

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY ✓

Core samples of the Green River Formation from Mobil Oil Company's
Corehole # drilled in 1963 in SE1/4NE1/4NW1/4 sec 8, T 6 S,
R 95 W, 6th P.M., Garfield County, Colorado (1100 ft S of N
line and 70 ft W of center line)

Surface elevation: 8513 feet
Sampled section: 400.0-1027.8 feet
Mahogany marker: 933.1 feet

| From | To | Description |
|-------------------------------|-------|--|
| NX core from 400 to 741 feet. | | |
| 400.0 | 439.5 | Siltstone, mudstone, and marlstone: light to medium gray and olive-gray; some very light buff to rare brownish-gray. Very irregular distorted to very contorted streaks, stringers, and laminations; some massive. Very irregular parting; irregular to conchoidal fracture. Rare medium to fine oil-shale stringers and shreds; contorted light to dark olive-gray marlstone and oil shale from 417.0 to 418.0 feet. Rare massive pyrite blebs and stringers. A vertical fracture with common crystalline pyrite crusts near top. Very uneven sample split. |
| 439.5 | 441.2 | Oil shale and marlstone: medium to light olive-gray (2.5Y 4/2-6/2). Irregular distorted to very contorted and displaced laminations. Very irregular parting; conchoidal to very irregular fracture. Common fine black specks and streaks in upper part. Very uneven sample split. |
| 441.2 | 460.2 | Siltstone and marlstone: light gray to white and buff; some slight olive tint. Very irregular distorted to contorted streaks and stringers; some massive. Very irregular parting; very irregular to conchoidal fracture. Rare stringers and fine shreds of oil shale; a 0.4-foot zone of very contorted brownish-gray to brownish-black oil shale at 445.0 feet. Uneven sample split. |
| 460.2 | 464.8 | Siltstone: buff to light brownish-gray. Very common to some contorted streaks and shreds of dark brownish-gray oil shale. Irregular parting and fracture. Rare medium to fairly large massive pyrite blebs. A 1-1/2-inch irregular band of dark brownish-gray oil shale at 461.7 feet. |
| 464.8 | 474.2 | Siltstone: very light buff to white and very light gray; marly. Faint irregular streaks and stringers to massive. Very irregular parting; conchoidal to slightly irregular fracture. Some to rare oil-shale shreds; a 1/2-inch irregular dark brownish-gray oil-shale stringer at 465.7 feet. Very rare small pyrite blebs. Uneven sample split. |
| 474.2 | 479.1 | Oil shale, very lean: medium and rare dark brownish-gray to some buff (10YR 4/2-5/2, some 6/3-7/2, rare 3/2). Faint to some fairly distinct irregular, distorted and displaced to fairly smooth laminations. Irregular to |

JB, L.G. Timm

Illustration No. SBR-3873P (Sheet 1 of 25)

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole \bar{C} --Continued

| From | To | Description |
|-------|-------|---|
| | | some very regular, thick to medium parting; conchoidal to irregular fracture. Rare dark gray to black streaks. A 1-inch gray calcareous mudstone band at 474.9 feet. A 2-inch zone of buff mudstone with common chalky white and some black radiating streaks in contorted shale at 477.0 feet. A very irregular 1/4- to 1/2-inch gray crystalline stringer at 478.7 feet. A 0.1-foot band of light gray siltstone at 477.8 feet. |
| | | Sample of buff mudstone with chalky white and black streaks from 477.0 feet: X-ray - quartz, dolomite, analcite. |
| 479.1 | 480.2 | Oil shale, rich: dark brownish-gray to brownish-black (10YR 2/2-1/2, some 3/2), very common resinous to waxy luster. Very faint slightly irregular and distorted laminations. Slightly irregular thick to thin shaly parting; conchoidal to some very slight hackly fracture. Rare thin dense dark brownish-gray crystalline stringers; a small black cherty lens in one at 479.5 feet. |
| 480.2 | 481.7 | Oil shale, lean: dark to medium brownish-gray and rare buff (10YR 2/2-5/3, rare 6/3). Massive with some very faint streaks to fairly distinct irregular distorted and displaced laminations. Very irregular to slightly irregular thick parting; irregular to conchoidal fracture. A brecciated zone with dense dark brownish-gray crystalline fillings and pyrite at top. Very common dark disseminated adamantine crystals and fine crystalline stringers at 480.7 feet. Sample of massive shale with disseminated crystals and fine stringers from 480.7 feet: X-ray - calcite, dolomite, analcite, quartz, feldspar, apatite? |
| 481.7 | 486.8 | Oil shale, very lean: buff to medium brownish-gray (10YR 7/2-4/2, some 8/2). Fairly distinct to some faint, irregular, distorted and displaced to some smooth laminations; common small loop structures. Regular to some irregular thick shaly parting; conchoidal fracture; some unctuous parting surfaces. Very common very fine disseminated black specks in middle part (at least some are pyrite--some show very fine radial structure). Sample of very lean oil shale with fine black specks from 484.5 feet: X-ray - analcite, dolomite, quartz, feldspar, illite. |

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole C--Continued

| From | To | Description |
|-------|-------|---|
| 486.8 | 489.0 | Oil shale, very lean: medium brownish-gray to buff (10YR 4/2-6/3, rare 7/2). Distinct slightly irregular and distorted to smooth laminations; common small loop structures. Very regular to some irregular thick shaly parting; conchoidal fracture. A 0.1-foot tan to buff, earthy to chalky contorted and brecciated zone with common massive pyrite at base. |
| 489.0 | 490.6 | Marlstone and lean oil shale: buff to rare medium and dark brownish-gray (10YR 8/2-6/2, rare 5/2-3/2). Distinct smooth laminations to faint contorted laminations, streaks, and stringers. Slightly irregular to very irregular thick parting; conchoidal to some irregular fracture. Common thin earthy to spongy zones--some with common disseminated pyrite. |
| 490.6 | 492.1 | Sandstone: yellowish-buff to yellowish-brown (2.5Y 7/4-6/3), fine to medium grained. Massive with some very fine dark brownish-gray streaks and partings. Very irregular parting and fracture. Rare light olive-gray mudstone. Badly broken up and mixed up; very uneven sample split. |
| 492.1 | 498.6 | Oil shale, very lean: dark brownish-gray to buff (10YR 3/2-6/2 and 6/3, some 7/2 and 7/3, rare 2/2). Distinct and some faint, smooth to irregular distorted laminations; some loop structures; an intricately contorted and displaced fold at 494.8 feet. Irregular and some very regular thick parting; conchoidal to very irregular fracture. Rare thin massive pyrite stringers. Some light olive-gray mudstone at 493.3-493.7 feet (may be out of sequence). |
| 498.6 | 501.0 | Oil shale, medium: dark brownish-gray and rare brownish-black (10YR 3/2-2/2, rare 1/2). Very faint distorted and contorted streaked bedding to irregular distorted and some smooth laminations. Regular to some irregular thick shaly parting; conchoidal and some irregular fracture. Some laminae make an angle of about 70° with edge of core. Common thin irregular dense brown to dark brownish-gray crystalline stringers in middle part. A vertical fracture with fine white crystalline calcite crusts at 499.2-499.3 feet. |
| 501.0 | 510.0 | Oil shale, lean: dark to some medium and light brownish-gray (10YR 3/2-2/2, some 4/2-6/2). Faint to very faint, slightly irregular and distorted to smooth laminations. Regular to some irregular, thick to some thin shaly parting; conchoidal fracture. Rare fine dark gray to dark brownish-gray crystalline laminae and streaks--some with pyrite. Some thin black streaks in upper half (irregular resinous black crusts on parting surfaces). Some parts badly broken up; some uneven sample split. |

