45N	91W	10238	7.4	13	20	1.07
Bushy Oil Company Pitchfork #44	11	48N	102W	5620	14.1	17	63	1.72
Marathon Oil Company Wilson #8-12	4	30N	100W	3933	16.3	20	70	1.34
Prevalta Corporation Hunt 12-16-30-102	26	30N	102W	3463	13.4	17.7	46	1.56
C. E. Brehm Gov't 1-22	22	31N	102W	3710	13.3	18.7	69	1.96
Farmers Union Exchange Pearson #1	10	36N	96W	3120	16	19.1	73	1.38
Chorney Oil Company Raymond Chorney State #16-1	16	37N	97W	3768	12.7	14.5	78	1.56
Farmers Union Central Exchange Foca Gov't Hold #1	8	37N	97W	3502	17	19.4	79	1.28
Marathon Oil Company Atherly #3	33	32N	100W	3723	14.9	19	69	1.48
Continental Oil Company Gov't 32-1	32	38N	96W	1823	12.5	15.6	78	2.36
Teneco H. P. #1	21	37N	100W	9313	15.2	18.8	95	1.21
Pan American Petroleum Corporation IBET #239	1	37N	100W	6396	10.8	16.3	39	2.28
Mule Creek Oil Company Big Polecat Unit #16	16	37N	98W	3616	12.7	14.2	58	1.22
True Oil Company Whaley 14-2	2	37N	98W	4222	6.6	8.8	24	1.12
Paul G. Bonadun #1 Taggart	33	37N	96W	3926	10.1	14.2	39	1.32
Midwest Oil Corporation #1 Federal	9	37N	96W	2828	9.8	14.8	52	2.0
Marathon Oil Company Kinney Coastal #38	25	36N	98W	4312	15.5	23	53	1.68
Marathon Oil Company Kinney Coastal #63	19	36N	97W	4197	9.4	14	32	1.65
National Cooperative Refining Quality Brown #1	31	36N	96W	3748	9.4	14.2	65	1.3

Table L-A.--Data from Big Horn Basin

Well Name	Section	Location Township	Range	Depth (feet)	Average Porosity (%)	Minimum Porosity (%)	Number of feet with Porosity \geq 8%	Temperature Gradient ($^{\circ}$ F/100 feet)
Husky Oil Company #1 Federal	7	33N	101W	3367	12	13.2	37	1.13
Forest Oil State #16-1	16	32N	103W	3933	13.3	18.9	100	1.74
Schlo-Cleary-Minerals Management Gov't Jenkins #1	31	32N	104W	3194	12.8	16.3	86	1.29
Humble Oil and Refining Buffalo Bill Unit #1	32	32N	103W	4038	11.1	14.8	100	1.36
Atlantic Richfield Company #1 Sage Bush Creek	30	31N	91W	4174	16.8	21	89	1.36
Transcontinental Oil Corporation TR Ranch #1 Gov't	19	30N	104W	3830	16.3	20	72	1.32
Anax Petroleum Corporation Anax #2-1 Hunt Fee	2	30N	102W	4198	13	19.8	92	1.65
Big Horn Powder River Corporation #1-17 Hunt Federal	17	30N	101W	7746	11	13.8	73	1.85
Occidental Petroleum Corporation Gov't Social #1	13	30N	100W	3546	19.3	21	100	1.33
Kimbark Operating Company Henderson 7-22-12-G	12	30N	93W	8024	7.8	14.2	36	1.04
Union Oil Company of California USA #1-22	22	30N	92W	6878	8.1	13.2	44	.81
Continental Oil Company 16 #1 Republic Dome	16	30N	91W	3768	12.6	16.6	44	1.13
Marathon Oil Company #1 Gov't South Fork	3	49N	103W	2924	13.7	18	77	1.41
Kimbark Operating Company Federal Five Mile #1	19	49N	93W	12302	3.6	8.8	20	1.83
William L. Dugger Jr., Inc. #1 Henderson-Gov't	13	49N	93W	11314	3.4	7	8	.82
Pan American Petroleum Corporation #1 Airidon Unit	18	49N	92W	8094	4.8	10	37	.79
Husky Oil Company Nyattville-Gov't #1	12	49N	90W	1697	21.2	24	87	2.64
Colorado Oil and Gas Corporation Wyoming State 30-1	30	48N	103W	4391	13.1	17.6	93	1.61
Pan American Petroleum Corporation L.B.D. EV Dome #4	34	48N	100W	4873	13.1	17.6	48	1.33
Pan American Petroleum Corporation L.B.D. #61 ET	1	47N	100W	4338	11	13.3	81	1.48
Hibwest Oil Corporation Orynn Ranch #1	29	46N	97W	9704	3.3	9	14	1.14
Tenneco Oil Company USA D. A. Slingarland #1	3	46N	91W	9738	8.6	10.6	14	.76
Occidental Petroleum Corporation Gov't Featherstone #1	25	45N	97W	3769	11.1	16.3	76	1.81
Continental Oil Company Boulder Gulch 27-#1	27	45N	93W	11392	1.7	3.8	8	.83
Amoco Production Company USA Dale D. Orman #1	10	45N	91W	10432	3.8	10.2	23	.98
J. E. and MAC Jones Gov't 1-33-7	33	44N	100W	8446	17.7	22.1	100	--
Atlantic Refining Company Pleacer #93-T	18	44N	98W	2688	7.1	8.2	14	2.7
Empire State Oil Gov't 89-T	13	44N	98W	2880	14.2	17.4	88	2.3
Shally Oil Company Zimmerman Butte Unit #8	36	44N	93W	4366	13.6	16.2	73	1.62
Tenneco Unit #24	36	43N	91W	3126	11	14.6	73	1.63
Tenneco Unit #22	31	43N	90W	3476	12.8	17.2	88	1.49
MCI Exploration Company MCI Superior #18-1 Carrier Gov't	18	42N	89W	3966	21.3	16.1	83	1.34

