

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY^{1/}

Core samples of the Green River Formation from Equity Oil Company's
Boies Corehole No. 1 drilled in 1964 in SW1/4SW1/4 sec 19, T 2 S,
R 97 W, Rio Blanco County, Colorado

Surface elevation: 6284 feet
Described section: 601.0 to 2011.5 feet
Mahogany Marker: 625 feet (estimated)

From	To	Description
601.0	601.8	Oil shale: dark and some medium brownish gray and brown, rare brownish black and tan (2.5Y 3/2 & 3/3-2/2, some 4/2-4/3, rare 1/2 & 6/3); common resinous and some waxy luster. Faint and some distinct irregular distorted laminations; common loop structures and displacements. Irregular thick parting; irregular fracture. Common irregular limonite-stained fractures with some pyrite near top.
601.8	604.5	Oil shale: medium to dark brownish gray and brown, rare buff (2.5Y & 10YR 5/2 & 5/3-3/2, rare 6/2-7/2). Fairly distinct to rare faint irregular distorted laminations; very common loop structures and displacements (some fairly large). Slightly irregular to some very irregular thick parting; fairly smooth to irregular fracture. Common small brown segmented fossil fragments on some parting surfaces (insect larvae?). Common thin irregular gray analcite stringers, lenses, and streaks in lower part.
604.5	606.0	Oil shale: medium to dark brown and brownish-gray, some tan to buff (2.5Y & 10YR 5/3 & 5/2-3/2, some 6/2 & 6/3-7/3). Fairly distinct fairly smooth to very irregular and distorted laminations; common loop structures and displacements. Regular to some irregular thick parting; slightly irregular to irregular fracture. Common very irregular thin to medium, gray to brownish-gray and buff analcite stringers, lenses, and streaks. Common short open vertical fractures with some fine crystalline linings and pyrite.
		Sample of gray to buff analcite stringer from 605.2 feet: X-ray - analcite, quartz; some feldspar, dolomite.
606.0	607.0	Oil shale: buff and rare tan to dark brownish gray, rare brownish black in lower part (2.5Y 7/2-3/2, some 2/2, rare 6/3 & 1/2). Distinct irregular and distorted to fairly smooth laminations; fairly common loop structures and displacements. Regular to some irregular, thick to rare thin parting; slightly irregular fracture. Some thin gray to buff analcite stringers and lenses. Some very short open vertical fractures.

^{1/} By L. G. Trudell

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
607.0	609.5	Oil shale: dark brownish gray to brownish black, some medium brownish gray in upper part (2.5Y 3/2-1/2, some 4/2, rare 5/2); common satiny to resinous luster. Faint and some moderately distinct, fairly smooth to irregular distorted laminations; common small to moderately large loop structures and displacements. Regular to very irregular, thick to medium parting; irregular fracture. Some very thin to medium very irregular light buff to medium brownish gray, earthy to silty-textured tuff stringers with short vertical fractures in upper part; a thick buff tuff stringer with some fine black stringers and streaks and disseminated pyrite at 608.4 to 609.0 feet (irregular core pieces; true thickness doubtful).
609.5	611.7	Oil shale: medium to dark and rare light brownish gray, very rare brownish black (2.5Y 5/2-3/2, some 2/2, rare 6/2 & 1/2); very rare satiny to resinous luster. Moderately distinct to some faint, irregular and distorted to fairly smooth laminations; common small loop structures and displacements. Irregular to some regular, thick to medium parting; slightly irregular fracture. Some thin gray to brownish gray and rare buff analcite stringers and lenses. Some brown fossil larvae (?) on parting surfaces near base.
611.7	612.2	Oil shale: medium to dark and rare light brown and brownish gray (2.5Y & 10YR 5/3-3/2, rare 6/2 & 2/2). Distinct slightly irregular and distorted to smooth laminations; some small loop structures and displacements. Regular and rare irregular, thick to medium parting; slightly irregular and rare slight hackly fracture. A 1/4- x 1-1/2-inch brownish gray to tan massive crystalline lens at 611.9 feet.
612.2	613.6	Oil shale: dark and rare medium brownish gray to brownish black (2.5Y 3/2-1/2, rare 4/2 upper part); some to common satiny to resinous luster. Faint to very faint, slightly irregular and distorted laminations; common small loop structures and displacements. Regular to irregular, medium to thick parting; irregular to rare hackly fracture. Rare fine to thin earthy buff tuff stringers in middle part (common short vertical fractures with some pyrite). A 1/2- x 2-inch gray silty-textured pyritic lens at 613.1 feet.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
613.6	614.9	Oil shale: dark brownish gray to rare brownish black, some dark to medium brown in lower part (10YR 3/2-2/2, some 3/3-4/3, rare 1/2); some satiny and rare resinous luster. Very faint slightly distorted streaked bedding and rare faint stringers and laminations. Irregular to slightly irregular thick parting; slightly irregular fracture. Some small dark brown silty lenses and streaks.
614.9	615.9	Oil shale: medium to dark brown and brownish gray, very rare brownish black (10YR 4/3-3/2, rare 5/3 & 2/2-1/2); very rare satiny luster near top. Very faint slightly distorted and broadly curved to fairly smooth streaked bedding and rare laminations in dark and light zones. Irregular to slightly irregular thick parting; irregular to some fairly smooth fracture. Rare very thin brown silty streaks and lenses. A very irregular reddish brown (7.5YR 4/2) injected tuff stringer with an inter-fingering shredded oil-shale stringer at base (some natural fractures with very common fine pyrite crystals). Sample of injected tuff from 615.8 feet: X-ray - albite, quartz, some pyrite.
615.9	617.8	Missing?
617.8	619.1	Oil shale: medium and rare dark brown and brownish gray in upper part (10YR & 2.5Y 5/3-4/2, rare 3/2-2/2) to medium brown and tan in lower part (2.5Y 5/3-6/3, some 4/2); rare resinous black streaks near top. Very faint to faint, slightly distorted to broadly curved laminations and streaked bedding; some fine irregular loop structures and displacements. Irregular thick parting; irregular to slightly conchoidal fracture. Rare thin to fine reddish brown stringers and streaks near top. Some fine irregular calcite-filled fractures with apparent normal displacements up to 1-1/4 inches from 618.6 to 618.9 feet.
619.1	621.5	Oil shale: medium brown and brownish gray to some tan and rare dark brownish gray (10YR & 2.5Y 4/3 & 4/2-5/3, some 6/3, rare 3/2); very rare resinous black laminae. Faint and some moderately distinct, slightly curved to flat laminations; some small loop structures and displacements. Irregular to some slightly irregular, thick to rare medium parting; slightly conchoidal to slightly irregular fracture. Some fine reddish brown silty streaks and lenses on parting surfaces at 620.2 feet. Some short partly open vertical fractures with fine drusy calcite at base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
621.5	623.0	Oil shale: medium to rare dark brown and brownish gray (10YR & 2.5Y 5/3-4/3 & 4/2, rare 3/2). Moderately distinct to faint smooth laminations; some loop structures and displacements in lower part. Regular to some irregular thick parting; slightly conchoidal to irregular fracture. Some very fine open to calcite-filled vertical fractures near top.
623.0	624.8	Oil shale: medium and some dark brown and brownish gray to rare brownish black, rare tan in lower part (10YR & 2.5Y 4/3 & 4/2, some 3/2 & 5/3, rare 2/2-1/2 & 6/3); rare resinous luster. Moderately distinct to some very faint, irregular and distorted to smooth laminations; common moderately large to small loop structures. Irregular to slightly irregular, thick to medium parting; slightly conchoidal to irregular fracture. Very rare very fine waxy black organic streaks. Rare fine dark brown crystalline streaks and stringers in lower part--some with chalky white rims.
624.8	625.3	Missing (Mahogany Marker may be in missing section).
625.3	627.5	Oil shale: light to medium and rare dark brownish gray (10YR & 2.5Y 6/2-4/2, rare 3/2). Faint fairly smooth to slightly irregular and distorted laminations; very common loop structures in middle part. Regular to some very irregular, thick to medium parting; conchoidal to irregular fracture. Some short open vertical fractures with fine drusy crystals. A brecciated zone with fine interlacing brownish gray crystalline stringers and some dark gray pyritic rims at 625.8 to 626.0 feet. A very thin pinched-out gray silty-textured stringer at base.
627.5	628.6	Oil shale: light to medium brownish gray (2.5Y 6/2-4/2). Faint to moderately distinct, slightly irregular and distorted laminations; very common small loop structures and displacements. Slightly irregular to irregular thick parting; irregular fracture. Common short open vertical fractures with fine drusy crystals and pyrite.
628.6	630.6	Oil shale: light to medium and rare dark brownish gray (2.5Y & 10YR 6/2-4/2, rare 3/2). Faint to some moderately distinct, slightly irregular and distorted to some smooth laminations; common to rare small loop structures. Regular to very irregular, thick to some medium parting; irregular to very conchoidal fracture. Some short open vertical fractures with fine drusy crystals and rare massive calcite crusts. A very thin fine-crystalline gray stringer at 630.5 feet.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of oil shale with drusy fractures from 630.0 to 630.5 feet: X-ray - dolomite, quartz, analcite, calcite, feldspar.
630.6	631.6	Oil shale: tan to medium and rare dark brownish gray and brown (10YR 6/3-4/2 & 5/3, rare 3/2). Fairly distinct smooth to some irregular and distorted laminations; some small to moderately large loop structures and displacements. Regular to irregular thick parting; irregular fracture. Rare irregular thin to medium, brownish gray to gray crystalline stringers.
		Sample of irregular gray stringer from 631.5 feet: X-ray - quartz, analcite, some feldspar.
631.6	632.6	Oil shale: dark brownish gray to brownish black and some dark to medium brown (10YR 3/2-1/2, some 3/3-4/3); common resinous luster. Moderately distinct to faint, slightly irregular and distorted laminations; common loop structures and displacements. Slightly irregular thick to medium parting; irregular to some slight hackly fracture. A very thin buff stringer with common vertical fractures and some fine pyrite crystals near top.
632.6	633.1	Oil shale: brownish black to dark brownish gray and rare dark to medium brown (10YR 1/2-2/2, rare 3/2 & 3/3-4/3); very common resinous and some waxy luster. Faint to very faint, slightly irregular and distorted laminations; common loop structures and displacements. Slightly irregular to regular, medium to some very thin shaly parting; irregular to hackly fracture. Some natural fractures and parting surfaces with common very fine pyrite crystals.
633.1	634.1	Oil shale: medium to dark brownish gray and some brownish black (10YR 4/2-2/2, some 1/2); some satiny luster. Faint fairly smooth laminations; common small loop structures and displacements. Regular to slightly irregular, thick to medium parting; slight hackly to irregular fracture. A fine smooth diagonal calcite-filled fracture with common fine pyrite runs from top to 633.9 feet.
634.1	636.1	Oil shale: medium to dark brownish gray and rare brownish black, some tan in lower part (10YR & 2.5Y 5/2-3/2, some 2/2 & 6/3, rare 1/2). Moderately distinct smooth laminations; very irregular and distorted laminations in lower

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
636.1	637.2	<p>0.1 foot. Regular to irregular, thick to medium parting; slightly irregular to slightly conchoidal fracture. Very rare thin brown silty stringers and lenses.</p> <p>Oil shale: buff and tan to medium and rare dark brown (10YR 7/2 & 6/3-4/3, rare 3/3). Distinct contorted to fairly smooth laminations; common loop structures and displacements. Very irregular to slightly irregular thick parting; slightly irregular fracture. Some irregular vuggy patches with chalky white material, drusy crystals and fine black limonite-stained stringers at 636.2 feet. A very irregular spongy to gritty mass with chalky white material at 636.7 feet. Some very fine short calcite-filled fractures near base.</p>
637.2	638.3	<p>Sample of shale with vuggy patch and fine black stringers from 636.2 feet: X-ray - quartz; some calcite, dolomite.</p> <p>Oil shale: medium brown to tan and rare buff in upper part (10YR 4/3-6/3, rare 7/3), medium brown to dark brownish gray and rare brownish black in lower part (10YR 4/3-3/3 & 3/2, rare 2/2-1/2); some fine resinous laminae and streaks in lower part. Fairly distinct to faint, slightly distorted laminations and rare streaked bedding; some very small displacements and rare poorly-formed loop structures. Slightly irregular thick parting; slightly irregular to conchoidal fracture. Some very fine very short calcite-filled fractures. Rare fine dark brown crystalline streaks and stringers.</p>
638.3	639.3	<p>Oil shale: dark brownish gray to brownish black and rare dark to medium brown (10YR 3/2-1/2, rare 3/3-4/3); common satiny to some resinous luster. Very faint distorted streaked bedding at top to faint and rare distinct fairly smooth laminations. Irregular to some regular thick parting; irregular to conchoidal fracture. Rare very irregular thin buff to brown tuff stringers with common irregular short fractures.</p>
639.3	639.8	<p>Oil shale: buff to brownish black (10YR 7/2-1/2), some satiny to resinous luster. Distinct fairly smooth to some very irregular, distorted and displaced laminations. Very irregular to some regular, thick to rare thin parting; irregular to fairly smooth fracture. Some very fine fairly tight diagonal fractures. Very rare small dense dark brown to black lenses.</p>

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
639.8	641.6	Oil shale: dark brownish gray and rare brownish black (10YR 2/2-3/2, rare 1/2); all has resinous to waxy luster. Very faint smooth to distorted streaked bedding and rare laminations. Irregular to some slightly irregular, thick to rare thin parting; conchoidal and some very slight fine irregular hackly fracture. Rare fine tan to brown streaks.
641.6	642.5	Oil shale: dark to some medium brownish gray and brownish black (10YR 2/2-3/2, some 4/2 & 1/2); common satiny to rare resinous luster. Faint smooth to some very wavy laminations; common loop structures and displacements in lower part. Irregular to slightly irregular, thick to medium parting and some irregular "curly" parting near base; slightly conchoidal to some very irregular fracture. Some natural diagonal fractures with very fine pyrite in upper part.
642.5	643.5	Oil shale: brownish black to dark brownish gray and some dark brown (10YR 1/2-2/2, some 3/2 & 3/3); almost all has waxy luster. Faint irregular distorted laminations; common small to some large loop structures. Slightly irregular thick parting; slightly irregular to slightly conchoidal fracture. Some very distinct tan (10YR 5/3-5/4) laminae.
		[Sample of tan lamina from 642.9 feet: X-ray - dolomite; some quartz, feldspar.
643.5	645.0	Oil shale: dark and rare medium brownish gray to brownish black (10YR 3/2-1/2, rare 4/2); almost all has resinous to waxy luster. Moderately distinct to faint irregular distorted laminations; common moderately large loop structures. Very irregular to some regular, thick to rare thin parting and rare irregular conforming "curly" parting; irregular to slightly conchoidal fracture. A very irregular limonite-stained mass of fine lacy dark brown to black resinous stringers at 644.5 feet.
		[Sample of dark brown to black lacy stringers from 644.5 feet: X-ray - pyrite, some quartz.
645.0	646.3	Oil shale: dark brownish gray to brownish black (10YR 3/2-1/2); very common resinous luster. Faint to very faint, slightly irregular and distorted to smooth laminations; rare small irregular loop structures. Very regular thick to rare thin shaly parting; slightly irregular to some very slight hackly fracture. A fine short smooth calcite-filled vertical fracture near top.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
646.3	647.3	Oil shale: dark brownish gray to brownish black, some dark brown in lower 0.3 foot (10YR 3/2-1/2, some 3/3); common resinous luster. Faint to very faint fairly smooth laminations; rare small irregular loop structures. Regular to irregular, thick to medium parting; slightly irregular fracture.
647.3	648.4	Oil shale: brownish black to dark brownish gray (10YR 1/2-2/2); all has satiny luster. Very faint smooth to slightly distorted streaked bedding. Irregular to slightly irregular thick parting; slightly irregular fracture. Some very small dark brown silty lenses and streaks in lower part.
648.4	649.6	Oil shale: dark brownish gray and rare dark brown to brownish black (10YR 3/2-1/2, rare 3/3); common satiny and some resinous luster. Very faint to faint, distorted to fairly smooth laminations and some streaked bedding. Slightly irregular thick to rare thin parting; irregular to rare slight hackly fracture. Some small brown to brownish gray lenses and stringers. A smooth vertical fracture with very fine pyrite in upper part. A 1/2-inch brownish gray slightly porous tuff stringer with common very fine white specks, some fine vertical bitumen-filled fractures and rare pyrite at 649.4 feet. <div style="margin-left: 40px;"> Sample of tuff stringer with fine white specks from 649.4 feet: X-ray - quartz; some feldspar, analcite. </div>
649.6	652.6	Oil shale: dark brownish gray and brown to some brownish black (10YR 3/2 & 3/3-2/2, some 1/2); some satiny luster. Faint slightly distorted to smooth laminations; rare loop structures. Slightly irregular to irregular, thick to medium parting; slightly irregular to conchoidal fracture. Rare thin brown to brownish gray silty stringers and lenses in upper part.
652.6	653.7	Oil shale: dark brownish gray and brown to rare brownish black (10YR 3/2 & 3/3-2/2, rare 1/2). Faint smooth laminations. Slightly irregular to very irregular thick parting; irregular to slightly conchoidal fracture. Very rare small dark brown crystalline lenses.
653.7	655.2	Oil shale: medium to dark brownish gray and brown, some brownish black (10YR 4/2 & 3/3-2/2, some 1/2, rare 5/2 near base); some satiny luster. Faint to moderately distinct, slightly irregular and distorted laminations; some irregular loop structures and displacements. Regular to irregular thick parting; slightly irregular to

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		slightly conchoidal fracture. Some fine buff to dark brownish gray crystalline streaks and lenses in lower 0.3 foot.
655.2	656.5	Oil shale: dark brownish gray and brown, some brownish black in upper 0.4 foot (10YR 3/2 & 3/3-2/2, some 1/2); some satiny luster near top. Faint distorted streaked bedding in upper 0.4 foot; very faint smooth to slightly distorted laminations in lower part. Irregular thick parting; slightly irregular to very irregular fracture. Some fine dark brownish gray to black, fine crystalline to dense massive streaks and lenses near top.
656.5	657.6	Oil shale: brownish black to dark brownish gray and rare dark brown (10YR 1/2-2/2, rare 3/2-3/3); almost all has satiny to resinous luster. Faint to very faint distorted streaks, stringers, and rare laminations. Irregular to slightly irregular, thick to medium parting; slightly conchoidal to irregular fracture. Some very thin to fine irregular dark brownish gray to black, fine crystalline to dense massive stringers and lenses. Sample of shale with dark brownish gray to black stringer from 657.6 feet: X-ray - quartz; some dolomite, feldspar, calcite, illite.
657.6	658.8	Oil shale: dark brownish gray and rare brownish black (10YR 3/2-2/2, rare 1/2); rare satiny to resinous luster in upper part. Faint to very faint, slightly irregular and distorted to some smooth laminations; some loop structures and displacements. Slightly irregular to very irregular, medium to thick parting; slightly irregular to conchoidal fracture. A very fine smooth diagonal calcite-filled fracture in lower part.
658.8	660.0	Oil shale: dark to some medium brown and brownish gray, rare brownish black (10YR 3/3 & 3/2-2/2, some 4/3, rare 1/2); very rare satiny luster. Faint to moderately distinct, slightly irregular and distorted laminations; some small irregular loop structures and displacements in upper part. Very irregular to some slightly irregular thick parting; slightly conchoidal to some very irregular fracture. Some fine irregular calcite-filled fractures. A very fine vitreous black organic streak near top.
660.0	662.0	Oil shale: medium to dark brownish gray and brown (10YR 4/2 & 4/3-3/2 & 3/3). Faint to very faint, slightly distorted to some very distorted laminations, stringers

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		and streaks. Very irregular thick to medium parting; irregular to conchoidal fracture. Some very fine irregular calcite-filled fractures in upper part; common fine lacy fractures with fillings of bitumen, pyrite, and calcite at 660.5 feet.
662.0	663.0	Oil shale: dark brown and brownish gray (10YR 3/3 & 3/2, some 2/2). Very faint slightly distorted to smooth streaked bedding. Irregular to slightly irregular thick parting; conchoidal to irregular fracture. Very rare fine irregular black to dark brownish gray crystalline streaks with rare chalky white specks near base.
663.0	665.6	Oil shale: medium to dark brown and brownish gray, rare brownish black (10YR 4/3 & 4/2-2/2, rare 1/2); some satiny luster in lower part. Very faint to rare moderately distinct, fairly smooth to distorted laminations and rare streaked bedding; some irregular loop structures near base. Slightly irregular to very irregular thick parting; slightly irregular to very conchoidal fracture. Some fine dark brownish gray to black crystalline streaks. Rare fine irregular calcite-filled fractures. A 0.3-foot zone of dark satiny faintly streaked oil shale at 664.9 feet with very unconformable contact with laminated shale at top.
665.6	666.9	Oil shale: dark and rare medium brown to brownish black (10YR 3/3-1/2, rare 4/3); some to very common satiny and rare resinous luster. Distinct irregular distorted laminations in upper part to very faint slightly distorted laminations and some streaked bedding in lower part. Slightly irregular to some very smooth, thick to medium parting; very slight to some coarse hackly fracture. Rare fine diagonal fractures with some calcite and fine pyrite. Rare fine dark brown crystalline streaks and small patches in lower part.
		[Sample of shale with small crystalline patch from 666.7 feet: X-ray - quartz, pyrite; some feldspar, dolomite, calcite.
666.9	671.0	Oil shale: dark to some medium brownish gray and brownish black (10YR 3/2-2/2, some 4/2 & 1/2); some satiny and rare resinous luster. Very faint to faint, slightly distorted to some smooth laminations and streaked bedding. Very irregular parting; very irregular to very conchoidal fracture. Very badly broken up and mixed up; true length doubtful.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
671.0	673.5	Oil shale: dark brownish gray and brown (10YR 3/2 & 3/3, some 2/2); some satiny and rare resinous luster. Faint distorted to fairly smooth streaks, stringers, and laminations. Very irregular to slightly irregular thick parting; very conchoidal to very slight hackly and rare smooth fracture. Rare thin to fine brown silty-textured stringers. A diagonal fracture with common very fine pyrite crystals from 671.8 to 672.5 feet.
673.5	675.6	Oil shale: medium to dark brown and brownish gray, some brownish black and rare tan (10YR & 2.5Y 4/3-2/2, some 5/3 & 1/2, rare 6/3). Distinct to some faint, slightly irregular and distorted to fairly smooth laminations; some contorted laminations near top and bottom; some loop structures and displacements in lower part. Slightly irregular and some very irregular thick parting; irregular to slightly conchoidal and some fairly smooth fracture. Some fine irregular calcite-filled fractures. Some very irregular vuggy limonite-stained drusy calcite masses with fine gray to black rims in contorted shale near top and bottom.
675.6	677.0	<p>Sample of vuggy calcite mass from 673.7 feet: X-ray - calcite; some pyrite, dolomite, quartz.</p> Oil shale: buff and tan to some dark brown and brownish gray (2.5Y & 10YR 7/2 & 6/3-4/2 & 4/3, some 3/3-2/2). Very distinct and rare faint, very irregular and contorted to some fairly smooth laminations; very common large to fine loop structures and displacements. Very irregular thick parting in upper part to fairly smooth medium to thin parting near base; very irregular to some fairly smooth fracture. Some <u>limonite-stained spongy breccia zones</u> with common dull gray to black material and rare drusy calcite in upper part. Some irregular open fractures in lower part. Badly broken up and mixed up near top; true length doubtful.
677.0	678.0	Oil shale: dark brownish gray to some brownish black and rare medium brown (10YR 3/2-2/2, some 1/2, rare 3/3-4/3); common fine satiny to slightly resinous streaks. Faint fairly smooth to slightly distorted and curved streaked bedding; moderately distinct slightly distorted to slightly contorted laminations from 677.7 to 677.9 feet. Irregular to some fairly regular thick parting; fairly smooth to conchoidal fracture. A <u>2-inch limonite-stained vug</u> with irregular flat platy boxworks and dark gray to black gritty rims in contorted (conformable) laminations at 677.7 feet (probably from nahcolite).

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
678.0	679.3	Oil shale: medium to dark brown and brownish gray, rare brownish black (10YR 5/2 & 4/3-2/2, rare 1/2); some fine satiny to slightly resinous streaks. Faint to fairly distinct distorted streaks and stringers. Irregular thick parting; conchoidal to irregular fracture. Rare small irregular brownish gray silty-textured lenses and stringers in lower part. Some diagonal fractures with very fine pyrite crystals.
679.3	680.5	Oil shale: medium to dark brown and brownish gray, rare brownish black (10YR 5/3-2/2, rare 1/2). Distinct slightly irregular and distorted laminations; some small loop structures. Slightly irregular to regular thick parting; irregular to fairly smooth fracture.
680.5	681.7	Oil shale: medium brown to rare dark brownish gray and brownish black (10YR 5/3-4/3, rare 3/3-1/2). Moderately distinct fairly smooth to some distorted and displaced laminations. Regular to some irregular thick parting; smooth to some irregular fracture. A very thin discontinuous gray-buff to gray, silty to earthy stringer at 681.3 feet.
681.7	682.8	Oil shale and marlstone: tan and some buff to medium and rare dark brown (10YR & 2.5Y 6/3-4/3, some 7/2, rare 3/3). Faint to some distinct, fairly smooth to irregular distorted laminations; some small loop structures and displacements. Regular and some very irregular, thick to medium parting; smooth to some very irregular fracture. Some small limonite-stained vugs, drusy calcite masses and brecciated zones with gray to black rims (like 673.7 feet). Common very irregular fine calcite-filled fractures in middle part. <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;"> Sample of oil shale with drusy stringers and common gray to black gritty material from 682.0 feet: X-ray - calcite, pyrite; some quartz, analcite, feldspar, dolomite. </div>
682.8	685.4	Oil shale: dark brownish gray, rare medium brown in upper part (10YR 3/2, rare 4/3 upper part, very rare 2/2); very rare fine resinous streaks. Very faint fairly smooth streaked bedding. Slightly irregular to irregular thick parting; fairly smooth to irregular and conchoidal fracture. Lower part badly broken up; true length doubtful.
685.4	687.0	Missing?

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
687.0	689.2	Oil shale: medium brown to tan and very rare dark brownish gray (10YR 5/3-6/3, rare 4/3-3/2). Faint fairly smooth to irregular and distorted laminations. Very irregular to rare slightly irregular thick parting; conchoidal to very irregular fracture. Rare very irregular small brownish gray crystalline blebs in upper part. A thin irregular limonite-stained fracture zone with some gritty gray pyritic stringers at base. Some irregular core pieces; uneven sample split.
689.2	690.4	Oil shale: dark and rare medium brownish gray and brown (10YR 3/2 & 3/3-2/2, rare 4/3); rare very slight resinous luster. Faint fairly smooth to slightly distorted and rare contorted laminations. Very irregular thick parting; conchoidal to irregular fracture. Some fine irregular calcite-filled fractures. A spongy limonite-stained drusy crystalline mass in distorted laminae at base.
690.4	691.1	Oil shale: medium to dark brown and brownish gray, rare tan (10YR 4/3-3/3, some 2/2 & 5/3, rare 6/3). Faint to moderately distinct, irregular, and distorted laminations. Irregular thick parting; very conchoidal to slightly conchoidal fracture. Some small limonite-stained vugs near top. A diagonal fracture with calcite crusts and rare very fine pyrite in upper half. Some fine colorless drusy crystals in small radiating hackly masses in lower part.
691.1	692.0	Oil shale: dark to medium brownish gray and brown, rare brownish black (10YR 2/2-4/2 & 4/3, rare 1/2). Faint to moderately distinct, irregular and distorted laminations; common loop structures and displacements. Irregular thick parting; conchoidal and irregular fracture. A diagonal calcite-filled fracture in lower half.
692.0	693.5	Oil shale: tan to medium and some dark brown and brownish gray (10YR & 2.5Y 6/3-4/3 & 4/2, some 3/2, rare 2/2). Moderately distinct to some very faint, distorted to contorted laminations, stringers and streaks; common fairly large deformed loop structures and displacements in lower part. Very irregular parting; slightly irregular to very irregular fracture. Some to common irregular calcite-filled fractures (drusy crystals in lower part suggest open fractures). Irregular spongy brecciated core pieces at base.
693.5	694.5	Missing?

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
694.5	696.5	Oil shale: dark to medium brownish gray and brown (2.5Y 3/2-5/2 & 5/3); some fine resinous streaks. Faint slightly distorted to smooth streaked bedding. Very irregular parting and fracture.
696.5	699.0	Missing?
699.0	699.8	Oil shale: dark brownish gray (2.5Y 3/2-2/2); some fine resinous streaks. Faint slightly distorted to smooth streaked bedding. Irregular thick parting; irregular to conchoidal fracture.
699.8	701.5	Oil shale: medium to dark brown and brownish gray (2.5Y 5/3-3/2); rare resinous to waxy streaks. Moderately distinct to faint, irregular and distorted laminations and streaked bedding. Very irregular thick parting; conchoidal fracture. A vuggy fractured zone with gray to black pyritic fillings at top. <u>A large empty limonite-stained vug with radial platy boxworks at 700.7 feet.</u>
701.5	703.1	Oil shale: light to medium and some dark brownish gray and brown (2.5Y 6/3-4/2, some 3/2). Moderately distinct to faint, very irregular and distorted laminations. Irregular thick parting; very irregular to conchoidal fracture. Common fine calcite-filled fractures and some limonite-stained vuggy parting surfaces.
703.1	705.8	Oil shale: medium to dark brown and brownish gray (2.5Y 5/3-3/2, rare 2/2). Faint to very faint-slightly distorted to smooth laminations and streaked bedding; common loop structures. Irregular thick parting; irregular to conchoidal fracture. A vuggy parting surface with platy boxworks at base.
705.8	707.0	Missing?
707.0	709.1	Oil shale: buff and tan to medium and rare dark brownish gray and brown (2.5Y 7/2 & 6/3-4/2 & 4/3, rare 3/3-2/2). Fairly distinct to faint, irregular and distorted to smooth laminations; common loop structures and displacements. Slightly irregular to very irregular, thick to medium parting; irregular fracture. Some fine calcite-filled fractures. Some thin irregular brown to gray stringers in upper part. Lower part badly broken up and mixed up; true length doubtful.
709.1	710.2	Missing?
710.2	711.2	Oil shale: medium to dark brown and brownish gray, rare brownish black (2.5Y 4/3-2/2, rare 1/2). Faint irregular, distorted and displaced laminations. Slightly irregular thick parting; very conchoidal fracture.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
711.2	713.4	Oil shale: medium to dark brown and brownish gray (2.5Y 4/3-3/2, some 2/2 upper part, some 5/3 lower part). Moderately distinct to faint, irregular and distorted to fairly smooth laminations. Irregular thick parting; irregular to conchoidal fracture. Rare fine calcite-filled fractures.
713.4	714.5	Missing?
714.5	716.3	Oil shale: medium to dark brown and brownish gray (2.5Y & 10YR 4/3-3/2 & 3/3). Faint distorted streaked bedding. Very irregular parting and fracture. Some <u>small</u> vugs with spongy to gritty fillings and gray pyritic rims. Some parts badly broken up and mixed up; true length doubtful.
716.3	719.0	Missing?
719.0	720.0	Oil shale: medium to some dark brown and brownish gray and rare tan to buff (2.5Y 5/2 & 5/3-4/2 & 4/3, some 3/2, rare 6/3-7/2 & 2/2). Faint distorted streaked bedding and some faint to distinct smooth laminations. Very irregular core pieces. Some fractures with common fine pyrite crystals. Very badly broken up and mixed up; true length doubtful.
720.0	726.0	Missing?
726.0	727.0	Oil shale: medium brown to brownish black (10YR 4/3-1/2); common resinous and some waxy luster. Moderately distinct to very faint, irregular and distorted to fairly smooth laminations; some moderately large to fine loop structures and displacements. Regular to some very irregular, thick to thin shaly and some papery parting; irregular and conchoidal to very hackly fracture. A 1/2-inch dark brownish gray bitumen impregnated stringer near middle.
727.0	732.5	Missing?
732.5	736.0	Oil shale, mostly rubble: medium to some dark brown and brownish gray (2.5Y 5/3-4/3 & 4/2, some 3/2, rare 2/2). Very faint smooth to distorted streaked bedding and rare laminations. Common spongy to vuggy brecciated fragments and some calcite-filled fractures. Very badly broken up and mixed up; true length very doubtful.
736.0	738.6	Missing?
738.6	740.4	Oil shale: medium brown to dark brownish gray and rare brownish black (2.5Y 4/3-2/2, rare 5/3 & 1/2); rare resinous luster. Distinct to some faint irregular distorted laminations and rare streaked bedding; common

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
740.4	741.7	loop structures and displacements. Very irregular to some slightly irregular, thick to medium parting; irregular to conchoidal fracture. Some very irregular vuggy fragments in lower part. Tuff: medium brownish gray and brown (10YR 5/2-5/3). Faint distorted and displaced streaked bedding; some fine to medium contorted dark oil-shale streaks and stringers. Irregular parting and fracture. Common irregular natural fractures with some chalky white coatings and fine disseminated pyrite.
741.7	743.1	Oil shale: medium brown to dark brownish gray and rare brownish black (10YR 5/3-2/2, rare 1/2); some resinous luster. Fairly distinct slightly irregular and distorted laminations; common irregular loop structures and displacements. Slightly irregular to irregular, thick to medium parting; conchoidal to irregular fracture. Some thin brownish gray to brown tuff stringers. Some fractures with chalky white coatings and disseminated pyrite in lower part.
743.1	744.0	Tuff: same as 740.4 to 741.7 feet. Sample of fractured tuff from 743.8 feet: X-ray - sanidine; some albite, quartz.
744.0	744.8	Oil shale: medium to dark brownish gray and brown (10YR & 2.5Y 5/2 & 5/3-3/2, rare 2/2); some fine resinous streaks. Moderately distinct to faint, slight distorted to contorted laminations, stringers and streaks. Irregular thick parting; irregular to slightly conchoidal fracture. Rare very small dark brownish gray silty-textured lenses with pyritic rims.
744.8	745.9	Oil shale: medium and rare dark brownish gray and brown (10YR & 2.5Y 5/2 & 5/3-4/2, rare 3/2). Faint distorted streaks and stringers. Some fine calcite filled fractures. Very irregular core pieces; true length doubtful.
745.9	747.0	Missing?
747.0	748.5	Oil shale: medium and rare dark brownish gray and brown (10YR & 2.5Y 5/2 & 5/3-4/2, rare 3/2). Fairly smooth to distorted laminations and streaked bedding and some very coarse jumbled breccia with silty-textured matrix. Very irregular parting and fracture. Common fine calcite-filled fractures (some drusy). Some very fine disseminated pyrite in breccia matrix. Some very irregular core pieces; true length doubtful. Sample of <u>oil-shale breccia</u> from 748.4 feet: X-ray - sanidine, albite, analcite, pyrite.
748.5	757.0	Missing?

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
757.0	759.6	Oil shale: medium to some dark brownish gray and brown (10YR 5/2 & 5/3-4/2, some 3/2 lower part). Very faint distorted to contorted laminations, stringers and streaks. Very irregular parting and fracture. Common very irregular natural fractures with calcite and pyrite in upper part. Very badly broken up and mixed up; true length very doubtful.
759.6	761.0	Missing?
761.0	765.0	Oil shale: medium to rare dark brownish gray (10YR 5/2-4/2, rare 3/2). Very faint to faint distorted streaks and stringers; very gritty and porous to spongy in upper part. Very irregular parting and fracture. Common fine buff calcite (?) streaks in lower part. Very badly broken up and mixed up; true length doubtful. Sample of oil shale with common fine buff crystalline streaks from 762.9 feet: X-ray - dolomite, feldspar, calcite, quartz, pyrite.
765.0	766.4	Missing?
766.4	767.4	Oil shale: light to medium and rare dark brownish gray (10YR 6/2-4/2 & 4/1, rare 3/2). Very faint smooth laminations to some slightly distorted streaked bedding. Slightly irregular to very irregular, thick and rare medium parting; conchoidal to very irregular fracture. Common very fine disseminated pyrite in upper part. Common fine buff crystalline streaks in lower part. A vitreous black plant fossil on parting surface 766.8 feet. Sample of faintly laminated oil shale with very fine disseminated pyrite from 766.6 feet: X-ray - feldspar, dolomite, pyrite.
767.4	771.0	Missing?
771.0	772.5	Mudstone and oil-shale breccia: light buff to light and rare medium brownish gray (2.5Y 8/2-6/1 & 6/2, rare 5/2), earthy. Some very faint laminations and streaked bedding in breccia fragments. Very irregular parting and fracture. Some very fine pyrite. Very badly broken up and mixed up; true length very doubtful.
772.5	774.5	Mudstone and some oil shale: light buff to some medium brownish gray (2.5Y 8/2-7/2, some 6/1 & 6/2-5/1). Very faint very irregular and distorted stringers and streaks in upper part; some faint smooth laminations in lower part. Very irregular parting and fracture in upper part;

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		some regular thin shaly parting in lower part. Some fine dark gray pyritic blebs and stringers in upper part. Some vertical fractures with common fine pyrite crystals in oil shale near base. Some very irregular core pieces; true length doubtful.
		Sample of buff mudstone with fine gray pyritic blebs and stringers from 773.2 feet: X-ray - calcite, dolomite, feldspar, pyrite, illite.
774.5	778.0	Missing?
778.0	782.0	Marlstone and oil shale: light to medium brownish gray and some buff (2.5Y 6/1 & 6/2-5/1 & 5/2, some 7/2). Faint smooth laminations. Regular medium to thin shaly parting; fairly smooth to irregular fracture. Very common fine buff specks and dark pyritic (?) blades and needles. Some buff-white brecciated marlstone in middle part. Lower part very badly broken up and mixed up.
		Sample of lean oil shale with fine buff specks from 778.1 feet: X-ray - dolomite, feldspar, quartz, illite, pyrite.
		Sample of marlstone with fine dark submetallic blades and needles from 779.9 feet: X-ray - dolomite, feldspar, illite.
782.0	783.2	Missing?
783.2	785.0	Oil shale: medium to dark brownish gray and brown (2.5Y 5/2-3/2 & 3/3), some medium olive gray in upper part (5Y 5/2-4/2). Very faint smooth to distorted laminations and streaked bedding; some massive and speckled. Slightly irregular to very irregular, medium to thick parting; very irregular fracture. Some to very common fine buff crystalline specks, streaks, and stringers (some fine flat cavities in upper part).
		Sample of oil shale with very thin irregular buff pyritic crystalline stringers and streaks from 783.4 feet: X-ray - dolomite, calcite, pyrite, feldspar, quartz, illite.

