

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY<sup>1/</sup>

Core samples of the Green River Formation from Bureau of Mines NW  
 Washakie Basin No. 1 corehole drilled in 1968 and 1969 in NW1/4  
 SW1/4 (2,277 ft N/S and 404 ft E/W) of sec 17, T 14 N, R 99 W,  
 Sweetwater County, Wyoming

Surface elevation: 7,703 feet  
 Cored intervals: 102.7-683.1 and 2,172.5-2,857.3 feet

From	To	Description
LANEY MEMBER OF GREEN RIVER FORMATION		
101.0	102.7	(Junk-basket sample) Claystone and mudstone: Medium olive-gray claystone in upper part (5Y 4/1-5/1), light gray-green silty mudstone in lower part (7.5Y to 10Y 7/1-7/2); slightly calcareous. Very faintly bedded to massive. Abundant very fine pyrite crystals in claystone. Irregular discontinuous sample pieces.
102.7	104.0	Sandstone: Light to medium gray (N6-5) and greenish gray (7.5Y to 10Y 6/1-5/1), medium grained, massive, calcareous in upper part. Abundant pyrite in upper part. Very rare biotite. Buff marlstone and faintly laminated medium to light gray silty mudstone in upper 0.2 foot.
104.0	106.0	Sandstone: Medium to light gray green (7.5Y to 5GY 5/1 and 5/2 to 6/1 and 6/2), medium grained, porous. Massive to very faintly bedded. Common very fine irregular buff earthy blebs in some parts. Few very fine black carbonaceous streaks.
106.0	110.0	Sandstone: As above with few thick zones of light gray fine-grained sandstone. Abundant very fine black carbonaceous streaks from 106.9 to 108.1; rare in other parts.
110.0	114.0	Siltstone and sandstone: Gray buff to medium gray (2.5Y 7/1-5/1; darker colors almost neutral). Distinct distorted streaked bedding and some fairly regular laminae. Common black carbonaceous streaks. Common 1- to 3-inch zones of medium to fine grained gray-green sandstone.
114.0	124.3	Sandstone: Very light gray (N7-8), salt and pepper, medium grained, porous. Massive to faintly bedded. Fairly abundant biotite. Some pyrite. Very rare pink grains. A 1-inch zone of black carbonaceous streaks at 121.5; rare in other parts. Sample of sandstone from 116.6 feet: X-ray - dolomite, quartz, feldspar, illite, analcite, pyrite.
124.3	130.5	Sandstone: Light to rare medium gray green (7.5Y 7/1 and 7/2 to 6/1 and 6/2, rare 5/2) and some gray buff (2.5Y 7/1), fine grained, porous. Faintly

<sup>1/</sup> By L. G. Trudell

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Laramie Petroleum Research Center, Laramie, Wyoming

April 8, 1969.

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Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
653.5	655.5	Sandstone and mudstone: Light olive gray to medium gray green (7.5Y 7/2 to 5GY 5/1). Massive to very faint irregular bedding.
655.5	657.5	Mudstone: Like 651.5-653.5.
657.5	659.8	Sandstone and siltstone: Medium olive gray in upper part to gray buff in lower part (7.5Y 5/2 to 5Y 7/1), slightly calcareous to very calcareous, micaceous. Massive to very faintly bedded. Grades to light gray sandy limestone with some very fine buff oolites in lower 0.3 foot.
659.8	660.4	Limestone: Buff (2.5Y 7/2-8/2), sandy to silty. Faintly mottled. Rare oolites.
660.4	662.5	Sandstone and mudstone: Very light to medium gray green (10Y 8/2 to 5GY 5/1 and 5/2), calcareous. Faintly mottled.
662.5	663.5	Sandy mudstone in upper part to claystone in lower part: Medium gray green (10Y to 5GY 5/2). Massive. Broken core.
663.5	667.4	Missing.
667.4	671.8	Mudstone and claystone: As above. Badly broken by desiccation cracks. Some core pieces are worn down to less than 1-1/2 inches in diameter. Grab sampled. Sample of claystone from 669.5 feet: X-ray - illite, quartz, feldspar, kaolin, siderite?
671.8	679.4	Missing.
679.4	683.1	Mudstone and claystone: Purplish gray (10RP 5/1-4/1) and some medium to light gray green (10Y 5/2-6/2). Badly broken by desiccation cracks. Grab sampled. Sample of purplish-gray to gray-green mudstone from 681.8 feet: X-ray - illite, quartz, feldspar, kaolin.

BOTTOM OF UPPER CORED INTERVAL

Ten-foot drill-cutting samples collected from 683.1 to 2,172.5 feet.

TOP OF LOWER CORED INTERVAL

CATHEDRAL BLUFFS TONGUE OF WASATCH FORMATION--CONTINUED

2,172.5	2,173.5	Mudstone and claystone: Medium olive gray (5Y and 7.5Y 4/1), massive. Very irregular parting and fracture.
2,173.5	2,175.0	Mudstone: Medium to light olive gray and greenish gray (7.5Y and 10Y 5/1-7/1 and 7/2), noncalcareous to calcareous. Massive with some faint buff mottling in upper part to faint streaked bedding in lower part. A 0.1 foot zone of gray-buff massive fine crystalline limestone at 2,174.7.

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Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,175.0	2,176.4	Claystone and mudstone: Medium to light olive gray (5Y and 7.5Y 5/1-6/1, some 5/2-6/2), very slightly calcareous. Very faintly bedded. Some to common fine to thin gray-buff silty streaks and stringers.
2,176.4	2,177.7	Claystone: Medium and rare light olive gray (2.5Y 5/2 and 5/1 to 4/2 and 4/1, some 6/2-7/2), dolomitic. Very faintly bedded. Slightly unctuous in lower part. Sample of slightly unctuous olive-gray claystone from 2,177.6 feet: X-ray - illite, quartz, dolomite, analcite, feldspar, kaolin.
2,177.7	2,178.4	Limestone: Buff to light brownish gray (2.5Y 7/2-6/2, some 8/2 and 8/3-7/3). Round to irregular fine sand-size grains in sparry calcite cement. Some very faintly laminated wavy and broken limestone stringers. Sample of fine sandy-textured limestone from 2,177.9 feet: X-ray - dolomite, calcite, quartz, feldspar, analcite, illite.
2,178.4	2,179.3	Marlstone and siltstone: Medium to light gray (N 4-6) dolomitic marlstone interbedded with very light gray (N 8-6) sandy siltstone.
2,179.3	2,179.6	Siltstone: Gray buff (2.5Y and 5Y 8/1-7/1, almost neutral), sandy, calcareous. Faint distorted bedding. Some fine olive-gray mudstone streaks.
2,179.6	2,181.4	Missing? Conical ground core ends.
2,181.4	2,183.7	Mudstone: Medium to some light greenish gray (7.5Y to 5GY 5/1-4/1, some 6/1), very slightly calcareous. Massive with faint light specks and mottles; some brown mottling in upper part.
2,183.7	2,185.3	Sandstone, siltstone, and mudstone: Very light to some medium olive gray (7.5Y to 10Y 8/1-6/1, some 5/1-4/1), calcareous. Massive to mottled with some faint irregular streaked bedding.
2,185.3	2,190.3	Mudstone and claystone: Medium greenish gray (10Y to 5GY 5/1 and 5/2-4/1 and 4/2), very slightly calcareous. Massive. Slightly unctuous. Broke up very badly during and after removal from core barrel. Grab sampled. Sample of greenish-gray claystone from 2,189.5 feet: X-ray - illite, quartz, analcite, feldspar, siderite, kaolin.
2,190.3	2,194.0	Mudstone and sandstone: Medium to very light greenish gray and olive gray (5GY to 7.5Y 5/1-8/1). Massive to very faintly bedded mudstone with very calcareous sandstone at 2,190.9-2,191.6 and slightly calcareous micaceous sandstone at 2,193.1-2,194.0. Contorted bedding near base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washaké Basin No. 1 corehole (con.)

From	To	Description
2,194.0	2,195.0	Siltstone and very fine sandstone: Very light olive gray (7.5Y 7/1-8/1) with common distinct light to dark brownish-gray (2.5Y 6/2-3/2) carbonaceous streaks, laminae, and bands; very slightly calcareous. Common small-scale crossbedding.
2,195.0	2,197.7	Sandstone: Very light gray (N 7-8; slight green to brown tint), very fine to fine grained micaceous, slightly calcareous. Very faintly bedded to massive. Some fine carbonaceous streaks in upper part.
2,197.7	2,198.9	Mudstone: Medium to light brownish gray and some light olive gray (2.5Y 4/1-6/1, some 5Y 6/2-7/2). Faint smooth to distorted streaked bedding. Shaly to silty in upper and lower parts; sandy in middle.
2,198.9	2,200.0	Shale (oil shale?): Medium brownish gray and olive gray (2.5Y and 5Y 4/1 and 4/2-5/1 and 5/2). Faint streaked bedding. Fairly regular thick to thin shaly parting; slightly unctuous. A 0.1-foot massive grayish-brown dolomite band at 2,199.2; a thin dense brown dolomite stringer with buff rims at 2,199.5. Sample of olive-gray shale from 2,199.6 feet: X-ray - illite, quartz, analcite, feldspar, dolomite, siderite, kaolin.
2,200.0	2,201.1	Oil shale (shale): Medium to dark brownish gray and some black (2.5Y 4/2-3/2, some 2/2-1/2 middle part). Very faintly bedded. Very regular thick to medium parting. Some thin to fine brown dolomite(?) stringers and laminae from 2,200.6 to 2,200.8; brown dolomitic limestone with few fine wavy oil-shale laminae at 2,200.8-2,201.0. One inch medium olive-gray shale bands at top and bottom. Sample of dark brownish-gray oil shale from 2,200.6 feet: X-ray - illite, quartz, dolomite, analcite, feldspar, siderite, kaolin. Sample of brown dolomitic limestone from 2,200.9 feet: X-ray - dolomite; trace analcite, quartz.
2,201.1	2,203.3	Sandstone: Gray buff to light gray (2.5Y 7/1 to N 6), very calcareous in upper part to slightly calcareous in lower part, fine grained, micaceous. Faintly bedded with common very fine brownish-gray mudstone streaks and laminae. Tan limestone with rare very fine oolites in upper inch.
2,203.3	2,205.7	Mudstone and sandy siltstone: Medium to light olive gray (5Y 5/1-6/1). Faintly mottled to massive.
2,205.7	2,207.6	Sandstone: Very light olive gray (5Y 7/1-8/1; almost neutral) and light to medium brownish gray (10YR 6/1-4/1), very fine grained, very slightly calcareous.

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From	To	Description
		Light olive gray with few brownish-gray carbonaceous streaks in upper part becoming increasingly numerous in lower part; brownish-gray carbonaceous mudstone with fine light sandy streaks in lower 0.3 foot.
2,207.6	2,210.0	Sandstone: Gray buff (2.5Y 7/1-8/1; almost neutral), fine grained, micaceous. Very faint smooth bedding. Common fine black carbonaceous streaks in middle part.
2,210.0	2,216.0	Sandstone: Very light olive and gray buff (5Y and 2.5Y 7/1-8/1), fine to very fine grained, micaceous, very slightly calcareous. Very faint smooth streaked bedding; rare crossbedding in lower part.
2,216.0	2,217.1	Siltstone and sandstone: Light olive gray to medium gray (5Y 7/1 to 5/1 and N 6-4), micaceous. Distinctly bedded with carbonaceous streaks and layers. Half-inch band of dark brownish-gray shaly mudstone at top.
2,217.1	2,239.3	Sandstone: Light gray to gray buff and some light olive gray (N 7-8 to 2.5Y and 5Y 6/1-7/1, some 7.5Y 7/2 middle part), fine to medium grained, micaceous. Faintly bedded to massive. Few fine to thin brownish-gray silty to sandy mudstone stringers in upper foot. Zone of friable broken sandstone at 2,224.3 to 2,224.9. Some very fine carbonaceous streaks below 2,231.0. Very calcareous sandstone with some fine brownish-gray mudstone stringers and streaks in lower 0.5 foot.