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole C³--Continued

| From | To | Description |
|---|-------|--|
| 510.0 | 511.4 | Oil shale, lean: dark to medium brownish-gray (10YR 3/2-4/3). Faint to very faint, slightly irregular and distorted laminations. Slightly irregular to very irregular thick parting; conchoidal fracture. Rare small lenses and thin stringers of buff to gray and white crystalline material with common pyrite. Irregular spongy to vuggy parting surfaces at 510.9 feet. |
| 511.4 | 519.0 | Oil shale, lean: dark and rare medium brownish-gray (10YR 3/2-2/2, some 3/3, rare 4/2). Very faint slightly irregular and distorted laminations to some very irregular and distorted laminations, streaks, and stringers. Slightly irregular to very irregular thick parting; conchoidal to some very irregular fracture. Rare thin dark brownish-gray crystalline streaks and stringers with pyrite. Rare spongy to vuggy parting surfaces. Common earthy crushed zones and some irregular vertical fractures with calcite fillings in lower part. Some very uneven sample split. Rare fine massive pyrite streaks. |
| 519.0 | 520.0 | Missing? |
| Samples may not be in proper sequence from 520.0 to 550.0 feet. | | |
| 520.0 | 524.8 | Oil shale, very lean: dark brownish-gray to buff (10YR 3/2-6/3, rare 7/2-8/2). Distinct very irregular and distorted streaks and stringers to distinct and some faint irregular distorted laminations; some loop structures. Very irregular and some slightly irregular thick parting; conchoidal and some very irregular fracture. Rare small massive pyrite lenses and blebs. Rare medium to thin irregular light gray silty-textured stringers; two (?) thick silty texture bands near top. Uneven sample split. |
| 524.8 | 530.0 | Oil shale, lean: dark brownish-gray to rare brownish-black (10YR 3/2-2/2, rare 1/2). Very faint fairly smooth to irregular distorted laminations. Very regular to some irregular, thick to medium parting; conchoidal to some very irregular fracture. Common vertical fractures with calcite coatings. Rare thin spongy to earthy crushed zones. Very rare small brownish-gray crystalline lenses. Some parts badly broken up; some very uneven sample split. |
| 530.0 | 532.0 | Oil shale, very lean: medium and some dark brownish-gray to buff (10YR 4/2-6/3 and 7/2, some 3/2-2/2). Distinct to some faint, very irregular, distorted and |

Illustration No. SBR-3873P (Sheet 4 of 25)

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole \bar{C} ³--Continued

| From | To | Description |
|-------|-------|--|
| | | displaced laminations. Slightly irregular to very irregular thick parting; very conchoidal fracture. Rare resinous black crusts on parting surfaces. Some irregular vuggy zones with very common small flat crystal cavities and common pyrite. |
| 532.0 | 533.1 | Siltstone: light gray (7N; slight brown to pink tint) to light brownish-gray (10YR 6/2). Very faintly bedded to streaked. Irregular parting; irregular to conchoidal fracture. Rare very fine black partings. |
| 533.1 | 539.1 | Oil shale, medium to lean: dark and rare medium to light brownish-gray to some brownish-black (10YR 3/2-2/2, some 1/2, rare 4/2-6/2). Faint very irregular distorted to contorted laminations, streaks, and stringers to some slightly distorted laminations. Irregular to rare regular thick parting; conchoidal to very irregular fracture. Very common brecciated collapse zones with gritty fillings in upper part. Some parts badly broken up; some very uneven sample split. |
| 539.1 | 541.5 | Oil shale, very lean: dark to light brownish-gray (10YR 3/2-6/2, some 2/2). Fairly distinct irregular, distorted and displaced laminations. Slightly irregular thick to medium shaly parting; very conchoidal fracture. Some thick to thin, medium to very light gray silty-textured bands near top. Rare fine gray pyritic laminae and dull to resinous black streaks in lower part. |
| 541.5 | 543.8 | Oil shale, lean: dark and rare medium brownish-gray (10YR 3/2-2/2, rare 4/2). Faint very irregular and contorted to slightly distorted laminations, stringers, and streaks. Very irregular to slightly irregular, thick to thin parting; conchoidal fracture. Common very irregular thin dense dark to light gray and brownish gray crystalline lenses and stringers in upper part. A 0.2-foot very light buff silty to earthy band at 542.8 feet. A 1-1/2-inch brownish-gray silty textured band at 543.4 feet. |
| 543.8 | 550.0 | Oil shale, lean: dark brownish-gray (10YR 3/2-2/2). Very faint very irregular and distorted to some fairly smooth laminations. Very irregular parting and fracture. Common fractured to brecciated zones with earthy to gritty fillings. Rare fragments with common small flat vuggy cavities. Very badly broken up; very uneven sample split. |
| 550.0 | 554.0 | Same as above, but mostly brecciated to gritty shale. Some collapse zones have very common very fine disseminated crystals. |

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole \bar{C} ³--Continued

| From | To | Description |
|---------------------------------|-------|--|
| Lost core-head and skidded rig. | | |
| 554.0 | 556.0 | Missing. |
| 556.0 | 560.0 | Same as 550.0-554.0. |
| 560.0 | 584.0 | Missing. |
| 584.0 | 585.3 | Oil shale, lean: dark to medium brownish-gray (10YR 3/2-4/2). Faint slightly irregular and distorted laminations; rare loop structures. Regular to irregular thick parting; conchoidal to irregular fracture. Rare fine gray streaks and laminae. A very irregular 1/2- to 1-inch dense brownish-gray crystalline stringer near top. |
| 585.3 | 587.9 | Oil shale, lean: medium and rare dark brownish-gray to buff (10YR 4/2-6/3, rare 3/2). Fairly distinct to faint, slightly irregular and distorted laminations; rare loop structures. Slightly irregular thick shaly parting; slightly irregular to conchoidal fracture. A vertical fracture with calcite crusts from 587.5 to 587.9 feet. |
| 587.9 | 590.0 | Oil shale, lean: dark and some medium brownish-gray to buff (10YR 3/2-2/2, some 4/3-7/2). Very faint to some distinct irregular distorted laminations; some very faint bedding in lower 0.4 foot. Regular to some very irregular thick parting; conchoidal and some irregular fracture. Some irregular vertical fractures with calcite coatings near top. A large vuggy brecciated mass from 588.9 to 589.1 feet. |
| 590.0 | 593.0 | Oil shale, medium to rich: dark brownish-gray to brownish-black (10YR 2/2-1/2, rare 3/2). Very faint slightly distorted streaked bedding to faint very irregular and contorted streaks and stringers. Irregular thick parting; conchoidal fracture. Very irregular contacts with leaner shale above and below. |
| 593.0 | 595.3 | Oil shale, lean: medium to dark brownish-gray (10YR 4/2-3/2, some 5/3). Faint slightly irregular and distorted laminations. Slightly irregular thick shaly parting; very conchoidal fracture. Very rare very small gray pyritic lenses. |
| 595.3 | 601.0 | Oil shale, mudstone and limestone: light to some dark brownish-gray (10YR 6/3-4/2, some 3/2) and light gray (6-7N). Very irregular distorted to contorted oil shale, calcareous mudstone, and marly limestone stringers in upper part; mottled mudstone and marly limestone with common fine oil-shale shreds in middle; limestone with some oil-shale stringers and shreds in lower part. Irregular parting and fracture. |

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ³C--Continued

| From | To | Description |
|-------|-------|---|
| 601.0 | 613.4 | Oil shale, lean: dark to light brownish-gray and rare buff (10YR 3/2-6/2, rare 6/3-7/3; common very slight olive tint). Fairly distinct to some faint, distorted and rare contorted to some smooth laminations; rare loop structures. Regular to slightly irregular thick shaly parting; slightly irregular to conchoidal fracture. Rare irregular dark to light gray laminae and fine streaks. Common irregular dull black coatings on parting surfaces in upper half. Common fine distorted chalky buff streaks and rare gray limestone stringers from 607.5 to 608.3 feet. Common thin distorted to contorted, light gray to brownish-gray, silty to marly limestone stringers from 609.5 to 610.0 and 610.4 to 611.1 feet; rare thin to thick limestone stringers in other parts. |
| 613.4 | 615.4 | Oil shale, very lean: medium and rare dark brownish-gray to buff (10YR 4/2-6/3, rare 3/2). Fairly distinct to faint irregular, distorted and displaced laminations; common loop structures. Slightly irregular thick shaly parting; slightly conchoidal to irregular fracture. Very rare small chalky buff lenses. A 1/2-inch light gray silty-textured limestone band at 614.1 feet. |
| 615.4 | 616.4 | Oil shale, lean: medium to some dark brownish-gray and rare buff (10YR 4/2-5/3, some 3/2-3/3, rare 6/3). Moderately distinct to faint irregular distorted laminations; rare loop structures. Slightly irregular thick shaly parting; slightly conchoidal fracture. |
| 616.4 | 617.5 | Oil shale, lean: medium to dark brownish-gray (10YR 4/2-2/2). Very faint slightly irregular and distorted laminations to some very faint bedding. Slightly irregular thick shaly parting; conchoidal to irregular fracture. Very rare small vitreous black crusts on parting surfaces. A smooth diagonal fracture with irregular fine white calcite coatings runs from 616.8 to 617.1 feet. |
| 617.5 | 618.7 | Oil shale, rich: dark brownish-gray to brownish-black (10YR 3/2-1/2), rare resinous luster. Faint irregular and distorted to fairly smooth laminations. Regular to some irregular thick shaly parting; irregular to conchoidal fracture. Some brown to black bitumen impregnated lenses at 618.8 feet. A brittle vitreous black striated crust on parting surfaces at base. |