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Laramie Petroleum Research Center, Laramie, Wyoming

October 14, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
785.0	786.0	Mudstone and some oil shale: buff mudstone (2.5Y 8/1-7/1) and some dark brownish gray and brown oil shale (10YR 3/2-3/3). Massive to brecciated and jumbled mudstone; very faint slightly distorted streaked bedding in oil shale. Very irregular parting and fracture. Some fine disseminated pyrite and rare very small empty radiating vugs in oil shale. Very irregular mixed up core pieces; true length doubtful.
786.0	787.5	Missing?
787.5	788.5	Oil shale: dark to medium brownish gray and brown, rare tan (10YR 2/2-5/2 & 5/3, rare 6/3-6/4); some slight satiny luster. Very faint to rare distinct slightly distorted laminations and streaked bedding. Irregular parting and fracture. Rare small irregular vugs. Very badly broken up and mixed up; true length very doubtful.
788.5	789.5	Oil shale: buff and tan to rare dark brown and brownish gray (10YR 7/2 & 6/3-4/2 & 4/3, rare 3/2-3/3). Very distinct smooth and rare irregular distorted laminations; some large loop structures at 788.6 to 788.7 feet. Regular thick to medium and rare thin shaly parting; irregular to conchoidal fracture.
789.5	791.0	Oil shale: medium to dark brown and brownish gray, rare tan (10YR 4/3 & 4/2-3/3 & 3/2, some 2/2, rare 5/2-6/3); very common resinous to waxy luster. Faint to moderately distinct very distorted stringers and streaks. Irregular thick parting; slightly irregular to very irregular fracture.
791.0	792.5	Oil shale: dark brownish gray and rare brownish black to medium brown and some tan (10YR 2/2-5/3, some 6/3, rare 1/2); some resinous luster. Faint to distinct, slightly distorted to intricately contorted, folded and displaced laminations. Irregular thick parting; conchoidal to irregular fracture. Rare irregular fractures with drusy calcite in contorted shale.
792.5	793.5	Oil shale: dark brownish gray and some brownish black to medium brown and rare tan (10YR 2/2-4/3, some 1/2 & 5/3, rare 6/3); some resinous to waxy luster. Moderately distinct to faint, smooth to irregular and distorted laminations; common loop structures. Regular to some irregular thick parting; conchoidal to irregular fracture. Some irregular diagonal fractures with crystalline calcite and rare pyrite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
793.5	798.0	Oil shale: medium brown to brownish black and some tan to buff (10YR 4/4-1/2, some 5/3-7/2); some resinous and rare waxy luster. Moderately distinct irregular and distorted laminations; very common loop structures and displacements (some fairly large). Very irregular to some regular thick parting; conchoidal to very irregular fracture. Common diagonal fractures with calcite and pyrite. Some very irregular thin to thick, tan to buff tuff stringers. Some very irregular core pieces; true length doubtful.
		Sample of thick tan to buff earthy tuff stringer from 795.5 feet: X-ray - sanidine, albite.
798.0	800.0	Oil shale: light brownish gray and tan to some brownish black (10YR 6/2 & 6/3-2/2, some 1/2); some resinous to waxy luster. Distinct irregular and distorted to some smooth laminations; common loop structures and displacements. Irregular to regular thick parting; irregular to conchoidal fracture. Common fine dark gray pyritic streaks. Common diagonal fractures with fine crystalline pyrite. Some small tan tuff (?) lenses with pyrite. Some irregular core pieces; uneven sample split.
800.0	802.4	Oil shale: medium to light brownish gray and rare buff (10YR & 2.5Y 4/2-6/2, rare 7/2-8/2). Very faint fairly smooth laminations and streaked bedding in upper part to moderately distinct, distorted, and rare contorted laminations in lower part. Slightly irregular to very irregular parting; slightly conchoidal to very irregular fracture. Common irregular natural fractures with calcite and pyrite. Common fine gray pyritic streaks in upper part. Very irregular mixed up core pieces in middle part; true length very doubtful.
802.4	804.3	Oil shale: medium brown and brownish gray to tan and buff (10YR & 2.5Y 5/2 & 5/3-6/3 & 8/2, some 4/2-4/3). Faint to some distinct, fairly smooth to some very distorted laminations, stringers and streaks. Very irregular to some very regular, thick to thin parting; conchoidal to very irregular fracture. Some irregular natural fractures with drusy calcite. Some very irregular core pieces; uneven sample split.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
804.3	805.3	Oil shale: medium brown and some tan to rare dark brownish gray (10YR 5/3-4/2, some 6/3 upper part, rare 3/2 lower part). Moderately distinct to faint smooth laminations; rare small loop structures. Regular thick to some thin shaly parting; irregular fracture. Some irregular natural vertical fractures with spotty calcite crusts. Rare very fine crystalline calcite laminae and streaks.
805.3	806.6	Oil shale: dark brownish gray and rare brownish black (10YR 3/2-2/2, rare 1/2); common resinous and some waxy luster. Very faint fairly smooth to irregular distorted laminations; common loop structures and displacements. Irregular thick parting; conchoidal to irregular fracture. A very irregular 1/2- to 1-inch brown tuff and some very thin stringers and streaks at 806.1 feet.
806.6	807.4	Missing?
807.4	808.5	Oil shale: medium and rare dark brownish gray (10YR 5/2-4/2, rare 3/2). Faint irregular and distorted to some fairly smooth laminations; some irregular loop structures and displacements. Regular and some irregular, thick to medium parting; slightly conchoidal to slightly irregular fracture. Very rare thin irregular dark brownish gray silty-textured tuff stringers and streaks.
808.5	810.0	Oil shale: medium to light brownish gray and some tan (2.5Y 5/2-6/2, some 4/2 & 6/3). Moderately distinct fairly smooth laminations to faint distorted laminations, stringers and streaks; some displacements and rare irregular loop structures. Very smooth to some irregular, medium to thick parting; irregular to conchoidal fracture. Some fine irregular branching calcite-filled vertical fractures in upper part.
810.0	813.7	Oil shale: medium to dark brown and brownish gray (10YR 5/3-3/3 & 3/2, rare 5/4). Fairly distinct to some very faint distorted stringers and streaks. Very irregular parting and fracture. Some to very common large vuggy limonite-stained breccia masses with common brownish gray to gray gritty fillings with pyrite and white efflorescent powder. A 1/2-inch diagonal fault zone with common very fine intersecting calcite-filled fractures runs from 811.3 to 811.8 feet (reverse displacement of stringers up to 1 inch). Lower part badly broken up; true length doubtful.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of vuggy limonite-stained breccia mass with gritty fillings and some white efflorescent powder from 813.0 feet: X-ray - pyrite, siderotil, some dolomite, analcite.
813.7	816.6	Missing?
816.6	820.4	Oil shale: medium to dark brownish gray and brown (10YR 4/2 & 4/3-3/2, rare 5/3). Faint and some moderately distinct distorted streaks and stringers. Irregular parting and fracture. Some small to large limonite-stained vugs. Some irregular mixed up core pieces; true length doubtful.
820.4	821.0	Missing?
821.0	825.0	Oil shale: medium to dark brownish gray and brown; some brownish black in lower part (10YR 4/2 & 4/3-3/2, some 2/2-1/2); some resinous luster in lower part. Very faint distorted streaks and stringers to faint distorted laminations; some loop structures in lower part. Irregular parting and fracture. Common smooth and glossy to very irregular natural fractures with some calcite crusts and limonite stains. Very irregular mixed up core pieces; true length doubtful.
825.0	826.4	Oil shale: medium to light brownish gray and tan (2.5Y 5/2-6/2 & 6/3, some 4/2). Very faint fairly smooth to very distorted and broken laminations; some very faint distorted bedding. Very irregular and rare regular, thick to medium parting; very irregular fracture. A very spongy zone with some limonite stains at top; some vuggy parting surfaces with flat platy boxworks. Very irregular to badly broken up and mixed up core pieces; true length very doubtful.
826.4	826.9	Missing?
826.9	828.1	Oil shale: buff and tan to medium and rare dark brownish gray (10YR 7/2 & 6/3-5/2, some 4/2, rare 3/2). Faint to moderately distinct, very irregular and distorted to fairly smooth laminations; some large loop structures and displacements in upper part. Slightly irregular to some very smooth thick parting; slightly irregular and conchoidal to smooth fracture.
828.1	830.7	Oil shale: dark brownish gray to tan, rare brownish black in upper part (10YR & 2.5Y 2/2-5/3, rare 1/2 & 6/3); common resinous and rare waxy luster. Faint to moderately distinct distorted streaks and stringers. Very irregular

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
830.7	832.2	to rare slightly irregular thick parting; very irregular to conchoidal fracture. Some natural diagonal fractures with calcite crusts. Rare thin irregular silty to chalky white streaks and lenses near top. Oil shale: medium to dark brownish gray and rare tan (10YR 4/2-3/2, some 2.5Y 5/2-6/3). Very faint slightly distorted streaked bedding and some distinct stringers (lighter colors) with faint contorted internal laminations. Irregular thick parting; irregular to very conchoidal fracture. A spongy limonite-stained breccia zone and some irregular buff tuff (?) fragments near top. Very irregular mixed up core pieces near top; true length doubtful.
		Sample of buff earthy tuff (?) from 830.7 feet: X-ray - albite, quartz, some calcite.
832.2	833.6	Oil shale: light to medium and rare dark brownish gray (2.5Y 6/2-5/2, rare 4/2-2/2). Faint irregular distorted laminations; common loop structures and displacements. Irregular to slightly irregular thick parting; irregular fracture. Some irregular vertical fractures with rare fine crystalline calcite.
833.6	836.0	Oil shale: dark to medium brownish gray and brown, rare brownish black (10YR 2/2-5/2 & 5/3, rare 1/2); some satiny to rare resinous and waxy luster. - Faint to some moderately distinct, fairly smooth to distorted and some contorted laminations, stringers and streaks; some irregular loop structures. Slightly irregular to irregular thick parting; conchoidal to irregular fracture.
836.0	838.0	Missing?
838.0	840.0	Oil shale: medium to light brownish gray and brown (2.5Y & 10YR 4/2 & 4/3-6/2). Faint smooth to slightly distorted and displaced laminations. Regular to very irregular, thick to thin parting; irregular fracture. Some irregular buff earthy tuff or mudstone fragments (like 830.7 feet) and brownish gray spongy shale fragments in lower part. Very badly broken up and mixed up; true length very doubtful.
840.0	842.0	Missing?
842.0	844.0	Oil shale: dark brownish gray and brown in upper part to tan and buff in lower part (10YR & 2.5Y 2/2 & 3/3-6/3 & 7/2); some fine resinous streaks in upper part. Faint distorted to contorted and brecciated streaked

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		bedding in upper part; faint contorted and displaced to rare smooth laminations in lower part. Very irregular parting and fracture. Some irregular limonite-stained vertical fractures with very common fine pyrite crystals in upper part. Spongy to earthy brecciated shale in middle. Common small very pyritic dark brownish gray granular lenses in upper part. Very irregular core pieces in middle part; very badly broken up and mixed up in lower part; true length very doubtful.
844.0	845.2	Missing?
845.2	846.5	Oil shale: medium to light brownish gray and tan (10YR & 2.5Y 4/2-6/2 & 6/3). Faint distorted and displaced to some smooth laminations; some small loop structures. Slightly irregular to very irregular thick parting; irregular to conchoidal and some smooth fracture. Some gray laminae and streaks. Some to common fine irregular natural fractures with pyrite. Some vuggy limonite-stained parting surfaces with common small gray to black blebs and pyrite in lower part.
846.5	847.3	Oil shale: medium brown and brownish gray to some buff (10YR 5/3-4/2, some 6/2-8/2 lower part); spongy. Faint distorted to fairly smooth bedding. Slightly irregular to very irregular thick parting; slightly irregular fracture. Very common fine cavities with some pyrite.
847.3	848.8	Oil shale: medium brownish gray to tan and rare buff (2.5Y 5/2-6/3, rare 7/3-8/2 & 4/2). Faint smooth to slightly irregular and distorted and some broadly curved laminations and streaked bedding; common loop structures and displacements. Very irregular to rare regular, thick to medium parting; conchoidal to irregular fracture. A large limonite-stained vug with fine platy boxworks at 848.0 feet. Some thin buff spongy to earthy zones in lower part.
848.8	851.0	Missing?
851.0	853.0	Oil shale: medium brown to dark brownish gray and rare brownish black (10YR 4/3-3/2, some 5/3 & 2/2, rare 1/2); some to rare resinous luster. Faint to very faint, distorted to smooth laminations and streaked bedding. Irregular thick parting; irregular to conchoidal fracture. Some vuggy parting surfaces in upper part. Some fine dark gray pyritic streaks in lower part. Some very irregular core pieces in upper part; true length doubtful.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
853.0	854.3	Oil shale: medium brown and brownish gray to rare tan (10YR & 2.5Y 5/3 & 5/2-4/2, rare 6/3). Faint fairly smooth to irregular distorted laminations; some loop structures. Irregular to slightly irregular thick parting; irregular to slightly conchoidal fracture. Coarse vuggy breccia in upper 0.2 foot.
854.3	856.0	Oil shale: medium brownish gray to tan and some buff (10YR & 2.5Y 4/2-6/3, some 7/3-8/2). Faint distorted to contorted and brecciated laminations, stringers, and streaks. Irregular parting and fracture. Some pyrite and rare brown to black bitumen in breccia fractures. Common spongy to earthy porous shale in middle part.
856.0	857.0	Oil shale: dark brownish gray and brown to brownish black (10YR 3/2 & 3/3-1/2); some satiny to resinous luster. Faint distorted to smooth laminations and some streaked bedding. Very irregular to slightly irregular thick parting; irregular to slightly conchoidal fracture. Some irregular open fractures and vuggy parting surfaces with rare pyrite near top.
857.0	858.0	Oil shale: medium brownish gray to brownish black (10YR 4/2-1/2, rare 5/2); common satiny to resinous luster. Faint to rare moderately distinct, intricately contorted and interfingered to distorted laminations, stringers, and streaks; common irregular loop structures in lower part. Very irregular to slightly irregular thick parting; irregular fracture.
858.0	859.4	Oil shale: medium to rare dark brown and brownish gray (10YR 5/3-4/3 & 4/2, rare 3/2). Faint distorted laminations and streaked bedding; common irregular loop structures and displacements. Slightly irregular thick parting; irregular to conchoidal fracture. Very rare fine orange-buff silty streaks in lower part.
859.4	860.6	Oil shale: medium brownish gray to brownish black (10YR 5/2-1/2); common resinous to waxy luster in lower half. Faint to very faint, irregular and distorted to smooth laminations; common loop structures and displacements in upper part. Slightly irregular to very regular, thick to some thin shaly parting; slightly irregular fracture. Rare small gray to tan lenses in upper part. A 3/4-inch massive buff band with some very fine tight irregular fractures at 860.0 feet. A 1-inch zone of common very fine brown to tan stringers and streaks at 860.3 feet.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of buff band from 860.0 feet: X-ray - dolomite, quartz, feldspar, analcite.
		Sample of rich oil shale with very common fine brown to tan stringers and streaks from 860.3 feet: X-ray - dolomite; some quartz, feldspar, illite.
860.6	861.6	Oil shale: medium brown and rare tan to dark brownish gray (10YR 5/3-3/2, rare 6/3 & 2/2). Fairly distinct smooth laminations; some loop structures in upper part. Very regular to some irregular, thick to medium parting; slightly irregular to very irregular fracture. A 0.1-foot light brownish gray band with common fine irregular bitumen-coated fractures at top (like 860.0 feet). Common fine vertical fractures with some very slight bitumen coatings in lower part.
861.6	863.0	Marlstone or lean oil shale: buff and tan to medium brown (10YR 7/2 & 6/3-5/3, rare 4/3). Faint smooth to very slightly distorted and displaced laminations. Very smooth to irregular, thick to thin parting; irregular fracture. Very badly broken up and mixed up; true length very doubtful.
863.0	866.0	Missing?
866.0	868.0	Oil shale: buff to medium and some dark brownish gray and brown (10YR 7/2-4/2 & 4/3, some 3/3-2/2). Faint smooth laminations to some very faint slightly distorted streaked bedding. Irregular to some smooth, medium to thin parting; slightly irregular to very irregular fracture. Common irregular vertical fractures with bitumen coatings and some fine pyrite crystals. Some irregular mixed up core pieces; true length doubtful.
868.0	870.2	Oil shale: dark brownish gray to some medium brown and brownish black (10YR 3/2-2/2, some 4/2-5/3 & 1/2); common satiny to resinous luster. Very faint distorted streaked bedding in upper part; faint to moderately distinct, very distorted and displaced to broadly curved and some fairly smooth laminations in lower part; common small loop structures in lower part. Very irregular parting in upper part; slightly irregular to smooth, curved to flat, thick to very thin shaly parting in lower part; very irregular to some hackly fracture. Common irregular fractures with fine pyrite crystals. A thin irregular spongy zone of finely brecciated shale near top. Some very irregular core pieces in upper part; true length doubtful.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
870.2	871.7	Oil shale: dark brownish gray and rare brownish black to medium brown and some tan (10YR 2/2-5/3, some 6/3, rare 1/2). Moderately distinct fairly smooth laminations to very faint distorted bedding. Smooth to very irregular, thin to thick parting; hackly to very irregular and some conchoidal fracture. Common irregular natural fractures with fine pyrite crystals. Very badly broken up and mixed up; true length very doubtful.
871.7	872.7	Missing?
872.7	875.0	Oil shale: medium brown to dark brownish gray and rare brownish black (10YR 4/3-2/2, rare 1/2); some satiny luster. Very faint distorted to smooth streaked bedding and some faint distorted laminations with common loop structures and displacements. Slightly irregular to very irregular thick parting; irregular fracture. Common very thin flat cavities with some brown to buff, gritty to earthy porous fillings near top. A very thin spongy brecciated zone at 873.3 feet. <div style="margin-left: 2em;">Sample of dark brown and brownish gray oil shale from 874.3 feet: X-ray - feldspar, magnesite, quartz, dolomite, illite.</div>
875.0	877.0	Oil shale: medium to some dark brownish gray and rare brownish black (10YR 4/2-4/1, some 3/2-2/2, rare 1/2); rare resinous luster. Faint distorted and displaced streaks, stringers and laminations. Very irregular parting and fracture. Common fine irregular natural fractures with some vitreous black brittle organic fillings. Some shale is very heavy. Very irregular core pieces; true length doubtful. <div style="margin-left: 2em;">Sample of heavy fractured shale from 875.1 feet: X-ray - dolomite, feldspar, quartz, illite, magnesite.</div>
877.0	879.0	Oil shale: dark to rare medium brownish gray and brown, some brownish black in upper part (10YR 2/2-3/2 & 3/3, some 1/2, rare 4/2-5/2); common satiny to resinous luster. Very faint to faint, slightly irregular and distorted laminations to very distorted stringers and streaks. Very irregular thick parting; irregular to very conchoidal fracture. Two very irregular thick brownish gray, dense to silty-textured stringers with some fine vitreous black patches and fracture fillings and some fine buff-white spots at 877.4 to 877.6 feet. Some very irregular vuggy (?) fractured parting surfaces

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		with very fine pyrite crystals in lower part. Some very irregular core pieces; true length doubtful.
		Sample of brownish gray fractured stringer with fine buff-white spots from 877.5 feet: X-ray - sanidine, albite.
879.0	882.8	Oil shale: medium brownish gray and brown to light buff (10YR 4/2 & 4/3-8/2). Faint fairly smooth to contorted and brecciated laminations and some variegated to massive. Very irregular parting and fracture. Almost all are spongy to earthy, fractured to crushed shale. Irregular core pieces to very badly broken up and mixed up; true length very doubtful.
882.8	883.8	Oil shale: dark to medium brownish gray and rare tan to buff (10YR & 2.5Y 2/2-4/2, rare 5/3-7/2); common satiny luster. Very faint to rare moderately distinct, distorted to fairly smooth streaked bedding and rare laminations. Slightly irregular, thick to some thin shaly parting; irregular and rare hackly fracture. Some very fine disseminated dawsonite (?) and pyrite. Common very fine cavities and earthy streaks. Sample of dark brownish gray shale with very fine disseminated dawsonite (?) from 883.6 feet: X-ray - dolomite, feldspar, quartz, illite, ferroan?
883.8	885.5	Oil shale: dark brownish gray to brownish black and some dark to medium brown (10YR 3/2-1/2, some 3/3-4/3); common satiny luster. Very faint smooth streaked bedding to some very distorted streaks and stringers. Slightly irregular to very irregular thick parting; very slight hackly to irregular fracture. Common very fine irregular cavities and brown to buff earthy streaks and lenses.
885.5	887.5	Oil shale: buff to medium and rare dark brown and brownish gray (10YR 7/2-4/3 & 4/2, rare 3/2-2/2). Distinct to faint, irregular and distorted to fairly smooth laminations; common small irregular loop structures and displacements. Very irregular to rare regular, thick to rare thin parting; very irregular fracture. Some irregular fractures and thin breccia zones with brownish black to reddish brown varnish-like coatings in upper part. Some very fine white to buff, crystalline to earthy streaks in upper part (cavities on sawed surface and outside of core). Middle part very badly broken up and mixed up; true length doubtful.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
887.5	889.0	<p>Sample of shale with common fine white to buff streaks from 886.0 feet: X-ray - dolomite, feldspar, calcite, quartz.</p> <p>Oil shale: medium to dark brownish gray (10YR 4/2 & 4/1-3/2 & 3/1, rare 5/2 & 2/2); rare satiny luster. Very faint fairly smooth to distorted laminations and streaked bedding. Slightly irregular to irregular thick parting; slightly irregular and rare very slight hackly fracture. Some very fine disseminated crystals and pyrite blebs. A very thin irregular vitreous black brittle organic stringer at 888.1 feet. Some fine irregular vertical fractures in lower part.</p>
889.0	890.0	<p>Oil shale: medium to dark brownish gray and rare medium brown (10YR 5/2-3/2 & 3/1, rare 5/3). Very faint to moderately distinct, slightly distorted to smooth laminations. Irregular to some fairly smooth, thick to medium parting; slightly irregular to very irregular thick parting. Some fine irregular vertical fractures. Some very fine pyrite streaks and blebs. A thin zone of very common fine white to buff streaks at 889.3 feet (like 886.0 feet).</p>
890.0	891.3	Missing?
891.3	894.3	<p>Oil shale: dark brownish gray to medium brown and rare tan (10YR 3/2-5/3, rare 6/3). Faint to moderately distinct, slightly distorted to some slightly contorted laminations and streaked bedding. Very irregular parting and fracture. Very badly broken up and mixed up; true length very doubtful. Rare fragments with fine to large spongy cavities.</p>
894.3	895.5	<p>Oil shale: medium brownish gray to brownish black (10YR 4/2-1/2); some satiny luster. Faint to very faint, smooth to distorted laminations and some streaked bedding; some irregular loop structures and displacements. Irregular to some smooth thick parting; very irregular to some very conchoidal fracture. Some brecciated shale near top. Some fine buff-white blebs and fine cavities in lower part.</p>
895.5	898.0	<p>Marlstone and mudstone: buff-white, some buff to light brownish gray near top (10YR 9/1, some 8/2-6/2). Very faintly laminated to massive and earthy. Some brecciated to finely crushed shale near top. Some agglomerated chunks of drilling mud (?) and fine rock fragments. Very badly broken up and mixed up; true length very doubtful.</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
898.0	901.2	Missing?
901.2	902.4	Oil shale: dark brownish gray to tan (10YR & 2.5Y 3/2-6/3, rare 2/2). Very faint distorted to contorted streaked bedding. Very irregular to some slightly irregular, thick to medium parting; irregular to some hackly fracture. Some to very common fine earthy to gritty streaks and stringers (lighter colors). Some <u>fine irregular cavities</u> and very fine disseminated crystals in upper part. Rare very fine pyrite blebs in lower part.
902.4	903.5	Oil shale: medium to rare dark brownish gray, some medium brown near base (10YR 4/2-5/2, some 5/3, rare 3/2). Very faint to faint, irregular and distorted to some fairly smooth laminations; common very small displacements and rare loop structures. Slightly irregular to irregular, medium to thick parting; slightly irregular fracture. Common very fine disseminated pyrite. Rare very fine tight fairly smooth diagonal fractures. A very fine reddish tan earthy stringer with some pyrite near top.
903.5	905.0	Oil shale: dark brownish gray to tan and buff (10YR 3/2-6/3 & 7/2). Distinct to some faint smooth laminations; common small loop structures and displacements. Regular to very irregular, thick to some thin parting; very irregular fracture. Common tight to slightly open vertical and diagonal fractures with orange-buff to dark brown coatings and pyrite. Rare spongy core pieces. Lower part badly broken up and mixed up; true length doubtful.
905.0	906.0	Missing?
906.0	908.0	Oil shale: medium to dark brownish gray and some medium brown to tan (10YR 5/2-3/2, some 5/3-6/3, rare 2/2). Faint to distinct, smooth to slightly irregular and distorted laminations; some small loop structures and displacements. Regular to very irregular, thick to medium parting; slightly conchoidal to very irregular fracture. Some vertical and diagonal fractures with very fine disseminated pyrite. Badly broken up and mixed up; true length doubtful.
908.0	909.0	Missing?
909.0	910.6	Oil shale: medium brown to dark brownish gray and rare brownish black (10YR 5/3-2/2, rare 1/2); rare satiny luster. Faint to fairly distinct, slightly irregular and distorted laminations; common loop structures and displacements. Slightly irregular to very irregular, thick to medium parting; irregular fracture. Some

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
910.6	912.3	<p>irregular natural fractures with very fine disseminated pyrite. Some very fine cavities and buff earthy streaks near base.</p> <p>Oil shale: tan to medium and rare dark brownish gray (10YR 6/3-5/3 & 4/2, rare 3/2-2/2). Faint to some distinct smooth laminations and streaked bedding. Very irregular and rare regular, thick to rare thin parting; very irregular fracture. Common fine buff to white, earthy to very fine crystalline blebs and streaks with very fine cavities. Very badly broken up and mixed up; true length doubtful.</p> <p>[Sample of brown to tan shale with fine buff porous blebs and streaks from 910.6 to 912.3 feet: X-ray - feldspar, dolomite, analcite, calcite, pyrite.</p>
912.3	913.3	Missing?
913.3	914.6	<p>Oil shale: medium to some dark brownish gray (10YR 5/2-4/2, some 3/2); very rare satiny to resinous luster. Faint slightly distorted laminations and streaked bedding; very common loop structures and displacements. Very irregular to rare smooth thick parting; slightly conchoidal to irregular fracture. Common fine porous buff to white lenses and streaks. Some fine tight irregular natural fractures.</p>
914.6	915.6	<p>Oil shale: medium to some dark brownish gray and brown (10YR 4/2 & 4/3-5/3, some 3/2, rare 2/2). Faint to moderately distinct, slightly irregular and distorted laminations and rare streaked bedding; very common loop structures. Irregular thick parting; slightly conchoidal to irregular fracture. Rare tight irregular natural fractures. Some very fine buff porous blebs near base. Common very fine disseminated pyrite (?) in upper part (very prominent on fresh parting surfaces).</p> <p>[Sample of shale with common pyrite (?) from 914.9 feet: X-ray - feldspar, dolomite, calcite.</p>
915.6	916.8	<p>Oil shale: medium brown and brownish gray to rare tan and buff (10YR 4/3 & 4/2-5/3 & 5/2, rare 6/3-7/2), rare medium olive gray (5Y 4/1-5/2). Very faint to rare distinct, fairly smooth to some contorted laminations and streaked bedding. Very irregular to some fairly smooth thick to medium parting; irregular fracture. Some fine cavities and very irregular open natural fractures near base. Very irregular core pieces to badly broken up; true length doubtful.</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
916.8	918.1	Oil shale: tan and rare buff to medium brown (2.5Y 6/3-4/3, rare 7/2-8/2), rare medium olive gray (5Y 4/2-5/2). Very faint slightly distorted streaked bedding to some very distinct irregular and distorted laminations. Very irregular thick parting; irregular and rare hackly fracture. Some fine cavities and spongy fractured zones.
918.1	919.5	Oil shale: medium brown to tan and buff (10YR & 2.5Y 5/3-6/4 & 7/2, rare 4/3). Very faint slightly distorted to smooth streaked bedding. Irregular thick parting; irregular fracture. Common fine cavities and chalky white blebs in upper part. Very porous to earthy shale in middle and lower parts. Some very irregular natural fractures with finely brecciated shale fillings near top. Sample of brown shale with common fine white blebs from 918.7 feet: X-ray - feldspar, dolomite, calcite, quartz, pyrite. Sample of tan porous earthy shale from 919.2 feet: X-ray - dolomite, feldspar, quartz.
919.5	920.7	Oil shale: medium brown to some tan and buff (2.5Y & 10YR 5/3-4/2, some 6/3-7/3, rare 8/2). Faint contorted laminations, stringers and streaks to very faint smooth streaked bedding. Very irregular thick parting in upper part to regular medium to thin shaly parting in lower part; very irregular to fairly smooth fracture. Common brecciated zones and porous to earthy stringers in upper part. Some pyrite in breccia. Common very fine disseminated pyrite and some very fine dark gray pyritic streaks in lower part.
920.7	922.2	Missing?
922.2	923.5	Oil shale: medium brownish gray and brown to buff (2.5Y 5/2 & 5/3-7/2 & 7/3, some 4/1-5/1). Very faint fairly smooth streaked bedding to faint irregular, distorted and some brecciated laminations; some irregular loop structures. Regular to very irregular, medium to thick parting; very irregular fracture. Some very fine disseminated pyrite and dark gray to black needles and blades. Rare dark gray pyritic breccia fillings. Irregular discontinuous core pieces to badly broken up and mixed up; true length doubtful. Sample of shale with common fine dark needles and blades from 923.0 feet: X-ray - feldspar, dolomite, ferroan, analcite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
923.5	925.0	Oil shale: medium to light brownish gray and some medium brown to buff (2.5Y 4/1 & 4/2-6/2, some 5/3-7/2; some very slight olive tint). Faint smooth to some irregular, distorted and displaced laminations. Slightly irregular to very irregular, medium to thick parting; very irregular fracture. Common very irregular fairly tight natural fractures. Some irregular pieces with common buff-white chalky to earth material. Very irregular mixed up core pieces; true length doubtful. Sample of chalky to earthy material from 923.5 to 925.0 feet: X-ray - sanidine, albite.
925.0	926.3	Oil shale: buff to dark brownish gray and rare dark brown (2.5Y 7/2-3/2, rare 3/3-2/2; some slight olive tint); some resinous luster. Faint to moderately distinct, irregular and distorted laminations (some inclined 20-30°); some small irregular loop structures. Irregular to some smooth, thick to medium parting; irregular to rare coarse hackly fracture. Common very fine white specks and streaks in upper part. Some small tan to gray earthy pyritic lenses in one horizon at 925.6 feet. Sample of small tan to gray lenses from 925.6 feet: X-ray - feldspar, pyrite.
926.3	927.3	Oil shale: medium and rare dark brownish gray to tan and buff (2.5Y 4/2-6/3 & 7/2, rare 3/2). Faint contorted to brecciated and jumbled laminations. Very irregular parting and fracture. Some irregular gray pyritic fracture fillings.
927.3	929.5	Oil shale: medium to dark brownish gray (2.5Y & 10YR 4/2-3/2, rare 5/2 & 2/2); rare satiny luster. Faint smooth to some irregular and distorted laminations; some small irregular loop structures. Slightly irregular to very irregular thick parting; slightly conchoidal to irregular fracture. Some to common very fine white blebs and streaks in upper part. Some very irregular small buff earthy to granular crystalline patches with some bitumen impregnations in lower part. Sample of shale with small buff patches from 928.8 feet: X-ray - calcite; some feldspar, dolomite, quartz.
929.5	930.2	Missing?

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
930.2	931.8	Marlstone: gray-buff and buff (2.5Y 8/1-7/2). Massive to some very faint distorted streaked bedding; rare fine brownish gray oil shale stringers and streaks. Very badly broken up and mixed up; true length very doubtful. Sample of marlstone from 930.2 to 931.8 feet: X-ray - dolomite, feldspar, quartz, illite, pyrite.
931.8	932.8	Marlstone and oil shale: gray-buff to some orange-buff and medium brownish gray (2.5Y 8/1-6/2, some 7/4 and 5/2-4/2). Very faint distorted streaks, stringers and rare laminations; some massive to mottled. Slightly irregular to very irregular, thick to medium parting; very irregular fracture. Common buff blebs and rare small irregular patches in upper part. Badly broken up and mixed up to some very irregular core pieces; true length doubtful.
932.8	934.4	Oil shale: medium to rare dark brownish gray (2.5Y 5/2-4/2 & 4/1, rare 3/2). Very faint smooth laminations. Very irregular to slightly irregular, thick to medium parting; very irregular to slight hackly fracture. Very common fine buff earthy blebs and streaks with pyrite. Some very irregular tight natural fractures.
934.4	936.1	Marlstone: buff and rare light to medium brownish gray (2.5Y 8/2-7/2, rare 6/2-5/2), very rare light olive gray (5Y 6/1-6/2). Very faint smooth to distorted streaked bedding and rare massive. Irregular thick parting; irregular fracture. Common fine cavities and irregular buff spots with some pyrite.
936.1	937.4	Marlstone and some oil shale: buff to some medium brownish gray (2.5Y 8/2-6/2, some 5/2-4/2). Very faint to some distinct distorted streaks, stringers and laminations. Irregular parting and fracture. Very common fine irregular buff to white spots and streaks. Some very fine dark gray to black blebs. Sample of oil shale with common very fine dark gray to black blebs and some buff spots from 936.2 feet: X-ray - dolomite, quartz, sanidine, albite, pyrite, illite.
937.4	939.5	Oil shale: medium brown and brownish gray to some tan and buff (2.5Y & 10YR 5/3-4/3 & 4/2, rare 5/1-4/1), very rare olive gray (5Y 5/1-4/1). Faint to some moderately distinct, contorted and broken to some

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		fairly smooth laminations, stringers and streaks. Very irregular thick parting to rare smooth thin shaly parting; very irregular fracture. Very common irregular buff to white spots--especially in upper part. Some very irregular breccia zones, some with white calcite fracture fillings. Some very fine black blebs in upper part. Section appears to be mixed up.
939.5	941.0	Oil shale: medium to light olive gray (5Y 4/1-6/1) and some medium brown to tan (2.5Y 4/3-6/3). Very faint very smooth to some brecciated laminations and streaked bedding. Smooth to very irregular, thick to medium parting; irregular and some conchoidal fracture. Some tight natural fractures with rare brown coatings. Very rare very fine resinous dark brownish gray streaks. Rare fine tan to buff earthy spots and streaks near top. Rare fine buff to brownish gray earthy to silty porous streaks with fine black blebs in middle part. A 0.1-foot irregular breccia zone with some fine pyrite and rare fine resinous black organic stringers at 940.7 feet.
		[Sample of olive gray oil shale from 939.9 feet: X-ray - dolomite, albite, quartz, pyrite, illite.
941.0	942.0	Oil shale: medium olive gray (5Y 5/1 & 5/2-4/1 & 4/2). Very faint slightly distorted to smooth streaked bedding. Irregular thick parting; irregular to some fairly smooth fracture. Very common very fine white blebs and streaks. Rare tight irregular natural (?) fractures.
942.0	945.7	Oil shale: medium to dark olive gray (5Y 4/1-3/1, some 5/2 near base; almost neutral to some slight brown tint). Very faint smooth streaked bedding. Irregular thick parting; irregular fracture. Very common fine buff earthy streaks and lenses (show as round to irregular spots on parting surfaces). Some tight natural (?) fractures.
		[Sample of almost neutral gray shale with fine buff streaks and lenses from 942.8 feet: X-ray - albite, sanidine, dolomite, pyrite, illite.
945.7	946.7	Oil shale and some marlstone: medium brownish gray and brown to tan and buff (2.5Y 5/2 & 5/3-6/3 & 7/2, some 7/1 & 8/2). Faint contorted and brecciated to some smooth laminations and streaked bedding. Very irregular to rare smooth, thick to medium and rare thin parting; very irregular fracture. Common fine buff to white streaks, lenses and blebs. Some very fine disseminated pyrite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
946.7	949.2	Marlstone and oil shale: buff to tan and some medium brown and brownish gray (2.5Y 8/2-6/3, some 9/2 & 5/3-4/2). Faint to fairly distinct, smooth to very distorted streaked bedding and rare laminations. Slightly irregular to very irregular, thick to medium parting; very irregular fracture. Very common very fine buff to white blebs, streaks and interlaced stringers. Some very fine disseminated pyrite. Very rare fine irregular brownish-black resinous organic stringers.
		Sample of oil shale with very common very fine white to buff lacy stringers from 948.5 feet: X-ray - dolomite, albite, quartz, pyrite, illite.
949.2	950.7	Marlstone breccia: buff to some light brownish gray and tan (2.5Y 8/2-7/2 & 7/3, some 6/2-6/3). Very coarse massive to faintly bedded breccia fragments. Some very irregular gray to black stringers and streaks. Rare small irregular brown granular patches. Some pieces of olive gray smoothly bedded shale. Very irregular broken up and mixed up core pieces; true length very doubtful.
950.7	952.0	Oil shale: medium brown to buff (2.5Y 5/3-7/2) and medium olive gray (5Y 5/1-5/2; some almost neutral). Faint smooth laminations to moderately distinct slightly distorted streaked bedding. Smooth to irregular, thin to medium parting; irregular fracture. Common fine buff streaks and blebs in lower part. Badly broken up and mixed up; true length doubtful.
952.0	953.0	Marlstone and some oil shale: buff and tan to rare medium brownish gray and brown (2.5Y 8/2-6/3, rare 5/2-5/3). Very faint contorted and broken streaks and stringers. Very irregular parting and fracture. Some fine disseminated pyrite and irregular blebs. Common fine buff to white blebs in lower part.
953.0	954.5	Marlstone: buff to tan (2.5Y 8/2-6/3). Very faint distorted streaked bedding to very coarse breccia. Slightly irregular to very irregular parting; very irregular fracture. Very common fine cavities and buff and black blebs in upper part. Some fine distorted gray stringers and streaks near top. Rare very irregular very fine-grained pyrite stringers and streaks in lower part. Lower part very badly broken up and mixed up; true length very doubtful.
954.5	956.2	Missing?

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
956.2	958.6	Oil shale: dark to medium olive gray (5Y 3/1-5/1 & 5/2; some almost neutral). Very faint fairly smooth to contorted and brecciated laminations and streaked bedding; an overturned fold at 957.9 feet. Very irregular parting and fracture. Very common fine gray-buff to buff, silty to earthy blebs and streaks. A fine broken and displaced gray silty lamina at 957.0 feet.
		Sample of gray silty-textured lamina with some oil shale from 957.0 feet: X-ray - pyrite, feldspar (Na and K), dolomite.
958.6	959.6	Oil shale breccia: medium and rare dark olive gray (5Y 5/1-4/1, rare 3/1-2/1; almost neutral); some tan to buff marlstone (2.5Y & 10YR 6/3-7/2). Contorted and intricately fractured to brecciated and jumbled; bedding obscured. Very irregular parting and fracture. Rare very irregular fine vitreous black organic stringers.
959.6	961.4	Oil shale: medium to rare dark olive gray (5Y 5/2 & 5/1-4/2 & 4/1, rare 3/1; some almost neutral). Very faint smooth to distorted and some brecciated laminations and streaked bedding. Very irregular parting and fracture. Very common fine buff streaks and blebs. Some fairly tight irregular natural fractures. Some fine tan to brown silty stringers and streaks with fine dark gray to black blebs in lower part. Coarse breccia at base.
961.4	962.7	Oil shale breccia: medium to very rare dark olive gray (5Y 5/2-4/2, rare 3/1-2/1); rare tan to buff marlstone and mudstone (2.5Y 6/3-8/2). Coarsely fractured to brecciated and jumbled; very faint smooth internal streaked bedding and rare laminations in breccia fragments. Very irregular parting and fracture. Very rare fine vitreous black organic stringers. Some very fine buff blebs in lower part.
962.7	964.7	Marlstone: very light buff to some tan (10YR 9/2-7/2, some 6/3); some olive buff to medium olive gray and brown near base (5Y 7/2-5/2 & 2.5Y 5/3). Very faint brecciated to some fairly smooth laminations and streaked bedding. Very irregular to some fairly smooth thick to medium parting; very irregular fracture. Very common very fine cavities. Some fine pyrite blebs and streaks. Some distinct distorted and broken gray laminae in middle part.