Table 1-3.--Data from Wind River Basin

Well Name	Location			Depth (feet)	Average Porosity (%)	Maximum Porosity (%)	Number of feet with Porosity \geq 10	Temperature Gradient ("F/100 feet)
	Section	Township	Range					
Fan American Petroleum Corporation S. A. Tribal "A" 082	10	2N	1W	3020	16.6	17.3	89	2.39
Gulf Oil Corporation Steamboat Butte Tribal C-26	32	4N	1W	6833	11.7	13.1	100	1.2
Phillips Petroleum Corporation Wind River #1	15	3N	2W	6714	7.1	10.2	33	1.63
Marathon Oil Company Indian Tract 92	22	6N	2W	1436	20.9	23	100	--
Champion Petroleum Company #1 Tribal 13-34 (7-3)	24	7N	3W	2768	10.3	12.0	77	1.74
Shell Oil Company Tribal 33 x 10	10	3N	2E	18748	4.2	6.0	2	.93
Continental Oil Company Tribal 12-5	12	1N	2E	13400	2.7	6.5	0	1.31
Continental Oil Company Tribal 32-6	32	1N	6E	13980	3.5	8.2	10	1.29
Alpine Oil Company Tribal #1	36	1S	1E	4668	14.9	18	100	1.25
Fan American Petroleum Corporation S. A. Tribal 1-P	1	2S	1E	4498	14	16.5	100	1.46
Fan American Petroleum Corporation S. A. Tribal M #1	4	2S	6E	9428	8.5	12.3	72	1.26
Welf Exploration Company Tomas Creek #1-B	15	26N	77W	4257	14.7	17.7	100	1.99
Welf Exploration Company Tomas Creek #2-C	32	27N	77W	2728	14	16.5	93	1.95
Welf Exploration Company Kerfoot Creek #1-B	15	28N	79W	4327	13.7	15.5	96	1.31
Mar-Min Development Company 13-24 Humble-Federal	13	28N	81W	3343	12.1	15.4	93	1.92
Sinclair Oil and Gas Company Green Mountain #4	14	28N	96W	3914	14.4	17.6	100	1.39
Neuman Brothers Drilling #1-16 State	16	29N	93W	3608	17.6	21.7	100	--
Neuman Brothers Drilling 1-21 Federal State	21	29N	93W	3164	21.3	23	100	1.3
C and K Petroleum Incorporated #1 Wallery Ranch	13	29N	97W	1704	16.9	18	100	2.99
Oil and Gas Futures Incorporated #1 Gov't - MCM	17	30N	94W	4772	16.2	19.5	70	1.22
MCM Oil Company MCM Antec #1	11	30N	95W	4100	16	18	90	1.4
Ferguson and Basworth Gov't 3-26	26	31N	82W	4320	18.7	22.4	100	1.86
Colorado Oil and Gas #1 Federal	13	31N	84W	3418	17.4	20.2	100	1.22
Triangle Oil Company Clark Gov't #1	4	31N	94W	4937	14.2	14.9	100	1.25
Tennessee Oil Company USA Navy C. Mageed #1	1	31N	95W	2856	15.6	20	58	1.1
Pure Oil Company Dunne #23	4	31N	98W	1277	22	24.5	100	2.75
Quest Oil Company Gov't #1	14	31N	99W	3123	16.5	17.6	100	2.27
Malbouty Reserve State #16-1	16	32N	82W	10096	7.3	9.4	23	1.12
Sinclair Oil and Gas Company Diamond Springs Unit #1	22	32N	90W	1901	10.1	22.5	83	2.26
Winrotha Oil and Gas Company Federal 215	15	32N	94W	1063	16.5	20.3	63	2.15
Atlantic Richfield Sand Draw Unit #26	14	32N	95W	7163	14.4	16.8	100	1.99
Ted Price Associated Gov't T-3	22	33N	83W	2363	14	18.5	98	1.7