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Laramie Petroleum Research Center, Laramie, Wyoming

January 19, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole C³--Continued

| From | To | Description |
|-------|-------|---|
| 618.7 | 619.3 | Oil shale, lean: dark to medium brownish-gray (10YR 2/2-4/2, rare 4/3). Faint to moderately distinct, slightly irregular and distorted laminations. Irregular parting; conchoidal fracture. |
| 619.3 | 621.3 | Oil shale, lean: dark brownish-gray to buff (10YR 3/2-6/3, rare 2/2 and 7/2). Very distinct irregular distorted laminations; common loop structures. Very regular to slightly irregular thick shaly parting; conchoidal to irregular fracture; some slightly unctuous parting surfaces. Very rare very fine dull black specks. |
| 621.3 | 624.0 | Oil shale, lean: dark to medium brownish-gray and rare buff (10YR 3/2-5/3, rare 2/2 and 6/3). Faint and some moderately distinct, fairly smooth to slightly irregular, distorted and rare displaced laminations; very rare poorly formed loop structures. Regular to slightly irregular thick shaly parting; conchoidal fracture. Rare fine dark gray to black streaks near top. A 1-inch zone of very light buff marlstone at 621.8 feet. A very thin porous pinkish-gray crystalline (?) band at 622.1 feet. Sample of thin porous band from 622.1 feet: X-ray - analcite, feldspar (albite). |
| 624.0 | 625.0 | Oil shale, medium: dark brownish-gray to brownish-black (10YR 2/2-1/2, some 3/2), some very slight resinous luster. Faint to very faint, irregular and distorted to smooth laminations and some <u>very</u> faint smooth bedding; rare loop structures. Slightly irregular thick shaly parting; conchoidal fracture. Rare dark gray streaks and laminae near top. Some fine brownish-gray silty to dense crystalline laminae and streaks with pyrite in brownish-black shale in middle part. |
| 625.0 | 630.0 | Oil shale, lean: dark to rare medium brownish-gray (10YR 3/2-3/3, rare 2/2 and 4/3). Very faintly bedded to dense massive and some very faint distorted to smooth laminations. Very irregular to some regular parting; conchoidal to irregular fracture. Some fine irregular intersecting fractures with bitumen impregnated buff to white fine crystalline fillings from 626.0 to 627.0 feet. A 1-inch zone of medium to thin light gray limestone stringers at 627.5 feet. |
| 630.0 | 633.3 | Oil shale, lean: medium to rare dark brownish-gray and buff (10YR 4/2-5/3, rare 3/2 and 6/3). Very faint to some moderately distinct, irregular and distorted to |

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole C^3 --Continued

| From | To | Description |
|-------|-------|---|
| | | fairly smooth laminations. Slightly irregular thick shaly parting; conchoidal fracture. Rare thin brownish-gray porous stringers--some with very common disseminated pyrite. A small vuggy fractured zone with bitumen impregnated buff to white crystalline fillings at 631.7 feet. |
| 633. | 635.0 | Oil shale, lean: dark and rare medium brownish-gray (10YR 3/2-3/3, rare 2/2 and 4/3). Faint distorted streaked bedding to dense massive. Irregular thick parting; slightly irregular fracture. Common very fine partly collapsed cavities with some chalky buff and vitreous black fillings in upper part--parting surfaces near top show vitreous black bitumen pseudomorphs in fine needle shapes, frequently in very acute crosses; common thin irregular porous zones with buff and black fillings in lower part. Sample of porous zone in dense massive shale with common bitumen impregnated, chalky to crystalline buff fillings from 634.7 feet: X-ray - fluorite, dolomite, quartz, analcite, feldspar, calcite. |
| 635.0 | 638.9 | Oil shale, lean: dark to some medium brownish-gray (10YR 2/2-3/2 and 3/3, some 4/3). Very faint bedding to faint irregular distorted laminations. Regular to irregular thick parting; very conchoidal fracture. Rare very irregular thin medium to light brownish-gray crystalline stringers--one at 637.1 feet is composed of fine loosely packed spherules with interstitial bitumen. Common irregular porous zones from 637.5 to 638.1 feet (like 634.7 feet). A thin irregular gray silty-textured limestone stringer at 638.5 feet. Sample of fine buff spherules from 637.1 feet: X-ray - analcite, quartz, feldspar, some calcite. |
| 638.9 | 643.6 | Oil shale, lean: brown to tan and rare dark brownish-gray and buff (10YR 4/3-5/3, rare 3/2 and 6/3). Very faint irregular distorted laminations and rare very faint bedding. Slightly irregular to some very irregular thick shaly parting; very conchoidal fracture. Rare fine very light buff chalky stringers and small lenses. A 2-inch irregular light gray silty-textured band with some thin distorted shale stringers at top. Rare faint gray streaks and laminae in lower part. |

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ³C--Continued

| From | To | Description |
|-------|-------|---|
| 643.6 | 645.6 | Oil shale, lean: medium to dark brownish-gray (10YR 4/2-3/2, rare 2/2). Very faint slightly irregular and distorted laminations. Slightly irregular to very irregular thick parting; conchoidal fracture. Rare fine dense dark gray crystalline streaks and small lenses. |
| 645.6 | 648.9 | Oil shale, medium: dark brownish-gray and some brownish-black (10YR 2/2-3/2, some 1/2), rare very slight resinous luster. Very faint slightly distorted laminations and streaked bedding to very irregular contorted laminations and stringers. Irregular thick parting; very conchoidal to irregular fracture. Rare irregular dark brownish-gray silty-textured lenses and stringers. |
| 648.9 | 651.0 | Oil shale, lean: dark to rare light brownish-gray and buff (10YR 3/2-4/2, some 5/2, rare 6/2). Very faint to some fairly distinct, slightly irregular and distorted to some smooth laminations. Slightly irregular thick shaly parting; conchoidal fracture. A thin buff band with common dull black ostracods (?) with pyrite cores at 649.9 feet. |
| 651.0 | 652.7 | Oil shale, lean: medium to light brownish-gray and rare dark brownish-gray and buff (10YR 4/2-6/2, rare 2/2 and 7/2). Distinct to faint, fairly smooth to some irregular, distorted and displaced laminations. Slightly irregular thick shaly parting; conchoidal to irregular fracture. A thin dense brownish-gray stringer with some fine dull black spots and flecks and rare pyrite near top. Rare thin to fine chalky buff stringers and streaks in middle part. A vertical fracture with thin calcite crusts and rare very fine disseminated pyrite from 652.3 to 652.7 feet. |
| 652.7 | 655.0 | Oil shale, very lean to lean: dark and rare medium brownish-gray (10YR 2/2-3/2, rare 4/2). <u>Very</u> faint to faint, smooth to some irregular distorted laminations. Slightly irregular thick shaly parting; irregular to conchoidal fracture. Rare medium to thin, light to dark gray silty-textured limestone bands and stringers. A thin irregular earthy to granular buff band at 654.5 feet (like 637.1 feet?). |
| 655.0 | 656.4 | Oil shale, lean: medium to dark brownish-gray (10YR 4/2-3/2, rare 2/2). Very faint smooth to slightly irregular and distorted laminations. Irregular thick parting; conchoidal fracture. |