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Laramie Petroleum Research Center, Laramie, Wyoming

October 14, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
964.7	966.0	Oil shale: medium to rare dark olive gray (5Y 4/2-4/1, some 5/2-5/1, rare 3/1; some almost neutral). Very faint contorted, fractured, and displaced to smooth laminations and streaked bedding. Irregular to some smooth thick parting; irregular to slightly conchoidal fracture. Very common fine buff earthy to white crystalline blebs. Brown to tan (10YR 5/3-6/3) shale in lower 3/4 inch.
966.0	968.0	Missing?
968.0	970.0	Oil shale: light to dark olive gray (5Y 6/1-4/2 & 3/1) and some light to dark brownish gray (2.5Y 6/2-3/2). Very faint smooth to contorted and broken laminations and streaked bedding. Slightly irregular to very irregular, thick to medium parting; very irregular fracture. Some very fine buff blebs in upper part. Upper part very badly broken up and mixed up; true length doubtful.
970.0	972.5	Oil shale and marlstone: medium to light olive gray (5Y 5/1-6/1, rare 4/1; almost neutral) and tan to very light buff (2.5Y & 10YR 6/3-9/2). Very faint very distorted and broken stringers and streaks. Very irregular parting and fracture. Common very fine buff blebs and some small irregular granular crystalline patches in upper part. Lower part very badly broken up and mixed up; true length very doubtful. <div style="margin-left: 2em;"> Sample of tan to buff earthy marlstone from 971.0 feet: X-ray - dolomite, quartz, sanidine, albite, pyrite, illite. </div>
972.5	976.5	Missing?
976.5	978.0	Oil shale: dark brownish gray, rare tan to buff near top (2.5Y 3/2 & 3/1-2/1, rare 6/3-7/2). Very faint smooth to irregular and distorted laminations. Very irregular to some slightly irregular, thick to medium parting; irregular to some conchoidal fracture. Common fine buff blebs, lenses, and streaks. Some fairly tight irregular natural fractures.
978.0	980.5	Oil shale: dark to medium olive gray (5Y 3/1-5/2); some tan to buff marlstone in middle part (10YR 6/3-7/2). Fractured to brecciated with very faint laminations and streaked bedding. Very irregular parting and fracture. Common very fine cavities and some slightly open fractures. Rare fine dark gray pyritic streaks and blebs.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
980.5	981.6	Oil shale: medium brown to tan and some buff (10YR 4/3-6/3, some 7/2). Coarsely brecciated and jumbled in upper part to finely crushed and porous in lower part; some slightly broken smooth laminations near base. Very irregular parting and fracture. Some fine brownish black resinous organic stringers (fillings) near top. Common fine buff blebs near base. Common very fine disseminated pyrite.
981.6	982.8	Oil shale: medium olive gray and brownish gray to buff (5Y & 2.5Y 4/1-7/2; some almost neutral). Faintly variegated and mottled to some very faint distorted and broken streaked bedding. Very irregular parting and fracture. Common fine white crystalline blebs. Very irregular to badly broken up core pieces; true length doubtful. <div style="border-left: 1px solid black; padding-left: 20px; margin-left: 20px;"> Sample of almost neutral gray to buff variegated oil shale (?) with fine white blebs from 981.6 to 982.8 feet: X-ray - dolomite, calcite, albite, sanidine, pyrite. </div>
982.8	986.0	Marlstone: light brownish gray and tan to very light buff (2.5Y & 10YR 6/2 & 6/3-9/2). Faint contorted and broken laminations and stringers to some massive earthy marlstone with very faint small angular inclusions (rarely medium to dark brown). Very irregular parting and fracture. Some fine dark gray pyritic streaks and blebs. Some very irregular mixed up core pieces; true length doubtful.
986.0	987.8	Missing?
987.8	988.9	Marlstone and oil shale: buff and tan to some medium brown and rare dark brownish gray (2.5Y & 10YR 7/2-6/3, some 5/3, rare 4/3-3/2). Very faint to some distinct, distorted and broken laminations to porous crushed and jumbled. Slightly irregular to very irregular, medium to thick parting; hackly to very irregular fracture. Very rare small irregular brownish black bitumen-impregnated patches and stringers in crushed shale. <div style="border-left: 1px solid black; padding-left: 20px; margin-left: 20px;"> Sample of porous crushed shale from 988.7 feet: X-ray - dolomite, magnesite, albite, sanidine, quartz. </div>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
988.9	992.2	Oil shale: dark to medium brownish gray and some brown (2.5Y 2/2-4/2, some 4/3-5/3). Very faint slightly distorted and broken to contorted and brecciated laminations and streaked bedding. Some smooth, thin to thick shaly parting and hackly fracture near top; very irregular parting and fracture in other parts. Rare to very common fine buff earthy streaks, lenses, and blebs. Rare fine brownish black bitumen fracture fillings. Some slightly open natural fractures. Some irregular broken up and mixed up core pieces; true length doubtful. <p>[Sample of dark brownish gray smoothly laminated oil shale with some very fine disseminated crystals from 989.0 feet: X-ray - albite, sanidine, dolomite, magnesite, pyrite, illite.</p>
992.2	993.5	Missing?
993.5	995.5	Marlstone and rare oil shale: tan to very light buff and rare light to medium brownish gray (2.5Y 6/3-9/2, rare 6/2-4/2). Very faint distorted and broken laminations to massive with common very faint small angular fragments. Very irregular parting and fracture. Very badly broken up and mixed up; true length doubtful.
995.5	996.5	Missing?
996.5	998.0	Oil shale: buff and tan to medium and rare dark brownish gray (2.5Y 7/2 & 6/3-4/2, rare 3/2); some medium to dark neutral gray in lower part (5-3N). Distinct smooth to distorted and broken laminations. Very smooth to some very irregular, thin to thick parting; very irregular fracture. Common irregular tight to slightly open natural fractures. Common very fine white specks and very fine cavities in middle part. Very badly broken up and mixed up; true length doubtful. <p>[Sample of smoothly laminated shale with fine white specks and cavities from 997.3 feet: X-ray - albite, K-feldspar, dolomite, pyrite.</p>
998.0	1005.0	Missing?
1005.0	1005.8	Oil shale: buff and tan to medium and rare dark brownish gray (2.5Y 7/2 & 6/3-4/2, rare 3/2). Very faint irregular and contorted laminations to massive. Very irregular parting and fractures. Very common fine cavities with some chalky to crystalline white fillings. Some irregular natural fractures.
1005.8	1012.0	Missing?

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1012.0	1014.7	Oil shale: dark to medium brownish gray (2.5Y & 10YR 3/2-4/2, some 5/2, rare 2/2); some resinous luster in upper 0.1 foot. Very faint slightly distorted to contorted and broken streaked bedding and rare laminations. Slightly irregular to very irregular, thick to rare thin parting; very irregular fracture. Common fine buff earthy to silty blebs, lenses and streaks. Rare fine bitumen-impregnated stringers.
1014.7	1016.0	Marlstone: tan to buff (2.5Y & 10YR 6/3-7/2, rare 8/2). Very faint distorted and broken laminations and rare very faint fairly smooth bedding. Very irregular to some slightly irregular, thick to medium parting. Some fine to small <u>irregular cavities</u> with rare very fine drusy crystals. Irregular broken up and mixed up core pieces in lower part; true length doubtful.
1016.0	1017.5	Missing?
1017.5	1022.7	Mudstone: gray buff to light brownish gray and olive gray (2.5Y & 5Y 8/1-6/1 & 6/2; some almost neutral). Very faint distorted to contorted and broken laminations and streaked bedding in upper part; massive with very faint small breccia fragments in middle part; massive with some distinct contorted dark brownish gray oil-shale stringers and breccia fragments in lower part. Very irregular parting and fracture. Some fine to small cavities. Some fine brown oil-stained patches. Some parts very badly broken up and mixed up; 1.0 foot missing (?). Sample of mudstone with rare fine white specks from 1017.6 feet: X-ray - dolomite, quartz, sanidine, albite, pyrite, illite. Sample of mudstone with some fine brown patches from 1022.0 feet: X-ray - dolomite, quartz, sanidine, albite, pyrite, illite.
1022.7	1027.6	Oil shale: dark to some medium brownish gray (2.5Y & 10YR 2/2-3/2, some 4/2). Very faint very contorted and broken to rare smooth streaked bedding. Very irregular thick parting; very irregular to some conchoidal fracture. Some to common fine buff to brown blebs (some are sharply angular with concave sides). Some very irregular thin to fine brownish black bitumen-impregnated stringers (fracture fillings) with very unusual organic odor.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of dark brownish gray oil shale with faint contorted streaked bedding from 1024.5 feet: X-ray - dolomite, albite, sanidine, magnesite, pyrite, illite.
		Sample of oil shale with common fine angular brown bitumen-impregnated crystalline blebs from 1025.6 feet: X-ray - dolomite, quartz, feldspar (Na and K), magnesite, pyrite.
1027.6	1032.4	Mudstone: light to medium olive gray and brownish gray (5Y & 2.5Y 6/1-4/1 & 4/2; commonly almost neutral). Very faint distorted to jumbled streaks and stringers and some faintly variegated to mottled. Very irregular parting. Some to very common very fine buff to tan blebs. Some very irregular and contorted thin to fine buff earthy streaks and stringers from 1029.0 to 1030.5 feet.
		Sample of almost neutral gray very faintly mottled mudstone from 1032.3 feet: X-ray - dolomite, quartz, sanidine, albite, calcite, pyrite, illite.
1032.4	1033.2	Mudstone: very light buff to light brownish gray and olive gray (2.5Y & 5Y 9/2 & 9/1-6/2 & 6/1; commonly almost neutral); some orange-buff near top (2.5Y 8/3-7/4). Moderately distinct to faint, contorted to distorted laminations, stringers and streaks. Very irregular to slightly irregular thick parting; irregular fracture. Some very fine buff earthy specks with some dark silty-textured pyrite near top.
		Sample of faintly laminated buff to gray-buff mudstone from 1032.8 feet: X-ray - dolomite, quartz, sanidine, albite, pyrite, illite.
1033.2	1034.5	Oil shale: medium brown to dark brownish gray (2.5Y & 10YR 5/3-3/2). Brecciated and jumbled to faint distorted streaks and stringers. Irregular parting and fracture. Some fine bitumen-impregnated stringers (faint unusual organic odor). Common very fine irregular cavities in middle and lower parts. A thin irregular buff mudstone stringer near top.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of dark brownish gray porous oil shale from 1034.3 feet: X-ray - dolomite, sanidine, albite, pyrite, illite, quartz?
1034.5	1037.0	Mudstone: gray-buff and buff to some tan and very rare medium brown (2.5Y 8/1 & 8/2-6/1 & 6/2, some 6/3, rare 5/3; some almost neutral). Faint distorted and broken to brecciated and jumbled laminations, stringers and streaks. Very irregular parting and fracture. Some to common very fine dark brown impregnated blebs.
1037.0	1038.1	Mudstone and oil shale: gray-buff and buff to tan and some medium brown (2.5Y & 10YR 7/1 & 7/2-6/3, some 5/3-4/3). Very faint <u>jumbled breccia</u> to faint and some distinct very distorted stringers and streaks. Irregular thick to medium parting; very irregular fracture. Common fine irregular cavities to some earthy crushed shale with fine crystalline blebs. Some very irregular thin to fine bitumen-impregnated stringers. Rare very fine disseminated pyrite.
1038.1	1040.7	Oil shale: medium to dark brownish gray and rare medium to dark brown (2.5Y & 10YR 4/2-3/2, rare 4/3-3/3); rare resinous luster in lower part. Very faint distorted to contorted and broken streaked bedding and rare laminations; some very irregular spongy breccia masses and stringers. Very irregular thick to medium parting; very irregular fracture. Some very fine buff earthy blebs and fine to <u>small irregular cavities</u> . Some bitumen-impregnated <u>breccia masses</u> and fine streaks and stringers.
1040.7	1042.2	Oil shale: buff and tan to medium brown (2.5Y 7/2 & 6/3-5/3) and medium olive gray (5Y 5/2). Very faint fairly smooth bedding to massive. Irregular thick parting; slightly irregular fracture. Very <u>common fine cavities</u> and spongy to earthy crushed zones-- <u>some slightly bitumen-impregnated</u> . Rare very fine disseminated pyrite.
1042.2	1043.5	Oil shale: tan to medium brown and brownish gray (2.5Y & 10YR 6/3-4/3 & 4/2; some very slight olive tint in darker parts). Very faint fairly smooth bedding to massive. Irregular parting and fracture. Very <u>common fine cavities</u> and spongy to earthy crushed zones with <u>some bitumen</u> . Rare very fine disseminated pyrite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1043.5	1044.8	Oil shale and marlstone: medium brown and brownish gray to tan and buff (2.5Y 5/3 & 5/2-6/3 & 8/2). Very faint to some moderately distinct, fairly smooth to brecciated and jumbled laminations. Slightly irregular to very irregular, medium to thick parting; slightly irregular to very irregular fracture. Some earthy porous crushed shale in upper part. Some badly broken up and mixed up in lower part; true length doubtful.
1044.8	1045.3	Missing?
1045.3	1049.0	Oil shale: dark and some medium brownish gray and brown (10YR 3/2-3/3, some 4/2-5/3, rare 2/2). Very faint distorted to slightly contorted streaked bedding. Slightly irregular to very irregular thick parting; conchoidal to some very irregular fracture. Some <u>medium to large irregular vugs</u> with limonite-stained boxworks in upper and middle parts. A thin irregular light brownish gray silty-textured tuff (?) stringer at 1048.9 feet.
1049.0	1050.0	Oil shale: dark to medium brownish gray and some brown (10YR & 2.5Y 3/2-4/2, some 3/3-5/3, rare 2/2); some resinous and rare waxy luster. Very faint to faint slightly distorted laminations and streaked bedding. Fairly smooth to irregular, thick to some medium parting; slightly irregular to slightly conchoidal fracture. Some fine to 3/4-inch light brownish gray silty-textured tuff stringers and lenses with very fine vitreous black bitumen blebs in upper part. A very fine resinous to waxy black organic streak near base. Sample of irregular light brownish gray tuff (?) stringer from 1049.4 feet: X-ray - sanidine, albite, ferroan.
1050.0	1051.2	Oil shale: tan to medium brown and brownish gray (2.5Y 6/3-5/3 & 5/2). Faint very smooth laminations. Very smooth thick to some thin shaly parting; conchoidal to fairly smooth fracture. Some very fine smooth dull black laminae and streaks (show as very common very fine blades and rods on parting surfaces). Rare slightly irregular tight natural vertical fractures. Sample of shale with very fine dull black partings from 1050.6 feet: X-ray - albite, dolomite, quartz, pyrite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1051.2	1053.7	Oil shale: medium to dark brownish gray (10YR 4/2-3/2, rare 5/2). Very faint slightly distorted to slightly contorted streaked bedding and some laminations. Slightly irregular to very irregular thick parting; conchoidal to some very irregular fracture. Some very irregular gray to brownish gray gritty porous to <u>vuggy masses</u> with some pyrite. Some porous shale with <u>common pyrite</u> in upper part. <u>A large fossil</u> composed of vitreous black organic material in diamond-shaped scales up to 1/8 x 1/4 inch at 1052.9 feet. <div style="margin-left: 2em;">Sample of gray gritty mass with pyrite and some white efflorescence from 1051.6 feet. X-ray - pyrite, ferroan, siderotil, quartz.</div>
1053.7	1055.0	Oil shale: dark brownish gray to medium brown (10YR 3/2-4/3, rare 2/2 & 5/3). Very faint contorted and broken laminations. Very irregular parting and fracture. <u>Common very spongy to vuggy fracture zones</u> with some pyrite blebs and bitumen impregnations.
1055.0	1056.2	Missing?
1056.2	1058.6	Oil shale: tan to medium and rare dark brown (10YR 6/3-4/3, rare 3/3). Very faint smooth to distorted streaked bedding; some faint slightly irregular and distorted laminations in lower part. Very irregular to some slightly irregular, thick to medium parting; irregular fracture. Mostly gritty and porous to very spongy in upper part. Some irregular tight to slightly open natural fractures in lower part. Some thin to fine buff-white chalky to earthy stringers near base. Irregular broken up and mixed up core pieces near base; true length doubtful. <div style="margin-left: 2em;">Sample of thin buff-white stringers from 1058.4 to 1058.6 feet: X-ray - quartz, sanidine, <u>dawsonite</u>, dolomite.</div>
1058.6	1059.1	Missing.
1059.1	1066.5	Oil shale: medium to dark brown and rare tan (10YR 4/3-3/3, some 5/3, rare 6/3). Faint and some moderately distinct, distorted to fairly smooth streaks and stringers. Irregular thick to rare medium parting; slightly irregular fracture. <u>Common very fine cavities</u> and some small to rare <u>large vugs</u> with limonite-stained boxworks. Some fine pyrite blebs. Rare fine waxy black organic lenses, blebs and stringers.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		[Sample of brown porous shale from 1063.1 feet: X-ray - quartz, dolomite, feldspar (Na and K), <u>dawsonite</u> , pyrite.
1066.5	1067.5	Oil shale: medium brown to rare tan and buff (10YR 4/3-5/3, rare 6/3-7/2). Very faint distorted to contorted streaked bedding. Very irregular parting and fracture. Very badly broken up and mixed up; true length very doubtful.
1067.5	1069.0	Missing?
1069.0	1070.5	Oil shale: dark to some medium brown and brownish gray (10YR 3/3-2/2, some 4/3-5/3 lower part); common satiny to rare resinous luster. Very faint slightly distorted to contorted and broken laminations and streaked bedding. Very irregular and rare smooth, thick to rare medium parting; very irregular fracture. Some limonite-stained vuggy fractured zones; a very irregular bitumen-impregnated mass of crushed shale near base. Some very fine pyrite streaks and irregular blebs. Some very irregular core pieces; true length doubtful.
1070.5	1071.5	Oil shale: medium brown and rare tan to buff (7.5YR & 10YR 4/3-5/3, rare 6/3-7/2). Very faint contorted and broken to smooth streaked bedding. Irregular thick parting; very irregular to slightly irregular fracture. A spongy to vuggy fractured zone in upper 0.2 foot. Very common very fine <u>irregular cavities</u> and some very small to medium <u>irregular vugs</u> with limonite-stained boxworks in other parts.
1071.5	1072.5	Oil shale: dark brown to tan and rare buff (7.5YR & 10YR 3/3-6/3, rare 7/2); some satiny luster. Very faint to some moderately distinct, very distorted to smooth laminations and streaked bedding. Very irregular to slightly irregular, thick to medium parting; very irregular to slightly irregular and some slight hackly fracture. Some small to <u>medium vugs</u> near top. Very common very fine cavities.
1072.5	1073.7	Oil shale: medium brown to tan and buff (10YR 4/3-6/3 & 7/2, some 8/2). Fairly distinct very distorted streaks and stringers; some sharp unconformities. Irregular thick to medium parting; irregular fracture. Some small irregular spongy black pyritic masses and stringers. Some very fine cavities. Some light stringers have short open intersecting vertical fractures.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1073.7	1074.7	Oil shale: medium brown to tan and rare buff (10YR 4/3-6/3, rare 7/2). Distinct very distorted streaks and stringers to fairly smooth laminations with some loop structures in upper part; a sharp unconformity at 1074.2 feet; faint intricately contorted and displaced laminations in lower part. Slightly irregular to very irregular thick parting; irregular fracture. Rare very thin light brownish gray to buff silty stringers. A large limonite-stained buff earthy porous mass with fine black blebs and stringers at base. <div style="margin-left: 2em;">Sample of buff earthy mass with fine black blebs from 1074.6 feet: X-ray - quartz, dolomite, dawsonite, feldspar (K and Na); pyrite.</div>
1074.7	1076.0	Oil shale: buff to medium and some dark brown (10YR & 7.5YR 7/2 & 7/3-4/3, some 3/3-3/2); some satiny to resinous luster in lower part. Faint contorted and broken streaks, stringers and some laminations. Very irregular parting and fracture. Common stringers of earthy porous crushed shale and spongy to <u>vuggy</u> fractured zones. Common fine black blebs and stringers in upper part. Irregular core pieces to badly broken up and mixed up; true length doubtful.
1076.0	1076.5	Missing?
1076.5	1078.0	Oil shale: buff to medium and very rare dark brown (10YR 8/3-5/3, rare 4/3-3/3). Faint to some moderately distinct, distorted and displaced laminations and streaked bedding; some thick massive zones. Irregular thick to thin parting in upper part to very irregular thick parting in lower part; irregular to conchoidal fracture. Some small to fairly large irregular limonite-stained vugs with irregular linings and stringers of gray to black gritty material and pyrite (like black blebs at 1074.6 feet?); some <u>platy boxworks</u> . Some tight irregular natural fractures. Some very irregular thin porous earthy to granular crystalline buff stringers near base.
1078.0	1082.6	Oil shale: tan and some buff to medium brown (10YR 6/3-5/3, some 7/3-8/3). Very faint fairly smooth to distorted streaked bedding. Irregular thick parting; slightly irregular to very irregular fracture. Very common fine <u>irregular cavities</u> with some gray to black material and pyrite. Some very irregular buff earthy porous stringers, streaks and blebs. Some very irregular moderately large <u>cavities</u> with fine drusy calcite(?) near base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of brown shale with fine cavities from 1080 feet: X-ray - quartz, dolomite, albite, calcite, dawsonite.
1082.6	1084.0	Missing?
1084.0	1086.0	Oil shale: medium and rare dark brown to tan (10YR 5/3-6/3, rare 4/3-3/3 upper part). Very faint and rare moderately distinct, distorted to fairly smooth streaked bedding; some nearly massive. Irregular thick parting; conchoidal to irregular fracture. Some small to moderately large vugs with platy boxworks and some black gritty material. Some very irregular slightly open natural fractures. Some dark porous shale in upper part.
1086.0	1087.0	Missing?
1087.0	1088.0	Oil shale: medium brown and some tan (10YR 4/3-5/3, some 6/3). Very faint to faint distorted streaked bedding. Very irregular thick parting; irregular to conchoidal fracture. Some small to very large vugs with radial to irregular boxworks and very pyritic gray to black rims. Some small irregular gray to black pyritic blebs. Very irregular core pieces in upper part; true length doubtful.
1088.0	1089.6	Oil shale: tan to medium brown (10YR 6/3-5/3, some 4/3 lower part). Faint very distorted to some fairly smooth streaked bedding. Very irregular thick parting; irregular to conchoidal fracture. Some small to large vugs with fine irregular boxworks and gray to black pyritic rims. Break in core sequence at base. Sample of brown oil shale from 1088.5 feet: X-ray - quartz, dolomite, albite, dawsonite, ferroan.
1089.6	1090.6	Oil shale: buff and tan to medium brown (10YR 7/2 & 6/3-5/3, rare 4/3). Distinct to faint, smooth to some slightly contorted laminations; some small displacements and rare loop structures. Slightly irregular to very irregular thick parting; irregular to very conchoidal fracture. Some tight short irregular natural vertical fractures. A large coarse boxwork mass in conformable laminations on side of core at 1090.3 feet.

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Laramie Petroleum Research Center, Laramie, Wyoming

October 14, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1090.6	1091.6	Oil shale: tan and rare buff to medium brown (10YR & 2.5Y 6/3-4/3, rare 7/3). Distinct smooth laminations to faint distorted streaked bedding; some small loop structures in upper part. Fairly smooth to irregular thick parting; slightly irregular to slightly conchoidal fracture. Some very fine very short tight natural vertical fractures in buff laminae. Quarter sawed core from 1090.8 to 1091.2 feet (sampled quarter of other parts). Break in core sequence at base.
1091.6	1103.0	Oil shale: medium brown and brownish gray with rare tan and dark brownish gray streaks (10YR 4/3-4/2, some 5/3, rare 6/3 & 3/2). Faint to very faint smooth to distorted streaked bedding. Slightly irregular to irregular thick parting; slightly irregular fracture. Some thin porous earthy streaks in upper part. Some to very common fine pyrite blebs and rare thin irregular dark gray pyritic stringers and small masses. A small irregular crystalline <u>nahcolite mass at 1095.3 feet</u> . A very thick irregular bed (?) of brown fine-grained nahcolite at 1096.8 to 1097.3 feet; rare thin stringers from 1097.4 to 1100.4 feet. A large <u>nahcolite vug with radial earthy boxworks at 1101.8 feet</u> . Very rare fine resinous black organic streaks and lenses. <div style="margin-left: 40px;">Sample of fine-grained massive nahcolite from 1097.1 feet: X-ray - nahcolite.</div>
1103.0	1104.5	Oil shale: medium and rare dark brown to tan (10YR 5/3-6/3, some 4/3-3/3 in upper part); rare resinous luster in upper part. Fairly distinct to very faint, contorted to smooth laminations, streaks and stringers; some irregular loop structures and displacements. Very irregular to some slightly irregular, thick to medium parting; very hackly fracture near top; irregular to slightly conchoidal fracture in other parts. Porous earthy shale in upper 0.2 foot. Several very irregular, thin to thick stringers (up to 1-1/2 inch) of brown to brownish gray silty-textured porous tuff (?) in middle part with common very irregular greenish gray dense crystalline stringers and blebs and some irregular bitumen-impregnated patches. <div style="margin-left: 40px;">A fine waxy black organic streak at 1103.7 feet. Sample of thick silty porous tuff with greenish gray stringers and blebs from 1103.9 feet: X-ray - albite, ferroan.</div>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1104.5	1108.0	Oil shale: medium to dark brownish gray, some medium brown in upper part (10YR 4/2-3/2, some 4/3-5/3). Very faint smooth to slightly distorted streaked bedding. Irregular thick parting; conchoidal to slightly irregular fracture. A few <u>small to fairly large vugs</u> with spongy limonite-stained fillings and gritty gray pyritic rims from 1105.2 to 1105.5 feet. Rare fine waxy black organic streaks and lenses. Rare fine pyrite blebs and streaks in lower part.
1108.0	1109.0	Oil shale: medium to dark brownish gray (10YR 4/2-3/2, rare 5/2). Very faint fairly smooth to some distorted and displaced laminations. Irregular to some fairly smooth thick parting; slightly irregular fracture. A very thin displaced light brownish gray silty-textured tuff (?) lamina at 1108.9 feet.
1109.0	1112.0	Oil shale: medium to dark brownish gray (10YR 4/2-3/2). Very faint smooth to some distorted streaked bedding; some very faint smoothly curved to distorted and displaced laminations with loop structures in middle part. Slightly irregular to some very irregular thick parting; fairly smooth to rare very irregular and conchoidal fracture. Very irregular large coarsely crystalline <u>nahcolite masses</u> at 1109.2 to 1109.4 and 1110.5 to 1110.6 feet. Rare small very pyritic gray masses with some nahcolite in other parts. Very rare fine resinous black organic streaks and lenses.
1112.0	1113.0	Oil shale: dark to rare medium and light brownish gray (10YR 3/2-2/2, rare 4/2-6/2). Very faint very distorted to fairly smooth streaked bedding and rare laminations. Very irregular parting and fracture. Some very irregular gritty gray pyritic stringers with white efflorescent powder. Very irregular core pieces; true length doubtful.
1113.0	1114.5	Missing?
1114.5	1116.0	Oil shale: dark to medium brownish gray (10YR 2/2-4/2, rare 5/2); some resinous luster in lower part. Very faint very distorted to smooth laminations and streaked bedding. Very irregular to rare slightly irregular, thick to medium parting; irregular to conchoidal fracture. Some very irregular gritty to vuggy pyritic stringers. Some very irregular tight to slightly open natural fractures. Very rare fine resinous black organic streaks.

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Laramie Petroleum Research Center, Laramie, Wyoming

October 14, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1116.0	1118.0	Missing?
1118.0	1119.3	Oil shale: light brownish gray to medium brown, some buff (10YR & 2.5Y 6/2-5/3, some 7/2 & 4/3). Faint smooth laminations to distorted streaked bedding. Very irregular and rare smooth, thick to medium parting; irregular to conchoidal fracture. Some irregular tight natural fractures with rare black bitumen coatings. Some irregular core pieces to very badly broken up and mixed up; true length doubtful.
1119.3	1120.4	Oil shale: medium to dark brown and brownish gray (10YR 4/3-3/2, rare 5/3). Very faint distorted to some fairly smooth streaked bedding. Slightly irregular thick parting; conchoidal to fairly smooth fracture. Rare small brown silty-textured lenses with some fine crystals in upper part. Rare fairly large <u>limonite-stained vugs</u> with gray blebby pyritic rims in lower part. Very rare fine resinous black organic streaks. <div style="margin-left: 2em;">[Sample of brown lens with fine crystals from 1119.7 feet: X-ray - ferroan, sanidine, albite, dawsonite.</div>
1120.4	1121.4	Oil shale: dark and rare medium brownish gray (10YR 2/2, rare 4/2-5/2). Very faint slightly distorted streaked bedding. Irregular thick parting; slightly irregular fracture. Rare small patches of common fine pyrite crystals. Very rare fine vitreous black organic blebs.
1121.4	1122.4	Oil shale: dark brownish gray to medium brown and rare tan to buff (10YR 3/2-4/3, rare 6/3-7/2). Faint very distorted to some fairly smooth streaked bedding. Very irregular parting and fracture. Some <u>large vugs</u> with irregular spongy boxworks and gray blebby rims. Very irregular core pieces; true length doubtful.
1122.4	1125.0	Missing?
1125.0	1126.0	Oil shale: dark brownish gray to medium brown (10YR 3/2-5/3); some satiny to rare resinous luster. Faint to moderately distinct, contorted and displaced laminations and streaked bedding. Very irregular thick parting; slightly irregular and conchoidal fracture. Some <u>small vugs</u> and vuggy parting surfaces with gray blebby rims and rare irregular boxworks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1126.0	1127.5	Oil shale: buff to some medium and dark brownish gray (10YR & 2.5Y 8/2-6/2, some 5/2-3/2); mostly earthy. Faint distorted and broken streaked bedding. Very irregular parting and fracture. Some irregular stringers and masses of common fine black blebs. Very badly broken up and mixed up; true length very doubtful.
1127.5	1130.0	Missing?
1130.0	1131.7	Oil shale: dark to medium brownish gray and brown (10YR 3/2 & 3/3-4/3, rare 2/2); common satiny and some resinous luster. Very faint fairly smooth to distorted streaked bedding. Very irregular thick parting; irregular to conchoidal fracture. Rare moderately large buff earthy porous masses with gray blebby rims. Very rare small irregular pyrite patches. Rare irregular slightly open natural (?) fractures.
1131.7	1132.5	Missing?
1132.5	1133.5	Oil shale: medium brown to some tan, rare dark brownish gray near top (2.5Y 5/3, some 6/3, rare 4/3-3/2); rare satiny luster near top. Very faint distorted streaked bedding to nearly massive. Very irregular parting and fracture. Rare fine irregular granular earthy buff streaks and blebs. Some irregular open natural (?) fractures. <div style="margin-left: 2em;"> Sample of nearly massive brown oil shale from 1132.9 feet: X-ray - dolomite, quartz, feldspar (K and Na), ferroan, dawsonite. </div>
1133.5	1137.8	Oil shale: medium brown and some tan, rare dark brown and buff (10YR & 2.5Y 5/3-4/3, some 6/3, rare 3/3 and 7/3-8/2). Very faint distorted and broken bedding and some laminations in upper and middle parts; very faint to some moderately distinct, fairly smooth to distorted and broken laminations in lower part. Very irregular parting and fracture. Common coarsely fractured vuggy zones to finely brecciated spongy masses and stringers. Common limonite stains and some gray to black blebs. Some very irregular core pieces; true length doubtful.
1137.8	1138.8	Oil shale: medium to dark brown and brownish gray, rare brownish black (10YR 4/3 & 4/2-3/2, some 5/3 & 2/2, rare 1/2); common satiny to resinous luster. Faint to some moderately distinct, irregular and broadly curved to very distorted and displaced laminations and some streaked bedding. Very irregular thick to medium parting; irregular to some slightly conchoidal fracture. Some fine

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		buff stringers with common pyrite blebs in upper part. Some very irregular slightly open natural fractures in middle part.
1138.8	1144.0	Oil shale: medium brown to some dark brownish gray and tan (10YR 4/3 & 4/2-5/3, some 3/2 & 6/3). Very faint to some moderately distinct, very distorted streaks, stringers, and rare laminations. Irregular parting and fracture. Some small to large vugs with gray blebby rims and some spongy boxworks. Some fine pyrite blebs and small gray to black pyritic masses. Rare very irregular tight to slightly open natural (?) fracture.
1144.0	1144.5	Oil shale: buff and tan to medium brown (10YR 7/2 & 6/3-4/3). Very faint and rare distinct, smooth to distorted and displaced laminations and streaked bedding. Irregular to some fairly smooth, medium to thin parting; irregular fracture. Very badly broken up and mixed up; true length doubtful.
1144.5	1153.0	Oil shale: medium to some dark brown and brownish gray (10YR 4/3-4/2, some 3/2, rare 5/3). Faint fairly smooth to some distorted streaked bedding. Irregular thick parting; slightly irregular fracture. Common very fine disseminated pyrite. Common very fine cavities on sawed surfaces. Some small to moderately large brown lenses and stringers of fine-grained nahcolite and dolomite (common at 1151.2 to 1151.5 feet). Rare irregular cross-laminated buff to tan inclusions. Slightly irregular natural diagonal fractures with some nahcolite crusts at 1149.5 to 1149.8 and 1150.5 to 1150.8 feet.
		Sample of brown fine-grained crystalline lens from 1148.2 feet: X-ray - dolomite, nahcolite, ferroan.
1153.0	1154.0	Oil shale: medium to dark brownish gray and brown, rare tan and buff (10YR 4/2 & 4/3-3/2, some 5/3, rare 6/3-7/2); some satiny and rare resinous to waxy luster. Faint to some moderately distinct distorted streaks, stringers, and lenses. Irregular thick to rare medium and thin parting; slightly irregular and slightly conchoidal fracture. Rare fine to small irregular dark gray silty-textured pyritic blebs and stringers.
1154.0	1155.5	Oil shale: medium brown to dark brownish gray and some tan to buff (10YR 5/3-3/2, some 6/3-7/2); some satiny to resinous and rare waxy luster. Distinct to very faint,

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		slightly contorted to slightly distorted laminations, stringers, and streaks; some small irregular loop structures and displacements. Very irregular to slightly irregular, thick to medium parting. Some fine cavities and thin buff earthy limonite-stained vuggy stringers with dark gray pyritic blebs in upper part. Some <u>large vugs with fine boxworks</u> at 1154.4 feet. A very fine irregular buff-white dense crystalline stringer near base.
1155.5	1156.5	Marlstone and oil shale: buff and tan to medium brown and rare dark brownish gray (10YR 7/2 & 6/3-5/3, rare 4/3-3/2). Distinct to some faint, very irregular, distorted and displaced to fairly smooth laminations; some very irregular loop structures in upper part. Very irregular to slightly irregular, thick to medium parting; irregular to conchoidal fracture. A porous earthy limonite-stained zone with common fine dark gray to black pyritic blebs at 1155.7 to 1155.9 feet. An irregular natural vertical fracture with rare brown varnish-like coatings in lower half.
1156.5	1157.5	Oil shale: medium brown and some tan to buff (10YR 5/3-4/3, some 6/3-8/2). Faint to moderately distinct, slightly distorted to some very distorted and displaced laminations and streaked bedding; some small loop structures. Fairly smooth to very irregular, medium to thick parting; conchoidal to very irregular fracture. Some short irregular tight to slightly open natural fractures.
1157.5	1159.5	Oil shale: tan to medium brown and brownish gray, some buff in upper part (2.5Y 6/3-5/3 & 5/2, some 7/3-8/3). Very faint fairly smooth to very distorted and broken laminations and streaked bedding. Very irregular and rare slightly irregular thick parting; conchoidal to very irregular fracture. Common porous earthy zones to some spongy fractured zones in upper part with some gray to black blebs and limonite stains. Very spongy and coarsely fractured in lower part. Very irregular core pieces in lower part; true length doubtful.
1159.5	1161.3	Oil shale: tan and some buff to medium brown and brownish gray, some dark brownish gray near base (10YR & 2.5Y 6/3-5/3 & 5/2, some 7/2 & 4/3, rare 4/2-3/2 mostly in lower part). Fairly distinct to faint, irregular and distorted to some smooth laminations; very common moderately large to fine loop structures; some fairly smooth streaked bedding near base. Smooth to some irregular thick parting; irregular fracture. Some fairly tight short natural vertical fractures with varnish-like coatings.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1161.3	1165.8	Oil shale: dark and rare medium brownish gray (10YR 3/2, rare 4/2). Very faint smooth streaked bedding. Irregular thick parting; slightly irregular fracture. Rare fine resinous to waxy black streaks and blebs. Sample of oil shale from 1164.0 feet: X-ray - dolomite, quartz, sanidine, albite, ferroan, pyrite, dawsonite.
1165.8	1166.8	Oil shale: dark to medium brownish gray and brown (10YR 3/2-4/2 & 4/3, some 5/2-5/3). Very faint smooth to some slightly distorted streaked bedding. Irregular thick parting; slightly irregular fracture. Very rare fine waxy black streaks in upper part.
1166.8	1168.0	Oil shale: medium to light brownish gray and tan, some medium brown (10YR & 2.5Y 5/2-6/2 & 6/3, some 4/2-4/3). Faint to moderately distinct slightly distorted laminations; common fine loop structures and displacements. Irregular to some fairly smooth, thick to medium parting; smooth to irregular and conchoidal fracture. An irregular natural vertical fracture with chalky white coatings from 1167.3 to 1167.9 feet.
1168.0	1170.0	Oil shale: tan to dark brownish gray (10YR 6/3-3/2); rare satiny to waxy streaks and stringers. Moderately distinct to very faint, smooth to some very distorted laminations, stringers and streaks in thick light and dark zones; common small irregular loop structures and displacements. Slightly irregular to very irregular thick parting; fairly smooth to irregular and conchoidal fracture. Rare fine irregular buff dense to silty-textured crystalline streaks and stringers in upper part. Rare very irregular fine gritty black pyritic stringers in lower part.
1170.0	1173.9	Oil shale: medium to dark brownish gray (10YR 4/2-3/2); some satiny to resinous luster. Very faint smooth streaked bedding. Irregular thick parting; slightly conchoidal to irregular fracture. Rare fine waxy black streaks.
1173.9	1175.2	Oil shale: dark to medium brownish gray and brown (10YR 2/2-4/2 & 4/3); very common satiny to waxy luster. Very faint to some moderately distinct slightly distorted laminations, stringers and streaks; common small to fine loop structures. Irregular to some fairly smooth, thick to medium parting; irregular and rare very slight hackly fracture.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1175.2	1176.8	Oil shale: medium to dark brown and brownish gray, some tan to buff marlstone in lower 0.5 foot (10YR 4/3-3/2, some 5/3-6/3 & 7/2); some satiny to resinous luster. Moderately distinct to faint, slightly distorted to very distorted streaks, stringers and laminations; common very irregular loop structures in lower part. Very irregular thick parting; conchoidal to very irregular fracture. Some fine dark gray to black gritty blebs in middle part. Some very irregular partly open natural fractures. A very irregular vuggy limonite-stained parting surface with some gray to black gritty material at 1176.5 feet.
1176.8	1179.0	Oil shale: dark to medium brownish gray (10YR 2/2-4/2); some satiny to rare resinous luster. Very faint to faint, fairly smooth to some very distorted streaks and stringers; a 0.1-foot zone of very wavy disharmonic laminations at 1177.7 feet. Irregular thick parting; irregular to conchoidal fracture. Some fine dark brownish gray silty-textured crystalline streaks and stringers. Some fine milky white crystalline blebs with black bitumen at 1178.0 to 1178.1 feet. Rare irregular fine-grained pyrite streaks. Some very irregular fairly tight natural fractures in upper part. [Sample of shale with bitumen-impregnated crystalline blebs from 1178.0 feet: X-ray - quartz; trace albite, dolomite.
1179.0	1180.4	Oil shale: dark brownish gray and rare brownish black (10YR 2/2-3/2, rare 1/2); some satiny to resinous luster. Very faint distorted to smooth laminations; very common fine loop structures in lower part. Irregular to fairly smooth thick parting; slightly irregular to conchoidal fracture. Rare fine irregular silty-textured crystalline streaks and stringers in upper part. A very thin irregular pinched out brownish gray silty-textured stringer at 1180.2 feet. [Sample of shale with fine dark brownish gray silty-textured crystalline streaks and stringers from 1179.2 feet: X-ray - quartz, ferroan, albite, dawsonite, dolomite, nahcolite, pyrite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1180.4	1185.5	Oil shale: dark to medium brownish gray (10YR 3/2-4/2). Very faint slightly distorted to smooth laminations and streaked bedding. Fairly smooth to irregular, thick to rare medium parting; smooth to conchoidal fracture. Some tight to slightly open natural vertical and diagonal fractures with vitreous black bitumen coatings at 1182.5 to 1182.8 feet; some fairly tight diagonal fractures with very slight chalky white coatings in lower 0.2 foot.
1185.5	1186.6	Oil shale: medium brownish gray and brown to tan (10YR 4/2 & 4/3-6/3). Faint to moderately distinct, very smooth to slightly distorted laminations; some fine loop structures in lower part. Fairly smooth to irregular, medium to thick parting; slightly irregular fracture. Rare fine dark gray silty-textured pyritic streaks. Some very fine short tight natural vertical fractures.
1186.6	1188.0	Oil shale: medium to dark brownish gray and brown, some brownish black (10YR 5/2 & 5/3-2/2, some 1/2); some satiny to waxy luster. Moderately distinct to faint, very irregular and distorted to contorted and broken laminations; common loop structures. Very irregular thick parting; conchoidal to very irregular fracture. Some thin irregular zones with common fine gray to black gritty pyritic stringers. Some very irregular open fractures in lower part.
1188.0	1189.0	Oil shale and marlstone: dark to medium reddish brown in upper half (7.5YR 3/3-5/3), medium brown to tan and buff in lower half (10YR 4/3-6/3 & 7/2, rare 8/2). Very faint contorted laminations obscured by porous fractured to finely crushed zones in upper part; very distinct distorted laminations with some large irregular loop structures (?) and displacements in lower part. Very irregular to some slightly irregular, thick to medium parting; very irregular fracture. Some very fine gray to black pyritic blebs. Very rare fine milky white crystalline blebs in lower part (like 1178.0 feet?).
1189.0	1193.0	Oil shale: medium to dark brownish gray and brown (7.5YR & 10YR 4/2 & 4/3-3/2 & 3/3, rare 5/2). Faint distorted to some slightly contorted streaks and stringers; some distinct buff earthy streaks, stringers and lenses. Very irregular parting and fracture. Very common fine cavities and small to moderately large irregular vugs with common fine gray to black pyritic blebs and some irregular coarse boxworks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of brown vuggy oil shale from 1189.4 feet: X-ray - dolomite, quartz, feldspar (Na & K); some ferroan?, dawsonite?
1193.0	1194.6	Oil shale: dark and some medium brownish gray and brown (7.5YR & 10YR 3/2-3/3, some 2/2 & 4/3). Very faint distorted streaks and stringers. Irregular parting and fracture. Very common fine irregular cavities.
		Sample of dark shale with very common fine cavities from 1194.3 feet: X-ray - dolomite, quartz, feldspar (Na & K); some pyrite, ferroan?
1194.6	1196.0	Oil shale and marlstone: medium brownish gray and brown to buff (10YR 5/2 & 5/3-8/2, rare 4/2). Very faint to faint distorted streaks, stringers and laminations; distinct coarse platy breccia with some slightly open fractures at 1195.6 to 1195.8 feet. Irregular thick to medium parting; very irregular fracture. Some tight fairly smooth natural vertical fractures. Rare fine white crystalline blebs and streaks in upper part. Rare fine buff earthy blebs. Rare thin zones with common fine cavities. Some irregular mixed up core pieces; true length doubtful.
1196.0	1197.2	Oil shale and some marlstone: medium brownish gray and brown to buff, rare dark brownish gray in middle part (10YR 4/2 & 4/3-7/2, rare 3/2 & 8/2). Distinct distorted earthy buff streaks and stringers in darker faintly streaked shale in upper part; faint fairly smooth to distorted and broken laminations in lower part. Very irregular to wavy, thick to thin parting; very irregular and some hackly fracture. <u>Common fine cavities</u> with some black pyritic blebs in upper part. Some irregular mixed up core pieces in lower part; true length doubtful.
1197.2	1197.9	Missing?
1197.9	1199.0	Oil shale: dark to medium brownish gray and brown, some tan to buff in upper part (10YR 2/2-4/2 & 4/3, some 5/3-6/3 & 7/2); some satiny luster. Faint distorted streaks and stringers; a 1-inch zone of fairly distinct slightly distorted laminations at 1198.2 feet. Wavy to very irregular thick parting; irregular to conchoidal fracture. Rare fine brownish gray silty-textured crystalline streaks in upper part. Some small to fairly large <u>irregular vugs</u> with limonite-stained earthy to gritty fillings and some fine radial platy boxworks in lower part; some pyrite blebs.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1199.0	1202.0	Oil shale: dark brownish gray (10YR 3/2-2/2); very common satiny luster. Very faint fairly smooth to some very distorted streaked bedding. Slightly irregular to very irregular thick parting; conchoidal to irregular fracture. Very rare fine pyrite blebs and small hackly patches. Fairly <u>large vugs</u> with boxworks at 1199.8, 1200.4, and 1201.6 feet. Common very irregular fine natural fractures from 1199.8 to 1200.4 feet.
1202.0	1203.0	Oil shale: dark brownish gray to brownish black, some medium brownish gray and brown in lower part (10YR 2/2-1/2, some 3/2-4/2 & 4/3); very common satiny to waxy luster. Very faint slightly distorted to contorted and brecciated laminations and streaked bedding; some fine loop structures in upper part. Very irregular thick parting; slightly irregular to very irregular fracture. Common slightly open fractures and fine irregular cavities in brecciated shale in lower part. Abrupt change to leaner shale at base. <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;"> Sample of normal resinous to waxy oil shale from 1202.2 feet: X-ray - feldspar (Na & K); quartz, dolomite; pyrite, ferroan?, nahcolite. </div>
1203.0	1204.0	Oil shale: buff and tan to medium brown (10YR 7/2 & 6/3-4/3). Faint contorted, displaced, and some brecciated to slightly distorted laminations, stringers and streaks; some very fine loop structures. Very irregular thick parting; very irregular to some conchoidal fracture. Some very open irregular fractures in upper part. Some black pyritic blebs in breccia masses.
1204.0	1205.2	Oil shale: medium to dark brown and brownish gray (10YR 4/3-3/3 & 3/2); common satiny to waxy streaks. Very faint distorted to fairly smooth streaked bedding; brecciated to finely crushed earthy buff shale from 1204.2 to 1204.5 feet. Very irregular thick parting; very irregular to slightly irregular fracture. Some irregular open to fairly tight natural fractures.
1205.2	1206.2	Oil shale: dark brownish gray to some brownish black in upper part (10YR 3/2-2/2, some 1/2), dark to medium brown in lower 0.3 foot (10YR 3/3-4/3); common satiny to waxy streaks--very waxy from 1205.7 to 1205.9 feet. Very faint fairly smooth to contorted streaked bedding and rare laminations. Irregular thick parting; irregular and rare coarse hackly fracture. Some <u>vuggy cavities</u> on side of core near base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1206.2	1207.5	Missing?
1207.5	1210.5	Oil shale: dark to medium brownish gray (10YR 3/2-4/2, rare 2/2). Very faint distorted to some contorted and brecciated streaked bedding. Very irregular parting and fracture. Common small to moderately <u>large vugs</u> with rare <u>radial boxworks</u> and some limonite-stained gray to black pyritic material. Some small irregular granular pyrite masses. Some very irregular core pieces; true length doubtful.
1210.5	1212.5	Missing?
1212.5	1213.6	Oil shale: medium brownish gray and brown to rare tan and buff (10YR 4/2 & 4/3, rare 5/2-6/3 & 7/2). Very faint fractured to brecciated streaked bedding. Very irregular parting and fracture; falls apart on splitting. Some gritty to earthy porous streaks and stringers with small bitumen-impregnated patches and very fine disseminated pyrite. Very badly broken up and mixed up; true length very doubtful.
1213.6	1215.5	Oil shale: dark brownish gray to brownish black, dark to medium brown in lower 0.4 foot (10YR 3/2-1/2, some 3/3-5/3 in lower part); common resinous and rare waxy luster. Faint very irregular, distorted and broken laminations, stringers, and streaks in upper part; very faint to some moderately distinct, brecciated to fairly smooth streaked bedding and rare laminations in lower part. Very irregular thick parting; very irregular and rare conchoidal fracture. Some <u>vuggy</u> to earthy and porous, limonite-stained <u>fracture zones</u> in upper part. Very common fine irregular cavities in lower part. Some irregular core pieces in upper part; true length doubtful.
1215.5	1216.5	Oil shale: medium brown to tan (10YR 4/3-6/3). Faint smooth to slightly distorted laminations with very common slightly open vertical fractures with displacements up to 3/8-inch. Very irregular to slightly irregular, thick to medium parting; very irregular to some conchoidal fracture. Some small to medium limonite-stained <u>vugs</u> with fine black pyritic blebs. A thin flat finely brecciated porous mass with common fine black pyritic blebs at 1215.9 feet.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1216.5	1218.0	Oil shale; medium brown to tan and some buff (10YR 4/3-6/3, some 7/2-8/2). Very faint to some distinct, distorted and broken streaks, stringers, and laminations. Very irregular to rare fairly smooth, thick to thin parting; very irregular fracture. Some parting surfaces have common fine black pyritic blebs. Some thin to fine zones with very common fine cavities. Some irregular core pieces in upper part to very badly broken up and mixed up in lower part; true length very doubtful.
1218.0	1219.0	Missing.
1219.0	1220.0	Oil shale; medium brown and brownish gray (10YR 4/3-4/2). Very faint fairly smooth to distorted streaked bedding. Irregular thick parting; irregular to conchoidal fracture. Some small to <u>fine cavities</u> and finely brecciated to earthy porous stringers with black pyritic blebs. A large irregular vug (?) near base.
1220.0	1224.0	Oil shale; medium to dark brown and brownish gray and very rare tan (10YR 4/3 & 4/2-3/3 & 3/2, rare 5/3-6/3). Very faint fairly smooth to very distorted streaked bedding. Irregular thick parting; slightly conchoidal to irregular fracture. Some to very common, fine to medium stringers and irregular masses of fine-grained crystalline <u>nahcolite</u> , some with pyrite. Some very fine disseminated pyrite and irregular blebs. <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;"> <p>Sample of oil shale with common fine disseminated pyrite from 1221.7 feet: X-ray - dolomite, feldspar (Na and K), quartz, pyrite.</p> <p>Sample of oil shale with pyrite and fine dark crystalline patches and stringers from 1223.5 feet: X-ray - dolomite, nahcolite, feldspar (Na and K), quartz; some pyrite, dawsonite.</p> </div>
1224.0	1225.3	Oil shale; medium to some dark brown and brownish gray (10YR & 7.5YR 5/3-4/3, some 3/3-3/2). Very faint to faint distorted laminations and streaked bedding. Very irregular thick parting; slightly conchoidal to very irregular fracture. Some <u>fine cavities</u> and small to large limonite-stained <u>vugs with fine platy</u> to irregular radial boxworks and pyrite rims.
1225.3	1227.6	Missing?