TOP WILKINS PEAK MEMBER OF GREEN RIVER FORMATION

2,239.3	2,241.5	Marlstone (oil shale?): Light to medium olive gray (5Y 6/2-5/2, some 6/1-5/1 lower part), slightly calcareous. Very faintly bedded with rare very faint laminae. Rare very fine dark gray silty pyritic blebs and streaks. Sample of light to medium olive-gray marlstone from 2,239.6 feet: X-ray - illite, quartz, dolomite, analcite, feldspar, calcite, kaolin.
2,241.5	2,243.7	Marlstone (oil shale?): Medium and rare light olive gray (5Y 5/2, rare 6/2-6/1), slightly calcareous to dolomitic. Very faint streaked bedding; some very faint laminae in lower part. Rare fine black to gray-buff silty pyritic streaks and blebs.
2,243.7	2,244.7	Oil shale (marlstone): Medium and rare light olive gray (5Y 5/2, some 4/2, rare 6/2), dolomitic. Very faintly bedded to laminated. Some very fine gray-buff calcareous streaks and laminae in lower part. A 3/4-inch wavy band of alternating light green and dense medium to dark brown laminae at base.

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From	To	Description
		Sample of brown and light green laminated band from 2,244.7 feet: X-ray - dolomite; some calcite, quartz, analcite.
2,244.7	2,245.7	Oil shale (marlstone): Medium to rare dark brownish gray (2.5Y 4/2-5/2, rare 3/2; almost olive gray near top), dolomitic. Very faintly bedded to faint and some moderately distinct laminae. Common fine displaced dense grayish-brown dolomite laminae in lower 0.2 foot. Smooth conformable contact with sandy dolomite below. (2,245.0-2,245.1 missing).
		Sample of faintly laminated brownish-gray oil shale from 2,245.2 feet: X-ray - dolomite, quartz, illite, analcite, feldspar, kaolin.
2,245.7	2,246.2	Dolomite: Medium brownish gray (10YR 5/1-4/1), fine sandy textured. Massive. Very fine spherulitic (oolitic?) grains in upper part grading to very tightly packed irregular grains (crystals?) in lower part. A fine dense brown dolomite lamina at 2,245.8.
		Sample of spherulitic dolomite from 2,245.7 feet: X-ray - dolomite, quartz, feldspar, pyrite, analcite.
		Sample of dense crystalline(?) dolomite from 2,246.0 feet: X-ray - dolomite, quartz, feldspar.
2,246.2	2,246.6	Sandstone: Medium brownish gray (2.5Y 5/1), fine to medium grained, micaceous, massive.
2,246.6	2,250.4	Sandstone: Gray buff (2.5Y to 5Y 7/1), fine to medium grained, micaceous. Massive to faintly bedded with very fine distinct medium to dark gray and brownish-gray streaks; some crossbedding.
2,250.4	2,252.4	Sandstone and mudstone: Sandstone as above with common fine to thick stringers of olive-gray silty to sandy mudstone.
2,252.4	2,258.4	Sandstone, mudstone, and marlstone: Very light to medium olive gray and some brownish gray (5Y to 7.5Y 8/1-5/1, some 2.5 and 5Y 4/1 and 4/2-5/2), slightly calcareous. Interbedded thick to thin, regular to distorted bands and stringers. A 1-inch light gray fine crystalline to sparry calcite band at 2,253.6.
2,258.4	2,260.8	Mudstone: Medium to light brownish gray and olive gray (2.5Y and 5Y 5/1-6/1, some 4/1-4/2 upper part), sandy to silty, very slightly calcareous. Faint streaked bedding. A thin light gray fine crystalline limestone stringer at 2,260.0. Fairly common fine black carbonaceous specks and streaks in lower part (plant shreds?).

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From	To	Description
2,260.8	2,263.0	Sandstone and some marlstone: Gray-buff to light olive-gray sandstone (5Y and 7.5Y 8/1-6/2), fine grained, micaceous, sparry calcite cement in upper part. Massive to faintly streaked. Some fine to 1-inch stringers of medium olive-gray marlstone in upper part; very faintly bedded to laminated light to medium olive-gray marlstone at 2,262.2 to 2,262.7.
2,263.0	2,265.2	Sandstone: Buff to light brownish gray and olive gray (2.5Y and 5Y 8/2-6/1), fine grained, micaceous, calcareous with some sparry calcite in lower part. Very faintly bedded in upper part; common very irregular fine stringers of olive-gray and brownish-gray marlstone in lower part.
2,265.2	2,269.8	Marlstone: Medium to light olive gray (5Y 5/2-6/2), slightly calcareous. Faint streaked bedding and some irregular laminae. Very abundant fine irregular gray-buff to light gray silty crystalline calcite streaks and blebs.
2,269.8	2,271.4	Marlstone: Medium and rare light olive gray (5Y 5/2, rare 4/2 and 6/2), slightly calcareous to dolomitic. Very faintly bedded with fairly common fine distinct dense to silty yellow-buff dolomitic streaks.
2,271.4	2,273.3	Marlstone and mudstone: Light to some medium olive gray (5Y 6/2-6/1, some 5/2), slightly calcareous. Very faintly bedded to massive. Some fine light gray limestone stringers and small gray-buff blebs in upper part. Faintly laminated buff limestone at 2,272.8: two small arched algal heads, 3/4-inch thick at crests, tapering at edges, with a fine contorted and broken stringer between. Sample of light olive-gray massive mudstone from 2,272.2 feet: X-ray - illite, quartz, feldspar, analcite, dolomite, ferroan, pyrite, calcite.
2,273.3	2,273.6	Limestone breccia: Medium gray and light brownish gray to buff (N 5 and 2.5Y 6/2-8/2). Small to fine angular fragments and broken stringers of dense light brownish-gray to buff algal limestone in gray fine crystalline matrix.
2,273.6	2,275.0	Marlstone and fine sandstone: Medium to light olive-gray dolomitic marlstone (5Y 5/1 and 5/2 to 6/1 and 6/2) and gray-buff calcareous sandstone (5Y and 2.5Y 7/1-8/1). Fine to thin irregular interbedded stringers.
2,275.0	2,276.0	Sandstone and marlstone: Interbedded stringers as above, but medium to dark olive-gray marlstone (5Y 5/1 and 5/2-3/1).

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From	To	Description
2,276.0	2,281.7	Sandstone: Light brownish gray to gray buff (2.5Y 6/1-7/1, some 8/1 lower part; almost neutral gray in upper part), fine grained, micaceous, very calcareous in upper part to slightly calcareous in lower part. Faint smooth to very distorted bedding. Rare streaks and stringers of medium to dark brownish-gray sandy mudstone. Slightly friable broken sandstone in lower foot.
2,281.7	2,284.0	Mudstone with some sandstone and siltstone: Light to medium brownish-gray and olive-gray mudstone (2.5Y and 5Y 6/1 and 6/2-5/1 and 5/2), some gray-buff sandstone and siltstone in upper part (2.5Y 7/1-8/1); slightly calcareous to noncalcareous. Faintly bedded to laminated mudstone with fine streaks and thin bands of sandstone and siltstone in upper part; very faint streaked bedding in lower part. Common very fine very irregular horizontal and vertical fractures with gray-buff to tan, silty to earthy fillings in lower part.
2,284.0	2,286.0	Mudstone and very fine sandstone: Medium to very light olive gray (5Y 5/1 and 5/2-8/1 and 8/2), very slightly calcareous. Very faintly bedded to massive; faintly mottled at 2,283.3 to 2,283.8. Very irregular broken core pieces in upper part; uneven sample split.
2,286.0	2,288.4	Mudstone, siltstone, and sandstone: Light olive gray to buff and gray buff (5Y and 2.5Y 6/1-8/1 and 8/2), slightly calcareous to very calcareous. Faint interbedded streaks and laminae of siltstone and mudstone in upper part grading to very faintly bedded fine-grained micaceous sandstone in lower part. Very contorted bedding at 2,286.8 to 2,287.2.
2,288.4	2,290.4	Mudstone and sandstone: Medium to light olive gray (5Y and 7.5Y 5/1-7/1), noncalcareous. Very faintly bedded to massive. Very fine-grained mudstone (almost claystone) in upper part grading very uniformly to very fine-grained micaceous sandstone in lower part. Some very irregular thin to fine fractures with gray-buff to tan, silty to earthy fillings in upper part. Rare very small to fine, dark gray to black blebs and specks in upper part (same texture as enclosing mudstone).
2,290.4	2,291.4	Sandstone and mudstone: Light to rare medium olive gray (5Y and 7.5Y 7/1-6/1, rare 5/1), very slightly calcareous. Very fine-grained micaceous sandstone with common very fine mudstone streaks.

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From	To	Description
2,291.4	2,293.0	Mudstone, siltstone, and sandstone: Gray buff to medium brownish gray (2.5Y 7/1-5/1), some light to medium olive gray near top (5Y 6/1-5/1). Finely laminated mudstone, siltstone, and very fine sandstone with common cross-bedding in upper and lower parts. Very faintly bedded to massive, fine to medium grained buff micaceous sandstone from 2,292.3 to 2,292.7.
2,293.0	2,294.7	Sandstone: Light brownish gray to buff (2.5Y 6/2-8/2), medium to fine grained, micaceous, very slightly calcareous. Massive in upper part; very fine distinct dark micaceous streaks in lower part. Common fine dark brownish-gray to black carbonaceous laminae and streaks at 2,293.5-2,293.6. Common fine interfingering grayish-brown marlstone stringers in lower inch.
2,294.7	2,300.4	Marlstone: Light to some medium brownish gray and olive gray and some buff (2.5Y and 5Y 6/2, some 5/2 and 7/2), dolomitic. Very faintly bedded with some faint streaks, laminae, and bands. Common fine streaks and blebs to thick stringers and bands of gray-buff to light gray siltstone and very fine sandstone above 2,299.0; some fine streaks and stringers in lower part. Sample of light brownish-gray marlstone from 2,297.3 feet: X-ray - quartz, illite, dolomite, analcite, feldspar, kaolin.
2,300.4	2,302.7	Oil shale (marlstone): Medium to dark olive gray and brownish gray (5Y and 2.5Y 4/2-3/2, some 5/2 upper part), dolomitic. Very faint streaked bedding with some faintly laminated zones. Occasional thin to fine, buff to light brownish-gray dolomite lenses and streaks. Sample of medium to dark brownish-gray oil shale from 2,300.7 feet: X-ray - dolomite, analcite, quartz, illite, feldspar, ferroan.
2,302.7	2,303.7	Oil shale (marlstone): Dark and some medium brownish gray to black (2.5Y and 10YR 3/2-1/2, some 4/2-5/2), some very fine resinous to vitreous streaks, dolomitic. Very faint streaked bedding to faint and some distinct laminae. A thin zone of finely laminated dense brownish-gray dolomite and very dark oil shale at 2,303.4. Sample of interlaminated dense brownish-gray dolomite and very dark oil shale from 2,303.4 feet: X-ray - dolomite; some analcite, quartz, feldspar, ferroan.
2,303.7	2,304.2	Limestone: Tan to buff (10YR 6/3-7/3 and 7/2, rare 8/2 lower part). Massive in upper part to moderately distinct wavy laminae and streaked bedding in lower part. Common very fine irregular cavities in upper part. Some very irregular light brownish-gray stringers and streaks in lower part. Irregular wavy contacts at top and bottom.