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ³Ø--Continued

| From | To | Description |
|-------|-------|---|
| 656.4 | 659.8 | Oil shale, medium to lean: dark to rare medium brownish-gray, some brownish-black in upper part (10YR 2/2-3/2, some 1/2, rare 4/2). Very faint fairly smooth to irregular distorted laminations. Slightly irregular to some very irregular thick shaly parting; irregular to conchoidal fracture. Very rare dark gray laminae and streaks. A 0.3-foot brownish-gray to buff and some yellowish-buff bitumen impregnated tuff with some oil-shale stringers at 657.5 feet. A 1/2-inch zone of dense brownish-gray to light gray limestone stringers at 658.9 feet. |
| 659.8 | 661.7 | Oil shale, lean: dark to light brownish-gray and rare buff (10YR 3/2-6/2, rare 7/2). Distinct to faint irregular, distorted and rare displaced laminations; rare distorted loop structures. Irregular to some regular thick parting; slightly conchoidal fracture. Very rare fine dark gray streaks with pyrite. |
| 661.7 | 664.0 | Oil shale, rich to lean: brownish-black to dark and rare medium brownish-gray (10YR 1/2-3/2, rare 4/2), some slight resinous luster in upper part. Very faint irregular and distorted to smooth laminations. Slightly irregular to very irregular, medium to thick parting; very slight hackly to conchoidal fracture. A very irregular 1/4- to 3/4-inch earthy to granular buff stringer at 662.4 feet. A thin dense gray limestone stringer at 663.6 feet. |
| 664.0 | 668.0 | Oil shale, lean: dark to medium brownish-gray and rare buff (10YR 2/2-5/2, rare 6/3-7/2). Faint to distinct irregular, distorted and rare slightly contorted laminations; rare poorly formed loop structures. Slightly irregular thick shaly parting; conchoidal to irregular fracture. Rare thin gray silty-textured stringers. |
| 668.0 | 677.0 | Oil shale, lean to some rich: dark brownish-gray and some brownish-black (10YR 2/2-3/2, some 1/2); some slight resinous luster from 669.0 to 670.3 feet, common resinous and rare waxy luster from 675.0 to 675.6 feet. Very faint to faint irregular distorted to some smooth laminations; very rare loop structures. Slightly irregular to some very irregular thick shaly parting; very conchoidal fracture. Very rare gray to brownish-gray, dense to silty-textured stringers. |

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Laramie Petroleum Research Center, Laramie, Wyoming

January 19, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ³ C--Continued

| From | To | Description |
|-------|-------|--|
| 677.0 | 679.1 | Oil shale, lean: dark to rare medium brownish-gray (10YR 2/2-3/2, rare 4/2). Very faint irregular distorted laminations. Regular to irregular thick parting; very conchoidal to irregular fracture. Some thick brownish-gray to gray silty-textured stringers in lower part. |
| 679.1 | 696.0 | Oil shale, lean to medium: dark brownish-gray to brownish-black and rare dark brown (10YR 2/2-1/2, rare 3/2-3/3). <u>Very</u> faint irregular and distorted to some smooth laminations. Slightly irregular to very irregular, thick to medium parting; conchoidal to irregular fracture. Rare vitreous black plant fossils on parting surfaces. A thin brownish-gray to tan granular tuff with some bitumen impregnations at 695.5 feet. |
| 696.0 | 702.3 | Oil shale, lean and some medium: dark to rare medium brownish-gray (10YR 2/2-3/2, rare 4/2). Very faint to faint, smooth to slightly irregular and distorted laminations. Regular to some irregular, thick to medium shaly parting; conchoidal fracture. Rare fine gray pyritic stringers. Rare medium to thin, brown to tan and buff impregnated tuffs. |
| 702.3 | 709.0 | Oil shale, medium: dark and rare medium brownish-gray to some brownish-black (10YR 2/2-3/2, some 1/2, rare 4/2). Very faint smooth to slightly irregular and distorted laminations. Regular to some irregular thick to medium shaly parting; conchoidal fracture. Very rare fine gray pyritic streak. Very rare vitreous black fossil fragments on parting surfaces. |
| 709.0 | 710.0 | Oil shale, rich: brownish-black to dark brownish-gray (10YR 1/2-2/2), very common slight resinous luster. <u>Very</u> faint irregular distorted laminations to some smooth streaked bedding. Slightly irregular thick to medium shaly parting; conchoidal fracture. Very rare very small pyrite blebs. |
| 710.0 | 716.0 | Oil shale, medium: brownish-black to dark and some medium brownish-gray (10YR 1/2-3/2, some 4/2), some slight resinous luster. Very faint to faint, irregular and slightly distorted to smooth laminations. Slightly irregular to regular, thick to medium shaly parting; conchoidal fracture. A very irregular thin buff stringer at 712.9 feet; rare very thin tuff stringers in other parts. |

Illustration No. SBR-3873P (Sheet 12 of 25)

Laramie Petroleum Research Center, Laramie, Wyoming

January 19, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ³ C--Continued

| From | To | Description |
|-------|-------|---|
| 716.0 | 721.0 | Oil shale, medium to lean: dark to medium brownish-gray and some brownish-black (10YR 2/2-4/2, some 1/2). Very faint to faint, slightly irregular and distorted to some smooth laminations. Regular to some irregular, thick to medium shaly parting; conchoidal fracture. Rare thin dense dark brownish-gray to dark gray pyritic crystalline stringers and lenses. |
| 721.0 | 722.0 | Oil shale, medium: brownish-black to dark brownish-gray (10YR 1/2-2/2, rare 3/2). <u>Very</u> faint slightly irregular and distorted laminations. Slightly irregular thick to medium shaly parting; conchoidal fracture. Some very fine pyrite streaks and stringers. |
| 722.0 | 724.4 | Oil shale, lean: dark to medium brownish-gray, some tan and light brownish-gray near base (10YR 2/2-4/2, some 5/2 and 5/3-6/2). Faint to moderately distinct, irregular and distorted to some fairly smooth laminations. Slightly irregular thick to medium shaly parting; conchoidal fracture. Rare thin to fine dense brownish-gray crystalline stringers. |
| 724.4 | 725.4 | Oil shale, lean: dark brownish-gray and brown to buff and tan (10YR 2/2 and 3/3-6/2 and 6/3). Distinct to some faint, smooth to some irregular, distorted and displaced laminations; rare very small loop structures. Regular to some irregular thick shaly parting; conchoidal fracture. A 3/4-inch gray silty-textured band at 725.2 feet. |
| 725.4 | 727.7 | Oil shale, lean: dark to some medium brownish-gray (10YR 2/2-3/2, some 4/2). Faint to very faint, smooth to irregular distorted laminations; some loop structures. Regular to some irregular, thick to medium shaly parting; conchoidal to irregular fracture. A thin gray silty-textured band at 726.3 feet. Rare very thin dark brownish-gray crystalline stringers in lower part. |
| 727.7 | 729.7 | Oil shale, rich to medium: brownish-black to dark brownish-gray (10YR 1/2-2/2), common to rare resinous luster. Very faint slightly irregular and distorted laminations and some very irregular stringers. Slightly irregular thick shaly parting; conchoidal fracture. Some small to very fine pyrite blebs and streaks. Some medium to very thin dark brownish-gray silty-textured stringers and lenses in upper part--some with pyrite. Sample of very dark brownish-gray stringer with pyrite from 728.6 feet: X-ray - feldspar, quartz, analcite, biotite. |

Illustration No. SBR-3873P (Sheet 13 of 25)