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1227.6	1228.9	Oil shale: medium brownish gray to brownish black (10YR 4/2-1/2); very common satiny to some resinous and waxy luster. Faint slightly distorted to smooth laminations; common loop structures and displacements. Very irregular to slightly irregular thick parting; irregular to conchoidal fracture. Some fairly tight natural diagonal fractures. A large irregular chalky to earthy buff-white mass near top.
		Sample of chalky to earthy mass from 1227.7 feet: X-ray - ferroan, sanidine, albite.
1228.9	1230.0	Oil shale: medium brownish gray and brown (10YR 4/2 & 4/3-5/2 & 5/3). <u>Very</u> faint smooth to some distorted and broken laminations and streaked bedding. Irregular thick to medium parting; conchoidal to irregular and some hackly fracture. Common thin zones with very common fine cavities and black pyritic blebs; some fine pyrite streaks and blebs in other parts. Some very open short irregular fractures.
1230.0	1231.6	Oil shale: medium brown and brownish gray to very rare tan (10YR 4/3-4/2, some 5/3, rare 6/3). Very faint fairly smooth to distorted laminations, stringers and streaks. Irregular thick parting; irregular to slight hackly fracture. Very common fine cavities and black pyritic blebs. Common powdery white streaks on sawed surfaces and outside of core.
1231.6	1232.7	Oil shale: medium brown (10YR 5/3-4/3). <u>Very</u> faint slightly distorted and some displaced streaks, stringers and rare laminations. Irregular thick parting; irregular to slight hackly fracture. Very common very fine cavities and black pyritic blebs.
1232.7	1233.4	Oil shale: medium brown to some tan and buff (10YR 4/3 & 4/4-5/4, some 6/3-8/3). Very faint to some distinct, distorted to smoothly curved streaks, stringers, and rare laminations. Irregular thick parting; irregular fine hackly fracture. Very common <u>very fine cavities</u> and fine black blebs.
		Sample of brown (10YR 4/4) very porous oil shale from 1233.1 feet: X-ray - quartz, dolomite, feldspar (K and Na); some pyrite, ferroan?

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1233.4	1234.3	Oil shale: medium brown and brownish gray to buff (10YR 5/3 & 5/2-7/2, rare 4/2). Faint very distorted to coarsely brecciated laminations and streaked bedding in upper part; faint fairly smooth laminations in lower part. Very irregular to slightly irregular thick parting; slightly conchoidal to very irregular fracture. Common large vugs with fine platy boxworks and pyritic rims in upper part. Some tight natural vertical fractures with bitumen crusts in lower part. Some very irregular core pieces; length and continuity very doubtful.
1234.3	1234.8	Missing?
1234.8	1236.2	Oil shale: medium brownish gray and brown (10YR 4/2-4/3, rare 5/3). Very faint distorted streaked bedding. Irregular thick parting; slightly irregular to slightly conchoidal fracture. Common <u>small to large vugs</u> with fine radial boxworks and very common gritty black material and pyrite in lower part.
1236.2	1238.5	Oil shale: dark and rare medium brownish gray (10YR 3/2; rare 4/2). Very faint fairly smooth streaked bedding. Irregular thick parting; slightly irregular to slightly conchoidal fracture. A <u>vuggy parting</u> surface with fine platy boxworks at base.
1238.5	1241.0	Missing?
1241.0	1242.4	Oil shale: dark to medium brownish gray and some brown (10YR 3/2-4/2, some 5/2). Very faint slightly distorted streaked bedding; slightly distorted laminations with common loop structures in lower 0.3 foot. Irregular thick parting; irregular to slightly conchoidal fracture. Some small irregular gritty gray to black pyritic masses.
1242.4	1244.4	Oil shale: medium to dark brownish gray and very rare tan (10YR 4/2-3/2, rare 5/2-6/2). Very faint to faint, smooth to some distorted laminations and streaked bedding; rare fine loop structures. Irregular thick parting; conchoidal to irregular fracture. Rare fine tight natural vertical fractures with resinous brown coatings. Rare small gray to black pyritic masses. A 2-inch very spongy zone with common pyrite at base.
1244.4	1244.9	Marlstone and oil shale: buff to medium brown and brownish gray (10YR & 2.5Y 8/2-5/3 & 5/2). Very faint slightly distorted and displaced streaked bedding to smooth laminations. Irregular to some smooth, medium to thick parting; very irregular fracture. Rare small limonite-stained gritty black pyritic masses. Very badly broken up and mixed up; true length very doubtful.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of marlstone and lean oil shale from 1244.5 feet: X-ray - quartz, dawsonite, dolomite; feldspar (K and Na), ferroan.
1244.9	1245.3	Missing?
1245.3	1252.0	Oil shale: medium to dark brownish gray (10YR 4/2-3/2). Very faint smooth to distorted streaked bedding. Irregular to some slightly irregular, thick to medium parting; slightly irregular and conchoidal to some very irregular fracture. Common irregular fine to thin buff earthy porous streaks and stringers from 1246.3 to 1248.0; some in other parts. Some to common very small to medium gritty black pyritic masses. Rare <u>large vugs</u> with irregular to radial platy boxworks.
		Sample of soft gritty black pyritic mass from 1249.8 feet: X-ray - pyrite, some dawsonite.
1252.0	1254.6	Oil shale: dark to medium and rare light brownish gray; some medium brown in upper part (10YR 3/2 & 3/1-5/2, some 4/3-5/3, rare 6/2). Faint to moderately distinct smooth laminations; some fine loop structures and displacements. Irregular to smooth thick parting; very irregular to slightly irregular and conchoidal fracture. Rare fine dark gray pyritic (?) laminae and streaks. Rare very short tight natural vertical fractures with brown to black resinous coatings. Some large irregular masses of fine lacy black pyritic stringers near top.
1254.6	1256.6	Oil shale: medium to some light and dark brownish gray (10YR & 2.5Y 5/2-4/2, some 6/2 & 3/2). Moderately distinct to faint smooth laminations; common fine loop structures and displacements. Smooth to irregular thick parting; slightly irregular to conchoidal fracture. Some fine dark gray pyritic laminae and streaks. Rare tight natural vertical fractures with brown to black resinous coatings; common fairly smooth natural (?) diagonal fractures in middle part.
1256.6	1257.2	Oil shale: dark brownish gray to dark and some medium brown (10YR 3/1-3/3, some 4/3). Very faint smooth laminations in upper part; vuggy to porous massive oil shale in lower part. Slightly irregular to very irregular, thick to medium parting; conchoidal to very irregular fracture. Common <u>small vugs</u> and fine cavities with gray to black pyritic blebs and some platy boxworks in lower part. Break in core sequence at base (ends do not match).

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1257.2	1258.2	Oil shale: medium to light brownish gray and rare tan to buff (10YR & 2.5Y 4/2-6/2, rare 6/3-7/2). Faint to some moderately distinct smooth laminations; some fine loop structures. Slightly irregular to smooth, medium to thick parting; slightly irregular to slightly conchoidal fracture. Some tight and very rare open, natural vertical and diagonal fractures.
1258.2	1259.4	Oil shale: medium and rare dark brownish gray (2.5Y & 10YR 5/2-4/2, rare 3/2). Very faint fine smooth laminations. Very smooth to irregular, thick to medium and rare thin parting; conchoidal to some irregular fracture. Some very irregular mixed up core pieces in lower part; true length doubtful.
1259.4	1260.7	Missing?
1260.7	1262.0	Oil shale and some marlstone: dark brown to buff (10YR 3/3-7/2). Massive to very faint slightly distorted and some broken streaked bedding in upper part; distinct distorted and broken laminations, stringers, and streaks in lower part. Irregular thick to medium parting; slightly irregular to very irregular fracture. Very common <u>very fine cavities</u> and some irregular open fractures in upper part; common irregular thin spongy fractured to finely brecciated zones in lower part. Some gray to black pyritic blebs in lower part.
1262.0	1266.0	Oil shale: medium brownish gray, some medium brown in upper and lower parts (10YR 4/2, some 4/3-5/3). Very faint slightly distorted streaked bedding. Irregular thick parting; slightly irregular fracture. Common fine to small black pyritic blebs and streaks.
1266.0	1267.3	Oil shale: medium to dark brownish gray (10YR 4/2-3/2, some 2/2 near base). Very faint slightly distorted to smooth streaked bedding. Slightly irregular thick parting; slightly irregular to conchoidal fracture. Some <u>very fine disseminated crystals</u> in lower part.
1267.3	1268.0	Oil shale: medium and rare dark brownish gray (10YR & 2.5Y 5/2-4/2, rare 3/2). Faint slightly distorted to smooth streaked bedding and some laminations. Slightly irregular to very irregular thick parting; slightly conchoidal to irregular fracture. Some moderately large irregular porous masses with common fine disseminated crystals, <u>small drusy cavities</u> and lacy black pyritic rims in lower part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of large crystalline mass from 1267.7 feet: X-ray - dawsonite, cryolite; some quartz, dolomite?
1268.0	1269.0	Missing?
1269.0	1271.8	Oil shale: dark to medium brownish gray and some medium brown (10YR 3/2-4/2, some 4/3, rare 5/2-5/3). Very faint smooth to slightly distorted streaked bedding and rare laminations. Irregular thick to medium parting; irregular to slightly conchoidal fracture. Common very fine disseminated crystals. Some fine black pyritic blebs and streaks. Some tight natural vertical and diagonal fractures in upper part.
1271.8	1272.4	Oil shale: light to dark brownish gray and brown (10YR & 2.5Y 6/2-3/2 & 3/3, rare 2/2 lower part). Massive to faint contorted streaks, stringers, and laminations. Very irregular and rare slightly irregular thick parting; very conchoidal to very irregular fracture. Some small black pyritic blebs in upper part. A smooth vertical fracture with fine resinous black to brown crusts in upper part. Some very irregular cavities in lower part. Irregular discontinuous core pieces; true length doubtful.
1272.4	1274.4	Missing?
1274.4	1276.0	Oil shale: medium to dark brownish gray and brown (10YR 4/2 & 4/3-3/2 & 3/3). Very faint distorted streaked bedding. Very irregular thick parting; slightly irregular to very irregular fracture. Common <u>small irregular cavities</u> and some large vugs with irregular boxworks. Common fine black pyritic blebs and streaks.
1276.0	1278.0	Oil shale: dark brownish gray and brown (10YR 3/2-3/3). Very faint slightly distorted streaked bedding. Irregular thick parting; irregular to fairly smooth fracture. Common very small cavities, pyritic blebs and rare small to medium vugs in upper part. Some brownish black resinous streaks at 1277.3 feet. Some <u>very</u> fine disseminated crystals in lower part.
		Sample of shale with very fine disseminated crystals from 1277.5 feet: X-ray - quartz, dolomite, dawsonite; some feldspar (K and Na), ferroan.
1278.0	1278.5	Missing?
1278.5	1280.8	Oil shale: dark to some medium brownish gray and brown (10YR 3/2-3/3, some 4/2-4/3, rare 5/3). Very faint distorted streaked bedding. Very irregular thick parting; irregular fracture. Common <u>very</u> fine disseminated crystals. Fairly <u>common fine cavities</u> and pyritic blebs. Some small to <u>large vugs</u> with irregular to radial boxworks. Rare thin irregular brown to tan silty-textured porous stringers and lenses in lower part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1280.8	1282.0	Oil shale: medium to some dark brown and brownish gray (10YR 4/3 & 4/2-5/3, some 3/2-3/3). Very faint to faint slightly distorted streaked bedding and rare laminations. Very irregular thick to medium parting; irregular fracture. Some <u>fine cavities</u> and <u>small vugs</u> with radial boxworks and gray to black gritty pyritic material. Rare fine buff earthy porous spheres in lower part.
1282.0	1285.0	Oil shale: dark and rare medium brown (10YR 3/3, rare 4/3). Very faint distorted streaked bedding. Very irregular thick parting; very irregular to rare slightly conchoidal fracture. Common <u>fine cavities</u> and <u>small to large vugs</u> with irregular boxworks and pyritic rims.
1285.0	1286.0	Oil shale: dark to rare medium brown and brownish gray (10YR 3/3-3/2, rare 4/3 & 2/2). Very faint contorted to distorted streaked bedding. Irregular thick parting; irregular to conchoidal fracture. Rare fine black pyritic blebs.
1286.0	1286.7	Oil shale: medium brown to dark brownish gray, some brownish black in lower part (10YR 4/3-2/2, some 1/2). Very faint contorted to distorted streaked bedding with common thick to thin, brecciated to finely crushed spongy to porous zones. Very irregular thick to thin parting; very irregular fracture. Some fine gray to black pyritic blebs.
1286.7	1288.5	Oil shale: medium brown to tan and buff, rare dark brown near top (10YR 5/3-6/3 & 7/2, rare 4/3-3/3 & 8/2). Thick brown bands with <u>very</u> faint smooth streaked bedding and rare moderately distinct smooth to distorted laminations separated by common distinct thin tan to buff very porous earthy zones; common <u>very fine cavities</u> in some brown bands. Slightly irregular to some very irregular, thick to medium parting; slightly irregular to fairly smooth fracture. Rare small to moderately <u>large irregular vugs</u> . Rare very fine black pyritic blebs near base. Sample of very faintly bedded brown oil shale from 1287.7 feet: X-ray - quartz, dolomite; some dawsonite, feldspar (K and Na). Sample of buff porous earthy zone from 1287.8 feet: X-ray - dolomite, quartz, some dawsonite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1288.5	1292.8	Oil shale: medium to dark brown (10YR 4/3-3/3). Very faint slightly distorted to rare very distorted streaked bedding. Very irregular to some slightly irregular thick parting; slightly irregular fracture. Some fine to small, tan to buff lenses and streaks. Some <u>large vugs</u> and fine cavities with pyrite near top. Some very small to rare large irregular masses of dark brown coarsely-crystalline nahcolite from 1289.3 to 1292.6 feet; smaller masses commonly have very pyritic rims. A large massive very fine grained nahcolite lens at 1290.6 feet. Sample of shale with very small nahcolite masses from 1290.3 feet: X-ray - quartz; some dolomite, dawsonite, feldspar (K and Na), pyrite, nahcolite? Sample of massive fine grained nahcolite lens from 1290.6 feet: X-ray - nahcolite.
1292.8	1295.6	Oil shale: medium brown to rare tan and buff (10YR 4/3, some 5/3, rare 6/3-7/2). Faint distorted streaked bedding. Very irregular thick parting; slightly irregular to very irregular fracture. Very common very small to large vugs with irregular to radial boxworks; common black pyritic material--especially in smaller vugs. Some fine tan to buff lenses, streaks, and stringers.
1295.6	1306.5	Missing?
1306.5	1308.2	Oil shale and marlstone: medium brownish gray and brown to buff (2.5Y & 10YR 5/2 & 5/3-7/2, some 4/2, rare 8/2). Very faint to some distinct, distorted to contorted and broken streaks and stringers. Very irregular parting and fracture. Common <u>large irregular vugs</u> and vuggy fractured zones. Some gray to black pyritic (?) material. Very irregular to badly broken up and mixed up core pieces; true length very doubtful.
1308.2	1309.8	Oil shale: medium to dark brown and brownish gray, rare tan to buff in upper and lower parts, rare brownish black in middle part (10YR 4/3-2/2, some 5/3, rare 6/3-7/2 & 1/2); some resinous luster in middle and lower parts. Faint to distinct, fairly smooth laminations to slightly distorted streaks and stringers; some irregular loop structures. Slightly irregular thick parting; slightly irregular fracture. Some <u>very</u> fine disseminated crystals in middle and lower parts. Some small irregular gray to black gritty pyritic masses near base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of dark brownish gray to brownish black oil shale with some very fine disseminated crystals from 1308.9 feet: X-ray - quartz, sanidine; some ferroan, pyrite, dolomite, dawsonite.
1309.8	1311.2	Oil shale: tan and rare buff to medium brown (10YR 6/3-5/3, rare 7/2-7/3). Faint contorted and brecciated to smooth laminations and streaked bedding. Very irregular to slightly irregular thick parting; very irregular to slightly conchoidal fracture. Fairly tight to spongy breccia and open fractures in upper part with some gritty black masses. Tight vertical to diagonal fractures in middle part.
		Sample of tan to medium brown oil shale from 1311.1 feet: X-ray - quartz, dolomite; some dawsonite, feldspar (K and Na).
1311.2	1312.4	Oil shale: tan to medium brown and some dark brownish gray (10YR 6/3-4/3, some 3/2). Moderately distinct slightly distorted laminations and streaks with common small to moderately large loop structures and displacements; some thick laminated to very faintly bedded dark zones. Slightly irregular to irregular thick parting; slightly conchoidal to irregular fracture. Some <u>very</u> fine disseminated crystals.
1312.4	1313.4	Oil shale: medium to dark brown and brownish gray, some light brownish gray and rare tan (10YR & 7.5YR 4/3 & 4/2-2/2, some 5/3-6/2, rare 3/2). Faint distorted and broken streaks and stringers to very faint smooth streaked bedding. Very irregular to slightly irregular thick parting; very irregular and rare coarse hackly to fairly smooth fracture. Fractured to finely crushed shale near top with common fine gray to black blebs and stringers. Very common very fine cavities and black blebs in lower part. Very rare <u>very small vugs</u> with gray to black blebby rims.
1313.4	1316.5	Oil shale: medium to dark brownish gray (10YR 4/2-3/2). Very faint smooth to some distorted streaked bedding. Irregular thick parting; slight hackly fracture near top; smooth to slightly irregular fracture in other parts. Some to very common very fine disseminated crystals. Some fine to large irregular dark gray to brownish gray massive fine crystalline nahcolite (?) lenses, stringers, and streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		<p>Sample of oil shale with very common fine disseminated crystals from 1314.8 feet: X-ray - quartz, dolomite; some K-feldspar, dawsonite, ferroan, nahcolite, pyrite?</p> <p>Sample of irregular massive gray fine grained crystalline stringer from 1315.4 feet: X-ray - nahcolite, pyrite; some quartz, dawsonite, dolomite?</p>
1316.5	1320.5	Oil shale: medium to dark brownish gray and some brown (10YR 4/2-3/2, some 4/3, rare 5/3 & 2/2). Very faint smooth to slightly distorted streaked bedding and rare laminations. Slightly irregular to irregular thick parting; fairly smooth to slightly irregular and some hackly fracture. Common very fine disseminated crystals in upper part; common very fine cavities in lower part. Rare fine black blebby pyritic streaks and stringers. Very rare small coarsely crystalline nahcolite masses in upper part.
1320.5	1322.5	Oil shale: medium brown and some tan to dark brownish gray and rare brownish black (10YR & 2.5Y 5/3-2/2, some 6/3, rare 1/2); some resinous and rare waxy luster. Faint to fairly distinct distorted streaks, stringers, and laminations; an intricately contorted and displaced overturned fold at 1321.2 feet (unconformable contact at base); common small displacements and irregular loop structures in lower part. Very irregular to slightly irregular thick parting; irregular fracture. Some vuggy to spongy parting surfaces with common gray to black blebs.
1322.5	1323.6	Oil shale: medium to rare dark brown (10YR 5/3-4/3, rare 3/3). Faint distorted to fairly smooth streaked bedding. Irregular thick parting; slightly irregular fracture. Rare fine irregular granular crystalline streaks near top. A vuggy parting surface with common gray to black blebs at base.
1323.6	1324.6	Oil shale: tan to medium brownish gray and brown (2.5Y 6/3-4/2 & 4/3). Massive to very faintly bedded in upper part; distorted to smooth streaked bedding in lower part. Very irregular thick parting; very irregular to conchoidal fracture. Some irregular natural open fractures and limonite-stained black blebby masses in upper part. Very irregular core pieces in upper part; true length doubtful.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1324.6	1325.8	Oil shale: medium to rare light and dark brownish gray (2.5Y & 10YR 5/2-4/2, rare 6/2 & 3/2). Very faint smooth to slightly distorted streaked bedding in upper part; faint smooth laminations with common fine loop structures in lower part. Slightly irregular to smooth thick parting; slightly irregular and conchoidal to smooth fracture. Very rare fine black pyrite blebs and streaks.
1325.8	1326.8	Oil shale: light to medium brownish gray (2.5Y & 10YR 6/2-4/2). Faint smooth lamination; common fine loop structures and displacements. Smooth to slightly irregular thick parting; slightly conchoidal to very smooth fracture.
1326.8	1327.8	Oil shale: medium brownish gray and brown to rare tan (10YR 5/2 & 5/3-4/2 & 4/3, rare 6/3). Faint smooth to some distorted laminations; very common loop structures and displacements. Fairly smooth to irregular thick parting; smooth to irregular and conchoidal fracture. Some irregular dark gray discolored mottling at 1327.0 to 1327.2 feet. A large irregular limonite-stained vug with common fine black blebs at base.
1327.8	1330.9	Missing?
1330.9	1332.2	Oil shale: medium and rare dark brown to tan and some buff (10YR 4/3-6/3, some 7/2, rare 3/3); very rare satiny to resinous luster. Very faint to fairly distinct, distorted to smooth streaked bedding and some laminations. Very irregular thick parting to thin smoothly curved shaly and papery parting; very irregular to very hackly fracture. Some irregular vugs and open fractures with blebby to gritty black material. Very common very fine dawsonite (?) crystals and fine cavities in papery shale near base. Very irregular mixed up core pieces; true length very doubtful. Sample of buff earthy papery shale from 1332.0 feet: K-ray - quartz, dolomite, dawsonite, some K-feldspar.
1332.2	1333.2	Oil shale: medium brown and very rare dark brownish gray (10YR 4/3, rare 3/2); some very fine satiny to waxy streaks. Very faint smooth streaked bedding; rare fine tan to brown cross-laminated shreds. Fairly smooth to irregular thick parting; hackly fracture. Some to common very fine disseminated crystals. Common very fine black blebs on some parting surfaces.
1333.2	1335.4	Oil shale: dark to medium brownish gray (10YR 3/2-4/2, very rare 5/2); common resinous to waxy streaks. Very faint

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		fairly smooth streaked bedding (distinct on sawed surfaces); some very faintly laminated shreds. Irregular thick parting; slightly irregular fracture. Rare very pyritic gray to black silty-textured patches on parting surfaces.
1335.4	1337.1	Oil shale: medium to rare dark brown and brownish gray, some tan and rare buff in lower part (10YR 5/3-4/3 & 4/2, some 6/3, rare 2/2 & 7/2); rare satiny to resinous streaks. Faint to moderately distinct, fairly smooth to distorted streaked bedding. Irregular thick parting; irregular to slight hackly fracture. Common very fine cavities and some very fine disseminated crystals. Some very small and rare large vugs with radial box-works. Very rare fine gray silty-textured lenses and streaks.
1337.1	1338.4	Oil shale: medium to rare dark brownish gray and brownish black (10YR 4/2, rare 3/2-1/2); some fine resinous to waxy streaks. Faint distorted to broadly curved streaked bedding. Irregular thick to medium parting; irregular fracture. A thin spongy contorted and brecciated zone at top. A very large coarsely crystalline radial nahcolite mass in lower part with some fine shale partings and black pyritic rims. Sample of nahcolite mass from 1338.2 feet: X-ray - nahcolite; some calcite, dawsonite, quartz?
1338.4	1343.1	Oil shale: dark to medium brownish gray and rare brownish black (10YR 3/2-4/2, rare 2/2-1/2); some to very common fine resinous to waxy streaks. Very faint fairly smooth streaked bedding. Irregular thick parting; slightly irregular fracture. Common very fine disseminated crystals and crystalline streaks. Sample of shale with very fine crystals and crystalline streaks from 1341.3 feet: X-ray - quartz, dawsonite, dolomite; some K-feldspar, pyrite.

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Laramie Petroleum Research Center, Laramie, Wyoming