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From	To	Description
2,304.2	2,309.0	Mudstone, claystone, and very fine sandstone: Gray buff to light olive gray and brownish gray (2.5Y and 5Y 7/1-6/1, some 8/1 lower part), very slightly calcareous. Faint irregular bedding; distinct fine carbonaceous streaks in sandstone in lower part.
2,309.0	2,312.4	Sandstone: Light and some medium brownish gray to gray buff (2.5Y 6/2 and 6/1-7/1, some 5/1-4/1), fine grained, micaceous, slightly calcareous to calcareous. Faintly bedded with some distinct thin to fine streaks and stringers. Gray-green sandstone at 2,311.9-2,312.1. Grayish-brown mudstone with sandy streaks in lower 0.3 foot.
2,312.4	2,315.6	Mudstone and claystone: Medium to some light brownish gray and olive gray (2.5Y and 5Y 5/1, some 4/1 and 6/1). Very faint streaked bedding with some faint stringers, streaks, and laminae. Some very fine resinous to vitreous black specks and streaks in upper part.
2,315.6	2,319.2	Very fine sandstone, siltstone, and mudstone: Gray-buff to medium olive gray and brownish gray (5Y and 2.5Y 8/1-5/1), slightly calcareous in upper part to very calcareous in lower part. Very irregular faint bedding; faintly mottled mudstone at 2,317.0-2,318.0. Some very irregular very small dark pyritic blebs in sandstone in lower part.
2,319.2	2,322.6	Sandstone: Gray buff to greenish buff (5Y and 7.5Y 7/1-7/2), fine grained, micaceous, slightly calcareous, massive. Rare fine pyritic blebs.
2,322.6	2,326.6	Sandstone: Buff (10YR and 2.5Y 8/2-7/2), fine grained, micaceous, slightly calcareous. Massive with some grayish-brown mottling.
2,326.6	2,338.0	Sandstone: Buff (2.5Y 7/2-8/2), fine to medium grained, micaceous. Massive to faintly bedded.
2,338.0	2,340.0	Sandstone: Gray buff and some light to medium olive gray (2.5Y 7/1, some 5Y 6/1-5/1), fine to medium grained, micaceous, slightly calcareous. Massive to very faintly bedded. Olive-gray zone with common very fine pyrite at 2,338.1-2,338.8 grades to very calcareous sandstone conglomerate with small irregular rounded light to medium olive-gray mudstone inclusions in lower 0.3 foot. Very faintly bedded olive-gray and brownish-gray claystone at 2,338.8-2,339.3 with very abundant very irregular fine sandstone stringers and streaks in lower half.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,340.0	2,342.7	Sandstone: Light brownish gray to buff (2.5Y 6/1-7/2), medium to fine grained, micaceous, very slightly calcareous. Faintly bedded with common very fine black carbonaceous streaks in upper part becoming rare in lower part. Common very fine pyrite. Very calcareous in lower 0.2 foot.
2,342.7	2,344.0	Mudstone and claystone: Medium to light olive gray (5Y 5/1-6/1) and some medium brownish gray (2.5Y 5/2-4/2). Very faint streaked bedding. Very abundant very irregular fine to thin streaks and stringers of gray-buff siltstone and very fine sandstone. Some very irregular discontinuous fine fractures with dull to vitreous black organic fillings in upper 4 inches.
2,344.0	2,345.0	Sandstone: Buff (2.5Y 7/2), fine grained, micaceous, calcareous. Faintly bedded. Some sparry calcite cement in upper part.
2,345.0	2,346.6	Mudstone, siltstone, and very fine sandstone: Light and rare medium olive gray to gray buff (5Y 6/1-8/1, rare 5/1; almost neutral). Faint distorted to smooth streaked bedding and some laminae; very faint cross-bedding near base.
2,346.6	2,347.6	Mudstone and claystone: Medium to light olive gray (5Y 5/1-7/1 and 7/2). Faint very fine smooth laminae in upper 0.4 foot; faint slightly distorted streaked bedding in middle; massive to very faintly mottled in lower 0.2 foot. Common fine gray-buff siltstone streaks.
2,347.6	2,348.7	Claystone: Medium to light olive gray, (5Y 5/1 and 5/2-6/2). Faint streaked bedding. Common fine gray-buff to light gray silty blebs, streaks, and rare thin bands. Common fine tan to yellowish-buff earthy streaks and blebs in darker parts.
2,348.7	2,350.3	<p>Sample of medium olive-gray claystone with very fine light earthy streaks from 2,347.7 feet: illite, analcite, quartz, feldspar, ferroan, dolomite, kaolin.</p> <p>Marlstone(oil shale?): Medium to light olive gray (5Y 5/2-6/2, rare 7/2) and some brownish gray to buff (2.5Y 5/2-7/2, rare 4/2), slightly silty, dolomitic. Moderately distinct to very faint, slightly distorted to smooth streaked bedding and some faint to moderately distinct laminae. Abundant very thin to fine gray-buff silty to very fine sandy streaks and blebs in upper part becoming rare in lower part. A thin yellow-buff slightly silty stringer with a very irregular long thin massive pyrite inclusion and some very small blebs near base.</p> <p>Sample of olive-gray marlstone from 2,350.1 feet: X-ray - quartz, analcite, feldspar, illite, kaolin.</p> <p>Sample of thin yellow-buff stringer from 2,350.2 feet: X-ray - analcite, pyrite, quartz, feldspar.</p>

## LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,350.3	2,351.7	Sandstone, siltstone, and marlstone: Light olive-gray very fine-grained sandstone and siltstone (5Y 7/1-6/1 and 6/2) and medium to light olive-gray marlstone (5Y 5/2-6/2). Sandstone and siltstone with irregular marlstone stringers and streaks in upper part grading to marlstone with fine sandstone and siltstone streaks and blebs in lower part. Some sparry calcite cement in upper part.
2,351.7	2,352.3	Marlstone: Light olive gray and brownish gray (7.5Y to 2.5Y 6/2), dolomitic. Very faintly bedded. Some silty to sandy blebs, streaks, and thin bands.
2,352.3	2,353.9	Mudstone, siltstone, and fine sandstone: Light and rare medium olive gray to gray buff (7.5Y and 5Y 6/1 and 6/2-8/1, rare 5/2), slightly calcareous with some very calcareous sparry bands. Faint smooth laminae in upper part to streaked crossbedding in lower part. Micaceous in lower part.
2,353.9	2,354.8	Mudstone and claystone: Light to medium olive gray and brownish gray (5Y and 2.5Y 6/1-5/2). Faint streaked bedding. Common fine silty to sandy streaks and small blebs; a 3/4-inch stringer at 2,354.2. Some fine tan earthy blebs and streaks in upper part.
2,354.8	2,358.0	Sandstone: Gray buff (5Y 7/1), very fine grained, micaceous, slightly calcareous to very calcareous. Distorted bedding with abundant fine to thin streaks and stringers of light to medium olive-gray and brownish-gray mudstone and claystone.
2,358.0	2,359.8	Claystone: Light olive gray (5Y and 7.5Y 6/1). Finely speckled with tan earthy blebs and lacy fracture fillings. Sample of claystone with very fine lacy tan earthy fracture fillings from 2,358.3 feet: X-ray - analcite, quartz, illite, ferroan, feldspar, calcite, kaolin.
2,359.8	2,366.2	Mudstone and very fine sandstone: Light to very light olive gray (5Y 6/1 and 7/1 in upper part to 7.5Y 7/2-8/2 in lower part), calcareous in lower part. Massive and faintly mottled mudstone in upper part grading to faintly streaked sandstone with some irregular cross-bedding in lower part.
2,366.2	2,367.0	Missing?
2,367.0	2,371.8	Mudstone: Light to medium olive gray and greenish gray (5Y to 10Y 6/1-5/1; almost neutral). Massive; very finely laced with light olive-gray slightly silty(?) fracture fillings. Some very small irregular tan to brown earthy blebs. Sample of finely fractured mudstone from 2,368.6 feet: X-ray - analcite, quartz, illite, siderite, feldspar, kaolin.

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,371.8	2,376.7	Mudstone, very fine sandstone, and some claystone: Gray buff to light and rare medium olive gray (5Y and 7.5Y 8/1-6/1, rare 5/1), slightly calcareous. Massive to very faintly bedded. Thick gradational zones in upper part; irregularly interbedded in lower part.
2,376.7	2,378.0	Missing?
2,378.0	2,380.1	Mudstone: Like 2,367.0-2,371.8 feet. Broken core at top and bottom.
2,380.1	2,382.0	Missing?
2,382.0	2,383.8	Mudstone and siltstone: Gray buff to light olive gray (5Y 7/1 and 7/2-6/1), slightly calcareous. Very faintly bedded to massive. Irregular broken core pieces.
2,383.8	2,385.3	Missing?
2,385.3	2,393.6	Mudstone, siltstone, and very fine sandstone: Light and some medium olive gray to buff (5Y 6/1 and 6/2-8/1 and 8/2), slightly to very calcareous. Faint streaked bedding with massive to mottled zones; some irregular cross-bedding.
2,393.6	2,394.7	Mudstone and claystone: Light olive gray (5Y and 7.5Y 6/1-6/2), dolomitic. Very faint streaked bedding. Some gray-buff fine-grained sandstone stringers and blebs.
2,394.7	2,396.4	Very fine sandstone, siltstone, and claystone: Gray buff to light olive gray (5Y 8/1-6/1 and 6/2), calcareous to slightly dolomitic. Interbedded in moderately distinct slightly irregular laminae and bands. Rare plant fossils.
2,396.4	2,398.2	Very fine sandstone, siltstone, and claystone: Gray buff to some medium olive gray (5Y 7/1-6/1, some 5/1), calcareous to slightly dolomitic. Moderately distinct irregular interbedded laminae and thin bands in upper part grading to very faintly bedded claystone with some sandstone and siltstone laminae and bands in lower part. A very irregular thin vertical sandy mudstone stringer from 2,396.7 to 2,397.1. A very thin yellow-buff fine-grained limestone lamina at base.
2,398.2	2,400.6	Sandstone: Very light gray buff to some light brownish gray and olive gray (2.5Y and 5Y 8/1-7/1, some 6/1), fine grained, micaceous, calcareous. Moderately distinct slightly irregular streaked bedding; some fine distinct medium olive-gray mudstone and claystone laminae in lower part. Rare very small irregular fine-grained pyrite blebs; a 1/4-inch massive pyrite layer near base. Sample of very light sandstone from 2,399.2 feet: X-ray - quartz, feldspar; some illite, analcite, dolomite, pyrite, calcite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,400.6	2,402.6	Mudstone, siltstone, and claystone: Gray-buff to light and some medium olive gray and brownish gray (5Y and 2.5Y 7/1-6/2, some 5/1-5/2), slightly calcareous to dolomitic. Moderately distinct to faint slightly irregularly interbedded laminae, bands, and streaks.
2,402.6	2,404.1	Mudstone and marlstone: Buff to rare medium olive gray (5Y 7/2-6/2, rare 5/2), slightly calcareous to dolomitic. Faint streaked bedding. Some thin to fine sandy streaks in upper part.
2,404.1	2,406.7	Marlstone: Light to medium olive gray (5Y 6/2-5/2), dolomitic. Faint streaked bedding. Rare very fine silty pyritic streaks in lower part. Sample of olive-gray marlstone from 2,404.9 feet: X-ray - analcite, quartz, illite, feldspar, dolomite, ferroan, calcite.
2,406.7	2,407.4	Oil shale (marlstone): Medium olive gray and brownish gray (5Y and 2.5Y 5/2-4/2), dolomitic. Faint streaked bedding and very fine laminae. Some very fine buff silty to dense dolomite streaks.
2,407.4	2,408.0	Oil shale (marlstone): Medium to dark brownish gray (2.5Y 4/2-3/2, some 2/2), dolomitic. Faintly laminated. Rare very fine buff to brown dolomite streaks. A fine vitreous black organic streak at 2,407.9. Sample of dark oil shale from 2,407.7 feet: X-ray - analcite, illite, quartz, dolomite, ferroan, feldspar.
2,408.0	2,408.6	Oil shale (marlstone): Medium brownish gray (2.5Y 4/2-5/2), dolomitic. Very faint laminae and streaked bedding. A thin wavy to contorted and broken, buff to tan algal limestone band at top; few very thin to fine wavy layers in other parts. A high angle fracture with varnish-like coatings and some calcite crusts in upper half.
2,408.6	2,411.3	Marlstone and some mudstone: Light and rare medium olive gray to buff (5Y 6/2-7/2, rare 5/2), dolomitic. Faintly bedded with very abundant fine gray-buff silty to sandy streaks and some short vermiform stringers. Sample of light olive-gray marlstone with fine silty streaks from 2,409.2 feet: X-ray - quartz, illite, analcite, feldspar, dolomite, ferroan.
2,411.3	2,413.4	Very fine sandstone, siltstone, and mudstone: Gray buff to light and rare medium olive gray (5Y 7/1-6/1 and 6/2, rare 5/1-5/2), calcareous. Faintly bedded. Mostly irregular core pieces to jumbled rubble. Uneven sample split.
2,413.4	2,417.2	Marlstone and fine sandstone: Light and rare medium olive gray and brownish gray to gray buff (5Y and 2.5Y 6/1 and 6/2-7/1, rare 5/1-5/2), dolomitic marlstone and calcareous