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ³Ø--Continued

| From | To | Description |
|------------------------------------|-------|---|
| 729.7 | 735.0 | Oil shale, lean: dark brownish-gray and some dark to rare medium brown (10YR 2/2-3/2, some 3/3, rare 4/3). Very faint fairly smooth to irregular distorted laminations. Slightly irregular to some very irregular, thick to medium shaly parting; conchoidal fracture. Rare very fine pyrite streaks. Very rare thin irregular dark brownish-gray to yellowish-brown tuff stringers. Some thin to fine dense light brownish-gray dolomite stringers at 732.7 feet. |
| 735.0 | 736.0 | Oil shale, medium: dark brownish-gray to brownish-black (10YR 2/2-1/2), some <u>very</u> slight resinous luster. <u>Very</u> faint slightly irregular and distorted to smooth laminations. Slightly irregular to very irregular thick parting; conchoidal to irregular fracture. Very rare, very fine pyrite streaks. |
| BX core from 741.0 to 1027.8 feet. | | |
| 736.0 | 742.9 | Oil shale, lean: dark to some medium brownish-gray (10YR 2/2-3/2, some 4/2, some almost neutral gray). Very faint to faint, smooth to slightly irregular and distorted laminations. Slightly irregular to very irregular, thick to medium parting; conchoidal to irregular fracture. Some thin irregular dense dark gray crystalline stringers. Some uneven sample split. |
| 742.9 | 743.9 | Oil shale, lean: dark brownish-gray and brown to tan and some buff (10YR 3/2 and 3/3-5/3, some 6/3, rare 2/2). Faint to moderately distinct, slightly irregular, distorted and rare displaced to smooth laminations. Slightly irregular thick shaly parting; conchoidal fracture. |
| 743.9 | 745.1 | Oil shale, rich: brownish-black and some dark brownish-gray (10YR 1/2, some 2/2-3/2), common very slight resinous luster. <u>Very</u> faint slightly distorted streaked bedding and rare slightly irregular and distorted laminations. Regular to some irregular, thick to medium shaly parting; conchoidal to some very slight hackly fracture. Rare very fine pyrite streaks and blebs. |
| 745.1 | 750.1 | Oil shale, medium to lean: dark brownish-gray, some brownish-black in upper part (10YR 2/2-3/2, some 1/2). Faint to very faint irregular distorted laminations; some loop structures. Slightly irregular to some very irregular, thick to medium shaly parting; conchoidal fracture. Rare thin to medium, gray to dark brownish-gray crystalline stringers. Sample of 0.1-foot dark brownish-gray crystalline stringer from 748.2 feet: X-ray - dolomite, feldspar, quartz, biotite, some analcite. |

Illustration No. SBR-3873P (Sheet 14 of 25)

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ³C--Continued

| From | To | Description |
|-------|-------|---|
| 750.1 | 753.4 | Oil shale, lean: dark to medium and rare light brownish-gray (10YR 2/2-4/2, rare 5/2-6/2). Very faint to faint irregular distorted laminations. Slightly irregular thick to medium shaly parting; conchoidal fracture. Rare thin to fine gray crystalline stringers and lenses in upper half. |
| 753.4 | 754.4 | Oil shale, rich: brownish-black and rare dark brownish-gray (10YR 1/2, rare 2/2), common resinous luster. <u>Very</u> faint smooth streaked bedding and some slightly irregular and distorted laminations. Regular to slightly irregular, thick to medium shaly parting; conchoidal to slight hackly and some irregular fracture. Rare small to fine, dense to silty textured dark brownish-gray lenses and stringers with pyrite. |
| 754.4 | 755.4 | Oil shale, medium: dark brownish-gray to brownish-black (10YR 2/2-1/2), rare very slight resinous luster. <u>Very</u> faint irregular and distorted to smooth laminations. Slightly irregular thick to medium shaly parting; conchoidal fracture. |
| 755.4 | 758.6 | Oil shale, lean: dark brownish-gray (10YR 2/2-3/2). <u>Very</u> faint smooth to slightly irregular and distorted laminations. Slightly irregular to some irregular, medium to thick shaly parting; conchoidal fracture. |
| 758.6 | 762.6 | Oil shale, lean: dark to medium and rare light brownish-gray (10YR 3/2-4/2, some 2/2, rare 5/2-6/2). Very faint to some moderately distinct, slightly irregular and distorted laminations. Slightly irregular to some irregular, medium to thick shaly parting; slightly conchoidal fracture. Very rare thin irregular brownish-gray crystalline stringers and lenses. |
| 762.6 | 764.0 | Oil shale, medium to rich: brownish-black, some dark brownish-gray in upper part (10YR 1/2, some 2/2-3/2); some slight resinous luster in lower part. Faint to <u>very</u> faint, irregular and distorted to smooth laminations. Irregular to some regular, medium to thick parting; slightly conchoidal and some very slight hackly fracture. Rare pyrite blebs. |
| 764.0 | 767.6 | Oil shale, medium and lean: dark to medium brownish-gray and rare brownish-black (10YR 2/2-4/2, rare 5/2 and 1/2; some very slight olive tint). Very faint to faint, slightly irregular and distorted to some smooth laminations. Regular to some irregular, thick to medium shaly parting; conchoidal and some irregular fracture. Some fine gray pyritic streaks. Rare thin irregular brownish-gray crystalline lenses and stringers. |

Illustration No. SBR-3873P (Sheet 15 of 25)

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole C³--Continued

| From | To | Description |
|-------|-------|---|
| 767.6 | 769.0 | Oil shale, rich to very rich: dark brownish-gray to brownish-black (10YR 2/2-1/2, some 3/2), very common resinous luster. <u>Very</u> faint smooth to slightly irregular and distorted laminations and some very faint streaked bedding. Slightly irregular medium to thick shaly parting; conchoidal and rare hackly fracture; slightly elastic and tough. |
| 769.0 | 770.6 | Oil shale, very rich: brownish-black and some dark brownish-gray (10YR 1/2, some 2/2), very common resinous and some waxy luster. <u>Very</u> faint to faint, smooth to some irregular distorted laminations. Slightly irregular medium to thick shaly parting; slightly conchoidal and rare slight hackly fracture. |
| 770.6 | 773.6 | Oil shale, lean: dark to medium brownish-gray (10YR 2/2-4/2). Faint slightly irregular and distorted laminations. Regular to irregular thick parting; conchoidal to irregular fracture. Rare thin irregular dense dark brownish-gray slightly oil-stained crystalline stringers. Sample of dense dark brownish-gray crystalline stringer from 771.0 feet: X-ray - analcite; some calcite, quartz, fluorite, feldspar, dolomite. |
| 773.6 | 776.6 | Oil shale, lean: dark to medium brownish-gray and brown, some tan (10YR 2/2-4/2 and 3/3-4/3, some 5/3-6/3). Faint to moderately distinct, slightly irregular and distorted laminations; some small loop structures. Regular to very irregular, medium to thick parting; conchoidal fracture. Very rare thin irregular tuff stringers. |
| 776.6 | 783.9 | Oil shale, lean and some medium: dark and some medium brownish-gray to brownish-black (10YR 3/2-1/2, some 3/3-4/2), some very slight resinous luster. <u>Very</u> faint to faint, smooth to slightly irregular and distorted laminations. Slightly irregular to some very irregular, medium to thick shaly parting; conchoidal fracture. Some very irregular thin oil-stained tuff stringers. Very rare very fine pyrite streaks. Sample of thin dark brownish-gray oil-stained tuff stringer from 780.9 feet: X-ray - analcite, quartz, feldspar, some dolomite? |
| 783.9 | 787.0 | Oil shale, medium to very rich: dark and rare medium brownish-gray to brownish-black (10YR 2/2-1/2, some 3/2 and rare 4/2 in upper part), common resinous and very |

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Laramie Petroleum Research Center, Laramie, Wyoming