October 14, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1343.1	1343.8	Nahcolite and some oil shale: very dark brown to pale yellow and rare colorless nahcolite. Coarsely crystalline nahcolite (some radiating) with very irregular stringers of dark to medium brownish gray oil shale. Common resinous to waxy luster in shale at top. Very irregular parting and fracture. Sample from center of radiating nahcolite mass at 1343.2 feet: X-ray - nahcolite; some quartz, dawsonite?, siderite?
1343.8	1345.0	Oil shale: dark to some medium brownish gray and brown (10YR 2/2-3/2 & 3/3, some 4/2-4/3); very common resinous to waxy luster in upper 0.3 foot; common satiny and some resinous luster in lower part. Faint very distorted to fairly smooth laminations and streaked bedding; common moderately large irregular loop structures near top. Very irregular to slightly irregular thick parting; slightly irregular fracture. Some coarsely crystalline nahcolite and black pyritic material on parting surfaces at top and at 1344.1 feet. Some very fine disseminated crystals in middle part.
1345.0	1346.4	Oil shale: medium and some dark brownish gray and brown to rare tan and buff (10YR & 2.5Y 4/2 & 4/3-5/2 & 5/3, some 3/2-3/3, rare 6/3-7/3); some satiny to resinous luster in upper part. Distinct to very faint, fairly smooth to distorted laminations, stringers, and streaks; some small to fine irregular loop structures and displacements. Slightly irregular to irregular thick parting; slightly irregular fracture. Some very fine disseminated crystals and crystalline streaks.
1346.4	1347.4	Oil shale: medium and very rare dark brown and brownish gray (10YR & 2.5Y 5/3-4/3 & 4/2, rare 3/2); rare fine satiny to resinous streaks and stringers. Very faint to faint, distorted to slightly contorted streaked bedding. Irregular thick parting; irregular and some hackly fracture. Some very fine disseminated crystals and crystalline streaks. A large coarsely crystalline radial nahcolite mass with fine black pyritic rims at 1347.0 feet. Some fine buff streaks or shreds in middle part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1347.4	1351.0	Oil shale: medium and rare dark brownish gray and brown (10YR 4/2-4/3, rare 3/2-2/2); some to fairly common fine resinous to waxy streaks and stringers. Faint distorted streaked bedding. Irregular thick parting; slightly irregular to hackly fracture. Some to common very fine disseminated crystals and crystalline streaks. Some fine to thin buff earthy streaks and lenses.
1351.0	1352.0	Oil shale: medium to dark brownish gray and brown, rare brownish black (10YR 4/2 & 4/3-3/2 & 3/3, rare 2/2-1/2); very common fine resinous to waxy streaks. Faint distorted streaked bedding. Irregular thick parting; slightly irregular fracture. Some fine to medium buff earthy streaks, stringers, and lenses--some with faint internal laminations.
		Sample of buff earthy stringer from 1351.9 feet: X-ray - dolomite, some calcite.
1352.0	1352.9	Oil shale: dark brownish gray and brown to rare brownish black (10YR 3/2 & 3/3-2/2, rare 1/2); common waxy luster near top; common resinous luster in other parts. Very faint fairly smooth to distorted laminations and some very distorted streaked bedding; common fine to moderately large loop structures. Slightly irregular thick to medium parting; slightly irregular and rare slight hackly fracture. Some very irregular fine black silty-textured pyritic stringers in zones with distorted streaked bedding. Rare <u>very</u> fine disseminated crystals. Some fine tan earthy streaks and lenses in lower part.
1352.9	1353.6	Oil shale: dark and some medium brownish gray to rare brownish black (10YR 3/2-2/2, some 4/2, rare 1/2); common satiny to resinous luster. Very faint to faint, fairly smooth and some distorted laminations; common fine to small loop structures. Slightly irregular to irregular thick parting; fairly smooth to slightly irregular fracture. Rare very fine disseminated crystals. Some very irregular very fine lacy black silty-textured pyritic stringers in locally distorted and displaced laminations at top.
1353.6	1354.2	Oil shale: dark brownish gray to medium brown, very rare brownish black in upper part (10YR 3/2-5/3, rare 5/2 & 1/2); some satiny luster. Distinct to faint distorted streaks, stringers, and some laminations; some very irregular small to fine loop structures and displacements. Rare fine dark gray to black pyritic blebs in lower part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1354.2	1355.3	Oil shale: medium brown (10YR & 2.5Y 5/3, rare 4/3). <u>Very faint</u> fairly smooth to slightly contorted streaked bedding. Slightly irregular to very irregular thick parting; slightly conchoidal to irregular fracture. Rare to very common fine to <u>small cavities</u> with gray to black, gritty to blebby material; part of a large vug at 1354.8 feet. Rare very fine disseminated crystals in upper part.
1355.3	1356.4	Oil shale: medium brown (10YR 5/3-4/3); some very fine dark satiny to resinous streaks. Faint fairly smooth to distorted streaked bedding. Irregular thick parting; slightly irregular to some slight hackly fracture. Some thin zones with <u>common fine cavities</u> and gritty black material. Rare very fine disseminated crystals. <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;"> Sample of shale with fine cavities and gritty black material from 1356.1 feet: X-ray - quartz; some dawsonite, dolomite, K-feldspar, pyrite. </div>
1356.4	1357.3	Nahcolite and oil shale: very dark brown to honey-colored and rare colorless nahcolite. Fairly coarse individual nahcolite crystals with very fine interstitial partings to thin irregular stringers of medium to dark brown oil shale. Irregular parting and fracture. <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;"> Sample of nahcolite with very fine interstitial shale partings from 1357.2 feet: X-ray - nahcolite; some quartz, dolomite?, calcite?, dawsonite? </div>
1357.3	1358.8	Oil shale and nahcolite: medium to dark brown oil shale (10YR 4/3-3/3, rare 5/3); some very fine dark satiny to resinous streaks. Faint fairly smooth to slightly distorted and broadly curved streaked bedding. Very irregular thick parting; irregular and some hackly fracture. A 0.6-foot (?) coarsely crystalline radiating nahcolite mass in middle (partly broken up). Some small irregular medium to fine-grained nahcolite patches in other parts. Some irregular core pieces; true length doubtful.
1358.8	1361.2	Missing?
1361.2	1361.8	Oil shale: medium to dark brown and brownish gray (10YR 4/3 & 4/2-3/2); some very fine dark satiny to resinous streaks. Faint smooth to slightly distorted streaked bedding and rare laminations. Irregular thick parting; slightly irregular fracture. A small irregular black pyritic mass at 1361.5 feet.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1361.8	1362.8	<p>Nahcolite: very dark brown to honey colored and rare colorless. Medium to very coarsely crystalline; radiating in upper half to irregularly oriented in lower half. Common fine interstitial shale partings. Fine gritty black rims at top and bottom.</p> <p>Sample of nahcolite with some gritty black material from 1361.8 feet: X-ray - nahcolite, some quartz?</p> <p>Sample of large colorless transparent nahcolite crystals from 1362.3 feet: X-ray - nahcolite.</p>
1362.8	1363.8	<p>Oil shale: medium to dark brown and brownish gray (10YR 4/3 & 4/2-3/2, some 5/3 lower part); some very fine dark satiny to waxy streaks. Faint distorted to fairly smooth streaked bedding. Slightly irregular to very irregular thick parting; irregular fracture. Some fine to small black pyritic masses. Rare very fine disseminated crystals. A 3-inch radiating nahcolite mass near base.</p>
1363.8	1365.8	<p>Oil shale: medium to rare dark brown and brownish gray (10YR 5/3-4/3 & 4/2, rare 3/2); some very fine dark satiny to resinous streaks. Faint fairly smooth to some very distorted streaked bedding. Irregular thick parting; irregular fracture. Some very fine disseminated crystals and fine cavities with pyritic material. Rare small to moderately large vugs with irregular boxworks.</p>
1365.8	1366.8	<p>Oil shale: medium brown to tan, rare dark brown near top (10YR 4/3-6/3, rare 3/3); rare very fine dark satiny to resinous streaks. Faint to moderately distinct, distorted to contorted streaks and stringers. Very irregular thick parting; irregular fracture. Some very fine disseminated crystals. Some fine cavities to large vugs with black pyritic (?) rims.</p>
1366.8	1367.8	<p>Oil shale: medium to some dark brown and brownish gray (10YR 5/3-4/3, some 3/3-3/2 lower part); common fine dark satiny to waxy streaks near base. <u>Very</u> faint distorted streaked bedding in upper part; faint distorted to contorted streaked bedding and rare laminations in lower part. Slightly irregular to very irregular thick parting; fairly smooth to irregular fracture. Some thin zones of fine spongy breccia with fine black blebs in upper part. Some large irregular limonite-stained vugs with gray to black blebby rims in lower part. Rare very fine disseminated crystals. Some irregular core pieces; length and continuity doubtful.</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1367.8	1368.9	Oil shale: brownish black to dark and rare medium brownish gray and brown (10YR 1/2-3/2 & 3/3, rare 4/2); very common resinous and some waxy luster. Faint to <u>very faint</u> , slightly distorted to very smooth laminations and streaked bedding; very common fine loop structures and displacements. Regular thin wavy parting near top, irregular thick parting in other parts; irregular fracture. Some <u>small cavities and vuggy parting surfaces near top.</u> Sample of very rich resinous to waxy oil shale from 1368.4 feet: X-ray - quartz, dawsonite; some dolomite, pyrite.
1368.9	1370.5	Oil shale: medium to some dark brownish gray and rare tan to buff (2.5Y & 10YR 5/2-4/2, some 3/2, rare 2/2 & 6/3-7/2); some satiny to resinous luster in upper 0.9 foot and near base. Distinct to some very faint, fairly smooth to distorted laminations, stringers, and streaks; some fine to large very irregular loop structures and displacements. Slightly irregular to irregular thick parting; irregular fracture. Rare very fine disseminated crystals. Sample of lean oil shale with rare very fine disseminated crystals from 1370.0 feet: X-ray - quartz, dolomite, dawsonite; some K-feldspar, pyrite, calcite?
1370.5	1372.0	Oil shale: dark brownish gray (10YR 3/2-2/2); some fine satiny to waxy black streaks. Very faint fairly smooth streaked bedding. Irregular thick parting; slightly irregular fracture. Rare very fine disseminated crystals. A small brown massive horizontal curved tubular mass with some <u>very fine</u> crystalline stringers at 1370.9 feet (lens-shaped in cross section). Sample of small brown tubular mass from 1370.9 feet: X-ray - apatite.
1372.0	1372.8	Oil shale: dark to medium brownish gray, some brown to rare tan in lower part (2.5Y 2/2-5/2, some 10YR 4/3 & rare 5/3-6/3). Faint fairly smooth to very distorted streaked bedding. Irregular thick parting; slightly irregular fracture. Some very fine disseminated crystals and crystalline streaks in lower part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1372.8	1379.0	Oil shale: dark and rare medium brownish gray (10YR 3/2, some 2/2, rare 4/2); common very fine satiny to waxy streaks. Very faint fairly smooth streaked bedding. Irregular thick parting; slightly irregular fracture. Rare very fine disseminated crystals. Rare small brown to tan lenses and streaks. Rare fish scales on parting surfaces. A diagonal fracture with white nahcolite crusts from 1373.9 to 1374.4 feet. [Sample of white crusts from diagonal fracture from 1374.1 to 1374.3 feet: X-ray - nahcolite; some quartz?
1379.0	1381.0	Oil shale: dark to medium brownish gray (10YR 3/2-4/2, some 5/2). Faint smooth laminations and streaked bedding. Slightly irregular to very smooth, thick to thin shaly and rare papery parting; fine hackly to some fairly smooth fracture. Very common fine disseminated crystals and crystalline streaks. [Sample of papery shale with common fine crystalline streaks from 1380.1 feet: X-ray - calcite, quartz; some K-feldspar, dolomite, pyrite.
1381.0	1384.0	Oil shale: dark brown and brownish gray to some brownish black (10YR 3/3-2/2, some 1/2); very common resinous to waxy luster--especially in middle part. Very faint smooth to some distorted laminations and streaked bedding; some small to fairly large loop structures. Fairly smooth to irregular thick parting; slightly irregular fracture. Rare fine to small, brown to buff blebs, lenses, and streaks--some with brown to colorless crystalline centers. Rare very fine disseminated crystals in upper and lower parts. Rare fish scales and other fossil fragments. [Sample of very rich waxy oil shale from 1382.6 feet: X-ray - quartz, K-feldspar, dawsonite, dolomite, calcite, pyrite, "halo."
1384.0	1387.9	Oil shale: dark brownish gray to some brownish black (10YR 3/2-2/2, some 1/2); very common satiny to resinous and some waxy luster--especially in lower part. Very faint smooth to distorted laminations and streaked bedding; rare fine to moderately large loop structures and displacements. Fairly smooth to irregular thick parting; slightly irregular fracture. Rare very fine disseminated crystals. Rare fine tan to buff lenses with crystalline centers near base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1387.9	1388.9	Oil shale: dark brown and brownish gray to very rare brownish black (10YR 3/3-3/2, rare 2/2-1/2); very common satiny to resinous luster. <u>Very</u> faint slightly distorted streaked bedding. Irregular thick parting; slightly irregular to conchoidal fracture. Rare fine tan to buff streaks, lenses, and stringers. Very rare small colorless crystalline blebs. Sample of tan to buff lenses and stringers from 1388.8 feet: X-ray - dolomite; some quartz, dawsonite, feldspar (K and Na), calcite.
1388.9	1390.1	Oil shale: dark brown and brownish gray (10YR 3/3 & 3/2-2/2); common satiny to resinous luster. Very faint very distorted streaked bedding. Very irregular thick parting; irregular fracture. Common fine to moderately large irregular streaks and patches of fine to coarse crystalline nahcolite. Some fine, medium brown to buff lenses and streaks.
1390.1	1391.4	Nahcolite and some oil shale: very dark brown to honey-colored and rare colorless nahcolite. Very thick massive bands of fine to rare coarse crystalline nahcolite with some fine to thin streaks and stringers of dark brownish gray and brown oil shale. Irregular thick parting; slightly irregular fracture. Sample of nahcolite from top of thick massive band from 1390.1 feet: X-ray-nahcolite; some quartz?, siderite?
1391.4	1392.5	Oil shale and nahcolite: dark to medium brown oil shale (10YR 3/3-4/3); some satiny to resinous luster and fine waxy black streaks. Faint contorted streaks, stringers, and rare laminations; rare irregular loop structures. Very irregular thick parting; very irregular to conchoidal fracture. Common nahcolite in large irregular medium-grained structureless masses and very coarsely crystalline radiating masses. Sample from center of large radiating nahcolite mass from 1392.2 feet: X-ray - nahcolite, some quartz?
1392.5	1393.2	Oil shale: medium to very rare dark brown (10YR 5/3-4/3; rare 3/3); very rare satiny luster. <u>Very</u> faint slightly distorted to contorted and displaced streaked bedding. Irregular thick parting; slightly conchoidal fracture.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1393.2	1395.0	Oil shale and nahcolite: medium brown to some tan and buff oil shale (10YR 5/3-4/3, some 6/3-7/2). Moderately distinct to very faint contorted laminations, stringers, and streaks with large irregular loop structures in upper part; <u>very</u> faint distorted streaked bedding in lower part. <u>Very</u> irregular thick parting; irregular to conchoidal fracture. Very large brownish black coarse radial nahcolite masses in upper part; medium to fine-grained massive nahcolite from 1394.1 to 1394.6 feet. Some fine disseminated nahcolite (?) crystals and small irregular patches near base. <div style="margin-left: 2em;"> Sample of medium brown shale with fine disseminated crystals from 1394.9 feet: X-ray - dolomite, quartz; some K-feldspar, dawsonite, calcite, nahcolite. </div>
1395.0	1396.5	Oil shale and nahcolite: medium brown to some dark brown and tan oil shale (10YR 5/3-4/3, some 3/3 & 6/3). Very faint to moderately distinct, distorted to slightly contorted streaks and stringers. Irregular thick parting; slightly irregular and rare coarse hackly fracture. Common small to large irregular fine to coarse crystalline nahcolite masses and stringers; common fine disseminated crystals in upper part. Rare fine buff streaks and lenses in lower part.
1396.5	1399.5	Oil shale: medium to dark brown (10YR 4/3-3/3, rare 5/3 in upper part). Very faint smooth to rare very distorted streaked bedding. Irregular thick parting; slightly irregular fracture. Some very fine disseminated crystals. Some to rare, small to fine tan marlstone lenses and streaks. A large radiating nahcolite mass in middle part. Rare fine to small dark pyritic blebs near base.
1399.5	1400.5	Oil shale and nahcolite: medium and rare dark brown oil shale (10YR 5/3-4/3, rare 3/3). Very faint very distorted streaked bedding. Very irregular thick parting; irregular and rare coarse hackly fracture. Common very irregular large fairly coarse to fine crystalline nahcolite masses and stringers.
1400.5	1402.1	Oil shale: medium to dark brown (10YR 4/3-3/3). Very faint distorted to fairly smooth streaked bedding. Irregular to slightly irregular thick parting; slightly irregular and some slight hackly fracture. Some small to fine, tan to buff marlstone lenses, streaks, and stringers. Two large medium crystalline nahcolite masses from 1400.9 to 1401.3 feet. Rare fine to small dark pyritic blebs in lower part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1402.1	1404.1	Oil shale and nahcolite: medium to some dark brown oil shale (10YR 5/3-4/3, some 3/3 lower part). Faint to very faint, distorted to contorted streaked bedding. Irregular thick parting; slightly irregular and some very slight hackly fracture. Some very large irregular to radiating nahcolite masses (up to more than 4 inches). Some tan to buff lenses, streaks, and stringers. Some very fine disseminated crystals and crystalline streaks in lower part.
1404.1	1405.3	Nahcolite and oil shale: very dark brown to rare honey-colored nahcolite. Very large (up to 6 inches) very coarsely crystalline radiating nahcolite masses with some contorted oil shale. Very irregular parting and fracture.
1405.3	1406.7	Oil shale: medium brown to some tan and buff (10YR 4/3-5/3, some 6/3-7/2). Very faint to moderately distinct streaked bedding. Irregular thick to medium parting; slightly conchoidal to slight hackly fracture. Some to common, fine to small, tan to buff marlstone streaks and lenses. Some fine black pyritic blebs. A 1-1/2-inch radiating nahcolite mass near base.
1406.7	1408.5	Oil shale and nahcolite: medium and rare dark brown and brownish gray to tan and rare buff oil shale (10YR 4/3 & 4/2-6/3, rare 3/3 & 7/2). Moderately distinct to faint contorted laminations and some streaked bedding. Very irregular to some very "curly," thick to medium parting; very irregular to very hackly fracture. Some very large (up to 6 inches) irregular to radiating coarsely crystalline nahcolite masses.
1408.5	1409.4	Oil shale: medium brown to brownish black, some tan to rare buff in upper part (10YR 4/3-1/2, some 5/3-6/3, rare 7/2); some to very common resinous to waxy luster. Distinct to very faint distorted laminations; very common small to moderately large loop structures and displacements. Irregular and some slightly "curly," medium to thick parting; hackly to slightly irregular and conchoidal fracture. A 1-inch nahcolite mass near top. Very sharp smooth contact with leaner shale below.
1409.4	1410.2	Oil shale: light to medium brownish gray and some medium brown to very rare brownish black (2.5Y 6/2-4/2, some 10YR 5/3-4/3, rare 3/3-1/2); very rare satiny to resinous laminae. Faint slightly irregular and distorted laminations; some fine to small loop structures and displacements.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1410.2	1412.2	<p>Slightly irregular to irregular thick parting; slight hackly fracture. Some irregular gray discolorations in lower part.</p> <p>Oil shale: medium to rare dark brown and brownish gray, some tan (10YR & 2.5Y 5/3 & 5/2-4/3 & 4/2, some 6/3, rare 3/3-2/2); rare satiny to waxy stringers. Moderately distinct to some very faint, contorted to slightly distorted laminations, stringers, and streaks; common very large to small irregular loop structures and displacements. Very irregular to slightly irregular thick parting; coarse hackly to irregular fracture. Some very irregular stringers, blebs, and lacy masses of brown to black, crystalline to silty-textured pyritic material. Rare gray discolorations.</p> <p>Sample of brown to black stringers in contorted shale from 1410.4 feet: X-ray - quartz; some dawsonite, cryolite, pyrite, dolomite, K-feldspar.</p>
1412.2	1412.8	<p>Oil shale and marlstone: medium brownish gray and brown to tan and buff (2.5Y & 10YR 5/2 & 5/3-6/3 & 7/2). Moderately distinct to very faint, very distorted and displaced streaks and stringers. Irregular thick parting; irregular fracture. Rare very fine gray discolored streaks. Very rare very fine transparent crystalline streaks.</p> <p>Sample of tan to buff marlstone from 1412.3 feet: X-ray - dolomite, quartz; some dawsonite, feldspar (K and Na).</p>
1412.8	1419.9	<p>Oil shale: medium to dark brown and brownish gray (10YR 4/3 & 4/2-3/3 & 3/2, rare 5/3 & 2/2); rare satiny to resinous streaks and stringers in lower half. Faint fairly smooth to distorted streaked bedding. Irregular thick parting; slightly irregular to very slight hackly fracture. A very large very coarsely crystalline radiating nahcolite mass at 1415.2 to 1415.6 feet. Very rare fine gray lenses with pyritic centers in lower part. Some fine cavities and vuggy parting surfaces near base. Core ends do not fit at base.</p> <p>Sample of oil shale with some very fine disseminated crystals from 1413.2 feet: X-ray - quartz, dawsonite, dolomite; some K-feldspar, pyrite.</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1419.9	1421.4	Oil shale: medium brown to tan and rare buff (10YR 5/3 & 5/4-6/3, rare 7/3 & 4/3). Faint fairly smooth laminations to distorted streaks and stringers; common small to fine loop structures and displacements in upper part. Irregular to fairly smooth thick parting; irregular to conchoidal fracture. Very vuggy parting surfaces with gray to black pyritic material at top and bottom. Some irregular broken up core pieces in lower part; length and continuity with richer shale above and below doubtful.
1421.4	1428.1	Oil shale: dark brownish gray, some medium brownish gray and brown at 1426.8 to 1427.1 feet (10YR 3/2-2/2, some 4/2-4/3). <u>Very</u> faint fairly smooth and rare distorted streaked bedding. Irregular to some slightly irregular thick parting; slightly irregular fracture. Some <u>very</u> fine disseminated crystals. Rare very irregular medium to thin, dark brownish gray to black, fine crystalline to blebby pyritic stringers.
1428.1	1430.0	Nahcolite and some oil shale: brownish black to some amber and honey-colored nahcolite; dark brownish gray and brown oil shale (10YR 2/2-3/2 & 3/3) with some satiny luster. Very large irregular masses of medium to very coarse crystalline nahcolite with contorted and broken oil-shale stringers; mostly oil shale in lower 0.3 foot. Irregular parting and fracture.
Footage adjusted from 1430.0 to 1440.0 feet to distribute error. Box 113 (marked 1433.0 to 1438.0 feet) contains 6.0 feet of core.		
1430.0	1433.0 (3.3 feet)	Oil shale: dark brownish gray, some medium brownish gray and brown in lower 0.4 foot (10YR 2/2-3/2, some 4/2-4/3 & 5/3). <u>Very</u> faint slightly distorted to fairly smooth streaked bedding. Irregular thick parting; slightly irregular to slightly conchoidal fracture. Very rare small black pyritic blebs and streaks.
1433.0	1434.9 (2.1 feet)	Nahcolite and oil shale: brownish black to amber and rare colorless nahcolite; dark brownish gray and brown to brownish black oil shale (10YR 3/2 & 3/3-1/2) with common satiny to resinous luster. Very large irregular to radiating masses of very coarse to rare fine crystalline nahcolite with very thick contorted to distorted oil-shale stringers. Very irregular thick parting; irregular to conchoidal fracture. Upper half mostly nahcolite; lower half mostly oil shale.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1434.9	1436.0 (1.2 feet)	Oil shale: medium brown and brownish gray to tan and buff (10YR 4/3 & 4/2-6/3 & 7/2, some 4/4-6/4 lower part). Faint to distinct, fairly smooth to distorted laminations and some streaked bedding; common fine to small loop structures and displacements. Slightly irregular thick parting; slightly irregular fracture. A fairly large brownish gray fine-grained crystalline lens with very pyritic black rims at 1435.2 feet. Sample of crystalline lens from 1435.2 feet: X-ray - nahcolite, quartz, norsethite, dawsonite, cryolite, dolomite.
1436.0	1438.5 (2.7 feet)	Oil shale and nahcolite: buff and tan to medium and rare dark brown (10YR 7/2 & 6/3-4/3 & 4/4, rare 3/4). Distinct to some very faint, contorted to rare slightly distorted (at base) laminations, stringers, and streaks; common fine to rare large loop structures and displacements. Very irregular to rare slightly irregular (near base) thick parting; slightly irregular and conchoidal to very irregular fracture. Common very large to some small, very irregular and rare radiating coarsely crystalline nahcolite masses.
1438.5	1452.0	Oil shale: dark to some medium brownish gray (10YR 3/2, some 4/2, rare 3/1). <u>Very</u> faint fairly smooth streaked bedding. Irregular to slightly irregular thick parting; fairly smooth fracture. Common <u>very</u> fine disseminated crystals. Very rare small irregular gray to black very fine crystalline nodules with very pyritic rims in lower part. Very uniform, featureless section.
1452.0	1454.0	Oil shale: medium to some dark brownish gray and brown (10YR 4/2 & 4/3, some 3/2 & 3/3). <u>Very</u> faint fairly smooth streaked bedding. Irregular to some fairly regular, thick to medium parting; fairly smooth to slightly irregular fracture. Rare <u>very</u> fine disseminated crystals. A very irregular small coarsely crystalline nahcolite mass at 1453.7 feet.
1454.0	1455.0	Oil shale: medium to dark brownish gray (10YR 4/2-3/2, rare 3/1). Very faint fairly smooth streaked bedding. Slightly irregular to fairly regular thick parting; slightly irregular fracture. Rare <u>very</u> fine disseminated crystals. A very small coarsely crystalline nahcolite mass at base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1455.0	1456.0	Oil shale: dark and rare medium brownish gray (10YR 3/2-2/2, rare 4/2); rare satiny to resinous luster. Very faint smooth streaked bedding. Irregular thick to medium parting; slightly irregular fracture. Some very fine disseminated crystals.
1456.0	1457.4	Oil shale: dark brownish gray (10YR 2/2-3/2); some satiny luster. <u>Very</u> faint fairly smooth streaked bedding. Irregular thick parting; fairly smooth to slightly irregular and conchoidal fracture. Rare very fine disseminated crystals. Sample of oil shale from 1457.2 feet: X-ray - quartz; some dawsonite, dolomite, K-feldspar, pyrite.
1457.4	1458.7	Oil shale: dark brownish gray (10YR 2/2-3/2); very dense and heavy. <u>Very</u> faint very smooth laminations and streaked bedding; rare very fine loop structures and displacements. Fairly smooth to very conchoidal thick parting; slightly conchoidal fracture. Some <u>very</u> fine disseminated crystals (pyrite in part?). Rare very fine dark gray pyritic streaks. Sample of dense heavy oil shale from 1457.5 feet: X-ray - quartz; some dawsonite, K-feldspar, dolomite, pyrite.
1458.7	1459.7	Oil shale: dark brownish gray (10YR 2/2-3/2); dense and heavy; some slight satiny luster in lower part. <u>Very</u> faint smooth to slightly distorted streaked bedding and rare laminations. Fairly smooth to irregular thick parting; slightly conchoidal to slightly irregular fracture.
1459.7	1460.7	Oil shale: dark brownish gray and some brownish black (10YR 2/2-3/2, some 1/2); very common satiny to resinous and rare waxy luster. Very faint slightly contorted to fairly smooth streaked bedding; some moderately large irregular loop structures. Irregular to slightly irregular thick parting; slightly irregular fracture. Very rare fine vitreous black organic streaks.
1460.7	1464.2	Oil shale: medium and rare dark brownish gray and brown to some tan (10YR & 2.5Y 4/2 & 4/3-5/2 & 5/3, some 6/3, rare 3/2-2/2); very rare satiny to resinous luster in upper and lower parts. Very faint fairly smooth streaked bedding to moderately distinct distorted streaks and stringers; some fairly distinct slightly distorted laminations with common fine loop structures and displacements in lower part. Slightly irregular to irregular thick parting; smooth to slightly irregular and conchoidal fracture. Some very fine crystalline streaks near base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of brown to tan oil shale with very fine crystalline streaks from 1464.1 feet: X-ray - quartz, dolomite, calcite, dawsonite, feldspar (K and Na).
1464.2	1467.6	Oil shale: dark and some medium brown and brownish gray (10YR 3/3-3/2, some 4/3-4/2, rare 5/2 in upper and middle parts). <u>Very</u> faint to rare moderately distinct, smooth to slightly distorted streaked bedding. Fairly regular to irregular thick parting; slightly irregular to smooth fracture. Common very fine disseminated crystals; rare very fine crystalline streaks in lighter parts (like 1464.1 feet).
1467.6	1469.0	Oil shale: dark brownish gray (10YR 3/2, rare 2/2). <u>Very</u> faint smooth streaked bedding; a thin zone of medium brown laminations with rare loop structures at 1468.7 feet. Regular to irregular thick parting; smooth to slightly conchoidal fracture. Common very fine disseminated crystals. Rare small to fine dark brown silty-textured crystalline lenses near base.
1469.0	1470.4	Oil shale: dark brownish gray (10YR 3/2-2/2). <u>Very</u> faint smooth to slightly distorted streaked bedding. Irregular thick parting; slightly irregular fracture. Common very fine disseminated crystals and some very small dark brown crystalline blebs and lenses.
1470.4	1472.1	Oil shale: dark brownish gray to rare brownish black, some dark to rare medium brown in lower part (10YR 3/2-2/2, some 3/3, rare 1/2 & 4/3); some very slight satiny luster in middle part. <u>Very</u> faint smooth to some distorted streaked bedding; a thin zone of smooth laminations at 1471.6 feet. Irregular thick parting; slightly irregular fracture. Common very fine disseminated crystals and some very small brown crystalline blebs in upper and lower parts. Some fine tight natural vertical fractures in laminated zone at 1471.6 feet.
1472.1	1473.3	Oil shale: dark and some medium brownish gray (10YR 3/2 & 3/1-2/2 & 2/1, some 4/2-4/1; some almost neutral). <u>Very</u> faint distorted to smooth laminations and streaked bedding. <u>Very</u> regular thick to medium parting; slight hackly to slightly irregular fracture. <u>Very</u> common very fine dark disseminated crystals and crystalline streaks with some pyrite (fine striated blades and irregular stubby laths on parting surfaces). Some fine

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		tight irregular, roughly parallel natural vertical fractures with resinous brown to black coatings in upper part. A moderately large irregular massive medium brown dolomite (?) lens near top.
		Sample of shale with disseminated crystals and crystalline streaks from 1473.0 feet: X-ray - quartz, dawsonite; some K-feldspar, ferroan, pyrite.
1473.3	1474.7	Oil shale: dark and some medium brownish gray (10YR 2/2 & 2/1-3/2 & 3/1, some 4/1); some very slight satiny and very rare resinous luster. Very faint very smooth to slightly distorted laminations and streaked bedding; common small to fine loop structures and displacements in middle part. Regular to irregular thick parting; smooth to some very slight hackly fracture. Common <u>very</u> fine disseminated crystals.
1474.7	1475.2	Oil shale: dark brownish gray to brownish black, rare dark brown near base (10YR 2/2-1/2, rare 3/3); common very slight satiny luster in upper part to resinous and rare waxy luster in lower part. <u>Very</u> faint fairly smooth to distorted laminations, stringers, and streaks; some fine to small irregular loop structures and displacements. Slightly irregular thick parting; slightly conchoidal fracture. Some <u>very</u> fine disseminated crystals in upper part.
1475.2	1475.8	Oil shale: dark brownish gray and brown to some brownish black (10YR & 2.5Y 3/2-3/3, some 3/4 & 2/2-1/2); common satiny to some resinous and waxy luster. Faint distorted to some fairly smooth laminations, stringers, and streaks; some fine to moderately large irregular loop structures and displacements. Irregular to some slightly irregular thick parting; irregular fracture. Some thin brown massive to very fine crystalline stringers and lenses in upper part.
		Sample of dark brown shale with small brown crystalline lens from 1475.3 feet: X-ray - dolomite, sanidine, ferroan.
1475.8	1478.1	Oil shale: dark to some medium brownish gray and brown (10YR & 2.5Y 3/2-3/3, some 4/2-4/3 lower part); very common satiny and rare resinous luster. <u>Very</u> faint to faint, smooth to slightly distorted streaked bedding; some to common fine distinct, tan to buff marlstone (?) lenses and streaks. Slightly irregular to irregular thick parting; irregular to slightly irregular fracture. Rare very fine disseminated crystals.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1478.1	1479.2	Oil shale: medium to dark brownish gray and brown (2.5Y 4/2-3/2 & 3/1 and 10YR 4/3-5/3). Faint distorted streaks, stringers, and laminations; common fine to small irregular loop structures and displacements in lower part. Irregular thick parting; irregular and some slight hackly fracture. Very common very fine disseminated crystals and crystalline streaks. Some fine buff earthy to silty-textured crystalline blebs. Sample of brownish gray oil shale with disseminated crystals and some buff blebs from 1478.5 feet: X-ray - quartz, dawsonite, dolomite; some feldspar (Na and K), ferroan, pyrite.
1479.2	1480.2	Oil shale: medium to dark brownish gray and brown (10YR 4/2 & 4/3-3/2 & 3/3 and 2.5Y 4/2-3/2 & 3/1, rare 5/2-5/3); some resinous to waxy black laminae at 1479.6 feet. Faint to rare distinct distorted streaks, stringers, and rare laminations; some very irregular loop structures and displacements. Irregular thick parting; very slight hackly fracture. Very common very fine disseminated crystals and some fine buff crystalline blebs.
1480.2	1482.3	Oil shale: dark brownish gray and some dark brown to brownish-black (10YR 2/2 & 2/1-1/2, some 3/2-3/4 upper part); rare slight satiny luster. Very faint distorted streaked bedding to smooth laminations. Irregular to some regular thick parting; fairly smooth to irregular fracture. Common very fine disseminated crystals and crystalline streaks. Common fine tight irregular vertical fractures with resinous to vitreous black organic fillings from 1480.9 to 1482.5 feet; rare in lower part. Rare fine vitreous black organic streaks and lenses in lower part.
1482.3	1487.0	Oil shale: dark brownish gray (10YR 3/2, rare 2/2). Very faint very smooth to some slightly distorted laminations; some small displacements in lower part. Irregular to some fairly regular thick parting; irregular to slightly conchoidal fracture. Common <u>very</u> fine disseminated crystals and rare crystalline streaks. Some very fine dark gray laminae, streaks, and blebs in lower part.
1487.0	1488.0	Oil shale: dark brownish gray (10YR 3/2-2/2 & 2/1). Very faint smooth laminations; rare fine loop structures and displacements. Slightly irregular thick parting; fairly smooth to slightly conchoidal fracture. Very common very fine disseminated crystals and crystalline streaks. Some very fine dark gray to black laminae and streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1488.0	1489.0	Oil shale: dark brownish gray and rare brownish black (10YR 2/2-2/1, rare 3/2 & 1/2). Very faint smooth laminations. Irregular thick parting; slightly conchoidal to irregular fracture. Common <u>very</u> fine disseminated crystals. A 1/4-inch dark gray pyritic lamina near base.
1489.0	1493.0	Oil shale: dark brownish gray and very rare brownish black (10YR 2/2-3/2, rare 2/1-1/2). Very faint slightly distorted to smooth laminations; some very small displacements and rare fine loop structures. Irregular to some fairly regular thick parting; irregular and conchoidal fracture. Some <u>very</u> fine disseminated crystals. Very rare very short fine tight vertical fractures with resinous black coatings. A thin flat dark brown to vitreous black very fine crystalline (?) to amorphous lens at 1490.1 feet. Some very fine dark gray to black pyritic laminae and streaks in lower part. <div style="margin-left: 40px;">Sample of thin dark brown to black lens from 1490.1 feet: X-ray - cryolite.</div>
1493.0	1498.0	Oil shale: dark to medium brownish gray (10YR 3/2-4/2, some 2/2 upper part). Very faint smooth to slightly distorted laminations; common fine to some small loop structures and displacements. Irregular to some fairly regular thick parting; irregular and conchoidal to some fairly smooth fracture. Some fine gray to black pyritic blebs, streaks, and laminae. A thin irregular dark brown to black resinous streak at 1496.6 feet (like 1490.1 feet).
1498.0	1500.0	Oil shale: dark to medium brownish gray and brown (10YR 3/2 & 3/3-4/2 & 4/3, rare 5/2). Very faint smooth and rare distorted laminations; very common fine loop structures and displacements. Slightly irregular to irregular, thick and some medium parting; irregular to fairly smooth fracture. Common fine lacy dark gray to black very pyritic stringers in distorted shale at 1498.5 to 1498.6 feet. Some very fine black pyritic blebs and streaks in lower part.
1500.0	1501.0	Oil shale: medium and rare dark brownish gray and brown (10YR 4/2 & 4/3-5/2 & 5/3, rare 3/2). Very faint smooth to very distorted laminations; very common fine to small loop structures and displacements. Slightly irregular

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		to very irregular, thick to some medium parting; slightly irregular fracture. Some very irregular thin brownish gray fine-grained crystalline stringers with black pyritic rims.
1501.0	1501.8	Oil shale: medium to dark brown and brownish gray (10YR 5/3 & 5/2-3/3); rare satiny to resinous luster. Faint distorted to contorted laminations; common fine to very large irregular loop structures. Very irregular thick parting; irregular fracture. Some fine lacy black pyritic stringers.
1501.8	1502.7	Marlstone and some oil shale: buff to medium brownish gray and brown (10YR 8/2-4/2 & 4/3). Distinct to very faint, very distorted to some fairly smooth streaks, stringers, and laminations; common displacements and some fine to large irregular loop structures. Irregular to some smooth wavy, thick to medium parting; irregular fracture. Some very fine to thin irregular, fine to moderately coarse, crystalline stringers and fracture fillings (some drusy). A thin irregular vitreous black organic streak at 1502.0 feet. <div style="margin-left: 2em;">Sample of buff earthy marlstone with very fine crystalline fracture fillings from 1502.3 feet: X-ray - dolomite, quartz; some dawsonite, feldspar (Na & K).</div>
1502.7	1504.3	Oil shale and marlstone: medium brownish gray to buff (10YR & 2.5Y 4/2-7/2, rare 8/2). Faint to distinct, smooth to some distorted laminations; common fine loop structures and displacements. Very smooth to some irregular, thick to thin parting; slightly irregular to some coarse hackly fracture. Common fine black organic crusts on parting surfaces. Some very fine lacy black pyritic stringers with some colorless transparent crystalline material.
1504.3	1506.0	Oil shale: medium to some dark brownish gray and rare buff (2.5Y & 10YR 5/2-4/2, some 4/1 & 3/2, rare 6/2-7/2). Faint and some fairly distinct, smooth to slightly distorted laminations; common fine and rare moderately large loop structures and displacements. Smooth to irregular thick parting; slightly irregular fracture. Thin light-colored zones with common lacy to hackly black pyritic stringers at 1505.2 and 1505.7 feet.

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Laramie Petroleum Research Center, Laramie, Wyoming

October 14, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1506.0	1509.2	<p>Oil shale: medium to dark brownish gray (10YR 4/2 & 4/1-3/2 & 3/1; some almost neutral). Very faint smooth laminations and streaked bedding; some fine loop structures and displacements. Smooth to some very irregular thick parting; slightly irregular to some very irregular and conchoidal fracture. Some to common <u>very</u> fine disseminated crystals and crystalline streaks. Some fine resinous to waxy black laminae and streaks at 1508.0 and 1509.0 feet. A small mass of lacy black pyritic stringers near top.</p> <p>Sample of dark brownish gray (almost neutral in part) oil shale with fine disseminated crystals from 1508.2 feet:</p> <p>X-ray - quartz, dolomite; some dawsonite, feldspar (K and Na), ferroan, pyrite.</p>
1509.2	1510.2	<p>Oil shale: medium brownish gray and brown to some brownish black (10YR 5/2 & 5/3-2/2, some 1/2); some resinous to waxy luster. Very faint to some moderately distinct, smooth to slightly contorted laminations; common moderately large to fine loop structures and displacements in lower part. Very irregular to smoothly curved thick parting; slightly conchoidal to very irregular fracture. Some very irregular medium to thin black pyritic stringers with some nahcolite in upper part. A 4-inch, coarse radiating to fine massive crystalline nahcolite mass in middle.</p>
1510.2	1513.7	<p>Oil shale: medium to rare dark brownish gray and brown (10YR & 2.5Y 5/2 & 5/3-4/2 & 4/3, some 4/1, rare 3/3-2/2); rare dark satiny to resinous laminae. Moderately distinct to very faint, fairly smooth to contorted laminations; common fine to small loop structures and displacements. Fairly smooth to very irregular, thick to medium parting; fairly smooth to some very irregular fracture. Common large coarsely crystalline radiating nahcolite masses.</p>
1513.7	1514.7	<p>Oil shale: medium to rare dark brown and brownish gray (10YR 5/3-4/3 & 4/2, rare 3/3-2/2); rare dark satiny to waxy laminae and streaks. Faint to some moderately distinct, contorted to fairly smooth laminations and some streaked bedding; common fine loop structures. Irregular thick parting; irregular to slightly conchoidal fracture. Some large coarsely crystalline radiating nahcolite masses. A very thin irregular massive brown stringer with common very short tight vertical fractures with resinous brown coatings at 1514.5 feet.</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1514.7	1515.8	Oil shale and nahcolite: medium brown and brownish gray oil shale (10YR 4/3-4/2, rare 5/3). Very faint contorted laminations; common fine loop structures and displacements. Irregular thick parting; slightly conchoidal to very irregular fracture. Common very large very coarsely crystalline radiating nahcolite masses.
1515.8	1516.8	Oil shale: medium to dark brown and brownish gray (10YR 4/3 & 4/2-3/3, very rare 2/2); very rare satiny luster. Very faint fairly smooth to slightly contorted laminations; some fine loop structures. Irregular to some fairly smooth thick parting; slightly conchoidal to irregular fracture. Some moderately large coarsely crystalline radiating nahcolite masses. A 2-inch irregular medium brown band with some nahcolite masses, fine disseminated crystals, and fine irregular vertical fractures at 1516.4 feet. <div style="margin-left: 2em;">Sample of brown band with fine disseminated crystals from 1516.5 feet: X-ray - dolomite, quartz; some calcite, dawsonite, feldspar (Na and K).</div>
1516.8	1518.5	Oil shale and nahcolite: medium to dark brown oil shale (10YR 4/3-3/3, rare 5/3). Very faint very smooth to some distorted laminations. Fairly smooth to irregular thick parting; slightly conchoidal to slightly irregular fracture. Very common thin to thick smooth bands and some irregular stringers of massive fine-grained nahcolite; some fine colorless nahcolite fracture fillings in massive stringer near top. <div style="margin-left: 2em;">Sample from top of 2-inch very fine-grained massive nahcolite stringer with sharp contacts from 1516.9 feet: X-ray - nahcolite, dolomite, quartz, some dawsonite? Sample from top of 3-inch massive fine-grained nahcolite band with indistinct contacts from 1517.3 feet: X-ray - dolomite, nahcolite, quartz, calcite?</div>
1518.5	1519.6	Oil shale: medium to some dark brown and brownish gray (10YR 4/3 & 4/2, some 5/3 & 3/3-3/2, rare 2/2); rare satiny to resinous luster. Very faint to some fairly distinct, distorted streaks and stringers to smooth laminations. Irregular to fairly smooth thick parting; irregular to smooth fracture. Some fine short vertical fractures with nahcolite in lighter colored laminae. Some small to medium radial nahcolite masses and fine-grained massive stringers in upper part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1519.6	1522.3	Oil shale: medium to dark brown and brownish gray (10YR 4/3 & 4/2-3/3 & 3/2, some 5/3 middle part, rare 2/2 lower part). Very faint to faint, smooth to contorted laminations, stringers, and streaks. Fairly smooth to very irregular thick parting; slightly irregular to very irregular fracture. Common small to medium patches, stringers, and disseminated crystals of medium to fine-grained nahcolite; rare small radiating masses. A thick contorted medium brown massive band with some very fine-grained nahcolite nodules and stringers in middle part (probably like 1516.5 feet).
1522.3	1524.8	Oil shale and nahcolite: medium brown and brownish gray oil shale (10YR 4/3 & 4/2-5/3 & 5/2). Very faint distorted to contorted streaks, stringers, and laminations. Very irregular thick parting; slightly irregular to very irregular fracture. Common large irregular patches and stringers of very fine to medium grained nahcolite and some large to small radiating nodules and fine disseminated crystals.
Footage remeasured from 1526.0 to 1557.0 feet.		
1524.8	1527.6	Nahcolite and oil shale: brownish black to rare colorless nahcolite; medium brown and brownish gray to very rare tan oil shale (10YR 4/3 & 4/2-5/3 & 5/2, rare 6/3). Very large very coarsely crystalline nahcolite masses with multiple radiating aggregates and fine interstitial shale stringers and partings in upper and lower parts; oil shale with common small to large irregular to radiating nahcolite masses in middle part. Very irregular thick parting; very irregular to some slightly irregular fracture.
1527.6	1531.0	Nahcolite and oil shale: brownish black to honey-colored nahcolite; medium to some dark brown and brownish gray oil shale (10YR 4/3 & 4/2, some 3/3-2/2 middle part, rare 5/3); rare satiny to waxy luster in middle part. Very thick to thin bands and irregular stringers of fine to medium-grained nahcolite with interstitial shale; thick to thin bands of oil shale with very faint smooth to distorted laminations and streaked bedding. Very irregular and rare slightly irregular thick parting; slightly irregular to irregular fracture. Rare small radiating nahcolite nodules.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1531.0	1534.0	<p>Oil shale and nahcolite: medium and very rare dark brown to some tan and buff oil shale (10YR & 2.5Y 4/3-5/3, some 6/3-7/3 middle part, rare 3/3 upper and lower parts); very rare satiny luster in upper and lower parts. <u>Very</u> faint contorted bedding and rare laminations in upper and lower parts; faint distorted laminations with common fine loop structures in middle part. Very irregular and rare slightly irregular thick parting; slightly conchoidal to very irregular fracture. Common very large to some small coarsely crystalline radiating nahcolite masses in upper and lower parts; a thick moderately coarse crystalline nahcolite band or stringer with common interstitial shale at 1532.0 feet. Some small irregular buff spots and streaks (bleached?). Less than 3 percent nahcolite from 1532.2 to 1533.0 feet.</p> <p>Sample of very coarsely crystalline dark nahcolite from center of 3-inch radiating nodule at 1531.3 feet:</p> <p>X-ray - nahcolite; some quartz, dolomite?</p> <p>Sample of brown to tan oil shale from 1532.6 feet:</p> <p>X-ray - quartz, dolomite; some calcite, dawsonite, feldspar (K and Na).</p>
1534.0	1544.0	<p>Oil shale and nahcolite: medium and very rare dark brown and brownish gray oil shale (10YR 4/3-4/2, rare 5/3 & 3/2). Very faint contorted to slightly distorted streaked bedding. Very irregular to some slightly irregular thick parting; slightly irregular to slightly conchoidal fracture. Common very irregular thick to thin stringers and masses of brownish black to medium brown, fine to medium crystalline nahcolite; some fine disseminated crystals and rare small to large radiating nodules.</p>
1544.0	1553.1	<p>Oil shale and nahcolite: medium brown and brownish gray oil shale (10YR 4/3-4/2, some 5/3). Very faint slightly distorted to contorted streaked bedding. Irregular thick parting; irregular to slightly conchoidal fracture. Common large radiating nahcolite nodules and very irregular fine to medium-grained stringers and masses.</p>
1553.1	1555.0	<p>Oil shale: medium to rare dark brown and brownish gray (10YR 4/3-4/2, rare 3/3-2/2); some very fine dark satiny to resinous streaks and stringers. Faint to <u>very</u> faint, slightly distorted to slightly contorted streaks, stringers, and rare laminations; some fine to fairly large irregular loop structures in lower part. Slightly</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		irregular to irregular thick parting; slightly irregular fracture. Very rare fine to small nahcolite masses with pyrite in lower part. Rare fine pyrite blebs in lower part. A very thin zone of common fine lacy black pyritic stringers with very fine adamantine crystals at 1554.6 feet.
1555.0	1557.0	Oil shale: medium to rare dark brownish gray and brown in upper and lower parts (10YR & 2.5Y 4/2 & 4/1-5/2 & 5/1, some 4/3-5/3, rare 3/3-2/2); medium to dark brown and brownish gray in middle part (10YR 4/3-3/3 & 3/2, rare 2/2); some satiny to resinous luster in middle part and rare in lower part. Faint smooth laminations to very faint distorted streaked bedding; common fine loop structures and displacements in upper part. Slightly irregular to irregular thick parting; slightly irregular fracture. Common fine dark pyritic blebs in middle part. A thin zone of fine irregular black pyritic stringers with very fine adamantine crystals at 1556.1 feet. Grayest parts are very dense and heavy.
1557.0	1559.0	Oil shale and nahcolite: medium and rare dark brown and brownish gray oil shale (10YR 4/3 & 4/2-5/3, rare 3/3). Very faint distorted to contorted laminations; common fine to small loop structures. Very irregular parting and fracture. Very common small to moderately large dark coarsely crystalline radiating nahcolite masses (40-50 percent).
1559.0	1562.0	Oil shale and nahcolite: medium brown to tan and rare buff oil shale (10YR 4/3-6/3, rare 7/2). Very faint distorted bedding to faint and some moderately distinct contorted laminations, stringers, and streaks. Very irregular thick parting; conchoidal to irregular fracture. Common small to large (up to 3 inches) dark radiating nahcolite masses (30-40 percent); common disseminated to massive fine-grained nahcolite in upper 0.4 foot.
1562.0	1564.1	Oil shale and nahcolite: medium and rare dark brown to buff oil shale (10YR 4/3-7/3, rare 3/3 & 8/3); very rare satiny to resinous laminae in lower part. Faint to distinct very contorted laminations; common fine to small loop structures. Very irregular to some irregular "curly" parting; very irregular fracture. Common very large (up to 5 inches) dark radiating nahcolite masses (60-70 percent upper part, 40-50 percent lower part).