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		sandstone. Irregularly interbedded in thick zones to fine layers; some faint smooth laminae in marlstone; rare crossbedding in sandstone. A fine woody carbonaceous inclusion in sandstone at 2,415.3.
2,417.2	2,425.0	Sandstone: Light olive gray and brownish gray to gray buff (5Y and 2.5Y 6/1-7/1), very fine to some medium grained, micaceous, calcareous. Faint irregular bedding with some distinct carbonaceous streaks. Some interbedded marlstone as above. (2,421.0-2,422.3 missing).
2,425.0	2,434.0	Claystone and mudstone: Light olive gray (5Y 6/1, almost neutral) noncalcareous to very slightly calcareous. Massive to very faintly bedded with very abundant fairly distinct streaks and laminae of gray-buff calcareous siltstone and very fine sandstone. Some thin to thick sandstone bands in upper part.
		Sample of mudstone from 2,432.4 feet: X-ray - illite, quartz, analcite, dolomite, feldspar, ferroan.
2,434.0	2,436.9	Sandstone: Gray buff to light olive gray (5Y 8/1-6/1 and 6/2) and some light gray (N 7-6), fine to very fine grained, micaceous, calcareous. Faint regular to contorted bedding in upper part; massive in lower part. A 2-inch band of brownish-buff dolomite or dolomitic marlstone at 2,434.5. A 1-inch massive fine-grained pyrite nodule and several fine blebs at 2,436.7. Some irregular fractured and broken core in lower part.
2,436.9	2,440.0	Claystone, mudstone, and siltstone: Light olive gray to gray buff (5Y 6/1-8/1), dolomitic to calcareous. Very faintly bedded claystone and mudstone with thick zones of irregularly interbedded sandy siltstone.
2,440.0	2,442.0	Claystone: Light olive gray (5Y 6/1-6/2), slightly silty in parts. Very faintly bedded with some very faint streaks and laminae. Fairly common fine gray-buff silty to sandy laminae and streaks. Several very fine irregular vertical fractures with crusty dolomite(?) fillings through most of interval.
		Sample of crusty fracture fillings from 2,440.0 to 2,441.0 feet: X-ray - calcite, analcite, trace quartz.
2,442.0	2,451.0	Claystone, mudstone, and siltstone: Light olive gray to buff and gray-buff (5Y 6/1 and 6/2-8/1 and 7/2), slightly calcareous in lower part. Thickly interbedded to finely interlaminated. Very rare fine streaks and very small nodules of fine-grained pyrite. Mostly mudstone and claystone in lower part.
2,451.0	2,452.3	Marlstone: Light to some medium olive gray and brownish gray (5Y and 2.5Y 6/2, some 5/2 and rare 4/2 lower part), dolomitic. Faintly bedded with some very faint laminae. Some fine silty streaks in upper part. Abrupt change to dark oil shale at base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,452.3	2,455.0	Oil shale (marlstone): Medium to some dark and rare light brownish gray (2.5Y 5/2-4/2, some 3/1-1/2, rare 6/2 upper part), dolomitic. Faint to fairly distinct streaked bedding and rare laminae; a thin zone with unconformable diagonal laminae at 2,453.7; dark zones at 2,452.3-2,452.7, 2,453.0-2,453.1 and 2,453.8-2,454.0. Very thin to fine irregular brown dolomite streaks at 2,453.2; a fine irregular buff dolomite layer at 2,453.3. Sample of medium brownish-gray oil shale from 2,453.5 feet: X-ray - dolomite, quartz, analcite, feldspar, ferroan, illite.
2,455.0	2,457.0	Oil shale (marlstone): Very dark brownish-gray to black and rare dark brown (2.5Y 2/2-1/2, some 3/2-3/3 near base), common satiny luster, dolomitic. Faint streaked bedding. Very rare very fine silty-textured pyrite streaks. Sample of black oil shale from 2,456.5 feet: X-ray - dolomite, illite, quartz, analcite, ferroan, feldspar.
2,457.0	2,459.0	Oil shale (marlstone): Dark brownish gray to black (2.5Y 3/2-1/2), some to common satiny luster, dolomitic. Faint streaked bedding.
2,459.0	2,461.0	Oil shale (marlstone): Dark and rare medium brownish gray (2.5Y and 10YR 3/2-2/2, 4/2 in lower 2 inches), dolomitic. Faint streaked bedding; some very faint laminae in lower part. Very rare very fine silty-textured pyrite streaks. Very smooth high angle fracture in upper part appears to be artificial.
2,461.0	2,462.0	Oil shale (marlstone): Medium to rare light olive green (7.5Y 4/2-5/2, rare 6/2 lower part), dolomitic. Very faint laminae and streaked bedding. Common very fine buff silty streaks in lower part. Sample of olive-green oil shale from 2,461.2 feet: X-ray - illite, quartz, feldspar, ferroan.
2,462.0	2,466.5	Oil shale (marlstone): Medium to light olive green (7.5Y 5/2-6/2), dolomitic to slightly calcareous. Faint laminae and some streaked bedding. Very common very irregular fine buff to gray-buff silty streaks--some with dark gray to black silty specks; becoming less abundant in lower part. Sample of marlstone with buff silty streaks from 2,462.9 feet: X-ray - quartz, illite, feldspar, calcite, dolomite, ferroan.
2,466.5	2,467.6	Marlstone: Light to medium olive (5Y and 7.5Y 6/2-5/2), calcareous. Faint laminae and streaked bedding. Several thin bands of brownish-buff silty limestone. Fairly common irregular gray-buff calcareous silty to very fine sandy streaks.

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		Sample of buff silty limestone (or very calcareous siltstone) from 2,466.5 feet: X-ray - quartz, ferroan, calcite, feldspar, illite, dolomite.
2,467.6	2,469.0	Oil shale: Like 2,462.0 to 2,466.5 feet.
2,469.0	2,472.0	Oil shale (marlstone): Medium to light olive (5Y 5/2-6/2), dolomitic to slightly calcareous. Faint laminae and streaked bedding. Common gray-buff silty streaks in some zones. An irregular 1- x 2-inch light olive-gray calcareous silty nodule at 2,469.7. An irregular high angle fracture with buff earthy coatings and a very fine calcite-filled fracture at 2,470.6-2,471.1. A 1-inch light olive-gray silty calcareous band with tan mottling at 2,471.4.
2,472.0	2,473.3	Oil shale (marlstone): Medium to light olive green (7.5Y 4/2-6/2), dolomitic. Faintly laminated. Rare very fine dark gray and brownish-gray dense specks in lower part (possibly fossil fragments). NOTE: Sample below is an interloper; core ends above and below fit together.
2,473.3	2,473.8	Siltstone and mudstone: Buff and gray buff to some light and medium olive gray (5Y 7/2-7/1, some 6/1-5/1), calcareous to slightly calcareous. Very faintly bedded. A high angle fracture with patchy black tarry coatings cuts most of interval. Not assayed. Sample of gray-buff siltstone from 2,473.5 feet: X-ray - quartz, feldspar, illite, dolomite, calcite, analcite, ferroan, chlorite?
2,473.8	2,475.2	Oil shale (marlstone): Medium to light olive green (7.5Y 5/2-6/2), dolomitic to slightly calcareous. Faintly laminated. Very rare small dense brown dolomite nodules.
2,475.2	2,476.3	Marlstone (oil shale?): Medium to light olive gray and rare buff (5Y 5/1 and 5/2-6/2, rare 7/2), dolomitic. Moderately distinct to faint laminae. A small dense grayish-brown dolomite nodule at 2,476.1.
2,476.3	2,477.7	Oil shale (marlstone): Medium to light olive (5Y and 7.5Y 4/2-6/2), dolomitic. Faint to moderately distinct laminae. Rare very fine dark silty pyritic streaks.
2,477.7	2,480.0	Oil shale (marlstone): Medium olive (5Y 4/2-5/2), dolomitic. Faint laminae and streaked bedding. Some very fine buff silty streaks and dark pyritic silty streaks.
2,480.0	2,481.0	Oil shale (shaly marlstone): Medium olive grading to brownish gray (5Y to 2.5Y 4/2-5/2), dolomitic. Very faint streaked bedding. Thick to medium shaly parting in lower part; slightly unctuous parting surfaces. A