January 19, 1965

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ~~C~~³--Continued

| From | To | Description |
|-------|-------|--|
| | | <p>rare waxy luster. Very faint smooth to slightly irregular and distorted laminations; some <u>very</u> faint streaked bedding. Regular to some irregular, medium to thick shaly parting; conchoidal fracture. Some medium to thin dark brownish-gray oil-stained crystal-line tuff stringers in lower part.</p> <p>Sample of dark brownish-gray tuff stringer from 786.6 feet: X-ray - analcite, quartz, feldspar, biotite, some pyrite.</p> |
| 787.0 | 790.3 | <p>Oil shale, lean: dark and rare medium brownish-gray (10YR 3/2-2/2, rare 4/2). Very faint to faint, smooth to slightly irregular and distorted laminations. Slightly irregular to very irregular, thick to medium parting; conchoidal fracture.</p> <p>Sample of normal dark brownish-gray oil shale from 788.4 feet: X-ray - dolomite, calcite, feldspar, quartz.</p> |
| 790.3 | 791.8 | <p>Marlstone and very lean oil shale: brown to buff and rare dark brownish-gray (10YR 5/3-7/2, some 4/3-4/2, rare 3/2-2/2). Distinct to very faint, slightly irregular, distorted and displaced to some slightly contorted laminations. Regular to some irregular, medium to thick shaly parting; conchoidal fracture.</p> <p>Sample of buff marlstone from 791.2 feet: X-ray - dolomite, quartz, feldspar, calcite.</p> |
| 791.8 | 793.0 | <p>Oil shale, very lean to lean: brown to some tan and dark brownish-gray (10YR 5/3-4/3, some 6/3 and 3/3-3/2). Faint to very faint, slightly contorted and displaced to fairly smooth laminations. Irregular to regular, medium to thick parting; conchoidal fracture. A large vug with some earthy to chalky white filling in contorted shale at top. Very abrupt change to richer shale at base.</p> <p>Sample of chalky white vug filling from 791.8 feet: X-ray - quartz.</p> |
| 793.0 | 795.0 | <p>Oil shale, medium: brownish-black to dark brownish-gray (10YR 1/2-2/2), common very slight resinous luster. Very faint slightly irregular and distorted streaked bedding to some fairly smooth laminations. Slightly irregular medium to thick shaly parting; conchoidal and some very slight hackly fracture.</p> |

Illustration No. SBR-3873P (Sheet 17 of 25)

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ~~C~~³--Continued

| From | To | Description |
|-------|-------|---|
| 795.0 | 797.8 | Oil shale, lean: dark to medium brownish-gray (10YR 2/2-4/2, rare 5/2). Very faint to faint, fairly smooth to some very irregular and distorted laminations. Regular to some very irregular, thick to medium shaly parting; conchoidal fracture. Rare thin irregular brown to brownish-gray oil-stained tuff stringers. |
| 797.8 | 802.0 | Oil shale, medium: dark brownish-gray to brownish-black (10YR 3/2-1/2). <u>Very</u> faint to faint, fairly smooth to irregular and slightly distorted laminations. Slightly irregular to very irregular, thick to medium parting; conchoidal to some irregular fracture. Very common irregular dark brownish-gray to brownish-black strongly oil impregnated tuff stringers from 799.0 to 799.8 feet. |
| 802.0 | 806.9 | Oil shale, medium to some lean: dark to medium brown and rare dark brownish-gray (10YR 3/3-4/3, rare 2/2). Faint to very faint, fairly smooth to irregular distorted laminations and some <u>very</u> faint streaked bedding. Regular to very irregular, thick to medium parting; conchoidal fracture. A 0.3-foot dark brown strongly oil-stained tuff band at 803.4 feet; rare thin stringers in other parts. Sample of dark brown oil-stained tuff with some pyrite from 803.5 feet: X-ray - feldspar (sanidine). |
| 806.9 | 809.8 | Oil shale, medium to lean: brownish-black to dark and rare medium brownish-gray (10YR 1/2-2/2, rare 3/2-4/2). <u>Very</u> faint to faint, fairly smooth to some irregular and distorted laminations. Regular to some irregular, medium to thick shaly parting; conchoidal and rare irregular fracture. A 0.1-foot dark brownish-gray strongly oil impregnated tuff band at 809.0 feet; very rare thin stringers in other parts. |
| 809.8 | 820.0 | Oil shale, lean: dark to some medium brownish-gray (10YR 2/2-3/2, some 4/2, rare 5/2). <u>Very</u> faint to faint, irregular and distorted to some smooth laminations. Regular to some irregular, thick to medium shaly parting; conchoidal fracture. Some to rare, medium to thin irregular oil-stained tuff bands and stringers; a very thin irregular earthy buff-white tuff stringer at 816.4 feet. |
| 820.0 | 821.2 | Oil shale, lean: dark to medium brownish-gray (10YR 3/2-4/2, some 2/2 and 5/3). Very faint smooth to some irregular distorted laminations. Slightly irregular, medium to thick shaly parting; conchoidal fracture. A 0.1-foot brownish-gray to tan granular tuff band at 820.9 feet. |

Illustration No. SBR-3873P (Sheet 18 of 25)

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples from Mobil Oil Company's Corehole ³C--Continued

| From | To | Description |
|-------|-------|---|
| 821.2 | 825.5 | Oil shale, lean: dark brownish-gray and some dark brown to rare brownish-black (10YR 2/2-3/2, some 3/3, rare 1/2). Very faint slightly irregular and distorted to smooth laminations. Regular to some irregular thick shaly parting; conchoidal and some fairly smooth fracture. Rare black fossil fragments on parting surfaces. Very rare very fine pyrite streaks. |
| 825.5 | 825.9 | Missing? |

Illustration No. SBR-3873P (Sheet 19 of 25)

Laramie Petroleum Research Center, Laramie, Wyoming

January 19, 1965

LITHOLOGIC LOG

Core samples from Mobil Oil Company's Corehole ³ C--Continued

| Interval | Rock type | Color ^{1/} | Bdg ^{2/} | Other features ^{3/} |
|-------------|--------------------|-------------------------------------|-------------------|--|
| 825.9-827.4 | Oil shale | 10YR 4/2-3/2, rare 2/2 | S-DL | Vert frac/wh to bl-gy calc crusts & some rsns brn coatings. |
| 827.4-829.7 | do. | 10YR 3/2-1/2, some 4/2 | do. | Some rsns lstr. |
| 829.7-830.7 | do. | 10YR 3/2-1/2 | DL | Com thn irreg brn-gy tf (?) strgs. |
| 830.7-832.0 | do. | 10YR 3/2-2/2 | S-DL | |
| 832.0-833.4 | do. | 10YR 4/3-2/2 | do. | Some lp-struct low pt; some thn gran impreg tf strgs. |
| 833.4-835.4 | do. | 10YR 7/2-4/2, some 3/2-2/2 up pt | do. | Some lp-struct; 0.1-ft brn-gy slty tf at 834.2. |
| 835.4-837.6 | do. | 10YR 4/2-3/2, some 2/2 | do. | Thn mas Gast (?) frags at 835.6; com f bf calc specs 835.9-836.0. |
| 837.6-839.7 | do. | 10YR 2/2-1/2, some 3/2 | do. | 3/4- to 1-inch brn-gy slty tf strg at 838.5. |
| 839.7-844.7 | do. | 10YR 3/2-2/2, some 4/2 | do. | Some f interlacing fracs/xln fill at 842.5; thn frac & displ gy-bf mrlstn bnd/rsns brn to blk bit at 843.8. |
| 844.7-846.4 | do. | 10YR 2/2-1/2 | do. | |
| 846.4-849.9 | Upper wavy tuff | 10YR 4/2-1/2 | Mot | Dns to gran; com cutrt sh strgs; bit impreg-esp low pt. |
| 849.9-855.0 | Oil shale | 10YR 3/2-2/2, rr 1/2 | D-SL | V rr thn tf strgs. |
| 855.0-862.4 | do. | 10YR 3/2-1/2 | do. | V rr thn tf strgs & lens. |
| 862.4-866.0 | do. | 10YR 3/2-2/2, rr 4/2-1/2 | do. | V rr thn tf strgs. |
| 866.0-867.0 | do. | 10YR 4/2-3/2, some 2/2 | S-DL | Some lp-struct & displ. |
| 867.0-871.2 | do. | 10YR 3/2-2/2, some 1/2 mid pt | | |
| 871.2-872.2 | do. | 10YR 5/2-2/2 | do. | V com lp-struct & displ. |
| 872.2-874.3 | do. | 10YR 3/2-2/2, some 4/2 | do. | V com lp-struct & displ. |
| 874.3-875.3 | do. | 10YR 5/3-3/2, some 2/2 | do. | Com displ & some lp-struct. |
| 875.3-879.0 | do. | 10YR 2/2-1/2, rr 3/2 | SL | |
| 879.0-883.6 | do. | 10YR 4/2-2/2, rr 1/2 | S-DL | |
| 883.6-884.8 | do. | 10YR 2/2-1/2 | do. | Some rsns lstr. |
| 884.8-885.8 | do. | 10YR 3/2-2/2, some 1/2 | do. | |

See footnotes at end of table.