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1564.1	1565.1	Oil shale and some nahcolite: medium brown to tan oil shale (10YR & 2.5Y 5/3-6/3, rare 4/3). Faint distorted laminations to <u>very</u> faint fairly smooth bedding; common small loop structures and displacements in upper part. Irregular thick parting; slightly irregular fracture. Common small bladed nahcolite masses to fine disseminated crystals (20-30 percent).
1565.1	1566.6	Oil shale and nahcolite: medium and rare dark brown to some tan oil shale (10YR 4/3-5/3, some 6/3, rare 3/3). Very faint distorted streaks, stringers, and laminations. Irregular thick parting; slightly irregular fracture. Very common disseminated to massive, fine to medium-grained nahcolite and some small coarsely crystalline masses (60-70 percent).
1566.6	1576.6	Oil shale and nahcolite: medium brown to tan and rare buff oil shale (2.5Y & 10YR 5/3-6/3, rare 4/3 & 7/3-8/3). Faint to <u>very</u> faint, contorted to some fairly smooth streaks, stringers, and laminations. Very irregular to slightly irregular thick parting; irregular to slightly irregular fracture. Common small to rare large, irregular to radiating nahcolite masses and fine to medium, disseminated to massive crystals (20-40 percent).
1576.6	1577.4	Nahcolite: dark brownish gray to some honey colored. Medium to fine-grained disseminated crystals at top and bottom grading to massive fine-grained nahcolite with very fine interstitial shale partings in middle. Slightly irregular to conchoidal fracture; no prominent parting.
		Sample of massive fine-grained nahcolite with interstitial shale from 1576.9 feet: X-ray - dolomite, nahcolite, quartz, some dawsonite?
1577.4	1581.0	Oil shale and nahcolite: medium brown to tan and rare buff oil shale (10YR & 2.5Y 5/3-6/3, rare 7/3-8/2 & 4/3). Very faint to rare moderately distinct, slightly distorted to contorted streaks, stringers, and laminations; some <u>very</u> faint bedding in middle part. Irregular thick parting; irregular to some conchoidal fracture. Common small to large irregular coarsely crystalline nahcolite masses, stringers, and radiating nodules (25-60 percent); two thin fine-grained nahcolite bands with fairly sharp contacts near top. Rare very fine crystalline streaks and fracture fillings.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		<p>Sample of thin massive fine-grained nahcolite band from 1577.5 feet: X-ray - nahcolite, quartz, some dolomite?</p> <p>Sample of brown to tan shale with some very fine crystalline streaks from 1578.6 feet: X-ray - quartz, dolomite; some dawsonite, feldspar (Na & K), calcite.</p>
1581.0	1586.5	<p>Oil shale and nahcolite: medium brown to some tan and rare buff oil shale (10YR 5/3, some 6/3, rare 7/2). Very faint distorted to contorted streaks, stringers, and laminations; some very fine loop structures and displacements. Irregular thick parting; irregular fracture. Common medium to large, coarsely crystalline radiating to irregular nahcolite masses (25-50 percent). Very rare very fine crystalline streaks in upper part. Rare very short very fine tight irregular vertical fractures.</p>
1586.5	1588.2	<p>Oil shale and nahcolite: medium brown oil shale (10YR 5/3-4/3). <u>Very</u> faint distorted and some contorted streaked bedding. Irregular thick parting; irregular to slightly conchoidal fracture. Common large to small irregular coarsely crystalline nahcolite masses, and scattered to closely spaced, coarse to medium crystals (30-40 percent).</p>
1588.2	1595.0	<p>Oil shale and some to rare nahcolite: medium to dark brown and brownish gray oil shale (10YR 4/3 & 4/2-3/3 & 3/2). <u>Very</u> faint distorted to fairly smooth streaked bedding. Irregular to slightly irregular thick parting; slightly irregular and conchoidal fracture. Some fine to small irregular nahcolite blebs and streaks; rare thin to thick, medium to coarse crystalline stringers and irregular masses (1-15 percent); fine blebs are commonly very pyritic. Rare to common <u>very</u>-fine disseminated crystals (dawsonite?).</p> <p>Sample of shale with fine nahcolite blebs and streaks from 1592.1 feet: X-ray - quartz, dolomite; some dawsonite, feldspar (Na and K), ferroan, nahcolite.</p>
1595.0	1596.0	<p>Oil shale: dark brown and brownish gray (10YR 3/3-3/2, some 2/2). <u>Very</u> faint smooth streaked bedding. Slightly irregular thick parting; fairly smooth fracture. Common <u>very</u> fine disseminated dawsonite (?). Very rare fine black pyritic blebs and streaks.</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of shale with common very fine disseminated crystals from 1595.3 feet: X-ray - quartz, dolomite; some feldspar (Na & K), dawsonite, ferroan.
1596.0	1598.2	Oil shale and rare nahcolite: dark to some medium brown and brownish gray (10YR 3/3-3/2, some 4/3 lower part). <u>Very faint</u> smooth to slightly distorted streaked bedding. Irregular to slightly irregular thick parting; fairly smooth to slightly irregular and conchoidal fracture. Some fine to small nahcolite blebs and rare large coarsely crystalline radiating masses. Common to rare <u>very fine</u> disseminated dawsonite.
1598.2	1599.1	Nahcolite: brownish black to some amber and rare colorless. Very coarse platy crystals in irregular radiating aggregates; common fine interstitial shale partings.
		Sample of very coarsely crystalline nahcolite from 1598.6 feet: X-ray - nahcolite; some quartz, dawsonite?
1599.1	1599.6	Oil shale: dark brown and brownish gray (10YR 3/3 & 3/2-2/2). Very faint slightly distorted to smooth streaked bedding and some laminations. Slightly irregular thick parting; irregular to conchoidal fracture. <u>Very common</u> very fine disseminated crystals.
1599.6	1600.9	Nahcolite: brownish black to some honey colored. Massive; moderately coarse to medium crystalline. Common very fine interstitial dark brownish gray shale partings. Irregular thick parting; slightly irregular fracture.
1600.9	1602.2	Nahcolite: brownish black to some honey colored. Massive; medium to fine grained. Very common fine dark brownish gray to medium brown interstitial shale partings. Irregular thick parting; slightly irregular fracture.
1602.2	1603.2	Oil shale and nahcolite: medium brown oil shale (10YR 4/3). Very faintly bedded. Irregular thick parting; irregular fracture. Very common medium to fine disseminated nahcolite crystals in upper part to fine massive nahcolite with very fine interstitial shale partings in lower part.
Footage remeasured from 1604.0 to 1617.0 feet.		
1603.2	1605.4	Oil shale and nahcolite: medium brown to tan and some buff oil shale (10YR & 2.5Y 5/3 & 5/4-6/3, some 7/3-8/3, very rare 4/3). <u>Very faint</u> distorted bedding to

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		moderately distinct distorted to contorted laminations with common fine loop structures. Irregular thick parting; conchoidal to very irregular fracture. Common large coarsely crystalline radiating nahcolite masses (25-40 percent).
1605.4	1606.4	Oil shale: medium brown to buff (10YR & 2.5Y 5/3 & 5/4-7/3, rare 8/3 & 4/3). Moderately distinct distorted laminations, stringers, and streaks; some fine to small loop structures and displacements. Irregular to slightly irregular, thick to medium parting; irregular to slightly conchoidal fracture. Rare moderately large irregular nahcolite masses (less than 3 percent). Sample of tan to buff oil shale from 1605.7 feet: X-ray - dolomite, quartz; some feldspar (Na & K), dawsonite.
1606.4	1609.5	Oil shale and nahcolite: medium brown to tan and rare buff oil shale (10YR & 2.5Y 5/3-6/3, rare 4/3-4/2 & 7/3-7/2). Very faint distorted to contorted laminations, stringers, and streaks; common small to moderately large irregular loop structures and displacements. Irregular thick parting; irregular to conchoidal fracture. Common very large coarsely crystalline radiating nahcolite masses (up to 5 inches).
1609.5	1610.6	Oil shale: medium to dark brown and brownish gray, some tan in upper part (10YR 5/3-3/3 & 3/2, some 6/3); some satiny to vitreous laminations and very fine streaks. Distinct distorted laminations, stringers, and streaks in upper part to very faint slightly distorted streaked bedding in lower part. Irregular to slightly irregular thick parting; slightly irregular and conchoidal fracture.
1610.6	1611.6	Oil shale: medium to dark brown and brownish gray (10YR 4/3-3/3 & 3/2); some very fine satiny to vitreous streaks. Faint slightly distorted streaked bedding. Slightly irregular thick parting; slightly irregular and some very slight hackly fracture. Some <u>very</u> fine disseminated crystals in lower part.
1611.6	1613.7	Oil shale and nahcolite: dark and some medium brown and brownish gray oil shale (10YR 3/3-3/2, some 4/3-4/2); some very fine satiny to vitreous streaks. Very faint slightly distorted to contorted streaked bedding. Very irregular to some slightly irregular thick parting; very irregular to slightly irregular and conchoidal fracture. Common very large coarsely crystalline radiating nahcolite masses (30-50 percent). A fairly

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		smooth diagonal fracture with white crystalline nahcolite crusts in lower part.
		Sample of crystalline crusts from 1613.3 to 1613.5 feet:
		X-ray - nahcolite.
1613.7	1614.2	Oil shale: tan to buff and rare medium brown (10YR 6/3 & 6/4-7/2, rare 5/3-4/3). Very faint and rare moderately distinct slightly distorted streaked bedding. Irregular thick to medium parting; irregular to slightly conchoidal fracture. Some very fine crystalline nahcolite (?) blebs.
1614.2	1617.6	Oil shale: medium to rare dark brown and brownish gray and some tan to buff (10YR & 2.5Y 4/3-4/2, some 5/3-8/2, rare 3/3-3/1); rare very fine satiny to waxy streaks and and stringers. Faint slightly distorted to some contorted streaked bedding with some to very common very distinct fine to small, tan to buff lenses, blebs, streaks, and stringers. Slightly irregular to some very irregular thick parting; irregular fracture. Very rare fine crystalline nahcolite (?) blebs. A large irregular coarsely crystalline nahcolite mass and some fine nahcolite-filled fractures at 1616.5 to 1616.9 feet. Sample of brown to buff oil shale with some fine crystalline blebs from 1614.9 feet: X-ray - quartz, dolomite; some feldspar (Na & K), dawsonite, calcite.
1617.6	1618.6	Oil shale: medium to dark brown and brownish gray and some tan to buff (10YR & 2.5Y 4/3 & 4/2-3/3 & 3/2, some 5/3-7/2); some fine satiny to waxy streaks and stringers. Faint distorted to fairly smooth streaked bedding with common distinct fine to small, tan to buff lenses, blebs, and streaks. Irregular thick parting; slightly irregular fracture. Some very fine disseminated crystals. Rare small irregular patches and streaks of fine lath-shaped crystals in upper part.
1618.6	1621.3	Oil shale: dark brown and brownish gray (10YR 3/3-2/2); rare fine resinous to waxy streaks. <u>Very</u> faint smooth to slightly distorted streaked bedding. Fairly smooth to irregular thick parting; slightly irregular and conchoidal fracture. Common <u>very</u> fine disseminated crystals. Some fine irregular dark greenish gray to black silty-textured pyritic streaks at 1620.5 feet. Sample of shale with fine silty-textured pyritic streaks from 1620.5 feet: X-ray - pyrite; trace cryolite?, dolomite?, feldspar?, quartz?, dawsonite?

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1621.3	1624.8	Oil shale: dark brown and brownish gray (10YR 3/3-3/2, some 2.5Y 3/2-3/1 upper part). Very faint slightly distorted to smooth streaked bedding; some fine medium brown streaks, lenses, and blebs in middle part. Irregular thick parting; slightly irregular and conchoidal fracture. Very common very fine disseminated crystals and some small dark brown very fine-grained crystalline patches. Some very irregular dense gray fractured masses and streaks near top. Some fine colorless prismatic nahcolite streaks at 1623.7 and 1624.6 feet. A thin brownish black satiny band at base. { Sample of dense gray masses with some fine shale stringers and fracture fillings from 1621.5 feet: X-ray - albite, cryolite, pyrite. Sample of colorless prismatic nahcolite from 1623.7 feet: X-ray - nahcolite.
1624.8	1625.3	Nahcolite and some oil shale: brownish black to honey-colored nahcolite; medium to dark brown and brownish gray oil shale (10YR 4/3 & 4/2-3/3 & 3/2). Moderately coarse to fine-grained nahcolite with very fine interstitial shale partings and some thin shale stringers. Irregular parting and fracture.
1625.3	1627.5	Oil shale: tan to rare dark brown and buff (10YR & 2.5Y 6/3-6/4, rare 5/3-3/3 and 7/2). Very faint and rare distinct, contorted, and broken streaks, stringers, and laminations. Very irregular thick parting; irregular fracture. Some very fine gray to black lacy stringers. Some irregular fractures (up to 1/4-inch wide) with colorless prismatic nahcolite fillings. Dark shale stringers commonly have satiny to waxy luster.
1627.5	1628.5	Oil shale: medium to dark brownish gray and brown (10YR 4/2 & 4/3-3/2 & 3/3); very rare fine satiny to waxy streaks. Very faint slightly distorted streaked bedding. Slightly irregular thick parting; slightly irregular fracture. Some very fine disseminated crystals (pyrite in part).
1628.5	1631.0	Oil shale: medium to dark brownish gray (10YR 4/2 & 4/1-3/2 & 3/1). Very faint slightly distorted to fairly smooth streaked bedding. Slightly irregular to irregular thick parting; slightly irregular fracture; most is dense and heavy. Some to common very fine disseminated crystals and rare very fine crystalline streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		<p>Sample of dense heavy shale with common very fine disseminated crystals from 1630.2 feet: X-ray - quartz, dolomite; some dawsonite, feldspar (Na & K), pyrite, ferroan?</p>
1631.0	1635.0	Oil shale: dark to some medium brownish gray and brown (10YR 3/2-3/3, some 4/2-4/3, rare 2/2). Very faint to faint, fairly smooth to some distorted streaked bedding. Irregular to slightly irregular thick parting; slightly irregular fracture. Common very fine disseminated crystals. Common very fine gray to black lacy stringers at 1633.0 to 1633.1 feet.
1635.0	1639.0	Oil shale: dark and rare medium brownish gray and brown (10YR 3/2-3/3, some 2/2, rare 4/2-4/3 middle part). Very faint slightly distorted to smooth streaked bedding. Fairly regular to some irregular thick parting; slightly irregular fracture. Some very fine disseminated crystals. Very rare black woody plant fragments.
1639.0	1641.0	Oil shale: dark brownish gray and brown (10YR 3/2-3/3, some 2/2, rare 3/1-2/1). Very faint smooth streaked bedding. Fairly regular to some very irregular thick parting; slightly irregular and conchoidal fracture. Some very fine disseminated crystals. Rare very fine dark gray to black pyritic (?) blebs and streaks.
		<p>Sample of shale with some very fine dark gray to black blebs and streaks from 1640.4 feet: X-ray - quartz, pyrite, marcasite, dawsonite, dolomite, feldspar (K and Na).</p>
		Footage remeasured from 1641 to 1680 feet.
1641.0	1643.3	Oil shale: dark to medium brownish gray (10YR 3/2 & 3/1-4/2 & 4/1). Very faint smooth streaked bedding and some laminations. Fairly regular to irregular thick parting; slightly irregular to very conchoidal fracture. Rare very fine disseminated crystals. Very rare very fine dark gray to black blebs and streaks. Some very small irregular brownish gray to gray lenses at 1642.7 feet (like 1621.5 feet?).
1643.3	1644.3	Oil shale: medium to dark brownish gray (10YR 4/1 & 4/2-3/2). Faint smooth to slightly distorted laminations and streaked bedding; some fine loop structures. Slightly irregular to some smooth thick parting; slightly irregular to slight hackly fracture. Some very fine disseminated crystals. Rare very fine dark gray to black streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1644.3	1644.9	Oil shale: medium and rare dark brown and brownish gray (10YR & 2.5Y 4/3 & 4/2-5/3, rare 3/3). Faint fairly smooth to distorted laminations and streaked bedding; some small to very fine loop structures and displacements. Slightly irregular to irregular thick parting; slight hackly to slightly irregular fracture. Common very fine disseminated crystals. Very rare very fine dark gray to black streaks.
1644.9	1646.9	Oil shale and marlstone: medium and very rare dark brown and brownish gray to buff (10YR & 2.5Y 5/3 & 5/2-7/2, rare 4/3-3/3). Faint to fairly distinct, smooth to slightly distorted laminations; common fine loop structures and displacements. Slightly irregular to some smooth, thick to medium parting; slight hackly to slightly irregular fracture. Very common very fine disseminated crystals--especially in darker laminae. Some fine gray to black blebs, streaks, and rare laminae in lower part. Some irregular fine to hairline vertical fractures with very fine-grained white nahcolite fillings in lower part. Sample of brown to buff oil shale and marlstone with very fine disseminated crystals and very fine nahcolite-filled fracture from 1646.2 feet: X-ray - dolomite, quartz, dawsonite; some feldspar (Na and K), nahcolite.
1646.9	1648.1	Oil shale and marlstone: medium and rare dark brownish gray and brown to buff (10YR & 2.5Y 5/2 & 5/3-6/1 & 7/2, some 4/1 & 4/2-3/2 in lower part). Moderately distinct to faint, distorted to fairly smooth laminations; common small to fine displacements and some loop structures. Slightly irregular to smooth, thick to medium parting; slightly irregular to hackly fracture. Very common fine disseminated crystals and crystalline streaks. Some very fine irregular en echelon vertical fractures with nahcolite (?) fillings. Rare very fine dark gray to black streaks.
1648.1	1648.9	Oil shale: dark brown and brownish gray to some brownish black (10YR 3/3-2/2, some 1/2); common satiny to resinous luster. Very faint slightly distorted laminations, stringers, and streaks. Slightly irregular, thick to medium parting; very slight hackly to irregular fracture. Very common fine disseminated crystals and crystalline streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1648.9	1649.4	Oil shale: dark to medium brownish gray (2.5Y 3/2-4/2, rare 5/2). Faint distorted streaks and stringers. Irregular thick parting; irregular and some coarse hackly fracture. Common fine disseminated crystals and irregular crystalline streaks, stringers, and patches. Rare very fine short vertical fractures with dark crystalline (?) fillings.
1649.4	1651.0	Oil shale: dark brownish gray and brown to rare brownish black (10YR 2/2-3/2 & 3/3, rare 1/2); some satiny and rare resinous luster. Faint to <u>very faint</u> distorted to smooth laminations and streaked bedding. Irregular to fairly smooth, thick to medium parting; slightly irregular and conchoidal to some very hackly fracture. Very common fine disseminated crystals and crystalline streaks. Very rare very fine irregular vertical fractures with dull black fillings. A few very irregular small stubby medium brownish gray massive dikes (?) in middle part.
1651.0	1652.3	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2-4/2, some 2/2 upper part). Faint very smooth laminations and streaked bedding. Slightly irregular to very smooth, thick to medium parting; slightly irregular to hackly fracture. Some very thin faint dark gray massive vermiform vertical stringers in upper part. Some dark gray to light olive gray pyritic patches on parting surfaces in middle part. Some very fine disseminated crystals and crystalline streaks in lower part.
1652.3	1653.6	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2-4/2, rare 5/2 & 2/2). Faint very smooth laminations and streaked bedding; rare fine loop structures and displacements. Slightly irregular to smooth thick parting; slight hackly fracture. Common very fine disseminated crystals and crystalline streaks. Rare fine dull black discolored streaks and stringers. A 1/4-inch dense gray to light brownish gray laminae with common very fine pyrite at 1652.4 feet.
1653.6	1655.1	Oil shale: dark to medium and some light brownish gray (2.5Y 3/2-5/2, some 6/2-6/1). Faint to moderately distinct, very smooth laminations and rare bands (lighter colors); rare fine loop structures and displacements. Slightly irregular to very smooth, thick to rare thin shaly parting; slight hackly to very hackly fracture.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Very common very fine disseminated crystals and crystalline streaks--especially in darker zones. Some very fine dull black discolored blebs, streaks, and irregular fracture fillings.
		Sample of dense light brownish gray band from 1653.8 feet:
		X-ray - dolomite, quartz; some Na-feldspar, dawsonite, ferroan.
1655.1	1656.1	Oil shale: dark to medium brownish gray (2.5Y 3/2-4/2, some 3/1-4/1, rare 2/2). Faint very smooth laminations. Slightly irregular to smooth thick parting; coarse hackly to fairly smooth fracture. Some to rare very fine disseminated crystals. Rare very fine dull black discolored streaks and blebs.
1656.1	1657.2	Oil shale: dark to medium brownish gray (2.5Y & 10YR 3/2-4/2, rare 2/2). Faint very smooth to some slightly distorted laminations; common fine loop structures and displacements. Slightly irregular thick to medium parting; fairly smooth and rare slight hackly fracture. Rare fine dense medium to dark brown and brownish gray dolomite laminae with fine very short tight vertical fractures and some very irregular displacements.
1657.2	1658.2	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2-5/2, some 2/2). Moderately distinct to faint smooth laminations; some fine displacements and rare loop structures. Slightly irregular to smooth thick parting; slight hackly fracture. Some to common very fine disseminated crystals and crystalline streaks. Some very fine dull black streaks and blebs.
1658.2	1659.0	Oil shale: dark to medium brownish gray and brown (10YR 3/2-5/2 & 5/3, rare 2.5Y 3/1-4/2). Distinct to faint, smooth to slightly distorted laminations; common fine loop structures and displacements. Slightly irregular thick parting; slight hackly to fairly smooth fracture. Rare very fine dull dark gray to black streaks and blebs.
1659.0	1660.0	Oil shale: dark to medium brownish gray and brown (10YR 3/2-4/2 & 4/3, rare 5/3); rare very fine dark satiny to resinous laminae near base. Faint slightly distorted to very smooth laminations; very common fine loop structures and displacements. Slightly irregular thick to medium parting; slightly irregular to slightly conchoidal fracture. Very rare very fine dull dark gray to black streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1660.0	1660.5	Oil shale: dark and rare medium brown and brownish gray to brownish black (10YR 3/3 & 3/2-1/2, rare 4/2 upper part); common satiny to resinous luster. Faint to very faint, slightly distorted to smooth laminations and <u>rare very faint streaked bedding</u> ; very common fine loop structures. Slightly irregular thick parting; irregular to conchoidal fracture. A fine irregular dark gray very pyritic stringer near base. Sample of rich resinous oil shale from 1660.2 feet: X-ray - quartz; some dawsonite, K-feldspar, ferroan, pyrite, dolomite.
1660.5	1664.0	Nahcolite and oil shale: brownish black to some honey colored nahcolite; dark brownish gray to brownish black oil shale (10YR 3/2-1/2). Thin to very thick zones of fairly coarse to fine crystalline nahcolite with common fine interstitial shale partings and some thin to thick zones of oil shale. Irregular parting and fracture. Rare small to medium irregular coarsely crystalline nahcolite masses (60-80 percent nahcolite).
1664.0	1667.4	Oil shale, marlstone and nahcolite: medium and very rare dark brown to tan and buff oil shale and marlstone (10YR 5/3-6/3 & 7/2, rare 8/2 & 4/3-3/3). Very faint distorted streaked bedding in upper part to distinct contorted laminations, stringers, and streaks with very common fine loop structures and displacements. Very irregular parting and fracture. Very common nahcolite in thick to thin zones and small to large irregular coarsely crystalline masses. Some fine disseminated nahcolite in upper part. A very irregular thick massive fine-grained nahcolite stringer (?) at 1666.5 feet; a thin fine-grained stringer at base (40-20 percent nahcolite). Sample of fine-grained nahcolite from 1666.5 feet: X-ray - quartz, nahcolite.
1667.4	1668.4	Oil shale: medium brown and brownish gray (10YR 4/3-4/2, rare 5/3 upper part). Very faint fairly smooth to slightly distorted streaked bedding. Slightly irregular to irregular thick parting; slightly irregular to fairly smooth fracture. Some very fine disseminated crystals and crystalline streaks.
1668.4	1672.2	Oil shale: medium brownish gray (10YR 4/2). <u>Very faint</u> fairly smooth streaked bedding. Slightly irregular to irregular thick parting; fairly smooth to slightly irregular fracture. Some very fine disseminated crystals and crystalline streaks. Very uniform and featureless.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of oil shale with some very fine disseminated crystals and crystalline streaks from 1670.7 feet: X-ray - quartz, dolomite; some dawsonite, feldspar (Na and K), calcite, pyrite.
1672.2	1673.2	Oil shale: medium brownish gray and brown (10YR 4/2-5/2 & 5/3). <u>Very</u> faint distorted streaked bedding. Irregular thick parting; slightly irregular fracture. Rare very fine disseminated crystals and crystalline streaks.
1673.2	1675.8	Oil shale: medium brownish gray and brown (10YR 4/2-4/3). <u>Very</u> faint fairly smooth streaked bedding. Slightly irregular to irregular thick parting; fairly smooth to slightly irregular fracture. Rare small to fine dull black pyritic blebs and irregular stringers--some with dark brown gritty to crystalline cores.
1675.8	1676.8	Oil shale: medium brown and brownish gray (10YR 4/3-4/2). Contorted and brecciated to very faint distorted laminations. Very irregular parting and fracture. Common fine crystalline fracture fillings with brown to black tarry stains in breccia. Rare small black pyritic blebs with brown crystalline cores.
		Sample of brecciated shale with crystalline fracture fillings from 1676.0 feet: X-ray - pyrite, calcite, quartz, feldspar (Na & K), dolomite.
1676.8	1677.8	Oil shale: medium brown and brownish gray (10YR 4/3-4/2, some 5/2-5/3 upper part). Very faint distorted to fairly smooth streaked bedding. Irregular to slightly irregular thick parting; slightly irregular and rare very slight hackly fracture. Rare very fine disseminated crystals and crystalline streaks. Very rare irregular thin black pyritic stringers and fine blebs with some brown crystals.
1677.8	1678.8	Oil shale: medium brownish gray (10YR 4/2). <u>Very</u> faint smooth to slightly distorted streaked bedding. Irregular to slightly irregular thick parting; slightly irregular to fairly smooth fracture. Very rare small black pyritic blebs.
1678.8	1680.9	Oil shale: medium brownish gray and brown to very rare tan (10YR 4/2-4/3, some 5/2-5/3, rare 5/4-6/3). Very faint distorted streaked bedding to some contorted and brecciated. Irregular thick parting; irregular to fairly smooth fracture. Some very irregular very pyritic black stringers and blebs with brown crystals in upper part. A very irregular contorted and brecciated zone

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		with common fine dull black pyritic stringers and fracture fillings and some crystals at 1679.8 to 1680.1 feet. Some very fine disseminated crystals and crystalline streaks in lower part.
1680.9	1681.9	Oil shale: dark brownish gray and rare brown (10YR 3/2, some 2/2, rare 3/3). Very faint distorted to smooth streaked bedding. Irregular to fairly smooth thick parting; irregular to fairly smooth fracture. Some <u>very</u> fine disseminated crystals. Rare very fine pyrite blebs and streaks. Common fine black pyritic streaks and stringers near top.
1681.9	1682.7	Oil shale: dark to medium brownish gray and brown (10YR 3/2-4/2 & 4/3, rare 4/4). Very faint smooth to slightly distorted streaked bedding. Irregular thick parting; fairly smooth fracture. Rare fine black pyritic streaks, stringers, and blebs. Very rare very fine pyrite blades in upper part.
1682.7	1685.3	Oil shale: medium brown and brownish gray to rare tan (10YR 4/2 & 4/4-5/2 & 5/4, rare 6/3-6/4, some 2.5Y 4/2-6/2 & 6/3). Distinct to some faint, distorted to contorted laminations, stringers, and streaks, and some faintly variegated; some unconformable to interfingering contacts and rare angular laminated inclusions. Irregular and rare smooth thick parting; slightly irregular to irregular fracture. Very common fine black blebs, streaks and stringers.
		<p>Sample of medium brown to tan laminated oil shale (10YR 4/3-6/4) with common very fine black blebs from 1682.9 feet:</p> <p>X-ray - dolomite, feldspar (Na and K), quartz, pyrite.</p> <p>Sample of medium to light brownish gray (2.5Y 4/2-6/2) faintly variegated oil shale from 1684.3 feet:</p> <p>X-ray - quartz, dolomite, feldspar (Na and K), dawsonite, pyrite, nahcolite?</p>
1685.3	1687.1	Oil shale: medium brown and rare tan to buff (10YR 5/3-5/4, some 4/3-4/4, rare 6/3-7/2). Faint distorted to fairly smooth streaked bedding with some distinct tan to buff streaks, lenses, and rare stringers. Irregular thick parting; slightly irregular to very slight hackly fracture. Two fine nahcolite-filled diagonal fractures start at 1686.9 feet and extend 0.1 foot into section below.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1687.1	1688.1	Oil shale: medium to dark brown (10YR 5/3-3/3); some fine satiny to resinous streaks and stringers. Moderately distinct to faint, very irregular and distorted streaks and stringers. Irregular thick parting; irregular fracture. Two fine nahcolite-filled fractures near top.
1688.1	1691.0	Oil shale: medium brown and brownish gray (10YR 5/3-4/3 & 4/2); very rare very fine dark satiny to resinous streaks and stringers. Faint distorted to fairly smooth streaked bedding. Irregular thick parting; slightly irregular to irregular fracture. Common very fine disseminated crystals and crystalline streaks. Some very irregular and contorted, thin to fine, dark gray to black silty-textured pyritic stringers at 1688.3 feet. Some thin to fine en echelon diagonal fractures with prismatic nahcolite fillings from 1690.0 to 1690.6 feet.
1691.0	1692.0	Oil shale: medium to rare dark brown and brownish gray (10YR 4/3-4/2, rare 5/3 & 3/3-3/2, some 2.5Y 4/2). Faint distorted to contorted streaks and stringers; some un-conformable to interfingering contacts. Irregular thick parting; irregular fracture. Common very fine disseminated crystals and crystalline streaks. Some very fine lacy black pyritic stringers and disseminated blebs.
1692.0	1692.7	Oil shale: medium to dark brownish gray (10YR 4/2-3/2). <u>Very faint</u> distorted streaked bedding; some laminated inclusions and sharply terminated stringers of oil shale as below in lower part. Irregular thick parting; slightly conchoidal fracture. Some very irregular masses of common very fine black pyritic blebs.
1692.7	1693.5	Oil shale: dark brownish gray (10YR 3/2-2/2); some slight satiny luster. Very faint slightly distorted to some slightly contorted laminations and streaked bedding. Irregular to slightly irregular thick parting; slightly irregular fracture. Some very irregular thin vertical to horizontal black pyritic stringers and small to fine blebs in upper 0.2 foot.
1693.5	1694.1	Oil shale: medium brown and brownish gray (10YR 5/3 & 5/2-4/3 & 4/2). <u>Very faint</u> distorted to contorted, displaced and jumbled streaks and stringers. Irregular thick parting; fairly smooth to some irregular fracture. Some very fine crystalline streaks. Some very irregular fine black pyritic stringers in jumbled zone in middle part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1694.1	1695.6	Oil shale: dark brownish gray and rare brownish black (10YR 3/2-2/2, rare 1/2); common slight satiny to very rare resinous luster. Very faint slightly distorted laminations and streaked bedding in upper part; an intricately wrinkled overturned fold at 1695.0 to 1695.3 feet; contorted and displaced laminations near base; a very irregular thin diagonal injection (?) of shale as below extends up to 1695.2 feet. Fairly smooth to irregular thick parting; slightly conchoidal to irregular fracture. Rare very fine disseminated crystals near base.
1695.6	1700.6	Oil shale: dark and rare medium brownish gray (10YR 3/2, rare 4/2 & 2/2); rare very fine dark satiny streaks. <u>Very faint</u> slightly distorted to fairly smooth streaked bedding. Slightly irregular to irregular thick parting; slightly irregular and conchoidal fracture. Common very fine disseminated crystals and crystalline streaks. Sample of dark brownish gray oil shale with fine disseminated crystals from 1695.6 feet (like injection (?) in richer shale above): X-ray - quartz, dawsonite, dolomite; some feldspar (Na and K), calcite, pyrite.
1700.6	1701.9	Oil shale: dark to medium brown and rare dark brownish gray (10YR 3/3-4/3, rare 3/2-2/2 upper part); rare fine satiny to resinous streaks and stringers. Faint fairly smooth to distorted streaked bedding and some laminations; some fine to fairly large irregular loop structures and displacements in lower part. Slightly irregular to irregular thick parting; slightly irregular fracture. <u>Common very fine</u> disseminated crystals. Some fine irregular black pyritic streaks and stringers.
1701.9	1704.6	Oil shale: medium brown and brownish gray to some tan and buff, some dark brown near base (10YR 4/3 & 4/2-5/3, some 6/3-7/2 & 3/3). Faint to moderately distinct, fairly smooth to very distorted laminations, stringers and streaks; very common fine to small loop structures and displacements. Slightly irregular to irregular thick parting; slightly irregular to irregular and some hackly fracture. Rare very fine disseminated crystals and crystalline streaks. A thin slightly displaced prismatic nahcolite seam at 1703.7 feet.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1704.6	1706.1	Oil shale: dark brown and brownish gray to some brownish black (10YR 3/3-2/2, some 1/2); common satiny to some resinous luster. Very faint distorted to fairly smooth streaked bedding. Fairly smooth to irregular thick parting; fairly smooth to conchoidal fracture. Some to common <u>very</u> fine disseminated crystals.
1706.1	1707.0	Oil shale: medium to dark brownish gray (10YR 4/2-3/2, some 5/2). Very faint very smooth laminations; rare fine loop structures and displacements. Fairly regular to some irregular, thick to thin shaly parting; slight to coarse hackly fracture. Very common fine disseminated crystals and crystalline streaks. Some very fine very short tight irregular natural vertical fractures.
1707.0	1708.8	Oil shale: dark brownish gray and some dark brown to rare brownish black (10YR 3/2-2/2, some 3/4, rare 1/2); common satiny to very rare resinous luster. Very faint distorted to some fairly smooth streaked bedding. Irregular to slightly irregular thick parting; slightly irregular fracture. Common <u>very</u> fine disseminated crystals.
1708.8	1709.9	Oil shale: dark brownish gray (10YR 2/2-3/2 & 3/1). <u>Very</u> faint smooth laminations and streaked bedding. Fairly regular to irregular thick parting; slight hackly to smooth fracture. Very common fine disseminated crystals and crystalline streaks in upper half. Very rare fine irregular vitreous black brittle organic streaks in upper part. Some <u>very</u> fine disseminated pyrite and fine black pyritic (?) blebs in lower part.
1709.9	1710.9	Oil shale: dark to medium brownish gray and brown, rare brownish black (10YR 2/2-4/3, rare 1/2); some satiny to resinous luster. Faint fairly smooth to very distorted laminations, stringers and streaks; some very irregular fine to fairly large loop structures and displacements. Slightly irregular thick parting; irregular fracture. Very common very fine disseminated crystals. Rare very irregular small brown to tan crystalline blebs and stringers in lower part. Very rare very fine irregular olive gray pyritic stringers or fracture fillings in lower part.
1710.9	1712.9	Oil shale: dark brown and brownish gray to some brownish black (10YR 3/3-2/2, some 1/2 lower part); common satiny

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1712.9	1714.3	to resinous and some waxy luster. Moderately distinct to faint, very distorted to rare smooth laminations, stringers, and streaks; common very irregular loop structures and displacements. Irregular to rare smooth thick parting; irregular and rare coarse hackly fracture. Common very fine disseminated crystals. Oil shale: dark and rare medium brownish gray (10YR 3/2-2/2, rare 4/2). Very faint smooth laminations and streaked bedding. Slightly irregular to regular thick parting; very irregular to slight hackly fracture. Very common very fine disseminated crystals and crystalline streaks. Some irregular crinkly natural vertical fractures with dark brown to black resinous coatings in upper half. A thin irregular dense dark gray to dark brownish gray stringer at 1713.8 feet.
1714.3	1715.3	Oil shale: medium to dark brownish gray (2.5Y 4/2-3/2). Very faint very fine smooth laminations. Very smooth and rare irregular, medium to thick shaly parting; slightly irregular to hackly fracture. Some fine to rare thin dense dark brown and brownish gray dolomite laminae with some very short fine, tight to slightly open vertical fractures. Sample of thin dense dolomite lamina from 1714.4 feet: X-ray - dolomite; trace quartz, feldspar, ferroan.
1715.3	1716.3	Oil shale: medium to dark brownish gray and some dark brown to rare brownish black (2.5Y 4/2-3/2, some 10YR 3/3-2/2, rare 1/2); rare satiny to waxy luster in middle part. Very faint to faint, smooth to distorted laminations; very common small loop structures and displacements in middle part. Slightly irregular medium to thick shaly parting; slightly irregular to hackly fracture. Some very fine black streaks and irregular fracture fillings in upper part. Common very fine disseminated crystals and crystalline streaks in lower part.
1716.3	1718.4	Oil shale and marlstone: medium and rare dark to light brownish gray and olive gray, rare tan to buff (2.5Y & 5Y 4/2 & 4/1-6/2 & 6/1, rare 10YR 3/2-6/3 & 7/2). Moderately distinct to faint, smooth to rare distorted and displaced laminations. Slightly irregular to very smooth, medium to thick shaly parting (some slightly unctuous); slight to coarse hackly fracture. Common very fine disseminated crystals and crystalline streaks in

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		darker zones. Rare fine dull dark gray to black pyritic streaks and fracture fillings with discolored edges.
		[Sample of olive gray marlstone from 1717.4 feet: X-ray - quartz, dolomite, illite; some feldspar (Na and K), pyrite.
1718.4	1719.7	Oil shale: medium to dark brownish gray and rare brown (2.5Y & 10YR 4/2 & 4/1-3/2, rare 4/3-3/3; some almost neutral in upper part). Very faint smooth laminations. Smooth to slightly irregular, thick to rare medium parting; hackly fracture. Common very fine disseminated crystals in upper part. Rare very fine irregular black pyritic fracture fillings with dark gray discolored edges.
1719.7	1720.5	Missing?
1720.5	1721.8	Oil shale: dark to medium brownish gray (2.5Y & 10YR 3/2-4/2, rare 4/1). Very faint smooth to rare distorted and displaced laminations. Slightly irregular to smooth, thin to thick shaly parting; slightly irregular and some slight hackly fracture. Some <u>very</u> fine disseminated crystals. Some fine black pyritic fracture fillings and discolored streaks in upper part. Very rare fine irregular vitreous black organic streaks with very fine broken columnar pyrite seams. A black plant fragment on parting surface at 1721.1 feet (like a long thin leaf blade).
1721.8	1723.6	Oil shale: medium to dark brownish gray and brown (10YR & 2.5Y 4/2 & 4/3-3/2 & 3/3, rare 2/2 in lower part). Very faint smooth to slightly distorted laminations; some fine loop structures and displacements. Slightly irregular to smooth, very thin to thick shaly parting; slightly irregular to hackly fracture. Some fine black to gray pyritic blebs and streaks. Common very fine disseminated pyrite in lower part.
1723.6	1724.6	Oil shale: dark to rare medium brownish gray and brown (10YR 3/2 & 3/3-2/2, rare 4/2-4/3); common satiny to rare resinous luster. Very faint smooth to distorted laminations; common fine to small irregular loop structures and displacements. Smooth to some irregular, medium to thick shaly parting; fine to coarse hackly fracture. Some very fine disseminated crystals (pyrite in part).

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1724.6	1726.2	Oil shale: dark and rare medium brownish gray and brown to brownish black (10YR 3/2 & 3/3-1/2, rare 4/2-4/3); very common resinous to waxy luster. Faint very irregular and distorted laminations, stringers, and streaks; very common fine to large irregular loop structures and displacements. Slightly irregular to irregular, thick to medium parting; irregular to coarse hackly fracture. Rare very fine disseminated crystals and crystalline streaks. Rare very irregular fine black pyritic stringers in lower part. Sample of very rich waxy oil shale from 1725.6 feet: X-ray - "halo," dolomite, quartz, illite, feldspar, ferroan, pyrite.
1726.2	1727.2	Oil shale: medium to dark brown and brownish gray (10YR 5/3-3/3 & 3/2, rare 2/2); rare very fine dark satiny streaks and stringers. Faint to very faint distorted streaked bedding; some distorted laminations with common fine loop structures and displacements near top. Irregular thick parting; slightly conchoidal to irregular fracture. Some very fine disseminated crystals and very small crystalline blebs. A large irregular tan to yellowish buff earthy nodule with very irregular dense dark brown chert replacements (?) at top. Some fine irregular black pyritic stringers with <u>very</u> fine lath-shaped crystals at 1726.5 and 1727.0 feet. Sample of tan to buff earthy nodule with some fine chert blebs from 1726.2 to 1726.3 feet: X-ray - quartz; trace dolomite, unidentified peaks. Sample of dense brown chert replacements with some fine earthy buff inclusions (?) from 1726.2 to 1726.3 feet: X-ray - quartz.
1727.2	1728.2	Oil shale: dark brown and brownish gray to rare brownish black (10YR 3/3-3/2, rare 2/2-1/2); some dark satiny to rare resinous streaks and stringers. Faint very distorted streaks and stringers. Irregular thick parting; irregular fracture. Some very fine disseminated crystals. Rare small irregular brown to tan nodules with chert replacements. Very fine irregular black pyritic stringers at 1727.7 and 1728.2 feet. Some thin distorted brown to buff laminated marlstone shreds near base.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1728.2	1732.4	Oil shale: dark to some medium brown and brownish gray (10YR 3/3-3/2, some 4/3 lower part); some very fine dark satiny streaks. Very faint distorted to fairly smooth streaked bedding with rare to common fine distinct tan to buff streaks and shreds. Irregular to slightly irregular thick parting; irregular fracture. Rare small irregular tan nodules with dense dark brown chert replacements. Some to common very fine disseminated crystals and crystalline blebs. A small irregular vitreous black organic crust on parting surface at 1731.4 feet.
1732.4	1733.6	Oil shale: medium to dark brownish gray and some brownish black (10YR 4/2-3/2, some 2/2-1/2, rare 5/2); some satiny to rare resinous and waxy streaks, laminae and bands. Distinct to very faint, distorted to fairly smooth streaks, stringers, and rare laminations; some small loop structures and displacements near top. Slightly irregular thick parting; irregular to hackly fracture. Rare to common fine acicular crystalline blebs and streaks--some with common pyrite. A very distorted thin yellowish buff earthy to very fine silty-textured streak with some dense dark brown chert at 1732.9 feet. A thin dense brownish black chert lens at 1733.4 feet. Sample of shale with fine acicular blebs and streaks from 1733.5 feet: X-ray - quartz, dolomite, dawsonite; some marcasite, pyrite, Na-feldspar, illite.
1733.6	1734.6	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2); some satiny luster and <u>very</u> fine vitreous black organic streaks in upper part. <u>Very</u> faint very smooth and rare slightly distorted laminations and streaked bedding. Very smooth to some irregular, thick to rare thin shaly parting; fairly smooth to irregular coarse hackly fracture. Some <u>very</u> fine disseminated crystals and rare fine to thin dark crystalline streaks and stringers with pyrite. A thin yellowish buff (2.5Y 8/4) earthy porous bedded lamina with some fine brown crystalline dawsonite (?) streaks and stringers at 1734.0 feet (glossy surfaces with very fine slickensides on parting surface at top). Sample of yellowish buff lamina with dawsonite (?) from 1734.0 feet: X-ray - mixed layer clay; some magnesite, analcite, dawsonite?