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		high angle fracture with very fine crystalline crusts, small reddish-brown crystalline patches, and some diagonal slickensides in upper 0.4 foot. Sample of shaly marlstone from 2,480.7 feet: X-ray - illite, dolomite, quartz, feldspar, ferroan.
2,481.0	2,482.0	Oil shale (shale): Medium to dark brownish gray (2.5Y and 10YR 5/2-3/2), slightly dolomitic. Faintly laminated. Medium to very thin shaly parting. Common diagonal fracture surfaces with very fine mineral crusts and some slickensides. Waxy black fossil fragment on parting surface in middle. A very fine gray-buff silty layer with shiny black grains at 2,481.6. Uneven sample split.
2,482.0	2,483.1	Oil shale (claystone): Medium to dark olive gray and brownish gray (5Y and 2.5Y 5/2 and 5/1-2/2). Finely shattered by irregular fractures with glossy slickensided surfaces and rare calcite crusts. A thin buff-white to light gray clay layer at 2,482.9 with common fine fracture fillings of the same material below. Very uneven sample split. Sample of shattered claystone from 2,482.5 feet: X-ray - illite, quartz, dolomite, analcite, feldspar, ferroan. Sample of clay band from 2,482.9 feet: X-ray - montmorillonite, ferroan.
2,483.1	2,483.8	Oil shale (shaly marlstone): Dark to medium brownish gray (2.5Y 3/2-4/2), dolomitic. Faint streaked bedding and very fine laminae. Thin to thick shaly parting. Some very fine dense brown to tan dolomite streaks.
2,483.8	2,487.0	Oil shale (marlstone): Medium to some light olive green, olive, and rare brownish gray (7.5Y to 5Y and rare 2.5Y 4/2-5/2, some 6/2), dolomitic. Faintly laminated; hues alternate in thick gradational zones. Regular thick to rare thin parting. Very thin dense buff dolomite stringers at 2,484.0 and 2,485.9. Some very fine gray-buff silty streaks in lower part. Sample of dense buff dolomite with very fine marlstone streaks from 2,484.0 feet: X-ray - dolomite, quartz, illite, feldspar.
2,487.0	2,490.0	Oil shale (marlstone): Medium to some light olive green and olive gray (7.5Y and 5Y 5/2 and 5/1-4/2 and 4/1, some 6/2), dolomitic. Faint laminae and streaked bedding. Common very fine gray-buff silty to dense streaks. A very thin dense buff dolomite stringer at 2,489.0. Sample of olive-gray oil shale with very fine silty streaks from 2,488.9 feet: X-ray - illite, quartz, feldspar, dolomite, ferroan, kaolin, analcite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,490.0	2,492.0	Oil shale (marlstone): Medium olive gray (5Y 4/2 and 4/1-5/2; some slight brown tint), dolomitic. Very faint streaked bedding. Some fine buff silty streaks at 2,491.4-2,191.6; rare in other parts. A 1-inch dense buff dolomite nodule at 2,490.3; a 1-inch brownish-gray to buff dolomite band at 2,491.0. Rare black fossil(?) fragments in lower part.
2,492.0	2,493.0	Oil shale (marlstone): Medium to dark brownish gray (2.5Y 4/2-3/2, some 5/2), dolomitic. Very faint streaked bedding. Rare very fine brown to buff silty streaks. A fine wavy platy buff dolomite stringer at 2,492.3; a 1/2-inch buff to brownish-gray stringer at 2,492.9. Regular medium to thick parting.
2,493.0	2,494.0	Oil shale (marlstone): Dark to medium brownish gray (2.5Y 3/2-4/2), dolomitic. Faint streaked bedding and some laminae. Regular thick to some thin parting. A 2-inch wavy band of very hard dense reddish-grayish-brown dolomite at top with fine oil-shale laminae near top and bottom; some irregular tar-stained fractures. Fine buff dolomite streaks at 2,493.8 and 2,493.9. Sample of very hard dense fractured dolomite from 2,493.1 feet: X-ray - dolomite.
2,494.0	2,494.7	Oil shale (marlstone): Medium to light olive in upper 0.2 foot (5Y 5/2-6/2; slight brown tint), medium and rare light olive gray in lower part (5Y 4/2 and 4/1-5/2 and 5/1, rare 6/2); slightly calcareous to dolomitic. Faint streaked bedding; some fairly distinct laminae in lower part. Common fine irregular to vermiform buff to white silty streaks. A thin dense buff to grayish-brown dolomite lens at base. Sample of oil shale with fine white streaks from 2,494.5 feet: X-ray - illite, quartz, feldspar, dolomite, ferroan?
2,494.7	2,495.8	Marlstone: Light olive and olive gray to buff (5Y 6/3 and 6/2-7/2), calcareous. Faint streaked bedding. Some very fine buff silty streaks. Very light buff calcareous siltstone with interfingering hackly shredded marlstone stringers at 2,494.3-2,494.5. Sample of buff calcareous siltstone from 2,495.5 feet: X-ray - quartz, illite, dolomite, feldspar, ferroan.
2,495.8	2,498.1	Oil shale (marlstone): Medium brownish gray and olive gray (2.5Y and 5Y 5/2-4/2), dolomitic. Faintly laminated. Some fine buff to gray-buff silty streaks. A 1-inch medium to light brownish-gray very fine crystalline dolomite band 2,496.4; irregular 1/2- to 1-inch dense buff dolomite lenses at 2,496.8, 2,497.5, and 2,497.9.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,498.1	2,500.0	Oil shale (marlstone): Medium to light olive and olive gray (5Y 5/2 and 5/1-6/2, some 4/2), dolomitic. Faint to moderately distinct laminae and streaked bedding. Some irregular fractures with slight mineral crusts and glossy slickensides. Some very fine gray to gray-buff silty streaks.
2,500.0	2,502.9	Oil shale (marlstone): Medium olive and some medium to rare dark brownish gray (5Y 5/2-4/2, some 2.5Y 5/2-4/2, rare 3/2), slightly calcareous to dolomitic. Faint to moderately distinct laminae and streaked bedding. Some very fine gray-buff silty streaks. Rare dense buff dolomite streaks and laminae. A diagonal fracture with very fine glossy slickensides at 2,500.6.
2,502.9	2,503.9	Marlstone and mudstone: Light and rare medium olive gray to buff (5Y 6/2 and 6/1-7/2 and 7/1, rare 5/2), slightly calcareous. Faint streaked bedding in upper part to faint laminae in lower part. Common fine gray-buff silty streaks.
2,503.9	2,505.0	Oil shale (marlstone): Medium to light olive gray (5Y 5/2 and 5/1-6/2 and 6/1), slightly calcareous to dolomitic. Faint laminae and streaked bedding. Rare very fine gray-buff to gray silty streaks.
2,505.0	2,506.6	Oil shale and dolomite: Medium olive and brownish-gray dolomitic oil shale (5Y and 2.5Y 5/2-4/2). Faint laminae and streaked bedding. Very fine crystalline to dense massive, light to medium brownish-gray dolomite bands at 2,505.6-2,505.7, 2,505.9-2,506.0, and 2,506.2-2,506.4; a 3/4-inch buff to brownish-gray dolomite lens at base. Several glossy diagonal fractures with slickensides in lower half. Sample light brownish-gray fine-grained dolomite from 2,506.2 feet: X-ray - dolomite; trace quartz, feldspar illite.
2,506.6	2,507.7	Oil shale (marlstone): Light to medium olive (5Y 6/2-5/2), dolomitic to slightly calcareous. Very faint streaked bedding. Some very fine gray-buff silty streaks. Sample of oil shale from 2,507.2 feet: X-ray - illite, quartz, dolomite, feldspar, ferroan.
2,507.7	2,509.6	Oil shale (shaly marlstone): Light to medium olive gray and brownish gray (5Y and 2.5Y 6/2 and 6/1-4/2), dolomitic to slightly calcareous. Very faint to some moderately distinct laminae and streaked bedding. Some fine gray-buff to gray silty laminae and streaks. A 1-inch dense grayish-brown (center) to buff (rim) dolomite lens at 2,509.3. Some split surfaces developed a slight light gray earthy coating after exposure to air.

Illustration No. SBR-4181P (Sheet 63 of 90)

LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		Sample of olive-gray oil shale with few very fine silty streaks from zone with slightly altered surfaces from 2,507.8 feet: X-ray - illite, quartz, dolomite, feldspar.
2,509.6	2,511.3	Oil shale (shaly marlstone): Medium and some light olive gray and brownish gray (5Y and 2.5Y 5/2 and 5/1-4/2, some 6/2-6/1), dolomitic. Moderately distinct to faint laminae and streaked bedding. Thick to thin shaly parting in lower part. Some fine buff dolomite streaks. Several diagonal fractures with slickensides in upper part.
2,511.3	2,513.0	Oil shale: As above and below. Common diagonal fractures with slickensides. One-half to 1-1/2-inch dolomite stringers and bands at 2,511.3, 2,512.0, and 2,512.9. Uneven sample split.
2,513.0	2,515.0	Oil shale (shaly marlstone): Medium olive gray and brownish gray (5Y upper part to 2.5Y lower part 5/2-4/2), dolomitic. Faintly laminated. Regular thick to rare thin parting; slightly unctuous surfaces. Rare fine buff dolomite streaks.
2,515.0	2,516.3	Oil shale (shale): Medium olive gray and brownish gray (5Y and 2.5Y 5/2 and 5/1-4/2 and 4/1), slightly dolomitic. Faint streaked bedding. Some very fine buff silty to earthy streaks. Few thin to fine dense buff dolomite lenses and laminae in upper part.
2,516.3	2,517.9	Oil shale (shale): Medium to dark grayish brown and brown (10YR 4/2 and 4/3-3/2, rare 5/2-5/3), slightly dolomitic. Faint streaked bedding with some distinct laminae. Regular to irregular thick to very thin shaly parting. Common diagonal to low angle fractures with glossy slickensides in upper and lower parts; few irregular fractures with noncalcareous mineral crusts. A thin wavy dense brown dolomite band near base. Uneven sample split.
		Sample of dark grayish-brown oil shale from 2,516.9 feet: X-ray - illite, quartz, feldspar, dolomite, montmorillonite?, ferroan?
2,517.9	2,520.5	Oil shale (shale): Light to medium olive gray (5Y 6/1 and 6/2-4/1 and 4/2), slightly dolomitic. Faintly laminated. Thick to medium parting; slightly unctuous. Some fine to thin very distinct buff dolomite streaks and laminae. An irregular vertical fracture with patchy mineral crusts at 2,519.0-2,519.4.
2,520.5	2,521.5	Oil shale (shaly marlstone): Medium brownish gray and olive gray (2.5Y and 5Y 4/2-5/2), dolomitic. Faintly laminated. Thick to medium parting; slightly unctuous. Some thin buff dolomite laminae in lower part.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,521.5	2,522.5	Oil shale (shaly marlstone): Medium olive gray (5Y 5/2-4/2), dolomitic. Faint contorted to fairly smooth streaked bedding. Common large to very small irregular dense buff dolomite nodules. A very irregular fracture with glossy slickensides in upper part. Uneven sample split.
2,522.5	2,523.5	Oil shale (shale): Medium olive gray (5Y 5/2 and 5/1-4/2 and 4/1), slightly dolomitic. Faint streaked bedding. Irregular to regular, thick to thin shaly parting; unctuous. Some irregular glossy fractures with slickensides in lower part.
2,523.5	2,524.6	Oil shale (shaly marlstone): Medium brownish gray and olive gray (2.5Y and 5Y 4/2, some 5/2), dolomitic. Faint streaked bedding. Regular thick to rare thin parting; slightly unctuous. Rare fine to thin, tan to light brownish-gray dolomite laminae. Sample of brownish-gray oil shale from 2,523.7 feet: X-ray - illite, quartz, dolomite, feldspar, montmorillonite, ferroan.
2,524.6	2,525.1	Oil shale (shaly marlstone): Medium to dark brownish gray and brown (2.5Y and 10YR 4/2-3/2 and 3/3), dolomitic. Regular thick to thin parting.
2,525.1	2,526.5	Oil shale (shale): Dark grayish brown to black (10YR 3/2-1/2), common satiny luster, slightly dolomitic. Very faint streaked bedding and some faint laminae. Regular thick to rare thin parting. Rare fine black fossil fragments. A 1/2-inch light brownish-gray to buff slightly earthy stringer at 2,525.6 with common fine vermiform stringers extending into shale below. Sample of light brownish-gray to buff earthy stringer from 2,525.6 feet: X-ray - montmorillonite, ferroan, feldspar, analcite, quartz, pyrite.
2,526.5	2,527.1	Dolomite; Buff to brownish gray (10YR 7/2-5/2). Hard, dense; faintly bedded to massive. Some fine wavy oil-shale stringers in upper part. Some irregular fractures with slickensides. Uneven sample split.
2,527.1	2,530.0	Oil shale (marlstone): Medium to light olive gray (5Y 5/2-6/2, some 4/2-4/1), slightly calcareous. Faint streaked bedding. Some fine gray-buff to light gray silty streaks in upper part. A 1-inch medium to light brownish-gray dolomite band at 2,528.5; rare thin tan to buff stringers in other parts.
2,530.0	2,534.7	Oil shale (marlstone): Medium olive gray (5Y 5/2-4/2), slightly calcareous to dolomitic. Faint streaked bedding. A 0.1-foot buff dolomite stringer at 2,530.7; a very irregular 1-inch nodule at 2,532.0. Some very fine light gray to buff silty streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,534.7	2,535.1	Missing.
2,535.1	2,536.8	Oil shale (shaly marlstone): Medium olive gray (5Y 5/2-4/2), dolomitic. Faint streaked bedding. Thick to some thin shaly parting; some slightly unctuous. Some very fine buff to gray-buff silty streaks. Thin to 1-inch dense buff dolomite stringers at 2,535.4, 2,536.1, and 2,536.5.
2,536.8	2,540.0	Oil shale (shaly marlstone): Dark grayish brown (2.5Y and 5Y 3/2, some 2/2), dolomitic. Very faint laminae and streaked bedding. Regular to irregular, medium to very thin shaly parting. Rare low angle glossy fracture surfaces. A fine mineral-filled vertical fracture from about 2,537.5 to 2,538.2. Badly broken papery clay shale at 2,539.0-2,539.4. Sample of mineral fracture filling from 2,538.0 feet: X-ray - barite.
2,540.0	2,544.0	Oil shale (shale): Medium olive gray to neutral gray (5Y 4/2 to N 5), slightly calcareous. Very faintly bedded. Regular to irregular, thin to thick shaly parting; unctuous. Split surfaces developed slight chalky coating after exposure to air. A 1-inch white to very light gray silty biotitic tuff band at top. Faintly banded tan to brownish-gray dolomite at 2,540.9-2,541.2 with a thin shale layer at 2,541.0 and a very thin light gray silty layer at 2,541.1; dense massive buff dolomite at 2,542.0-2,542.2. A short vertical fracture with patchy calcite crusts at 2,542.5. Sample of dolomite with very thin silty layer from 2,541.1 feet: X-ray - dolomite, quartz, feldspar, illite. Sample of gray shale from 2,543.6 feet: X-ray - illite, quartz, dolomite, analcite, calcite, feldspar, ferroan.
2,544.0	2,548.2	Oil shale? (shale): Medium olive gray (5Y and 7.5Y 5/2 and 5/1-4/2 and 4/1), dolomitic to slightly calcareous. Very faintly bedded. Irregular thin to thick shaly parting; unctuous; slightly chalky coatings on split surfaces. A 0.3-foot band of dense massive buff dolomite at top; occasional small to 2-inch dolomite nodules in other parts; euhedral isometric colorless crystals in fractures in nodule at 2,547.2. Sample of euhedral isometric crystals in dolomite nodule from 2,547.2 feet: X-ray - analcite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,548.2	2,549.2	Oil shale (shale): Medium olive gray (5Y 4/2-5/2 and 5/1), dolomitic to slightly calcareous. Very faintly bedded. Thick to thin shaly parting; slightly unctuous. Rare very fine light gray silty streaks.
2,549.2	2,550.3	Oil shale (shaly marlstone): Medium brownish gray (2.5Y 5/2-4/2), dolomitic. Very faintly bedded. Irregular thick to some thin parting; slightly unctuous. A diagonal glossy fracture with slickensides near base.
2,550.3	2,552.2	Oil shale (shale): Dark grayish brown to some black (2.5Y and 10YR 3/2-2/2, some 1/2), slightly dolomitic. Very faintly bedded to laminated. Regular to slightly wavy, thick to medium parting. Some thin to fine, fairly regular to vermiform injected stringers of medium brownish-gray dolomite(?) in upper part. Sample of fine brownish-gray stringer in very dark oil shale from 2,551.3 feet: X-ray - dolomite, quartz, illite, feldspar.
2,552.2	2,553.3	Oil shale and dolomite: Very dark to some medium brownish-gray oil shale (2.5Y 2/2-3/2, some 4/2), slightly dolomitic. Faint streaked bedding. A 2-inch dense massive brown dolomite band at top; a 2-inch medium to dark brownish-gray laminated dolomite band 2,552.6; a 1-inch massive brownish-gray dolomite band and some thin streaks at 2,552.8-2,552.9; a very irregular thin light brownish-gray to buff stringer with oolitic and pyritic streaks at 2,553.1. Some diagonal glossy fractures in oil shale and some vertical fractures with brownish-black patchy coatings in dolomite. Uneven sample split. Sample of faintly laminated dolomite from 2,552.6 feet: X-ray - dolomite, quartz, feldspar, illite.
2,553.3	2,554.3	Oil shale (shale): Medium to dark brownish gray (2.5Y 4/2-3/2, some 5/2 near top), dolomitic. Very faint streaked bedding. Very regular medium to thick parting; slightly unctuous. A very smooth vertical fracture with no mineralization or coatings extends through most of interval.
2,554.3	2,554.9	Oil shale: As above. Rubble. Rare glossy fracture surfaces. Grab sampled.
2,554.9	2,556.4	Shale (oil shale?): Dark gray in upper part to dark olive gray in lower part (N 2 and 3 to 5Y 3/1 and 3/2), noncalcareous to dolomitic. Very faintly bedded. Very regular thick to some thin parting; slightly unctuous. A very thick irregular injected stringer of brownish-gray ostracodal dolomite in upper 0.3 foot; buff to brownish-gray dolomite with very fine distinct gray laminae at 2,555.4-2,555.6.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		Sample of very dark gray shale from 2,555.3 feet: X-ray - illite, quartz, feldspar, pyrite, montmorillonite, dolomite.
2,556.4	2,558.5	Oil shale (shale and marlstone): Medium to dark brownish gray (2.5Y upper part to 10YR lower part 4/2-3/2, some 5/2 near top), dolomitic in upper part to calcareous in lower part. Faintly bedded to laminated. A 0.1-foot band of dense faintly laminated light brownish-gray dolomite at top. A 3/4-inch blue-gray claystone band at 2,557.1 with fine vermiform stringers extending into shale below; eroded back 1/4-inch during drilling. Very fine buff-white to gray-buff micaceous tuff layers at 2,557.6 and 2,558.1. Some fine resinous black lenses in lower part.
		Sample of blue-gray claystone from 2,557.1 feet: X-ray - montmorillonite, marcasite, pyrite, feldspar, quartz.
2,558.5	2,559.5	Oil shale (marlstone): Medium to dark grayish brown (10YR 4/2-3/2), calcareous to dolomitic. Faintly laminated. A high angle fracture with calcite crusts at 2,558.7-2,559.0. A fine layer of very small planispiral snails at 2,559.3. Abundant ostracods near base.
		Sample of dark grayish-brown oil shale from 2,559.2 feet: X-ray - quartz, illite, calcite, analcite, pyrite, feldspar.
2,559.5	2,560.9	Oil shale (marlstone): Medium to dark grayish brown and dark gray (10YR 4/2-2/2 and N 2), slightly calcareous to dolomitic. Moderately distinct to very faint laminae. Rare ostracods. Fish ribs and/or fin spines at 2,560.5.
2,560.9	2,561.5	Oil shale (marlstone): Black to dark brownish gray (N 1 to 10YR 3/1), dolomitic to calcareous. Faintly laminated. Fine very light gray silty biotitic tuff laminae at 2,561.3 and 1/4 inch above base.
		Sample of black oil shale with fine light gray silty lamina from 2,561.5 feet: X-ray - feldspar, analcite, quartz, calcite, illite, ferroan, pyrite, montmorillonite.
2,561.5	2,562.2	Oil shale (marlstone): Dark to medium brownish gray (10YR 2/2-5/2 and 5/1), calcareous. Fairly distinct laminae. A very fine light gray silty tuff lamina at 2,561.7 and a very fine buff-white earthy lamina at 2,562.1. Rare fine brown earthy lenses.
2,562.2	2,562.9	Oil shale (marlstone): Dark to some medium brownish gray (10YR and 2.5Y 2/2-3/2, some 4/2), calcareous to dolomitic. Faint laminae and streaked bedding. Very rare very small resinous black lenses. A fine buff-white to yellowish-buff earthy to silty layer at 2,562.7.