Illustration No. SBR-3873P (Sheet 20 of 25)

Laramie Petroleum Research Center, Laramie, Wyoming

January 19, 1965

LITHOLOGIC LOG

Core samples from Mobil Oil Company's Corehole C--Continued

| Interval | Rock type | Color ^{1/} | Bdg ^{2/} | Other features ^{3/} |
|-----------------|-----------------------|------------------------------|-------------------|--|
| 885.8-891.8 | Oil shale | 10YR 3/2-2/2, some 5/2-1/2 | S-DL | Some irreg lp-struc & displ; v rr vit blk strcs. |
| 891.8-892.8 | do. | 10YR 1/2-2/2 | do. | Com rsns lstr; some s bit impreg gran tf lens at 892.1. |
| 892.8-894.8 | do. | 10YR 3/2-2/2 | do. | |
| 894.8-896.4 | do. | 10YR 5/3-2/2, rr 6/3 | do. | Some lp-struc & displ low pt; v rr gy slty lams. |
| 896.4-897.4 | do. | 10YR 3/3-1/2 | do. | Com rsns lstr; some thn to f, bf to gy tf bnds. |
| 897.4-898.7 | do. | 10YR 4/2-2/2, some 1/2 up pt | SL | Some lp-struc & displ; v rr v f pyr strcs. |
| Top A-groove | | | | |
| 898.7-903.4 | do. | 10YR 6/3-3/3, rare 7/2-2/2 | S-DL | Com lp-struc & displ; some vert frac/rsns brn coatings & chky wh sps; v lrg strongly impreg gran tf lens in brec sh 902.8-903.1. |
| 903.4-903.9 | do. | 10YR 4/2-2/2, rr 1/2 | do. | V com f dism xls; rr thn impreg xln strcs. |
| 903.9-906.0 | do. | 10YR 7/2 & 6/3-2/2 | do. | V com lp-struc & displ; 0.1-ft zn s irreg vugs at 904.6; irreg vert frac/com pyr, calc & some bit mid pt. |
| 906.0-907.0 | do. | 10YR 8/2-5/3, some 4/3 up pt | SL | V com lp-struc & displ. |
| 907.0-910.1 | Oil shale & marlstone | 10YR 8/1-6/3, rr 5/3 | do. | V com lp-struc & displ; some f dk gy slty strcs & blbs. |
| 910.1-910.6 | Oil shale | 10YR 6/3-5/3 | do. | Some lp-struc; rr pyr strcs. |
| 910.6-911.1 | do. | 10YR 6/3-2/2 | do. | Com lp-struc & displ; some pyr strcs. |
| Bottom A-groove | | | | |
| 911.1-913.8 | do. | 10YR 3/2-2/2, some 4/2 | D-SL | Some thn dns dol bnds/short vert frac. |
| 913.8-914.6 | do. | 10YR 3/3-1/2 | do. | Com rsns lstr; some lp-struc; rr thn dol strcs. |
| 914.6-918.1 | do. | 10YR 5/3-3/2, some 6/3-2/2 | do. | Some irreg lp-struc & displ; some v irreg thn to med impreg tf strcs; rr s dk gy sln lens & strcs. |
| 918.1-919.6 | do. | 10YR 3/3-1/2 | DL | Some rsns lstr; some mod lrg lp-struc up pt; 0.1-ft strongly impreg tf/contrt sh strcs at 918.7; 0.2-ft impreg tf at base--some thn tf strcs & lens other pts. |
| 919.6-920.6 | do. | 10YR 1/2-2/2, rr 3/2-3/3 | D-SL | Some rsns lstr; some thn dk brn-gy pyrte xln strcs & lens up pt. |
| 920.6-922.6 | do. | 10YR 3/3-1/2 | D-SL | Two v irreg thn bf tf strcs nr top; rr s dk brn tf lens other pts. |

See footnotes at end of table.

Illustration No. SBR-3873P (Sheet 21 of 25)

LITHOLOGIC LOG

Core samples from Mobil Oil Company's Corehole C--Continued

| Interval | Rock type | Color ^{1/} | Bdg ^{2/} | Other features ^{3/} |
|-----------------|-----------|----------------------------|-------------------|--|
| 922.6-924.6 | Oil shale | 10YR 1/2-2/2, some 3/3 | D-SL | Com rsns lstr; some thn to med gy to brn-gy slty bnds & strgs (cntrt strgs 293.4-293.6); rr thn brn impreg tf strgs. |
| 924.6-930.4 | do. | 10YR 3/2-2/2, rr 4/2-1/2 | SL | Some v irreg thn brn xln tf strgs up pt. |
| 930.4-932.1 | do. | 10YR 5/3-2/2 | do. | |
| 932.1-933.1 | do. | 10YR 4/2-3/2, some 2/2 | S-DL | Com s lp-struc & displ; 1-1/2-in fnt bdd gy slty tf at 932.8. |
| Mahogany marker | | | | |
| 933.1-933.6 | Tuff | 6.5-3.5N | Mot | Slty to gran; some impreg; some cntrt sh strgs nr top. |
| 933.6-937.4 | Oil shale | 10YR 5/3-2/2 | SL | V com s lp-struc & displ; vert frac/bit coatings 935.2-935.6; thn impreg xln tf strg at 937.3. |
| 937.4-939.4 | do. | 10YR 2/2-1/2 | S-CL | Some rsns lstr. |
| 939.4-942.0 | do. | 10YR 3/2-2/2, some 3/3-4/3 | S-DL | V rr s pyrte patches. |
| 942.0-943.5 | do. | 10YR 5/3-3/3, rr 6/3-2/2 | do. | |
| 943.5-944.8 | do. | 10YR 4/3-1/2 | SB & S-DL | Some rsns lstr; some lp-struc & displ low pt; v rr f dk brn xln strgs. |
| 944.8-946.3 | do. | 10YR 3/2-1/2 | D-SL | Com rsns lstr; some v lrg lp-struc nr top. |
| 946.3-947.3 | do. | 10YR 1/2-2/2, some 3/3-5/4 | do. | Com rsns & wxy lstr; some v lrg lp-struc. |
| 947.3-949.3 | do. | 10YR 3/2-1/2, some 4/2-5/2 | D-CL | Com rsns & wxy lstr; com lrg lp-struc; thn vug nahc strg at 948.7. |
| 949.3-950.4 | do. | 10YR 2/2-1/2, rr 3/3 | SL | Com rsns & some wxy lstr. |
| 950.4-951.0 | do. | 10YR 3/3-2/2, some 1/2 | do. | Some rsns lstr; v rr f brn xln strgs. |
| 951.0-952.9 | do. | 10YR 1/2-2/2 | D-SL & SB | Com rsns lstr; v irreg thn brn-blk slty impreg tf strg at 952.6. |
| 952.9-954.4 | do. | 10YR 3/2-1/2 | DL | Some irreg lp-struc. |
| 954.4-955.5 | do. | 10YR 4/3-2/2, rr 5/3-1/2 | do. | Some lp-struc. |
| 955.5-956.5 | do. | 10YR 3/3-1/2 | D-SL | Some rsns lstr; some lp-struc; rr thn dk brn-gy slty strgs & lens. |
| 956.5-958.1 | do. | 10YR 1/2, some 2/2 | DL-DB | Com rsns lstr; rr irreg lp-struc. |

See footnotes at end of table.