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From	To	Description
1734.6	1736.6	Oil shale: dark to rare medium brownish gray and very rare brownish black (10YR & 2.5Y 3/2-2/2, rare 4/2 & 1/2); very rare satiny to resinous luster. Very faint smooth laminations; some fine loop structures and displacements. Smooth to some irregular, thick to very thin shaly parting (some slightly unctuous); coarse hackly fracture. Rare fine irregular dense brownish black streaks and stringers with pyrite.
1736.6	1737.4	Oil shale: dark brownish gray to brownish black and some dark to medium brown (10YR 2/2-1/2, some 3/3-4/3); common satiny to resinous and rare waxy luster. Very faint and rare moderately distinct, smooth to slightly distorted laminations; some fine to small loop structures and displacements. Very smooth to slightly wavy, thick to thin shaly parting (some slightly unctuous); hackly fracture. Very rare very fine disseminated crystals.
1737.4	1740.0	Oil shale: medium to dark brownish gray, rare medium brown and brownish black in upper part (2.5Y 4/2 & 4/1-3/2 & 3/1, rare 4/3-5/3 & 1/2 upper part, rare 2/2-2/1 lower part); rare dark resinous to waxy laminae upper part. Faint to very faint, distorted to smooth laminations and some streaked bedding; some moderately large loop structures and displacements near top. Irregular to smooth, thick to medium parting (rarely unctuous); very slight to some coarse hackly fracture. Rare very small to fine irregular dense dark chert nodules and streaks (some near top with tan to buff earthy material like 1726.2 feet). Very common very fine dark disseminated crystals and crystalline streaks with pyrite below 1738.2 feet. A short irregular natural vertical fracture with tarry black coatings at 1738.6 feet. A very thin dense brownish gray dolomite lamina with very short tar-stained vertical fractures at 1739.5 feet.
1740.0	1741.0	Oil shale: dark brownish gray and rare medium brown (2.5Y 3/2-2/2, rare 10YR 4/2-4/3). Very faint and rare moderately distinct, very smooth to some slightly distorted laminations. Slightly irregular to smooth, thick to medium shaly parting (rarely unctuous); very hackly fracture. Some very fine disseminated crystals in upper part.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1741.0	1741.9	Oil shale: dark and rare medium brownish gray (2.5Y 3/2-2/2, rare 4/2); some satiny to rare resinous luster in lower part. Very faint to faint, very smooth to distorted laminations; common fine to small loop structures and displacements in lower part. Very smooth to some irregular, thick to thin shaly and rare papery parting; very hackly fracture. Some very fine light colored pyrite streaks and blebs. [Sample of papery shale from 1741.4 feet: X-ray - illite, quartz; some feldspar (K and Na), pyrite.
1741.9	1745.5	Oil shale: medium brownish gray and brown to some tan and buff, rare dark brown to brownish black (2.5Y & 10YR 4/2 & 4/3-5/2 & 5/3, some 6/3-7/2, rare 3/3-1/2 & 8/2); rare to some dark resinous to waxy laminations, stringers, and streaks. Faint to very distinct distorted laminations, stringers and streaks; very common fine to small loop structures and displacements. Slightly irregular to irregular, thick to rare thin parting; irregular hackly fracture. Some very faint fine gray discolored streaks and stringers (or fracture fillings). [Sample of brownish gray to tan and buff oil shale from 1743.4 feet: X-ray - dolomite, quartz; some Na-feldspar, calcite, illite, chlorite, dawsonite.
1745.5	1746.7	Oil shale and some marlstone: tan and buff to some dark brown and brownish black (10YR & 2.5Y 6/3 & 7/2-4/3 & 4/2, some 3/3-1/2); some moderately thick zones to fine streaks and stringers of dark resinous to waxy shale. Very distinct to faint, contorted to distorted streaks and stringers; some very irregular loop structures and displacements; an intricately wrinkled overturned fold at 1745.6 to 1745.9 feet. Irregular thick to medium parting; irregular and some hackly fracture. Some faint fine gray discolored streaks and stringers. Rare fine dark chert nodules in lower part.
1746.7	1747.7	Oil shale: dark and some medium brown and brownish gray to brownish black (10YR 3/3-1/2, some 4/3-5/3 & 5/2 upper part); common satiny to some waxy luster. Very distinct to some faint, distorted streaks and stringers to fairly smooth laminations; common fine loop structures and displacements. Slightly irregular to smooth, medium to thin shaly and rare papery parting (some slightly unctuous); hackly fracture. Very rare fine dark chert (?) nodules near top.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1747.7	1748.4	Oil shale: dark and very rare medium brownish gray and brown (10YR 2/2-3/2 & 3/3, rare 4/2). Faint to <u>very faint</u> very fine smooth laminations. Very smooth medium to thin shaly and rare papery parting (slightly unctuous); <u>very hackly fracture</u> . Very rare very fine brownish black pyritic streaks. Very rare fine irregular waxy to vitreous black organic streaks in upper part (<u>fish bones and scales in part</u>). Some very fine dark disseminated crystals and crystalline streaks with pyrite near base.
1748.4	1749.5	Oil shale: dark brownish gray (10YR 3/2, rare 2/2). <u>Very faint</u> very smooth laminations. Regular to some irregular, thick to medium shaly parting (some unctuous); slight to fairly coarse hackly fracture. Common very fine disseminated crystals and crystalline streaks in upper part. A <u>small fossil fish</u> on parting surfaces at 1749.1 feet.
1749.5	1750.0	Missing?
1750.0	1752.0	Oil shale: dark to medium brownish gray (2.5Y 3/2 & 3/1-4/2 & 4/1; some almost neutral). Very faint smooth laminations and streaked bedding. Irregular to smooth, thick to thin shaly parting (unctuous); irregular coarse hackly fracture. Some dense massive light brownish gray dolomite laminae and rare bands. Some irregular glossy shear surfaces. Rare <u>fossil fish skeletons and fragments</u> . <div style="margin-left: 2em;">Sample of unctuous shale from 1751.1 feet: X-ray - illite, quartz; some pyrite, feldspar (Na and K).</div>
1752.0	1753.3	Oil shale: medium brownish gray (2.5Y 4/2 & 4/1-5/2 & 5/1) and rare neutral gray (5N). Very faint to faint, smooth to slightly distorted and displaced laminations and streaked bedding. Irregular to rare smooth, thick to thin parting (some unctuous); irregular hackly fracture. Rare irregular glossy shear surfaces with very fine slickensides. <u>Very rare black fossil (?) fragments</u> on parting surfaces.
1753.3	1755.3	Oil shale: medium to light and some dark brownish gray (2.5Y 4/2-6/2, some 3/2). Faint to some moderately distinct, fairly smooth to distorted and displaced laminations and streaked bedding. Slightly irregular to irregular, thick to thin parting (slightly unctuous); irregular hackly fracture. Common light brownish gray faintly bedded to massive dolomite laminae; some moderately thick to thin dolomite stringers near base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1755.3	1756.5	Oil shale: dark to medium and some light brownish gray (2.5Y 2/2-4/2, some 5/2-6/1); rare satiny to resinous luster. Faint to some very distinct, distorted and displaced to fairly smooth laminations and streaked bedding. Slightly irregular to very irregular, thick to medium parting (some unctuous); very irregular hackly fracture. Common dense medium to light brownish gray dolomite laminae and stringers in middle part. Some irregular glossy shear surfaces with fine slickensides.
1756.5	1757.5	Oil shale: dark to medium brownish gray (2.5Y 3/2 & 3/1-4/2 & 4/1; some almost neutral). Very faint slightly distorted and displaced to fairly smooth laminations and streaked bedding. Very irregular medium to thick parting (some slightly unctuous); very irregular coarse hackly fracture. Very rare black fish fragments on parting surfaces. A moderately thick band of finely laminated dense medium to light brownish gray dolomite near top.
1757.5	1759.0	Oil shale: medium and some dark brownish gray (2.5Y 4/2-5/2, some 3/2). Very faint to faint, fairly smooth to slightly distorted and commonly displaced laminations. Very irregular to some fairly smooth, thin to thick parting (some slightly unctuous); irregular coarse hackly fracture. Some fine dark gray to black pyritic streaks, laminae, and fracture fillings in lower part.
1759.0	1761.0	Oil shale: medium to dark and rare light brownish gray (2.5Y 5/2 & 5/1-3/2 & 3/1, rare 6/1 & 2/2; some almost neutral). Moderately distinct to very faint, slightly distorted and displaced to smooth laminations and streaked bedding. Irregular to some fairly smooth, medium to thick parting (some slightly unctuous); coarse to slight hackly fracture. Common very fine dark brown to buff crystalline (?) streaks with very common pyrite in lower part.
		Sample of shale with very fine dark brown to buff pyritic streaks from 1760.6 feet: X-ray - quartz, illite; some dawsonite, dolomite, feldspar (Na and K), pyrite.
1761.0	1762.0	Oil shale: dark to medium brownish gray (2.5Y 2/2-4/1, rare 4/2). Faint smooth laminations and streaked bedding; some small displacements in lower part. Smooth to irregular, thick to thin shaly parting (unctuous); slight to coarse hackly fracture. Common very fine dark

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1762.0	1764.1	<p>brown pyritic streaks in upper part. Rare dense medium brownish gray dolomite laminae with very short tar-stained vertical fractures.</p> <p>Oil shale: medium to rare dark brownish gray and olive gray, some medium brown in lower part (2.5Y & 5Y 4/1-5/1, rare 3/1; some 2.5Y 3/2-5/3 lower part). Faint to moderately distinct, smooth to very distorted and displaced laminations. Slightly irregular to irregular, thick to thin parting (slightly unctuous); irregular coarse hackly fracture. Rare very fine dark gray to black pyritic streaks, stringers, and blebs. Some vertical crinkly glossy fracture surfaces near top.</p>
1764.1	1765.1	<p>Oil shale: medium to dark brownish gray and brown (10YR 4/2 & 4/3-3/2 & 3/3, some 2/2). Faint slightly distorted to fairly smooth laminations; some small displacements. Slightly irregular to smooth, thick to thin shaly parting (some slightly unctuous); hackly fracture. Very rare small buff dolomite nodules.</p>
1765.1	1766.1	<p>Oil shale: medium to dark brownish gray and brown in upper part (10YR 4/2 & 4/3-3/2) to dark brownish gray and olive gray in lower part (2.5Y & 5Y 3/2-3/1). Moderately distinct to very faint, slightly distorted and displaced to fairly smooth laminations and streaked bedding. Irregular to fairly smooth, thick to thin shaly and rare papery parting; hackly fracture. Very rare fine irregular vitreous black organic stringers with some pyrite. A fine dark brownish gray to dark gray crystalline lamina at 1765.8 feet.</p> <p>Sample of crystalline lamina from 1765.8 feet: X-ray - siderite (65 percent Fe, 35 percent Mg?), some quartz.</p>
1766.1	1768.4	<p>Oil shale: medium to dark brownish gray and brown, rare tan and brownish black (10YR 4/2 & 4/3-2/2, rare 5/3-6/3 & 1/2), some olive gray in middle part (5Y 5/1-4/1); some resinous to waxy streaks and stringers. Faint to rare distinct, slightly distorted and displaced laminations to very distorted streaks and stringers. Irregular thick to medium parting; some thin shaly to papery parting near top; hackly to irregular fracture. Very rare fine light-colored silty-textured pyrite blebs.</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1768.4	1768.9	<p>Oil shale: dark brownish gray and brown to rare brownish black (10YR 3/2 & 3/3-2/2, rare 1/2); rare slight satiny luster. Faint to very faint slightly distorted laminations; some fine irregular loop structures and displacements in upper part. Slightly irregular medium to thick parting; irregular to coarse hackly fracture. Some very fine light-colored silty-textured pyrite streaks in upper part. Some very fine brown to buff crystalline streaks in lower part (fine radiating acicular aggregates on parting surfaces). A very fine broken lamina of light brownish gray translucent chert (?) at 1768.7 feet. A very irregular vertical fracture with horizontal striations (slickensides?) and very fine parallel silky crystals in lower part.</p> <p>Sample of scrapings from fracture surfaces from 1768.8 feet: X-ray - dawsonite, quartz; some illite, pyrite, feldspar?</p> <p>Core sections not in correct sequence from 1768.9 to 1799.0 feet; core end at 1768.9 matches end at 1784.3. Possible correct sequence (according to present footage labels): ...-1768.9, 1784.3-1799.0, 1768.9-1784.3, missing section, 1808.0-....</p>
1768.9	1771.5	<p>Oil shale: medium to rare dark brownish gray and rare brown (10YR 4/2 & 4/1-5/2 & 5/1, rare 3/2 & 4/3-5/3; some almost neutral to very slightly olive). Faint to moderately distinct fairly smooth laminations; some fine displacements. Smooth to some irregular, thick to thin shaly parting (some slightly unctuous); coarse hackly fracture. Rare fine dark gray to black pyritic blebs and fracture fillings. A very glossy curved diagonal shear surface near top.</p>
1771.5	1772.5	<p>Oil shale: medium to dark brownish gray and some medium brown (10YR 4/2-2/2, some 4/3); very rare satiny luster. Faint to very faint smooth laminations. Slightly irregular to smooth, thick to thin shaly and some papery parting; hackly fracture. Very rare fine light-colored silty-textured pyrite streaks.</p>
1772.5	1773.5	<p>Oil shale: dark brownish gray and olive gray, rare medium brown in upper part (2.5Y & 5Y 3/1-3/2; some 10YR 3/2 & rare 4/3 in upper part). Very faint smooth laminations and streaked bedding. Slightly irregular to</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		smooth, thin to rare thick shaly and some papery parting (some slightly unctuous); hackly fracture. Very rare very fine dark gray to black pyritic streaks in lower part. A very fine dark gray crystalline lamina at 1773.4 feet (like 1765.8 feet?).
		Sample of shale with very fine crystalline laminae from 1773.4 feet: X-ray - siderite (61 percent Fe, 39 percent Mg?); some quartz; illite.
1773.5	1774.8	Oil shale: medium to dark brownish gray and very rare brownish black, some medium brown to rare tan (2.5Y 4/2-3/2, some 4/3-5/3, rare 1/2 & 6/3; some slight olive tint); common resinous to waxy luster. Faint to some distinct distorted laminations, stringers and streaks; common fine loop structures and displacements. Slightly irregular thick to thin shaly parting; irregular coarse hackly fracture. Some very irregular olive gray silty-textured patches on parting surfaces.
1774.8	1777.0	Oil shale: dark brownish gray and very rare brownish black, some dark to medium brown near top and bottom (2.5Y & 10YR 3/2-2/2, some 3/3-4/3, rare 1/2); rare to some very slight satiny luster; some very fine resinous to waxy black streaks in lower part. Faint to very faint, smooth to rare slightly distorted laminations and streaked bedding. Slightly irregular to smooth, thick to thin shaly parting (some unctuous in lower part); hackly fracture. Rare very fine buff streaks in upper part (composed of very fine buff grains and some flat radiating acicular masses). A fine broken massive translucent light brownish gray to gray chert(?) lamina at 1775.1 feet. Rare very fine medium to dark brownish gray crystalline streaks and laminae in lower part (like 1765.8 and 1773.4 feet?). Sample of chert lamina from 1775.1 feet: X-ray - quartz, some ferroan.
1777.0	1778.3	Oil shale: dark to light brownish gray and some brown (10YR & 2.5Y 3/2-6/2, some 4/3-5/3, rare 4/1-5/1). Faint to fairly distinct, fairly smooth to distorted laminations and streaked bedding; common fine to small loop structures and displacements; a 1-inch zone of intricately contorted and folded laminations at 1777.3 feet. Slightly irregular to irregular, thick to thin parting; hackly to irregular fracture. Some fine irregular dark gray and brownish gray to black silty-textured pyritic streaks and blebs. A 1-inch medium

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		brown very faintly bedded band with some fine black blebs at 1777.6 feet.
		Sample of brown band with fine dark blebs from 1777.6 feet: X-ray - dolomite, quartz; some illite, feldspar, ferroan.
1778.3	1780.9	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2 & 3/1-4/2 & 4/1, rare 2/2 & 5/2-5/1); rare very slight satiny luster. Faint smooth laminations and streaked bedding. Slightly irregular thick to some thin shaly parting; slight to some coarse hackly fracture. Some to common very fine buff earthy specks and streaks. Some very fine dark brownish gray acicular crystalline streaks. Very rare fine light-colored pyrite streaks. A 1/8-inch massive gray silty-textured lamina near base.
1780.9	1781.9	Oil shale: dark brownish gray and rare dark to medium brown (10YR & 2.5Y 2/2-3/2 & 3/1, rare 3/3-4/3 lower part); rare slight satiny luster. Very faint to faint fairly smooth laminations and streaked bedding. Slightly irregular to smooth, thick to thin shaly parting; very hackly fracture. Some fine massive pyrite streaks and blebs. Very rare very fine dark to medium brownish gray streaks and laminae. Some very fine vitreous black organic streaks and blebs in lower part.
1781.9	1782.7	Oil shale: medium to dark brown and brownish gray (10YR 4/3 & 4/2-3/3 & 3/2, rare 2/2 & 5/4). Faint to moderately distinct, distorted to fairly smooth laminations; common fine loop structures. Smooth to irregular, medium to thin shaly and rare papery parting; very hackly fracture. A very thin irregular pinched out dark brownish gray crystalline stringer near base.
1782.7	1783.3	Oil shale: dark brownish gray and brown to brownish black (10YR 3/2 & 3/3-1/2); some satiny to rare resinous and waxy luster. Faint to <u>very</u> faint, slightly distorted to smooth laminations and streaked bedding; some fine loop structures and displacements. Slightly irregular to smooth, medium to thick shaly and rare papery parting; hackly fracture. Rare <u>very</u> fine brownish gray pyritic streaks. Some very fine waxy to vitreous black blebs and streaks in lower part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1783.3	1784.3	Oil shale and some mudstone: dark to medium brownish gray oil shale (10YR & 2.5Y 3/2 & 3/1-4/2 & 4/1, rare 2/2); light to rare dark gray mudstone (6-4N, rare 3N). Faint to moderately distinct, smooth to slightly distorted and displaced laminations of oil shale and mudstone; a 1-inch mudstone band at 1783.7 feet. Smooth to some irregular, thick to medium parting; irregular to slight hackly fracture. Some very fine buff specks and patches on parting surfaces. Some very fine brown crystalline streaks in middle part. A 1-inch tan to buff band with some fine bitumen-stained vertical fractures near top. Common fine disseminated crystals in mudstone band near middle. { Sample of tan to buff band from 1783.4 feet: X-ray - dolomite; some quartz, ferroan. Sample of gray mudstone band with very common fine disseminated crystals from 1783.7 feet: X-ray - siderite (63 percent Fe, 37 percent Mg?); some quartz, illite.
Break in core sequence. Core end at top of next section matches core end at 1768.9 feet.		
1784.3	1785.3	Oil shale: dark brownish gray (10YR & 2.5Y 2/2-3/2); rare slight satiny luster. Very faint fairly smooth laminations and streaked bedding. Smooth to slightly irregular, thick to medium parting; irregular to hackly fracture. Some very fine buff to dark brownish gray streaks (fine radiating acicular masses to very fine grains on parting surfaces). An irregular fracture with horizontal striations and very fine silky crystals from top to 1785.0 feet (like 1768.8 feet).
1785.3	1786.3	Oil shale: dark to some medium brownish gray (10YR 2/2-3/2, some 4/2 lower part); rare slight satiny luster. Very faint to faint fairly smooth laminations and streaked bedding. Smooth to slightly irregular, thin to thick shaly parting; hackly fracture. Rare very fine vitreous black organic blebs and streaks. Rare very fine dark brownish gray crystalline stringers in lower part (like 1765.8 feet).
1786.3	1787.8	Oil shale: medium to some dark brownish gray and brown (10YR & 2.5Y 4/2-5/2 & 5/3, some 3/2-2/2). Faint to moderately distinct, fairly smooth to distorted laminations; common irregular loop structures and displacements.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		<p>Slightly irregular to very irregular, medium to thick parting; irregular coarse hackly fracture. Some fine irregular dark pyritic blebs and streaks. A 1-inch very faintly bedded medium brown band with some fine dark blebs at 1787.3 feet.</p> <p>Sample of brown band with fine dark blebs from 1787.3 feet:</p> <p>X-ray - dolomite, quartz, illite; some ferroan, feldspar (Na and K), pyrite.</p>
1787.8	1788.8	<p>Oil shale: dark brownish gray to rare brownish black and dark to medium brown (10YR 2/2-3/2, rare 1/2 & 3/3-5/3); rare satiny to resinous luster. Very faint fairly smooth laminations and streaked bedding (inclined 20-25°); a dark to medium brown wedge-shaped mass (2 inches thick at edge of core) with intricately contorted drag-folded (?) laminations at top; some wavy truncated laminations at 1788.6 feet. Slightly irregular thick to thin parting; very hackly fracture. Some very fine vitreous black organic streaks in lower part (some are fish fragments).</p>
1788.8	1790.9	<p>Oil shale: dark to medium and rare light brownish gray (10YR & 2.5Y 3/2-5/2, rare 6/2). Faint to moderately distinct, fairly smooth to some distorted laminations and streaked bedding (slightly inclined); common fine irregular loop structures and displacements in lower part. Slightly irregular to irregular, thick to rare thin parting; irregular hackly fracture. Some fine dark pyritic blebs and streaks. Rare fine short natural vertical fractures with slight resinous brown coatings in upper part. A 0.1-foot very faintly bedded medium brownish gray band with some fine dark pyritic blebs at 1790.1 feet.</p> <p>Sample of faintly bedded brownish gray band with fine dark blebs from 1790.1 feet:</p> <p>X-ray - dolomite, quartz, illite, some feldspar (Na & K).</p>
1790.9	1791.9	<p>Oil shale: dark to medium brownish gray (10YR & 2.5Y 2/2-4/2). Very faint to faint fairly smooth laminations and streaked bedding (slightly inclined); slightly irregular to very smooth thick parting; hackly fracture. Common <u>very</u> fine buff to dark brownish gray blebs and streaks (very fine grains on parting surfaces). Very rare very fine silty-textured pyrite streaks.</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1791.9	1795.0	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2-4/2 & 4/1, some 2/2, rare 5/2-5/1). Faint smooth to some intricately contorted and displaced laminations and streaked bedding. Slightly irregular to very smooth, thick to medium and rare thin shaly parting; hackly fracture. Very common <u>very</u> fine buff to brownish gray blebs and streaks. Rare fine vitreous black organic blebs and streaks (some are fossil fragments). Some very fine disseminated pyrite in middle part. A fine broken gray silty-textured lamina at 1793.6 feet. Intricately contorted and displaced zones at 1792.3 to 1792.5, 1793.6 to 1793.7 and 1794.6 to 1794.9 feet.
1795.0	1796.5	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2 & 3/1-4/2 & 4/1). Very faint smooth to some intricately contorted and displaced laminations and streaked bedding. Smooth to some irregular, thick to thin shaly parting (unctuous in lower part); irregular to some coarse hackly fracture. Common very fine buff to brownish gray blebs and streaks in upper part. Very rare fine vitreous black organic streaks.
1796.5	1799.0	Oil shale: dark to medium brownish gray (2.5Y 3/2 & 3/1-4/2 & 4/1, some 5/2 lower part). Very faint to some moderately distinct, contorted to smooth laminations and streaked bedding. Irregular and some wavy to very smooth, thick to thin shaly parting (some very unctuous); irregular to coarse hackly fracture. Common very fine buff to tan blebs in upper part. Some irregular glossy shear surfaces. Very rare fine black fossil fragments on parting surfaces (some fish ribs). Some very irregular core pieces near top; true length doubtful. Sample of contorted shale with common fine tan to buff blebs and some pyrite from 1797.2 feet: X-ray - quartz, illite; some dolomite, analcite, feldspar (Na and K), pyrite, ferroan. Sample of dark brownish gray unctuous shale from 1798.8 feet: X-ray - illite, quartz; some pyrite, feldspar (Na and K).
1799.0	1808.0	Missing.
1808.0	1808.8	Oil shale, mudstone and dolomite: dark to medium brownish gray oil shale (2.5Y 3/2-5/2 & 5/1), medium to light gray mudstone (5-6N), and medium brownish gray to tan dolomite (2.5Y 5/2-6/3). Faint smooth laminations and streaked bedding; a 0.2-foot faintly bedded mudstone band near

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		<p>middle; tan dolomite with very fine distinct slightly wavy dark oil-shale laminae in lower 2 inches. Slightly irregular thick to medium parting; slight hackly to irregular fracture. Some very fine disseminated crystals in lower part of thick mudstone band.</p> <p>Sample of finely laminated brownish gray oil shale and gray mudstone from 1808.0 feet: X-ray - quartz, illite; some pyrite, analcite, feldspar (Na and K).</p> <p>Sample of thick gray mudstone band with very fine crystals from 1808.5 feet: X-ray - quartz, ferroan, illite; some pyrite, feldspar (Na and K).</p> <p>Sample of brownish gray to tan dolomite with very fine dark oil-shale laminae from 1808.7 feet: X-ray - dolomite; some quartz, illite, feldspar (Na and K).</p>
1808.8	1810.0	<p>Oil shale: dark to rare medium brownish gray and brownish black (10YR & 2.5Y 3/2-2/2, rare 4/2 & 1/2); some very slight satiny luster. Faint to very faint fairly smooth laminations and streaked bedding. Smooth to slightly irregular, thick to thin shaly parting; hackly fracture. Rare very fine medium to dark brownish gray crystalline streaks. Very rare fine medium brownish gray to brownish black cherty (?) blebs. Some to common <u>very</u> fine vitreous black organic streaks (<u>fish ribs, fins, spines, and rare vertebrae</u>).</p>
1810.0	1811.0	<p>Oil shale: dark to medium brownish gray and rare brown (10YR 3/2-4/2, rare 4/3-5/3). Faint to rare moderately distinct, slightly distorted and displaced to smooth laminations. Slightly irregular and wavy to very smooth, thick to thin shaly parting (slightly unctuous); irregular coarse hackly fracture. A 0.1-foot medium brown to buff-white faintly bedded tuff at top, with some fine dark brownish gray crystalline stringers; flat smooth contact at top and wavy contact at base with some fine irregular interfingering shale stringers. Very rare fine dense dark brown dolomite stringers.</p>

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1811.0	1812.5	Oil shale: dark to medium brownish gray and rare brown (2.5Y & 10YR 3/2-5/2, rare 4/3-5/3). Faint to rare moderately distinct, smooth and rare distorted laminations and streaked bedding. Smooth to rare irregular, medium to thin shaly parting (slightly unctuous); irregular hackly fracture. Some fine short vertical black pyritic fracture fillings and irregular stringers in middle part.
1812.5	1813.5	Oil shale: dark and rare medium brownish gray and brown to some brownish black (10YR 3/2 & 3/3-2/2, some 1/2, rare 4/3); some very slight satiny luster. Moderately distinct to very faint, slightly irregular and distorted laminations; some fine loop structures and displacements. Fairly smooth and some irregular, medium to thin shaly parting; hackly fracture. Rare irregular very fine silty-textured olive gray pyrite crusts on parting surfaces.
1813.5	1814.9	Oil shale: dark brownish gray to brownish black, rare dark brown in lower part (10YR 2/2-1/2, some 3/2, rare 3/3); some satiny to rare resinous luster. Very faint smooth to some slightly distorted laminations and streaked bedding; rare fine to small loop structures and displacements. Very regular to slightly irregular, thin to rare thick shaly parting; coarse hackly to irregular fracture. Very rare fine light-colored silty-textured pyrite streaks.
1814.9	1817.4	Oil shale: medium to dark and rare light brownish gray (10YR & 2.5Y 4/2-3/2, some 5/2-6/2 lower part). <u>Very faint</u> distorted to smooth streaked bedding; faint smooth laminations in lower 0.5 foot. Irregular to smooth, thick to medium parting; irregular fracture. Rare fine olive gray silty-textured pyritic streaks and blebs. Very rare fine black glassy blebs. <div style="margin-left: 2em;">Sample of very faintly bedded oil shale from 1816.5 feet: X-ray - quartz, dolomite; some feldspar (Na and K), illite, pyrite.</div>
1817.4	1818.5	Oil shale: medium to dark brownish gray (2.5Y 4/2-3/2, some 5/2 lower part). Faint smooth laminations; some fine displacements. Smooth to some irregular, thin to thick shaly parting; coarse hackly to irregular fracture.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Some very fine white silky streaks at 1817.8 feet. A finely wrinkled diagonal glossy shear surface at 1817.8 to 1817.9 feet. Very rare very fine brown to brownish gray crystalline laminae and streaks in lower part.
		Sample of shale with very fine silky streaks from 1817.8 feet:
		X-ray - dawsonite, quartz; some illite, pyrite, dolomite.
1818.5	1820.0	Oil shale: dark to medium brownish gray, some medium brown in lower part (2.5Y & 10YR 3/2-4/2, some 4/3-5/3 lower part). Faint smooth to slightly distorted laminations; rare fine displacements. Smooth to some irregular, thin to thick shaly parting (some glossy); coarse hackly to irregular fracture. Rare very fine brown to dark brownish gray crystalline streaks and laminae. Rare fine light gray to buff, silty to fibrous laminae.
		Sample of light gray silty lamina from 1819.2 feet:
		X-ray - dawsonite, ferroan; some feldspar (Na and K), pyrite.
1820.0	1821.5	Oil shale: dark brownish gray and brown to rare brownish black (10YR 3/2 & 3/3-2/2, rare 1/2); some satiny to very rare resinous luster. Very faint to faint smooth laminations to some distorted streaks and stringers. Smooth to slightly irregular and rare wavy, thick to thin shaly and some papery parting (some glossy parting surfaces); irregular to very hackly fracture. A 1/2-inch dark to medium brown porous band with some pyrite and very fine bladed crystals at 1820.3 feet. Rare fine black organic streaks and blebs in lower part.
		Very rare fine pyrite streaks in lower part.
		Sample of brown porous band from 1820.3 feet:
		X-ray - dawsonite, feldspar (Na and K), analcite, some quartz.
1821.5	1822.9	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2-4/2, rare 2/2). Very faint smooth laminations and streaked bedding. Very regular medium to thick parting; slight hackly fracture. Rare fine black organic streaks and blebs. Rare fine brown prismatic calcite streaks and laminae.
		Sample of prismatic calcite from 1822.0 feet:
		X-ray - calcite.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1822.9	1824.4	Oil shale: dark and rare medium brownish gray (10YR 3/2-2/2, rare 4/2); rare satiny luster. Very faint very slightly distorted to smooth laminations and streaked bedding; rare fine loop structures and displacements. Slightly irregular to smooth, thick to some thin shaly parting; slightly irregular to hackly fracture. Very common fine calcite streaks in upper part (some slightly prismatic). Rare fine black organic blebs and streaks (some may be fish fragments).
1824.4	1825.4	Oil shale: dark to rare light brownish gray and some brown (2.5Y 3/2 & 3/1-5/2, some 5/3, rare 6/2, some 10YR 3/2-4/2 & 4/3 near top). Faint smooth to distorted laminations and streaked bedding; common fine displacements. Fairly smooth to very irregular, medium to thick parting; irregular coarse hackly fracture. A very fine displaced dark gray silty lamina with some pyrite at 1825.2 feet. Sample of oil shale with irregular parting and fracture from 1824.8 feet: X-ray - quartz, illite; some pyrite, dolomite, feldspar (Na and K).
1825.4	1827.1	Oil shale: medium to dark brown and some brownish gray (10YR 4/3-3/3, some 4/2-3/2, rare 5/3 & 2/2); rare satiny luster. Very faint smooth to distorted streaked bedding; some distorted to smooth laminations near base. Slightly irregular to very irregular thick parting; irregular fracture. Some very fine silty-textured olive gray pyrite crusts on parting surfaces. A moderately large irregular brown mass with some dark brownish gray to milky white cherty quartz at 1826.3 feet. Sample of brown mass with cherty quartz from 1826.3 feet: X-ray - quartz; trace pyrite, dolomite.
1827.1	1829.5	Oil shale: dark brownish gray and rare brownish black (10YR 3/2-2/2, rare 1/2); some to common satiny and rare resinous luster. Very faint smooth to slightly distorted laminations and streaked bedding. Smooth thick parting in upper part to thin shaly and rare papery parting in lower part; slightly irregular to very hackly fracture; some is very elastic and tough. Some very fine silty-textured pyrite streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of rich papery shale from 1828.7 feet: X-ray - illite, quartz, pyrite; some feldspar (Na and K), dolomite, ferroan?
1829.5	1831.0	Oil shale: dark brownish gray and brown (10YR 3/2-3/3); rare to very common very fine dark resinous streaks. <u>Very</u> faint smooth streaked bedding. Fairly smooth to some irregular, thick to medium parting; irregular hackly fracture. Rare very fine silty-textured pyrite streaks and blebs.
1831.0	1832.1	Oil shale: dark brownish gray and some brown to rare brownish black (10YR 3/2-2/2, some 3/3, rare 1/2); common satiny to some resinous and waxy luster. Faint to very faint, distorted to fairly smooth laminations and streaked bedding; common moderately large to fine loop structures. Smooth to slightly "curly," thick to rare thin shaly parting; irregular hackly fracture. Rare fine silty-textured pyrite streaks. Very rare fine medium to dark brownish gray crystalline streaks and stringers. Common very irregular dense to silty-textured brown oil-stained crystalline stringers at 1831.9 to 1832.0 feet. A thin irregular very light yellowish buff earthy stringer at 1832.0 feet, with common fine irregular fractures with brown varnish-like coatings.
		Sample of very light buff stringer from 1832.0 feet: X-ray - mixed layer clay, feldspar (Na and K); some analcite, plumbogummite??
1832.1	1833.1	Oil shale: medium to dark brownish gray (10YR 4/2-3/2). Very faint smooth laminations. Fairly smooth and some irregular, thin to thick shaly parting; coarse hackly to slightly irregular fracture. Very rare very fine pyrite streaks.
1833.1	1834.1	Oil shale: dark brownish gray and rare brownish black (10YR 3/2-2/2, rare 1/2). Very faint smooth to very slightly distorted laminations and streaked bedding. Smooth medium to thick shaly parting; slight to fairly coarse hackly fracture. Rare very fine black organic streaks (some may be fish fragments). Very rare very fine brownish gray crystalline streaks. Very rare very fine silty-textured pyrite streaks (olive green on parting surfaces).

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1834.1	1835.4	Oil shale: dark to some medium brownish gray (10YR 3/2-2/2, some 4/2). Very faint smooth laminations. Slightly irregular to very smooth, medium to thick shaly parting (some slightly unctuous); irregular to some coarse hackly fracture. Rare fine dense to silty-textured brown streaks and laminae near top. Rare very fine silty-textured pyrite streaks in lower part. Rare small dark glassy lenses near base.
1835.4	1836.4	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2-4/2, rare 2/2). Very faint smooth to some distorted laminations and streaked bedding; rare fine displacements. Smooth to some very irregular, medium to thin shaly and rare papery parting (unctuous); very hackly fracture. Rare very fine silty-textured to massive pyrite streaks and blebs. A 3/4-inch dense massive dark gray (slightly olive) band at top. Some thin irregular dense brownish gray stringers with common pyrite stringers and patches at 1835.7 to 1835.8 feet. Sample of massive dark gray band from 1835.4 feet: X-ray - illite, quartz, dolomite, pyrite, some feldspar (Na and K).
1836.4	1837.4	Oil shale: dark to medium brownish gray and brown, rare brownish black (10YR 2/2-4/2 & 4/3, rare 5/2 & 1/2); rare slight satiny luster in lower part. Very faint to some moderately distinct, smooth to slightly distorted laminations; some fine loop structures in lower part. Fairly smooth to some irregular, thin to medium shaly parting; irregular fairly coarse hackly fracture. A short irregular diagonal glossy shear surface at top with very fine slickensides. Very rare fine gray to olive gray silty-textured pyritic streaks and blebs. A thin irregular dense brownish gray stringer at 1836.7 feet.
1837.4	1838.4	Oil shale: dark brownish gray and brown to brownish black (10YR 3/2 & 3/3-1/2); very common satiny luster. Faint to <u>very</u> faint, slightly distorted to very smooth laminations and streaked bedding. Very regular thick to thin shaly parting; slight hackly fracture. A very irregular very fine vertical fracture with silty-textured pyrite fillings in middle part; rare very fine silty-textured pyrite streaks in middle part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1838.4	1840.4	Oil shale: dark to some medium brownish gray (10YR 2/2-3/2, some 4/2 lower part); rare slight satiny luster near top. Very faint to faint, smooth and rare slightly distorted laminations and streaked bedding. Smooth to slightly irregular, medium to thick shaly parting; irregular fairly coarse hackly fracture. Rare very fine silty-textured pyrite streaks. Rare very fine brown crystalline streaks and laminae in upper part. Some very fine black organic streaks in lower part (some are fish fragments). A very thick faintly bedded dense gray (slightly olive) band at 1839.6 to 1840.0 feet (like 1835.4 feet).
1840.4	1841.8	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2); very common satiny luster. <u>Very</u> faint smooth laminations and streaked bedding. Very smooth to some slightly irregular, thick to thin shaly parting; hackly to some slightly conchoidal fracture. Very rare very fine silty-textured pyrite streaks and blebs. Very rare very fine black organic streaks in upper part. Very rare very fine brown crystalline streaks in lower part. Some irregular dense very dark brownish gray stringers near base.
1841.8	1842.8	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2, rare 3/2); very common resinous to rare waxy luster. <u>Very</u> faint slightly distorted laminations and streaked bedding; very common fine to small loop structures. Slightly irregular to slightly "curly," papery to medium shaly parting; very hackly fracture; elastic and tough. Very rare very fine brownish gray crystalline streaks and stringers. Rare fine black organic fossil fragments.
1842.8	1843.8	Oil shale: dark and rare medium brownish gray to rare brownish black (10YR 3/2-2/2, rare 4/2 & 1/2); common slight satiny to rare resinous luster. Very faint to faint, smooth to slightly distorted laminations and streaked bedding; some fine loop structures. Very smooth to slightly irregular and rare "curly," thin to thick shaly parting; hackly fracture. Rare very fine silty-textured pyrite streaks. Very rare black organic fossil fragments (some bones and scales).