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## LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,562.9	2,563.5	Oil shale (marlstone): Dark brownish gray (2.5Y 2/2-3/2), dolomitic to slightly calcareous. Very faintly bedded.
2,563.5	2,567.8	Oil shale (marlstone): Dark to medium grayish brown (10YR and 2.5Y 3/2-4/2, some 2/2), dolomitic. Very faint laminae and streaked bedding. Rare fine resinous black lenses. Rare very fine gray-buff silty tuff laminae in lower half.
2,567.8	2,568.1	Tuff: Buff white to light gray (2.5Y 9/1 to N 7), calcareous, earthy to silty. Very faintly bedded. Very abundant very fine biotite flakes in lower part. Broken core at top; very smooth contact at base. Sample of buff-white earthy calcareous tuff from 2,567.9 feet: X-ray - montmorillonite, analcite, quartz, illite, feldspar.
2,568.1	2,568.8	Oil shale (marlstone): Dark to medium brownish gray (2.5Y and 10YR 3/2-4/2), dolomitic to slightly calcareous. Faint streaked bedding. Rare fine resinous black lenses. Common ostracodal streaks in lower part.
2,568.8	2,570.0	Oil shale (marlstone): Medium to dark brownish gray (2.5Y 4/2-2/1; almost neutral in lower part), calcareous to dolomitic. Faint laminae and streaked bedding. Very regular medium to thick parting. Very common ostracodal streaks.
2,570.0	2,571.2	Oil shale (shaly marlstone): Medium to dark olive gray (5Y 4/2-3/2), calcareous to dolomitic. Very faint laminae and streaked bedding. Regular thick to thin shaly parting; slightly unctuous. Abundant ostracods in upper part becoming rare in lower part.
2,571.2	2,571.8	Oil shale (shaly marlstone): Dark olive gray (5Y 3/1-2/1; almost neutral), calcareous to slightly dolomitic. Faint laminae and streaked bedding. A 1-inch band of light brownish-gray ostracodal limestone at 2,571.8; common fine ostracodal layers and streaks in other parts. Some low angle glossy fracture surfaces with slickensides near base.
2,571.8	2,572.8	Oil shale (marlstone): Medium and some dark brownish gray (2.5Y 4/2, some 5/2 and 3/1), dolomitic. Very faint streaked bedding. Common ostracods. A 4-inch band of medium to light brownish-gray dolomite at top.
2,572.8	2,573.4	Oil shale: As above and below. Irregular broken core pieces. Some pieces of blue-gray claystone (like 2,557.1 feet). A large chunk of agglomerated gray-green mudstone at base (heaved material from Cathedral Bluffs?). Grab sampled; length doubtful.
2,573.4	2,574.9	Missing.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,574.9	2,576.9	Oil shale (shaly marlstone): Dark brownish gray (2.5Y and 10YR 2/2-3/2), dolomitic. Faint streaked bedding and very fine laminae. Thin to thick shaly parting. Rare fine resinous black lenses in upper part. Sparse ostracods in lower part. Rare very fine light brownish-gray and light gray silty layers in lower part.
2,576.9	2,578.9	Oil shale (shaly marlstone): Dark brownish gray (2.5Y 3/2), dolomitic to calcareous. Very faint streaked bedding. Very regular thin to medium shaly parting; slightly unctuous. Common ostracodal streaks.
2,578.9	2,581.1	Oil shale (shaly marlstone): Dark to medium olive gray (5Y 3/2 and 3/1-5/2 and 5/1; some slight brown tint), calcareous. Very faint streaked bedding and some faint laminae. Regular to irregular, thin to thick shaly parting; some unctuous parting surfaces. Common fine ostracodal streaks and layers. Hard dense massive to very faintly bedded, light brownish-gray to buff dolomite bands at 2,579.2-2,579.6 and 2,580.8-2,581.1. Abundant fish fragments on parting surfaces at 2,580.5. Sample of dense massive light brownish-gray dolomite from 2,579.3 feet: X-ray - dolomite; trace quartz, feldspar, illite?
2,581.1	2,582.3	Marlstone (oil shale?): Medium olive green (7.5Y 5/2-4/2), calcareous. Very faint irregular streaked bedding. Irregular thick parting. Very rare black fish scales(?). A 2-inch dense light brownish-gray dolomite nodule or tapering band at base. Sample of marlstone from 2,581.5 feet: X-ray - illite, quartz, calcite, feldspar, dolomite, ferroan, pyrite.
2,582.3	2,585.0	Oil shale (shaly marlstone): Medium olive gray (5Y and 7.5Y 5/2 and 5/1-4/2 and 4/1), calcareous. Very faint streaked bedding and some faint laminae. Irregular to regular, thick to thin shaly parting; some slightly unctuous. Common fine ostracodal streaks and layer. A 2-inch tapering dense buff dolomite band at 2,583.7. A thin soft light gray silty mudstone band at 2,584.3. Sample of soft light gray mudstone from 2,584.3 feet: X-ray - montmorillonite, siderite; some calcite, feldspar, quartz, kaolin.
2,585.0	2,586.1	Oil shale (shaly marlstone): Medium olive gray (5Y 4/2-4/1), calcareous. Very faint streaked bedding and rare laminae. Medium to thin shaly parting; slightly unctuous. Some ostracodal(?) streaks. A 2-inch dense massive light brownish-gray to buff dolomite band at 2,585.5.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,586.1	2,587.3	Shale: Medium olive gray to neutral gray (5Y 4/2 to N 4), calcareous. Very faintly bedded. Irregular to regular, thick to thin shaly parting; unctuous. Badly broken and mixed up; grab sampled.
2,587.3	2,588.8	Shale: Medium to dark gray (N 4-3; some very slight olive to brown tint), slightly calcareous to dolomitic. Very faintly bedded. Regular to irregular, very thin to thick shaly parting; unctuous. Very rare fish scales. Fine streaks and thin stringers of light brownish-gray to buff dolomite at 2,587.3-2,587.4 and 2,588.0-2,588.1; a 1-1/2-inch dolomite band at 2,588.4 and a 1-inch band at base overlain by a 1/2-inch layer of dark gray ostracodal limestone. Sample of gray shale from 2,587.7 feet: X-ray - illite, quartz, dolomite, pyrite, feldspar, calcite, kaolin, montmorillonite.
2,588.8	2,590.3	Oil shale (marlstone): Dark brownish gray to some medium brown (2.5Y and 10YR 3/2-2/2, some 3/3-4/3 in very fine laminae and streaks), dolomitic to calcareous. Very faintly bedded in upper part to faint and some moderately distinct laminae in lower part. Thin unctuous shaly parting in upper part to very regular thick parting in lower part. Abundant fish ribs at 2,589.9. Some very fine buff slightly earthy streaks near base. Sample of very finely laminated and streaked very dark brownish-gray to medium brown oil shale from 2,589.6 feet: X-ray - calcite, quartz, illite, pyrite.
2,590.3	2,592.0	Oil shale (marlstone): Dark to medium brownish gray (10YR and 2.5Y 3/2-5/2), calcareous. Moderately distinct very smooth laminae. A smooth nearly vertical fracture with dolomite(?) crusts in upper 0.3 foot. Rare very small tan earthy lenses in lower part. A very fine light gray biotitic silty tuff laminae at 2,591.9.
2,592.0	2,593.0	Oil shale (marlstone): Dark to medium brownish gray (10YR 3/2 and 3/1-4/2 and 4/1, rare 2/1), calcareous. Very faintly laminated. A 1/2-inch band of light blue-gray mudstone at 2,592.6. Sample of thin blue-gray mudstone band from 2,592.6 feet: X-ray - analcite, montmorillonite, ferroan, feldspar, pyrite.
2,593.0	2,596.0	Oil shale (marlstone): Medium and very rare dark grayish brown (10YR 4/2-5/2, rare 3/2), calcareous. Faint to some moderately distinct laminae. Some <u>very</u> fine buff earthy streaks and rare small to fine lenses. Sample of oil shale with very small buff earthy lens from 2,593.1 feet: X-ray - calcite, quartz, ferroan, pyrite, illite, montmorillonite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,596.0	2,597.7	Oil shale (marlstone): Medium to dark brownish gray (10YR and 2.5Y 4/2-3/2), slightly calcareous. Faintly laminated.
2,597.7	2,599.8	Oil shale (marlstone): Medium brownish gray (2.5Y 4/2), calcareous. <u>Very</u> faintly laminated. A fine buff ostracodal(?) lamina at 2,598.7.
2,599.8	2,600.8	Oil shale (shaly marlstone): Dark to rare medium brownish gray (2.5Y 2/1-3/1 and 3/2, rare 4/1-4/2), dolomitic to slightly calcareous. Very faintly laminated. Regular thick to some thin shaly parting; slightly unctuous. Some very fine to rare thin grayish-brown dolomite(?) streaks and stringers. A very fine resinous black lens near top. Sample of dark brownish-gray oil shale from 2,599.9 feet: X-ray - quartz, illite, pyrite, montmorillonite, calcite?, dolomite?
2,600.8	2,602.0	Oil shale (marlstone): Dark to medium brownish gray (2.5Y 3/2-4/2, rare 2/2 upper part, some 5/2 lower part), calcareous. Very faint streaked bedding to moderately distinct laminae. Some small planispiral snails in upper part. Some very fine buff earthy streaks and rare very small lenses in lower part. A very thin dark gray to olive-gray silty pyritic lamina at 2,600.9. Sample of silty pyritic lamina from 2,600.9 feet: X-ray - pyrite, marcasite, quartz, montmorillonite.
2,602.0	2,603.0	Oil shale (marlstone): Medium and some dark brownish gray (2.5Y and 10YR 4/2-5/2, some 3/2-3/1), calcareous. Faint to fairly distinct laminae; rare fine to small displacements in lower part. Rare very fine buff earthy streaks and lenses.
2,603.0	2,607.0	Oil shale (marlstone): Medium and some dark brownish gray with some light brownish-gray laminae in upper part becoming rare in lower part (2.5Y 4/2-5/2, some 3/2 and 6/2), calcareous. Faint to fairly distinct laminae in upper part to very faint and rare distinct laminae and streaked bedding in lower part. Very thin light gray mudstone laminae at 2,605.9 and 2,606.5. Sample of distinctly laminated medium to light brownish-gray oil shale from 2,604.5 feet: X-ray - calcite, quartz, illite, pyrite, montmorillonite.
2,607.0	2,609.0	Oil shale (marlstone): Medium brownish gray (2.5Y 4/2-5/2), calcareous. Faintly laminated.
2,609.0	2,610.0	Oil shale (marlstone): Medium to dark brownish gray (2.5Y 4/2-3/2), calcareous. Very faint laminae and streaked bedding. A very thin blue-gray silty mudstone stringer at 2,609.9.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,610.0	2,613.0	Oil shale (shaly marlstone): Dark brownish gray (2.5Y and 10YR 3/2, some 2/2 lower part), slightly calcareous to dolomitic. Very faint laminae and streaked bedding. Irregular to regular, thick to thin parting; slightly unctuous. A fine dense grayish-brown limestone lamina at 2,611.5.
2,613.0	2,614.0	Oil shale (marlstone): Dark brownish gray (10YR 3/2, rare 2/2), slightly calcareous. Very faint very fine laminae and streaked bedding. Rare ostracods. A very fine slightly irregular light gray silty lamina at 2,613.6.
2,614.0	2,616.0	Oil shale (marlstone): Dark brownish gray (10YR and 2.5Y 3/2, some 2/2 upper part), calcareous. Very faint very fine laminae. Some ostracods in upper part.
2,616.0	2,618.0	Oil shale (marlstone): Dark to medium brownish gray (10YR and 2.5Y 3/2 and 3/1-4/2 and 4/1, rare 2/1), calcareous. Faintly laminated. Very rare very small buff earthy lenses. A very fine light gray silty lamina at 2,616.1.
2,618.0	2,619.1	Oil shale (shale): Dark brownish gray (2.5Y 3/2-2/2), calcareous to dolomitic. Very faint very fine laminae and streaked bedding. Regular thick shaly parting in upper part to papery parting in lower part; very glossy unctuous parting surfaces in lower part. Splinters very badly on splitting; uneven sample split. Sample of papery shale from 2,619.0 feet: X-ray - quartz, illite, montmorillonite, pyrite, kaolin.
2,619.1	2,619.7	Dolomite: Medium to light reddish grayish brown (7.5YR to 10YR 4/2 and 4/3-6/2). Dense and varigated to blebby and mottled. Common small irregular spongy tar-impregnated cavities. Irregularly oil-stained. Very irregular contacts at top and bottom. Sample of dolomite from 2,619.2 feet: X-ray - dolomite; trace calcite, quartz, feldspar, illite.
2,619.7	2,620.7	Marlstone and dolomite: Medium olive-gray dolomitic marlstone (5Y 5/2-4/2) and buff to light brownish-gray dolomite (2.5Y 7/2-6/2). Faintly bedded marlstone with some very fine gray-buff silty streaks interbedded with 1- to 2-inch dense massive to very faintly bedded dolomite bands. Some diagonal glossy fracture surfaces with slickensides near top.
2,620.7	2,622.0	Oil shale (marlstone): Medium olive gray (5Y 5/2-4/2) and some light brownish gray to tan (2.5Y 6/2-6/3), dolomitic. Faint streaked bedding and some laminae. Irregular to regular, thick to rare thin parting; slightly unctuous. Some very irregular fine vertical