Table 1-B.--Data from Wind River Basin

Well Name	Section	Location Township	Range	Depth (feet)	Average Porosity (%)	Maximum Porosity (%)	Number of feet with Porosity \geq 8%	Temperature Gradient ($^{\circ}$ F/100 feet)
Union Oil Company of California West Puleon Spider #8	11	33W	84W	17236	6.6	8.8	6	1.16
Western Hydrocarbon Corporation Federal L-4	4	33W	91W	7750	13.6	15.0	100	1.27
Sun Oil Company Muskat Unit #1	4	33W	92W	7496	10.3	15	66	1.33
Paul G. Benedum Gov't #1	3	33W	94W	6824	8.4	13.8	87	1.49
Farmer's Union Central Exchange Callison #2	20	33W	95W	10932	7.3	9.4	20	1.25
True Oil Company Gov't Leonard #1	3	33W	99W	2933	13.7	17	100	1.34
American Industries Incorporated Gov't G-11	34	34W	83W	2646	14.8	18.8	100	1.82
Pan American Petroleum Corporation Roger A. Ready C-1	2	34W	84W	1352	18.6	22.8	100	2.96
National Gas-co Refinery Association Wallace Creek #2	16	34W	87W	12453	8.0	18	41	.97
Woods Petroleum Corporation #1 State Smelting	16	34W	90W	9783	12.2	14.3	72	1.17
Tenaco Alkali Buttes #8	26	34W	93W	7290	3.4	8.3	18	1.7
Pan American Petroleum Corporation BCO #39	33	34W	96W	11771	8	10.3	64	1.32
Arrowhead Exploration Company #21-1 Federal	21	35W	84W	3414	27.1	22	100	1.82
True Oil Company Pan American Federal #44-13	15	42W	100W	2790	13.3	16	100	1.43
Humble Oil and Refining Company Kirk #1	12	42W	107W	6880	12.3	13.2	100	.93
True Oil Company Kirkwood Federal 11-33	33	43W	107W	3809	18.3	16.6	71	.79

Table E-C.--Data from Greater Green River Basin

Well Name	Location			Depth (feet)	Average Porosity (%)	Maximum Porosity (%)	Number of feet with Porosity \geq 01	Temperature Gradient ("F/100 feet)
	Section	Township	Range					
William G. Nellis #1-1 W. Piedmont	1	12N	118W	4331	11.4	19	33	1.04
William G. Nellis #19-1 E. Sulphur Creek	19	13N	118W	7331	6.7	11.4	32	1.12
Quintana Petroleum Company #1 USA	34	14N	88W	7002	4.3	6.6	21	1.30
Mountain Fuel Supply Butcher Knife Springs #1	29	13N	112W	17234	4.9	7	40	1.3
Union Pacific Railroad #13-13	13	15N	117W	3932	3.3	7	3	1.4
Champion Petroleum Company #2 Brady	2	16N	101W	13800	4.3	8	40	1.32
Champion Petroleum Company #1 Brady	11	16N	101W	13800	4.6	12.3	19	1.24
Mountain Fuel Supply South Baxter #13	16	16N	104W	3683	6.1	10	43	1.32
California Oil Company #11 Wilson	34	17N	77W	9274	4.7	6.9	27	1.23
Western Hydrocarbons #1 Schriber State	3	17N	89W	810	7.4	11.7	37	
Tenneco Oil Company Sugar Creek #3	11	18N	90W	10280	3.0	12	16	1.27
Texas Table Rock #13	2	18N	90W	17806	4.7	7.6	48	1.43
Marathon Oil Company Albert Creek #1	36	18N	117W	7761	3.1	4.3	0	.87
National Co-op Refinery Association Harrison-Cooper Estate #1	3	19N	78W	3278	9.6	17.8	84	1.26
Tenneco Oil Company USA Troubridge #1	26	19N	90W	10488	1.1	18	6	1.24
Marathon Oil Company Diamond Ranch #1	24	20N	78W	7288	9.3	13.1	73	1.18
William G. Nellis Kemper #27-1	27	20N	116W	3933	6.7	16.4	38	1.42
Kimberly Exploration #1 UPRR-Chase	17	21N	80W	12783	2.7	3.8	3	1.26
ARCO Warta A, B, C, and E #47	6	26N	89W	3867	12.3	16	90	1.42
ARCO Warta A, B, C, and E #46	1	26N	90W	6301	3.3	13.3	11	1.31
Sinclair Oil Corporation Lost Soldier TR, 13-C-126	10	26N	90W	3901	16.3	25.8	88	1.79
Sinclair Oil and Gas Company TR-14 Well Y #11	11	26N	90W	3301	3	10	8	1.87
Sinclair Oil and Gas Company Warta B-41	12	26N	90W	6600	9.3	12	83	1.34
Pasco Incorporated Warta #48	1	26N	90W	6300	9.2	16	74	1.37
King Resources KRC-Gov't 34-1	34	27N	90W	8378	4.4	7.6	27	1.32
Shell Oil Company State 32-36	36	27N	94W	11868	3.7	7.3	49	1.47
Humble Oil and Refining Company Hoback #2	13	28N	113W	14630	2.3	6.2	0	1.26
Atlantic Refining Company Gov't 1-34	34	29N	93W	3272	17.3	19.4	100	1.52