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Laramie Petroleum Research Center, Laramie, Wyoming

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1843.8	1846.0	Oil shale: dark brownish gray and brown, rare brownish black in upper part (10YR 3/2 & 3/3-2/2, rare 1/2); rare slight satiny luster in upper part. Very faint smooth to distorted streaked bedding and rare laminations. Fairly smooth to some irregular thick parting; irregular and some hackly fracture. Rare very fine silty-textured pyrite streaks.
1846.0	1847.0	Oil shale: dark to medium brownish gray and brown (10YR 3/2 & 3/3-4/2 & 4/3). Faint slightly distorted streaked bedding. Irregular thick parting; irregular and some hackly fracture. Some very fine buff streaks in middle part. A 0.4-foot very faintly bedded, medium brownish gray (2.5Y 4/2-5/2) band at base with some very small dark glassy nodules.
1847.0	1848.2	Oil shale: medium brown and brownish gray with very fine dark brownish gray to brownish black streaks (10YR 4/3-4/2, some 5/3 upper part, rare 3/2-1/2). Faint to <u>very</u> faint distorted streaked bedding; some distorted laminations with loop structures near top. Slightly irregular to irregular thick parting; irregular fracture. Very rare very fine dark pyritic streaks. Rare fine tan streaks and blebs near top.
1848.2	1850.2	Oil shale: dark brownish gray (10YR 3/2-3/1, some 2/2). Very faint smooth to very slightly distorted laminations and streaked bedding; rare fine loop structures. Very smooth to some slightly irregular, thick to thin shaly and rare papery parting; very hackly fracture. Some fine to thin crystalline calcite streaks in upper part. Rare fine black organic streaks and lenses.
1850.2	1853.6	Oil shale and silicic marlstone: medium to dark brownish gray oil shale (2.5Y 4/2 & 4/1-3/2 & 3/1) and medium gray silicic marlstone (4-5N; some very slight green to brown tint). Faint very smooth to rare distorted laminations and streaked bedding in oil shale with common fine marlstone laminae and some bands up to 2 inches thick. Fairly smooth to irregular, thick to rare thin shaly parting (unctuous); irregular to hackly fracture. Rare very fine black organic streaks and lenses (some may be <u>fish fragments</u>). Some thin to medium faintly laminated dense brownish gray dolomite bands at 1850.5, 1852.2, and 1852.4 feet.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of gray silicic marlstone band from 1851.9 feet: X-ray - quartz, illite, dolomite, feldspar, pyrite, marcasite?
1853.6	1854.6	Oil shale: medium to dark brownish gray and brownish black, rare medium to dark brown in lower part (2.5Y & 10YR 4/2 & 4/1-1/2, rare 4/3-3/3); common satiny luster in lower part. Faint to <u>very</u> faint smooth laminations and streaked bedding. Slightly irregular to very smooth, medium to rare thin shaly parting (some slightly unctuous near top); slight hackly fracture. Common very fine black organic streaks (some <u>fish fragments</u>). Rare very fine pyrite streaks and blebs. Some very fine dense dark brownish gray dolomite (?) laminae in upper part; a 1-inch faintly laminated dolomite band at 1854.3 feet.
		Sample of dense dark brownish gray dolomite from 1854.3 feet: X-ray - dolomite.
1854.6	1855.6	Oil shale: brownish black to dark brownish gray (10YR & 2.5Y 1/2-2/2, rare 3/2 near base); common satiny luster in upper part. <u>Very</u> faint very smooth streaked bedding and some laminations. Very regular to slightly irregular, thick to thin shaly parting; slightly irregular to hackly fracture. Some very fine black organic streaks. Rare very fine gray laminae near base.
		Sample of normal rich oil shale from 1855.0 feet: X-ray - quartz, illite; some pyrite, feldspar (Na and K), dolomite.
1855.6	1857.1	Silicic marlstone and rare oil shale: medium gray marlstone (4-5N; some very slight brown tint) and dark brownish gray oil shale (2.5Y 3/2-2/2). Very faintly bedded marlstone with some very fine oil-shale streaks and rare thin zones of smoothly laminated oil shale. Irregular thick parting and irregular to conchoidal fracture in marlstone; shaly to papery parting and hackly fracture in thin oil-shale zones. Rare irregular slightly glossy shear surfaces with very fine vertical slickensides. Irregular broken up core pieces in upper part; true length doubtful.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1857.1	1858.1	<p>Oil shale: dark to some medium brownish gray and rare tan (2.5Y 3/2-2/2, some 4/2-4/1, rare 5/2-6/3 lower part). Very faint to faint smooth laminations and streaked bedding. Very regular to some irregular, medium to thick shaly parting (some slightly unctuous); coarse to slight hackly fracture. Rare very fine black organic streaks (some <u>fish ribs, scales, and vertebrae</u>). Gray silicic marlstone bands at 1857.2 (1 inch) and 1857.7 (3/4-inch) feet. A fine dense dark brownish gray lamina with a fine pebbly upper surface at 1857.6 feet.</p> <p>Sample of dark brownish gray pebbly lamina from 1857.6 feet: X-ray - sanidine, plumbogummite??; some illite, pyrite.</p>
1858.1	1859.0	<p>Silicic marlstone and some oil shale: medium gray marlstone (4-5N; some very slight greenish tint); dark brownish gray oil shale (2.5Y 3/2-2/2). Very faintly bedded to massive marlstone; a 2-inch zone of smoothly laminated oil shale with common fine gray marlstone laminae at 1858.6 feet. Very irregular thick parting; irregular to conchoidal fracture. A short irregular vertical fracture with brownish varnish-like coatings at top extends 1/4 inch into shale above. Several irregular diagonal glossy shear surfaces with fine slickensides and normal drag folds (?) in lower part (end abruptly at shale contacts above and below).</p>
1859.0	1860.1	<p>Oil shale and some silicic marlstone: dark to some medium brownish gray oil shale (2.5Y 3/2-2/2, some 4/2-4/1) and medium gray to brownish gray marlstone (5N-2.5Y 5/1). Faint smooth to some very slightly distorted laminations and streaked bedding; faintly bedded marlstone with some very fine oil-shale streaks and shreds at 1859.4 to 1859.7 feet. Smooth to some irregular, thick to thin shaly parting (some slightly unctuous); slightly irregular to hackly fracture. Rare very fine black organic streaks (<u>fish fragments</u>). A 1-1/2-inch zone of dense medium to light brownish gray dolomite with common very fine slightly wrinkled dark oil-shale laminae and streaks at 1859.2 feet. Rare very fine dense dark brownish gray dolomite streaks and lenses in lower part. Rare very fine pyrite streaks and blebs in lower part.</p>

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1860.1	1861.1	Oil shale: dark brownish gray to brownish black (2.5Y & 10YR 2/2-1/2, some 3/2); common satiny luster. Very faint smooth to slightly distorted laminations and streaked bedding; some very fine loop structures in lower part. Smooth to slightly irregular and rare slightly "curly," thick to thin shaly parting; slightly conchoidal to coarse hackly fracture. Very common very fine black organic streaks (<u>fish fragments?</u>). Rare fine dense dark to medium brownish gray dolomite laminae and lenses. Very rare very fine pyrite streaks. A thin gray-white (top) to yellowish tan (bottom) band at 1860.4 feet--smooth flat contact at top; very wavy contact at base. <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;"> <p>Sample of white to yellowish tan band from 1860.4 feet: X-ray - mixed layer clay, sanidine; some albite, plumbogummite??</p> </div>
1861.1	1861.7	Silicic marlstone: medium brownish gray and medium gray (2.5Y 5/1 & 5-4N). Very faintly bedded. Irregular parting; irregular to conchoidal fracture. A fine smooth brownish black oil-shale laminae near middle; rare very fine oil-shale streaks in other parts. A short vertical fracture with slight brown varnish-like coatings near middle. A 3/8-inch, abruptly terminated, very fine-grained pyrite lamina at base.
1861.7	1862.6	Oil shale and some silicic marlstone: dark to medium brownish gray oil shale (2.5Y 2/2-4/2 & 4/1) and medium to light gray marlstone (5-6N). Faint smooth laminations and some streaked bedding; two faintly bedded 1-inch marlstone bands in upper part. Smooth to some very irregular, thin to thick shaly parting; irregular to coarse hackly fracture. Some very fine black organic streaks (<u>fish fragments</u>). Some thin to fine dense brownish gray dolomite laminae in lower part with some short bitumen-stained vertical fractures and rare fine pyrite streaks and blebs.
1862.6	1864.4	Silicic marlstone and some oil shale: medium gray and brownish gray marlstone (4-5N and 2.5Y 4/1-5/1) and dark to medium brownish gray oil shale (2.5Y & 10YR 2/2-4/2 & 4/1). Very faintly bedded marlstone with some fine to thick zones of smoothly laminated oil shale. Very irregular to some smooth, thick to medium parting (unctuous); conchoidal to rare irregular coarse hackly fracture. Rare <u>black fish fragments</u> in oil shale.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1864.4	1865.6	Oil shale and some silicic marlstone: medium to some dark brownish gray oil shale (10YR & 2.5Y 4/2 & 4/1-5/2 & 5/1, some 3/2 in upper part) and medium gray marlstone (5N). Faint smooth to rare slightly distorted laminations; some thin to medium marlstone bands in middle part. Very irregular thick to medium parting (some unctuous); very irregular fracture. Some black fish fragments (some have common very fine drusy crystals). Rare fine pyrite streaks. A fine short irregular vertical fracture with pyrite fillings in lower part. Rare irregular glossy shear surfaces. Sample of fossil fragments with very fine drusy crystals from 1865.0 feet: X-ray - dolomite, some siderite?
1865.6	1866.6	Oil shale: medium to dark brownish gray (2.5Y & 10YR 4/2-3/2, rare 2/2). Faint smooth to slightly distorted laminations; rare fine displacements. Irregular to smooth, thick to thin shaly parting (slightly unctuous); irregular coarse hackly fracture. Rare black fish fragments. A 0.1-foot faintly laminated tapering band of dense brownish gray dolomite at top.
1866.6	1867.6	Oil shale: dark brownish gray and rare brown to brownish black (10YR 2/2-1/2, rare 3/2-3/3 upper part); common satiny luster. Faint to very faint, smooth to very slightly distorted laminations and streaked bedding; rare fine loop structures in lower part. Smooth to slightly irregular, thick to rare thin shaly parting; slightly irregular to some hackly fracture. Very rare very fine buff silty-textured to earthy streaks.
1867.6	1869.0	Oil shale: dark brownish gray to brownish black (10YR & 2.5Y 3/2-1/2); common satiny luster in upper part. Faint very distorted streaks and stringers in upper part to very faint fairly smooth laminations and streaked bedding in lower part. Irregular to fairly smooth, thick to rare thin parting; irregular and coarse hackly to slight hackly fracture. Common fine to thin inter-fingering medium brownish gray marlstone or dolomite stringers with rare fine to small pyrite patches and streaks in upper part. Some small to moderately large black organic lenses and nodules in upper part (up to 3/4 x 1-1/4 x 2+ inches)--some with very common very fine disseminated crystals. A thin irregular light brownish gray very fine-grained crystalline stringer at 1868.3 feet.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		Sample of light brownish gray crystalline stringer from 1868.3 feet: X-ray - mixed layer clay, dolomite, ferroan.
		Sample of small black lenses with common very fine crystals from 1868.4 feet: X-ray - apatite.
1869.0	1871.0	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2-4/2). Very faint to faint, smooth to some slightly distorted laminations. Smooth to some very irregular, medium to thick parting (slightly unctuous in lower part); slight hackly to irregular fracture. Rare thin dense brown dolomite stringers.
1871.0	1872.5	Oil shale: dark brownish gray to some brownish black (10YR & 2.5Y 3/2-2/2, some 1/2); rare slight satiny luster. Faint to <u>very</u> faint smooth laminations and streaked bedding. Slightly irregular to very smooth, thick to medium shaly parting; irregular to coarse hackly fracture. Some very fine black organic streaks and rare small lenses. A 1-3/4-inch massive olive gray silicic marlstone band at 1871.7 feet.
1872.5	1873.0	Oil shale: medium to rare dark brownish gray and olive gray (2.5Y & 5Y 5/2-4/2, rare 3/2). Faint distorted and displaced to smooth laminations. Very irregular to slightly irregular, thick to thin parting; irregular fracture. Some fine broken dense light brownish gray dolomite laminae at top.
1873.0	1875.1	Oil shale: dark brownish gray and rare dark brown (2.5Y & 10YR 2/2-3/2, rare 3/3 near base). Very faint smooth streaked bedding and some laminations. Slightly irregular to very smooth, thick to rare thin shaly parting; hackly fracture. Some very fine black organic streaks and rare small nodules. Very rare very fine medium brown to tan, earthy to crystalline streaks and stringers. A fine dark gray silty-textured stringer at 1874.3 feet.
1875.1	1876.3	Oil shale: dark to rare medium brownish gray (2.5Y & 10YR 2/2-3/2, rare 4/2). Very faint to faint smooth laminations and streaked bedding. Smooth to slightly irregular, thin to thick shaly parting; hackly fracture. Some very fine black organic streaks and rare small nodules with very fine disseminated crystals. Rare thin dense dark brown dolomite bands. A 0.3-foot gray marlstone band at top with rare fine distorted oil-shale streaks and stringers.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1876.3	1877.3	Oil shale: dark brownish gray and very rare brownish black (10YR 3/2-2/2, rare 1/2). Faint smooth laminations and streaked bedding. Smooth to some irregular, thick to medium shaly parting; irregular hackly fracture. Rare very fine black organic streaks and small nodules in upper part. Some <u>very</u> fine disseminated pyrite (?) near base. A very smooth slightly inclined glossy shear surface with very fine slickensides at 1877.2 feet.
1877.3	1878.0	Oil shale: medium to dark brownish gray, very rare fine dark to medium brown laminae in lower part (2.5Y 4/2 & 4/1-3/2 & 3/1, rare 3/3-4/3). Very faint slightly distorted and displaced laminations and streaked bedding. Smooth to very irregular, medium to thick parting; irregular to very coarse hackly fracture. Some irregular core pieces at base; true length doubtful.
1878.0	1879.0	Missing?
1879.0	1881.0	Oil shale or marlstone: dark brownish gray and olive gray (2.5Y & 5Y 3/1 & 3/2-2/1 & 2/2; some almost neutral). <u>Very</u> faint slightly distorted to smooth streaked bedding. <u>Very</u> irregular parting and fracture. Very badly broken up and mixed up; true length very doubtful.
1881.0	1883.0	Oil shale: dark brownish gray and olive gray (2.5Y & 5Y 3/1-2/1). Very faint slightly distorted to smooth laminations. Irregular thick parting in upper part to very smooth medium shaly parting in lower part; irregular to coarse hackly fracture. Some irregular very glossy shear surfaces with fine slickensides in upper part.
1883.0	1884.0	Oil shale: dark brownish gray and rare dark brown (2.5Y & 10YR 3/2-2/2, rare 3/3 upper part); some very slight satiny luster in lower part. Very faint smooth to rare slightly distorted streaked bedding and rare laminations. Smooth to slightly irregular, thick to rare thin shaly parting; slightly irregular to hackly fracture. Rare very fine very light-colored pyrite streaks and blebs in upper part. Rare very fine brown crystalline stringers and blebs in lower part.
1884.0	1886.0	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2); very common slight satiny luster. <u>Very</u> faint smooth streaked bedding and rare laminations. Slightly irregular to smooth, thin to thick shaly parting; fine hackly to irregular fracture. Very rare very fine brownish gray crystalline streaks and stringers in upper part. Very rare fine black organic streaks in lower part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1886.0	1887.0	Oil shale: dark brownish gray (10YR & 2.5Y 2/2-3/2). Very faint smooth streaked bedding and rare laminations. Smooth to slightly irregular, medium to thick parting; irregular coarse hackly fracture. Very rare fine silty-textured pyrite streaks and stringers.
1887.0	1888.0	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2-4/2). Very faint smooth laminations and streaked bedding. Smooth to some irregular, thick to medium parting; coarse to slight hackly fracture. Rare fine dark gray to black pyritic streaks, blebs, and irregular fracture fillings. A glossy corrugated shear surface with fine slickensides near base.
1888.0	1889.8	Oil shale: medium and rare dark brownish gray (2.5Y 4/2-5/2, rare 3/2; some very slight olive tint). Very faint smooth laminations; rare very fine displacements. Irregular thick to thin parting (slightly unctuous); irregular hackly fracture. Rare very fine dark pyritic blebs, streaks, and fracture fillings. Very rare fine black plant (?) fragments on parting surfaces.
		Sample of shale with rare fine dark pyritic streaks and blebs from 1888.6 feet: X-ray - pyrite; some illite, quartz, dolomite.
1889.8	1890.8	Oil shale: medium and rare dark brownish gray (2.5Y & 10YR 4/2-5/2, rare 3/2). Very faint slightly distorted laminations and streaked bedding; some very fine displacements. Irregular medium to thick parting (some slightly unctuous); irregular hackly fracture. Rare irregular olive green silty-textured pyrite crusts on parting and fracture surfaces.
1890.8	1892.0	Oil shale: medium to dark brownish gray and some brown (2.5Y & 10YR 4/2-2/2, some 3/3). Faint to very faint, slightly distorted to smooth laminations and streaked bedding; some very fine displacements. Irregular to slightly irregular, thick to medium parting; irregular hackly fracture. Rare very fine silty-textured pyrite streaks and blebs. Some diagonal glossy shear surfaces with slickensides near base.
1892.0	1892.5	Missing?
1892.5	1893.9	Oil shale: dark to medium brownish gray (2.5Y 2/2-4/2). Very faint distorted and displaced to fairly smooth laminations and streaked bedding. Very irregular to some slightly irregular, thick to medium parting

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		(slightly unctuous); very irregular to coarse hackly fracture. Some very irregular glossy shear surfaces in upper part. Very rare fine light-colored silty-textured pyrite streaks.
1893.9	1896.0	Oil shale: dark brownish gray and rare brownish black (10YR & 2.5Y 3/2-2/2, rare 1/2). Very faint smooth and rare slightly distorted streaked bedding and some laminations. Fairly smooth to some irregular thick parting; irregular fracture.
1896.0	1897.7	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2); some very slight satiny luster. <u>Very</u> faint smooth to rare slightly distorted streaked bedding (some slightly inclined). Smooth to slightly irregular thick parting; irregular fracture. Rare very fine silty-textured pyrite streaks. Some very irregular thin dark brownish gray to brownish black bitumen-impregnated silty-textured pyritic crystalline stringers at 1896.5 and 1897.1 feet. { Sample of dark silty-textured pyritic stringer from 1897.1 feet: X-ray - analcite, pyrite; some quartz, feldspar (Na and K). { Sample of normal brownish black oil shale from 1897.5 feet: X-ray - illite, quartz, feldspar (Na and K); some pyrite, ferroan, dolomite.
1897.7	1898.9	Oil shale: dark brownish gray, rare brownish black near top (10YR 2/2-3/2, rare 1/2). Very faint smooth streaked bedding. Fairly smooth to irregular, medium to thick parting; slight hackly to irregular fracture. Rare very fine silty-textured pyrite streaks and blebs. Some very fine black organic streaks in middle part (some are fish fragments). Some irregular diagonal to vertical glossy shear surfaces with slickensides in lower part.
1898.9	1900.0	Oil shale: dark to medium brownish gray (10YR & 2.5Y 3/2-4/2). Very faint fairly smooth laminations and streaked bedding. Irregular to smooth, medium to thick parting (slightly unctuous); irregular coarse hackly fracture. Rare diagonal shear surfaces with slickensides.
1900.0	1901.3	Oil shale: dark and rare medium brownish gray and brown (10YR 3/2 & 3/3-2/2, rare 4/2-4/3 upper part). Very faint very slightly distorted to smooth laminations and

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
		streaked bedding. Irregular to fairly smooth, medium to thick parting; irregular coarse hackly fracture. Some very fine silty-textured pyrite streaks.
1901.3	1904.7	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2, some 3/2 middle part); common very slight satiny luster. <u>Very</u> faint smooth laminations and streaked bedding. Smooth to slightly irregular, thick to rare thin shaly parting; irregular to some sharp hackly fracture. Fairly common to rare very fine silty-textured pyrite streaks.
1904.7	1907.2	Oil shale: dark brownish gray and some brownish black (10YR 2/2-3/2, some 1/2); some very slight satiny luster. <u>Very</u> faint slightly distorted to smooth streaked bedding. Smooth to rare irregular, thick to medium parting; irregular to fairly coarse hackly fracture. Fairly common fine silty-textured pyrite streaks and stringers. Some very fine to rare thin dark brownish gray to brownish black silty-textured to dense massive streaks and stringers with pyrite (probably like 1897.1 feet).
1907.2	1908.2	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2, rare 3/2); common very slight satiny luster. <u>Very</u> faint smooth laminations and streaked bedding. Fairly smooth to slightly irregular thick parting; irregular to slight hackly fracture. Rare very fine black organic streaks. Very rare very fine silty-textured pyrite streaks.
1908.2	1912.6	Oil shale: dark brownish gray and rare brownish black, some dark brown in upper part (10YR 2/2-3/2, some 3/3, rare 1/2); common very slight satiny luster and very rare fine resinous streaks. Very faint to faint, smooth to very slightly distorted streaked bedding. Slightly irregular to irregular thick parting; irregular to slight hackly fracture. Rare very fine silty-textured to massive pyrite streaks and stringers. Rare very fine to thin, dark brownish gray to buff silty-crystalline to very fine granular streaks and lenses in middle part. Sample of dark brownish gray crystalline lens with some very fine buff grains from 1910.1 feet: X-ray - analcite, albite, ferroan, some quartz.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1912.6	1913.8	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2); common very slight satiny luster. Very faint very slightly distorted streaked bedding. Irregular to slightly irregular thick parting; irregular fracture. Very rare very fine dark brownish gray to buff blebs (like 1910.1 feet).
1913.8	1919.5	Silicic marlstone and some oil shale: dark to medium gray marlstone (3-4N; common slight brown to olive tint) and some thick zones of dark to medium brownish gray dense heavy oil shale (10YR & 2.5Y 2/2-4/2). <u>Very</u> faint distorted to fairly smooth streaked bedding and rare laminations. Very irregular thick to medium parting (unctuous); very irregular to conchoidal fracture. Rare irregular glossy shear surfaces with slickensides. Some very irregular core pieces; true length doubtful. Sample of dark gray marlstone from 1916.3 feet: X-ray - illite, quartz; some dolomite, pyrite, ferroan?, feldspar (Na and K).
1919.5	1920.4	Oil shale: medium to dark brownish gray (2.5Y 4/2-2/2); hard, dense and heavy. <u>Very</u> faint fairly smooth streaked bedding. Irregular to fairly smooth, thick to medium parting (slightly unctuous); irregular fracture. Sample of hard dense dark brownish gray oil shale from 1920.1 feet: X-ray - illite, quartz; some feldspar (Na and K), dolomite, ferroan, pyrite.
1920.4	1922.1	Silicic marlstone and oil shale: dark to medium gray and brownish gray (3-4N & 2.5Y 2/2-4/2). Very faint fairly smooth to distorted streaked bedding. Very irregular parting and fracture (unctuous). Rare very irregular glossy shear surfaces. Common very irregular mixed up core pieces; true length very doubtful.
1922.1	1927.5	Oil shale: dark to rare medium brownish gray and brownish black (10YR 2/2-3/2, rare 1/2 in upper and lower parts; some 2.5Y 3/1-4/1 and rare 10YR 4/2 in middle part). Very faint fairly smooth to distorted streaked bedding and some laminations. Very irregular to rare fairly smooth, thick to medium parting (unctuous); very irregular to some very coarse hackly fracture. Some irregular glossy shear surfaces (common near top). Rare natural vertical fractures with very fine black crusts. Some very irregular core pieces (breaks up very badly on splitting); true length doubtful.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1927.5	1929.0	Oil shale and dolomite: dark brownish gray oil shale (2.5Y 3/2 & 3/1-2/2 & 2/1; some almost neutral) and medium brownish gray dolomite (10YR & 2.5Y 4/2). Very faint smooth to slightly distorted and displaced streaked bedding and rare laminations; thick faintly bedded dense dolomite bands at 1927.5 to 1927.7 and 1928.7 to 1928.8 feet. Very irregular to fairly smooth, thick to rare thin parting (unctuous); irregular to conchoidal and rare hackly fracture. Rare slightly inclined glossy shear surfaces with slickensides. Very rare <u>fine black fossil fragments</u> on parting surfaces.
1929.0	1933.5	Oil shale and dolomite: dark to medium brownish gray and olive gray oil shale (2.5Y & 5Y 3/1 & 3/2-4/1 & 4/2, rare 2/2 lower part; some almost neutral) and medium brownish gray and olive gray dolomite (2.5Y & 5Y 4/2 & 4/1-5/2 & 5/1). Very faint to faint, fairly smooth to some very distorted streaked bedding and rare laminations; common distinct medium to thick dense dolomite bands, stringers and rare lenses. Fairly smooth to very irregular, thick to thin parting (unctuous); irregular to coarse hackly and some conchoidal fracture. Rare tight natural vertical fractures in dolomite bands. Very rare <u>fine fossil fragments</u> .
1933.5	1935.2	Oil shale and some dolomite: dark to rare medium brownish gray and brown oil shale (10YR 2/2-3/2 & 3/3, rare 4/2-4/3) and medium brown dolomite (10YR 4/3-5/3); rare very slight satiny luster. <u>Very</u> faint to faint smooth to very slightly distorted streaked bedding with distinct dense massive to faintly streaked dolomite bands at 1933.6 to 1933.7, 1934.2 to 1934.4, and 1935.1 to 1935.2 feet. Slightly irregular to smooth, thick to some thin shaly parting (slightly unctuous); irregular to hackly fracture. Some natural vertical fractures with resinous brown coatings in middle and lower dolomite bands. Some small irregular dark gray to black dense to fine crystalline blebs and lenses in middle and lower dolomite bands. <div style="margin-left: 2em;">Sample of dolomite with small fine-grained tarry crystalline blebs from 1934.3 feet: X-ray - quartz; some dolomite, pyrite, analcite.</div>

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1935.2	1936.4	Oil shale: dark brownish gray (10YR 2/2-3/2). <u>Very</u> faint smooth streaked bedding. Slightly irregular to very smooth, thick to some thin shaly parting (some slightly unctuous); very slight to some coarse hackly fracture. Very rare fine pyrite blebs and streaks.
1936.4	1937.4	Oil shale: dark brownish gray (2.5Y 3/2-2/2). <u>Very</u> faint, fairly smooth streaked bedding. Fairly smooth to very irregular, thin to thick parting (slightly unctuous); irregular coarse hackly fracture. A thin dense dark brown dolomite band at top. Rare very fine silty-textured pyrite streaks and blebs. Very rare fossil fragments on parting surfaces (some <u>fish ribs and scales</u>).
1937.4	1939.0	Oil shale and some marlstone: medium to dark and some light brownish gray (10YR 4/2 & 4/1-3/2 & 3/1, some 5/2-6/2). Moderately distinct to faint smooth laminations. Slightly irregular thick parting; slightly conchoidal to irregular fracture. Very common ostracods (?) on some parting surfaces. Very rare very small brown to black massive lenses and spheres. A diagonal fracture with fine vitreous black striated crusts at 1938.3 feet with some short tight to slightly open vertical fractures above and below; rare fine-tight irregular vertical fractures in other parts. <div style="margin-left: 2em;">Sample of medium to light brownish gray marlstone from 1938.8 feet: X-ray - calcite, quartz.</div>
1939.0	1942.8	Oil shale: dark brownish gray to rare brownish black (10YR 3/2-2/2, rare 1/2); rare slight satiny luster. Very faint smooth laminations and streaked bedding; some distinct medium brownish gray to tan marlstone laminae and stringers at 1939.5 to 1939.6 and 1941.8 to 1942.0 feet. Smooth to some irregular, thick to medium parting; slightly irregular and conchoidal to hackly fracture. A 1-inch band of medium brownish gray fine-grained limestone with rare pyrite and fine irregular fractures filled with transparent calcite at 1940.4 feet. Some ostracods and rare fish scales on parting surfaces in lower part.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1942.8	1943.9	Oil shale: dark brownish gray and some dark brown to very rare brownish black (10YR 3/2-2/2, some 3/3, rare 1/2). Faint to very faint smooth laminations and streaked bedding. Smooth to slightly irregular, medium to thick shaly parting; slightly irregular to rare hackly fracture. Some very fine tan streaks (ostracods on parting surfaces). Rare very fine black organic streaks and blebs.
1943.9	1944.9	Oil shale: dark to medium brownish gray and brown (10YR 3/2 & 3/3-2/2 in upper part, 4/2-4/3 lower part). Very faint smooth streaked bedding. Smooth to slightly irregular, medium to thick parting; slight hackly to slightly irregular fracture.
1944.9	1947.0	Oil shale: dark brownish gray (10YR 2/2, rare 3/2). <u>Very faint smooth to some slightly distorted laminations and streaked bedding.</u> Slightly irregular to smooth, medium to thick parting; irregular to some hackly fracture. Rare very fine silty-textured pyrite streaks. Some very fine black organic streaks in upper part (fish fragments?).
1947.0	1948.0	Oil shale: dark brownish gray to some brownish black (10YR 2/2, some 1/2, rare 3/2); some very slight satiny luster. Very faint smooth streaked bedding. Smooth to slightly irregular, thick to medium parting; irregular coarse hackly fracture. Some very fine black organic streaks (fish fragments) and rare small lenses. Common very fine silty-textured pyrite streaks and stringers in lower part.
1948.0	1950.0	Oil shale: dark brownish gray (10YR 2/2-3/2). Very faint smooth streaked bedding and rare laminations. Smooth to slightly irregular, medium to thick shaly parting; irregular coarse hackly fracture. Some very irregular very fine vertical stringers (fracture fillings) of olive gray silty-textured pyrite.
1950.0	1951.4	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2, rare 3/2); common satiny luster. Very faint smooth streaked bedding. Fairly smooth to rare irregular thick parting; irregular to coarse hackly fracture. Some very fine black organic streaks (fossil fragments); a large black organic lens with some very fine pyrite-filled fractures and very fine drusy crystals at 1950.4 feet. Some very irregular very fine pyrite-filled fractures. <div style="border-left: 1px solid black; padding-left: 10px; margin-left: 20px;"> <p>Sample of organic lens with drusy fracture fillings and some pyrite from 1950.4 feet: X-ray - apatite.</p> </div>

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1951.4	1952.4	Oil shale: dark brownish gray and brown (10YR 3/2-3/3, some 2/2 middle part); rare satiny luster in middle part. <u>Very</u> faint to faint, smooth to very slightly distorted streaked bedding. Smooth to some irregular, thick to medium parting; slightly irregular fracture. Rare very fine silty-textured pyrite streaks and fracture fillings. Very rare very fine tan silty-textured crystalline streaks near base.
1952.4	1955.4	Oil shale: dark brownish gray and brown to brownish black (10YR 3/2 & 3/3-1/2); some satiny luster. Very faint smooth to very slightly distorted streaked bedding in lighter and darker zones. Smooth to rare irregular, thick to medium parting; slightly irregular to some coarse hackly fracture. Fine silty-textured pyritic stringer with common very fine buff specks at 1952.5 and 1953.1 feet. Some fine yellowish buff streak with very fine-grained brown crystalline rims at 1954.2 feet. A fine dense dark brownish gray dolomite (?) lamina at 1954.8 feet.
1955.4	1957.4	Oil shale: dark to medium brownish gray and brown (10YR 3/2 & 3/3-4/2 & 4/3, some 2.5Y 4/2 upper part). Very faint to faint, smooth to very slightly distorted and displaced laminations and streaked bedding. Smooth to rare irregular, thick to medium parting; irregular to slight hackly fracture. Rare small pyrite blebs in upper part. Rare very fine tan to brownish gray crystalline streaks in middle part. A fine blade-like plant fossil on parting surface at 1956.9 feet.
1957.4	1958.4	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2); common satiny luster. <u>Very</u> faint smooth streaked bedding. Fairly smooth to some irregular, thick to medium parting; irregular fracture. Rare very fine black organic streaks.
1958.4	1959.4	Oil shale: dark to medium brownish gray (10YR 3/2-4/2, some 2/2). Very faint to faint, smooth to slightly distorted and commonly displaced laminations and streaked bedding. Irregular thick to thin parting (some slightly unctuous); very irregular coarse hackly fracture.
1959.4	1960.4	Oil shale: dark brownish gray (10YR 2/2, rare 3/2). Very faint smooth streaked bedding. Fairly smooth to some irregular, thick to thin shaly parting; irregular to coarse hackly fracture.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1960.4	1961.4	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2, rare 3/2 lower part); common slight satiny luster upper part. <u>Very</u> faint smooth streaked bedding. Very rare very fine vitreous black organic streaks.
1961.4	1963.4	Oil shale: dark to medium brownish gray and brown (10YR & 2.5Y 3/2 & 3/3-4/2, rare 2/2). Faint smooth to slightly distorted streaked bedding. Slightly irregular to very irregular, thick to medium parting; irregular fracture. Rare very fine tan crystalline streaks. A fine irregular vertical fracture filled with very light-colored pyrite from 1961.6 to 1962.1 feet.
1963.4	1964.5	Oil shale: medium brownish gray and rare dark brown (10YR & 2.5Y 4/2, rare 3/3). Very faint slightly distorted to smooth streaked bedding. Irregular to smooth, thick to thin parting (some slightly unctuous); irregular to coarse hackly fracture. Some very fine tan to brownish gray crystalline streaks. Rare irregular very fine tight natural fractures.
1964.5	1970.0	Oil shale: dark and rare medium brownish gray (10YR 3/2-2/2, rare 4/2 in lower half); very rare very slight satiny luster in upper half. Very faint smooth to some distorted streaked bedding. Smooth to some irregular, thick to thin shaly parting; irregular to coarse hackly fracture. Rare fine diagonal fractures with silty-textured olive gray pyrite. Very rare fine brownish gray crystalline streaks.
1970.0	1974.7	Oil shale: dark brownish gray (10YR & 2.5Y 3/2-2/2). <u>Very</u> faint smooth to some distorted streaked bedding. Irregular thin to medium shaly parting (slightly unctuous); very irregular coarse hackly fracture. Some very fine slightly prismatic crystalline streaks in lower foot. A 3-inch contorted and finely-fractured gray to olive gray and yellowish tan band at base. Sample of shale with fine crystalline streaks from 1974.2 feet: X-ray - illite, quartz, analcite; some magnesite, feldspar (Na and K), pyrite. Sample of gray to olive gray band from 1974.6 feet: X-ray - magnesite (11 percent Fe, 89 percent Mg), analcite, pyrite, some albite.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1974.7	1975.8	Oil shale: dark brownish gray to brownish black (10YR 2/2-1/2). <u>Very</u> faint smooth streaked bedding. Smooth to rare irregular, thick to medium shaly parting; irregular to coarse hackly fracture. Very rare very fine silty-textured pyrite streaks. Very rare very fine brown crystalline streaks in upper part (like 1974.2 feet).
1975.8	1980.0	Oil shale: dark brownish gray (10YR & 2.5Y 3/2-2/2). <u>Very</u> faint smooth to rare slightly distorted and displaced streaked bedding. Smooth to irregular, thick to thin shaly parting; irregular coarse hackly fracture. Some very fine silty-textured pyrite streaks and fracture fillings in middle part.
1980.0	1981.5	Oil shale: dark brownish gray and brown (10YR 3/2 & 3/3-2/2). Faint to <u>very</u> faint, smooth to some distorted laminations and streaked bedding. Smooth to irregular, medium to thin shaly parting; irregular to hackly fracture. Rare fine gray dense to silty-textured laminae in upper part. Rare irregular glossy shear surfaces with slickensides.
1981.5	1982.5	Missing?
1982.5	1983.5	Oil shale: dark brownish gray to rare brownish black (10YR 3/2-2/2, rare 1/2). <u>Very</u> faint fairly smooth streaked bedding. Smooth to irregular, medium to thick shaly parting; coarse hackly to irregular fracture. Irregular core pieces; true length doubtful.
1983.5	1987.2	Oil shale: dark brownish gray, rare dark brown to light brownish gray in upper half (10YR & 2.5Y 3/2-2/2, rare 4/3-6/2). <u>Very</u> faint smooth to rare distorted streaked bedding and some laminations. Smooth to some irregular, thick to thin shaly parting (slightly unctuous in lower part); irregular to coarse hackly fracture. Rare massive black glassy lenses and streaks with light-colored pyrite rims in upper part. Some faintly laminated bands of medium to light brownish gray dense dolomite at 1984.8 to 1985.2 feet.
1987.2	1988.3	Oil shale: dark to medium and rare light brownish gray (10YR & 2.5Y 2/2-4/2, some 5/2-6/2). Moderately distinct slightly distorted and displaced laminations in upper part to very faint slightly distorted streaked bedding in lower part. Irregular thick to medium

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From	To	Description
		parting; irregular to some coarse hackly fracture. A thick irregular dark gray to dark olive gray pyritic stringer with fine contorted and broken shale stringers at 1987.7 to 1988.0 feet. Sample of gray to olive gray pyritic stringer from 1987.8 feet: X-ray - pyrite, marcasite; some analcite, feldspar (Na and K), plumbogummite??
1988.3	1989.9	Oil shale: medium to dark brownish gray (10YR & 2.5Y 4/2 & 4/1-3/2 & 3/1, some 2/2 lower part). Very faint slightly distorted to smooth streaked bedding and some laminations. Very irregular to some smooth, medium to thick parting; very irregular fracture. Some thin to fine, tan to buff, earthy to very fine crystalline stringers and streaks at 1989.4 feet. Rare irregular glossy shear surfaces near base. Sample of thin tan to buff stringer from 1989.4 feet: X-ray - mixed layer clay, ferroan (37 percent Fe, 63 percent Mg); some feldspar (Na and K), plumbogummite??
1989.9	1991.0	Oil shale: dark to some medium and light brownish gray (10YR 3/2-2/2, some 4/2-6/2). Faint to very faint, smooth to slightly distorted laminations and streaked bedding. Fairly smooth to irregular, thick to medium parting; irregular to coarse hackly fracture.
1991.0	1993.7	Oil shale: dark and some medium brownish gray (10YR & 2.5Y 3/2-2/2, some 4/2). Faint to very faint, slightly distorted and commonly displaced to smooth laminations and streaked bedding. Fairly smooth to irregular, medium to thin shaly parting (slightly unctuous); irregular coarse hackly fracture. Rare irregular diagonal glossy shear surfaces.
1993.7	1994.7	Oil shale: dark brownish gray and rare brown (10YR 3/2, rare 3/3). <u>Very</u> faint smooth streaked bedding. Smooth to some irregular, thick to medium parting (some slightly unctuous); slightly conchoidal to irregular fracture.
1994.7	1997.7	Oil shale: dark brownish gray and brown to very rare brownish black (10YR 3/2 & 3/3-2/2, rare 1/2). <u>Very</u> faint to faint, smooth to slightly distorted and displaced laminations and streaked bedding. Fairly smooth to irregular, thick to some thin shaly parting; irregular coarse hackly fracture. Some very small to medium, dark gray to black cherty lenses with fine pyrite rims. Rare very fine silty-textured pyrite streaks.

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
1997.7	2002.0	Oil shale: dark brownish gray (10YR & 2.5Y 3/2, some 2/2). Very faint smooth streaked bedding. Smooth to some irregular, medium to thin shaly parting (some slightly unctuous); irregular coarse to slight hackly fracture. Very rare very fine silty-textured pyrite streaks. Very rare fine black fossil fragments on parting surfaces.
2002.0	2004.4	Oil shale: dark brownish gray to very rare brownish black (10YR & 2.5Y 3/2-2/2, rare 1/2 lower part). Very faint smooth to some distorted streaked bedding. Smooth to irregular, thick to thin shaly parting (some unctuous); very irregular coarse hackly fracture. Thick dense medium to dark brown dolomite bands at 2002.9 and 2003.4 feet. Very rare black fossil fragments (fish ribs?).
2004.4	2008.0	Oil shale: dark to medium brownish gray (2.5Y & 10YR 3/2-4/2, rare 2/2). Very faint slightly distorted to smooth streaked bedding and some faint displaced laminations. Irregular to some fairly smooth, thick to thin shaly parting (unctuous); irregular hackly fracture. A 1/2-inch yellowish gray to gray band at top with very common fine distorted stringers extending an inch or more into shale below. <div style="margin-left: 2em;">Sample of yellowish gray band from 2004.4 feet: X-ray - mixed layer clay, ferroan (35 percent Fe, 65 percent Mg), some feldspar (Na and K).</div>
2008.0	2009.0	Oil shale: dark and rare medium brownish gray (10YR & 2.5Y 3/2-2/2, rare 4/2). Very faint smooth to slightly distorted streaked bedding. Irregular to fairly smooth, medium to thick parting (slightly unctuous); irregular hackly fracture. Rare very fine irregular olive gray silty-textured pyrite stringers and streaks. Rare diagonal glossy shear surfaces with slickensides. Some thin to fine irregular buff to yellowish tan stringers in upper inch. <div style="margin-left: 2em;">Sample of thin yellowish tan stringer from 2008.0 feet: X-ray - ferroan (33 percent Fe, 67 percent Mg), vermiculite clay?; some Na-feldspar, plumbogummite??</div>

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Core samples from Equity Oil Company's Boies Corehole No. 1--Continued

From	To	Description
2009.0	2010.0	Oil shale: dark and rare medium brownish gray to some brownish black (10YR 3/2-2/2, some 1/2, rare 4/2). Very faint smooth to slightly distorted streaked bedding and some faint slightly displaced laminations. Fairly smooth to some irregular, thick to rare thin shaly parting (slightly unctuous); irregular hackly fracture. Rare very fine silty-textured pyrite streaks. Very rare small black cherty lenses with fine pyrite rims.
2010.0	2011.5	Oil shale: dark to medium brownish gray and rare tan (10YR & 2.5Y 3/2-4/2, rare 2/2 upper part, some 5/2-6/3 in lower inch). Very faint smooth to slightly distorted streaked bedding and some laminations. Fairly smooth to irregular, medium to thin shaly parting (unctuous); irregular to coarse hackly fracture. Very rare fine massive pyrite streaks with very fine black cherty centers.
		Sample of dark brownish gray unctuous shale from 2011.3 feet: X-ray - quartz, illite, some pyrite.
		Bottom of core.

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