Illustration No. SBR-3873P (Sheet 22 of 25)

LITHOLOGIC LOG

Core samples from Mobil Oil Company's Corehole C--Continued

| Interval | Rock type | Color ^{1/} | Bdg ^{2/} | Other features ^{3/} |
|-------------|-----------|--------------------------------------|-------------------|--|
| 958.1-959.1 | Oil shale | 10YR 3/3-2/2, some 4/3-5/3 low pt | S-DL | 3/4-in gy slty tf bnd & some f interfingering strgs at top; com lp-struc & displ low pt. |
| 959.1-960.9 | do. | 10YR 5/3-2/2 | D-SL | V com lp-struc & displ. |
| 960.9-962.3 | do. | 10YR 3/3-2/2, rr 4/3-1/2 | do. | Com lp-struc. |
| 962.3-966.0 | do. | 10YR 3/3-1/2 | DL | Some rsns lstr; 0.1-ft dk brn slty tf/cntrt sh strgs at 963.2; v irreg thn dk brn gran tf strg at 964.9. |
| 966.0-969.2 | do. | 10YR 3/2-2/2, some 4/2 | S-DL | Some irreg lp-struc & displ up pt; rr f pyr strs nr top. |
| 969.2-970.2 | do. | 10YR 3/3-2/2, rr 1/2 | S-DL | |
| 970.2-971.5 | do. | 10YR 4/3-2/2, rr 5/3 low pt | & SB S-DL | Some to v com lp-struc; v rr thn irreg dk brn xln strgs. |
| 971.5-973.5 | do. | 10YR 7/2-4/2, rr 3/2-1/2 | do. | V com lp-struc & displ; rr s tan to bf lens & strs/rr pyr up pt; 1-3/4-in dk brn-gy to brn-blk sh zn at 972.2. |
| 973.5-974.4 | do. | 10YR 6/2-4/2, some 3/2-1/2 | SL | Rr lp-struc & displ; 0.2-ft dk brn-gy to brn-blk sh zn at top. |
| 974.4-975.2 | do. | 10YR 3/3-1/2 | SB-SL | Some rsns lstr. |
| 975.2-976.2 | do. | 10YR 1/2-2/2 | S-CL | Com rsns lstr; com v lrg lp-struc & displ; rr thn dk brn tf strgs. |
| 976.2-977.2 | do. | 10YR 3/3-1/2, rr 4/3 | D-SL | V irreg thn dk brn tf strg/pyr at 976.6. |
| 977.2-978.2 | do. | 10YR 6/3-3/2, some 2/2-1/2 up pt | SL | Com lp-struc & displ; thn irreg bf xln tf strg at 977.6. |
| 978.2-980.0 | do. | 10YR 6/3-4/2 | do. | V com lp-struc & displ; thn gy pyrtc strs & lens at 978.6. |
| 980.0-981.0 | do. | 10YR 4/3-3/3, some 5/3 | S-DL | |
| 981.0-983.4 | do. | 10YR 2/2, some 3/3 | D-SB | Some v irreg f lacy brn-blk pyrtc strgs up pt. |
| 983.4-984.1 | do. | 10YR 4/3-3/2, some 5/3-2/2 | CL-DB | Some lacy blk strgs up pt (frac fill?). |
| 984.1-984.8 | do. | 10YR 6/3-4/3, some 3/3-2/2 | S-DL | |
| 984.8-987.0 | do. | 10YR 4/3-2/2, rr 5/3-1/2 | do. | Com irreg lp-struc & displ; rr s irreg bf to brn slty lens; lrg irreg boxwork cav/f drsy qtz at 985.1. |
| 987.0-988.0 | do. | 10YR 3/3-1/2, some 4/3-5/3 | SB-DL | Some v s brn lens & strgs. |

See footnotes at end of table.

Illustration No. SBR-3873P (Sheet 23 of 25)

LITHOLOGIC LOG

Core samples from Mobil Oil Company's Corehole C--Continued

| Interval | Rock type | Color ¹ / | Bdg ² / | Other features ³ / |
|---------------|-----------|-------------------------------|--------------------|--|
| 988.0-989.3 | Oil shale | 10YR 2/2-1/2, some 3/3 | S-DB & DL | Com rsns lstr. |
| 989.3-992.8 | Missing | | | |
| 992.8-996.6 | Oil shale | 10YR 4/3-2/2, rr 5/3-1/2 | D-SL | Com s irreg cavs up 3/4 in. |
| 996.6-997.6 | do. | 10YR 3/2-1/2 | do. | Frac to brec zn/brn-gy slty fill & some pyr nr top; irreg vert frac/com pyr low half. |
| 997.6-998.6 | do. | 10YR 3/3-2/2 | SL | Irreg vert frac/brn-gy slty fill & pyr up half. |
| 998.6-1000.0 | do. | 10YR 6/3-2/2 | do. | Rr s gy pyrite str; some f bf-wh rthy lens & str nr base. |
| 1000.0-1001.2 | do. | 10YR 4/3-3/3, some 2/2 | do. | V rr gy pyrite str. |
| 1001.2-1003.2 | do. | 10YR 3/2-1/2 | S-DL | Thn irreg tf strg/some s irreg drsy vugs at 1002.4. |
| 1003.2-1006.4 | do. | 10YR 3/3-2/2, some 1/2 low pt | do. | Some irreg lp-struc & displ nr base; 0.3-ft dns to slty brn tf (?) bnd at 1004.0; v rr f brn tf strgs/pyr other pts. |
| 1006.4-1007.4 | do. | 10YR 1/2-3/2 | do. | Rr s dk brn slty lens. |
| 1007.4-1010.2 | do. | 10YR 5/3-2/2, some 1/2 | SL | Rr s dk brn to bf-wh lens/pyr up pt; thn tan rthy to slty bnd/com s dk gy spots & some pyr at 1009.8. |
| 1010.2-1011.2 | do. | 10YR 3/3-2/2, some 1/2 | S-DL | Some lp-struc. |
| 1011.2-1012.4 | do. | 10YR 2/2-1/2 | do. | Com rsns & some wxy lstr; rr lp-struc. |
| 1012.4-1013.9 | do. | 10YR 4/3-2/2, some 1/2 | SL | Rr f bf str. |
| 1013.9-1016.2 | do. | 10YR 7/2-3/2, some 2/2 | do. | Some s lp-struc & displ; bf rthy tf/com cntrt & broken sh strgs 1015.3-1015.7; some f short vert fracs low pt. |
| 1016.2-1017.2 | do. | 10YR 3/3-1/2 | do. | Some lp-struc. |
| 1017.2-1018.3 | do. | 10YR 1/2-2/2 | S-DL | Some rsns lstr; some lp-struc; 0.2-ft bf-wh tfs at top & base. |
| 1018.3-1019.3 | do. | 10YR 3/3-1/2 | SL | Rr displ. |
| 1019.3-1020.3 | do. | 10YR 3/3-2/2, some 1/2 | SL | |
| 1020.3-1021.3 | do. | 10YR 3/3-2/2, some 4/3-1/2 | S-DL | Some lp-struc & displ; 1/2- to 1-1/4-in gy-wh tf at 1020.9. |
| 1021.3-1026.4 | do. | 10YR 7/2-2/2 | SL | Com s lp-struc; thn chky wh tfs at 1022.6 & 1025.7; 0.2-ft rthy to spgy frac zn/drsy calc & some pyr at base. |

See footnotes at end of table.

Illustration No. SBR-3873P (Sheet 24 of 25)

Laramie Petroleum Research Center, Laramie, Wyoming

January 19, 1965

LITHOLOGIC LOG

Core samples from Mobil Oil Company's Corehole ³C--Continued

| Interval | Rock type | Color ^{1/} | Bdg ^{2/} | Other features ^{3/} |
|----------------|-----------|----------------------------|-------------------|---|
| 1026.4-1027.0 | Missing | | | |
| 1027.0-1027.8 | Oil shale | 10YR 5/3-2/2, some 6/3-7/2 | SL | Some s lp-struct; rr f brn slty tf strgs; short vert frac/ rsn brn coatings low 0.1 ft. |
| Bottom of core | | | | |

^{1/} Munsell system of color notation determined from "Munsell Book of Colors," Munsell Color Company, Inc., Baltimore, Maryland, v. 1, 1929-42.
^{2/} C - contorted, D - distorted, S - smooth, B - bedding, L - laminations, M - massive, Mot - mottled. Example: S-DL means smooth to distorted laminations.
^{3/} Abbreviations taken from Mitchell and Maher, 1957 (Bull. AAPG, v. 41, No. 9, pp. 2103-07). See attached list for common abbreviations.

Illustration No. SBR-3873P (Sheet 25 of 25)