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		fractures with very fine-grained pyrite and dull black fillings in upper part. Some fine light gray to gray-buff silty streaks in lower part.
2,622.0	2,626.0	Sample of oil shale with fracture fillings from 2,621.3 feet: X-ray - pyrite; some quartz, illite. Oil shale (marlstone): Medium olive and olive green to light olive gray (5Y and 7.5Y 5/2-6/2 and 6/1, some 4/2 in upper half), dolomitic to slightly calcareous. Faint streaked bedding; some distorted stringers in lower part. Some fine light gray to gray-buff silty stringers in upper and lower parts; common fine vermiform streaks in middle. Occasional thin to 1-1/2-inch dense buff to light brownish-gray and olive-gray calcareous dolomite bands; a 1-inch blebby dolomite stringer with some fine marlstone stringers at 2,625.1. Sample of very light olive-gray dolomite (or marlstone) from 2,624.1 feet: X-ray - dolomite, quartz, illite, feldspar, ferroan.
2,626.0	2,627.4	Oil shale (marlstone): Medium to light olive green and olive gray (7.5Y 5/2 and 5/1-6/2 and 6/1, some 4/2 lower part), slightly calcareous to calcareous. Faint streaked bedding. Some very fine gray-buff silty streaks. A very irregular dense brownish-gray to buff dolomite stringer at 2,626.5-2,626.7; irregular thick buff slightly earthy stringers at 2,626.9-2,627.1.
2,627.4	2,629.0	Oil shale (marlstone): Medium to some light olive and olive gray (5Y and 7.5Y 4/2-5/2, some 6/2-6/3), some brownish gray near top (2.5Y 4/2-5/2); dolomitic. Faint distorted streaked bedding. Common fine light gray silty streaks in upper part. A 4-inch nodule or irregular band of dense brownish-gray dolomite at 2,628.5. Massive greenish-gray silty marlstone with small olive-buff marlstone inclusions at 2,628.6 with very irregular crevice fillings of the same material extending into faintly laminated marlstone below. Sample of marlstone with very common light gray silty streaks from 2,628.1 feet: X-ray - quartz, dolomite, illite, feldspar.
2,629.0	2,633.9	Oil shale (marlstone): Medium to light olive and olive green (5Y and 7.5Y 5/2-6/2), dolomitic to very slightly calcareous. Faint streaked bedding; some distorted zones in upper part. Very common irregular fine gray-buff to buff-white silty streaks. A very irregular 2-inch bed of dense grayish-brown dolomite with contorted and broken stringers of buff oolitic limestone at base. Sample of light olive-green marlstone from 2,630.6 feet: X-ray - quartz, dolomite, calcite, illite, feldspar, ferroan.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
TOP TIPTON MEMBER		
2,633.9	2,634.8	Oil shale (shale): Medium brownish gray (2.5Y 4/2), slightly dolomitic. Very faintly bedded. Regular to irregular, thick to thin shaly parting; slightly unctuous. Diagonal glossy fracture surfaces in lower 0.2 foot.
2,634.8	2,635.2	Dolomite: Grayish brown (10YR 4/2-5/3). Dense and massive. A thin wavy buff blebby (oolitic?) zone at top; smooth gradational contact at base.
2,635.2	2,637.0	Oil shale (shaly marlstone): Medium to dark brownish gray and olive gray (2.5Y and 5Y 4/2-3/2, some 5/2 upper part), dolomitic. Faint streaked bedding. A thin zone with common fine buff earthy to silty calcareous streaks at 2,635.9. Sample of dark brownish-gray oil shale from 2,636.7 feet: X-ray - illite, quartz, dolomite, ferroan, feldspar, kaolin.
2,637.0	2,638.0	Oil shale (shaly marlstone): Medium and some dark olive gray and brownish gray (5Y and 2.5Y 4/2-5/2, some 3/2), slightly dolomitic. Faint streaked bedding. Regular thick to thin shaly parting.
2,638.0	2,639.5	Oil shale (marlstone): Medium olive gray and brownish gray (5Y and 2.5Y 5/2-4/2), dolomitic. Faint streaked bedding and some laminae. A 0.2-foot band of dense very fine crystalline medium to light brownish-gray calcareous dolomite at 2,638.6 with some fine dark gray dolomite streaks in middle. Common very fine gray-buff silty streaks below dolomite band.
2,639.5	2,641.0	Oil shale (marlstone): Medium to dark brownish gray (2.5Y and 10YR 5/2-3/2), dolomitic. Faint streaked bedding and some laminae. Common fine gray-buff to light brownish-gray silty streaks.
2,641.0	2,643.0	Oil shale (marlstone): Medium and some light olive gray and brownish gray to olive green (5Y and 2.5Y 4/2-5/2 and some 6/2 in upper part to 5Y and 7.5Y 4/2-5/2 and rare 6/2 in lower part), dolomitic. Faint and some moderately distinct laminae in upper part to very faint laminae and streaked bedding in lower part. Some very fine gray-buff silty streaks. A fine broken dense buff calcareous dolomite lamina at 2,642.4. Some dark gray discolored pyritic patches at 2,642.5.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,643.0	2,644.0	Oil shale (marlstone): Medium to rare dark brownish gray (2.5Y 4/2-5/2, rare 3/2), dolomitic. Faint laminae and streaked bedding. Some very fine light brownish-gray silty streaks in upper part. A very thin buff calcareous streak at 2,643.3.
2,644.0	2,645.0	Oil shale (marlstone): Medium to dark brownish gray (2.5Y and 10YR 4/2-3/2, rare 5/2 upper part), dolomitic. Faintly laminated. Sample of medium to dark brownish-gray oil shale from 2,644.7 feet: X-ray - dolomite, illite, quartz, feldspar, ferroan.
2,645.0	2,647.2	Oil shale (marlstone): Medium and some light brownish gray to olive green (2.5Y to 7.5Y 5/2-4/2, some 6/2), dolomitic to slightly calcareous. Faint to some moderately distinct laminae. Some very small to fine gray pyritic blebs in lower part. A 1-1/2-inch dense brownish-gray dolomite band at 2,647.0. Sample of olive-gray marlstone from 2,645.4 feet: X-ray - quartz, illite, dolomite, feldspar, ferroan.
2,647.2	2,648.2	Oil shale (marlstone): Medium to rare dark brownish gray (2.5Y 4/2, some 5/2, rare 3/2), dolomitic. Very faint laminae and streaked bedding. Some very fine buff calcareous streaks near top.
2,648.2	2,649.7	Oil shale (shale): Dark to medium brownish gray (2.5Y and 10YR 3/2-4/2), slightly dolomitic. Very faint streaked bedding. Regular thick to medium parting.
2,649.7	2,650.7	Oil shale (shaly marlstone): Medium to some dark brownish gray (2.5Y 4/2, some 3/2), dolomitic. Very faint streaked bedding. A thin very wavy tan to buff dolomite stringer with some gray blebs at 2,650.0 with a fine buff stringer 1/2 inch below; very large swirly grayish-brown to buff dolomite algal balls with tar-stained fractures in lower 0.2 foot. Sample of dolomite stringer from 2,650.0 feet: X-ray - dolomite, some quartz.
2,650.7	2,652.0	Oil shale (marlstone): Medium and rare dark brownish gray and olive gray (2.5Y and 5Y 4/2-5/2, rare 3/2), dolomitic. Faint laminae and streaked bedding. Rare very fine gray-buff silty streaks.
2,652.0	2,653.0	Oil shale (marlstone): Medium olive gray (5Y 4/2; some slight brown tint), dolomitic. Very faint laminae and streaked bedding.
2,653.0	2,654.0	Oil shale (marlstone): Medium to dark brownish gray and olive gray (2.5Y and 5Y 5/2-3/2), dolomitic. Faint to very faint laminae and streaked bedding. Some very fine light brownish-gray to gray-buff silty streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,654.0	2,656.0	Oil shale (marlstone): Medium olive gray and some brownish gray (5Y and some 2.5Y 5/2-4/2), dolomitic to slightly calcareous. Faint laminae and streaked bedding. Some fine gray pyritic blebs. A 0.2-foot dense massive grayish-brown to buff dolomite band at 2,655.4.
2,656.0	2,658.0	Oil shale (marlstone): Medium to rare dark olive and olive green (5Y and 7.5Y 5/2-4/2, rare 3/2; rare slight brownish tint), slightly calcareous. Faint to moderately distinct laminae and streaked bedding. A 3-inch dense massive brownish-gray to buff dolomite band near top. A very large irregular buff silty dolomite nodule in distorted and interfingering oil shale at 2,657.0.
2,658.0	2,661.0	Oil shale (marlstone): Medium olive and brownish gray (5Y and 2.5Y 5/2-4/2), dolomitic to slightly calcareous. Faint laminae and very faint streaked bedding. Very irregular small blebby buff dolomite masses at 2,659.0; some fine to thin streaks, lenses, and stringers in other parts. Common very fine gray-buff silty streaks in lower part. Rare fine dark gray pyritic streaks.
2,661.0	2,662.8	Oil shale (marlstone): Medium to some dark olive gray (5Y 4/2-5/2, some 3/2), dolomitic. Faint streaked bedding. Large irregular blebby dolomite masses at 2,661.3-2,661.5; rare fine to thin dense stringers and streaks in other parts. Sample of medium to dark olive-gray oil shale from 2,662.6 feet: X-ray - illite, quartz, dolomite, feldspar, ferroan, pyrite, montmorillonite.
2,662.8	2,663.8	Oil shale (marlstone): Medium to dark olive gray (5Y 4/2-3/2, rare 5/2 upper part), dolomitic. Faint streaked bedding. A very fine irregular dolomite-filled vertical fracture at 2,663.6-2,663.7.
2,663.8	2,665.0	Oil shale (marlstone): Dark to medium grayish brown (10YR 3/2-4/2, some 4/3), dolomitic. Very faint to rare moderately distinct laminae. Very regular thick to rare thin parting. Sample of medium to dark grayish-brown oil shale from 2,664.2 feet: X-ray - dolomite, illite, quartz, ferroan, feldspar.
2,665.0	2,666.1	Oil shale (shaly marlstone): Dark and rare medium brownish gray (2.5Y 3/2, rare 4/2 and 2/2), slightly dolomitic. Very faint laminae and streaked bedding. Very regular thick to thin shaly parting. Some dense brown dolomite streaks and laminae in upper part. Very rare fine dark gray silty laminae. Sample of dark brownish-gray oil shale from 2,665.6 feet: X-ray - illite, quartz, dolomite, pyrite, feldspar, kaolin, montmorillonite?

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,666.1	2,667.1	Oil shale (marlstone): Dark to light brownish gray (2.5Y 3/2-6/2), dolomitic. Distinct irregular light and dark bands in upper part; faintly laminated in lower part.
2,667.1	2,667.3	Missing.
2,667.3	2,668.0	Oil shale (marlstone): Dark brownish gray to medium brown (2.5Y 3/2 and 3/1-5/2 and 5/3), dolomitic. Faint streaked bedding and very fine laminae.
2,668.0	2,671.3	Oil shale (shale): Dark brownish gray (2.5Y and 10YR 3/2-2/2), dolomitic. Very faintly bedded. Regular to slightly irregular, thick to very thin shaly parting; unctuous. Rare low angle glossy shear surfaces. A 1-1/2-inch faintly bedded band of light brownish-gray dolomite at 2,670.6.
2,671.3	2,672.3	Oil shale (shaly marlstone): Dark to medium brownish gray and olive gray (2.5Y and 5Y 3/2-4/2, some 5/2), dolomitic. Faint laminae and streaked bedding. A 3-inch band of medium grayish-brown faintly bedded dolomite with some fine dark gray stringers at top.
2,672.3	2,675.0	Oil shale (shaly marlstone): Medium olive gray (5Y 4/1 and 4/2-5/2), dolomitic to slightly calcareous. Faint streaked bedding. Regular to some irregular, thick to thin shaly parting; unctuous. Two-inch bands of dense grayish-brown to buff dolomite at 2,673.0 and 2,674.4.
2,675.0	2,677.0	Oil shale (shaly marlstone): Medium to some light olive gray (5Y 4/2 and 4/1-5/2 and 5/1, some 6/2), calcareous. Faint streaked bedding. Irregular thick to thin parting; slightly unctuous. Rare fine gray silty streaks in lower part.
2,677.0	2,678.0	Oil shale (marlstone): Medium brownish gray (2.5Y 5/2-4/2), slightly calcareous. Faint streaked bedding. A 3-inch dense massive light brownish-gray to buff dolomite nodule at 2,677.3; a 1-inch faintly bedded brownish-gray dolomite band at 2,677.7; a 1-inch massive buff dolomite band at base.
2,678.0	2,681.7	Oil shale (shaly marlstone): Dark to medium brownish gray (2.5Y 3/2-4/2, some 2/2 upper and lower parts), slightly calcareous to dolomitic. Faint streaked bedding and some very fine laminae. Irregular to regular, thick to thin shaly parting; slightly unctuous.
2,681.7	2,682.7	Oil shale (shale): Very dark to rare medium brownish gray (2.5Y 2/2, some 3/2, rare 4/2), noncalcareous to slightly dolomitic. Very faint streaked bedding. Regular to irregular, medium to thin shaly parting; slightly unctuous.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		Sample of very dark brownish-gray oil shale from 2,682.5 feet: X-ray - illite, quartz, feldspar, kaolin, pyrite, ferroan, montmorillonite?
2,682.7	2,683.8	Oil shale (marlstone and shale): Very dark brownish gray to buff (2.5Y 2/2-7/2), dolomitic to slightly calcareous. Faint streaked bedding in distinct thin to thick, dark and light zones. A 1-inch brown brecciated dolomite band at top with dark gray mudstone fracture fillings.
2,683.8	2,684.9	Oil shale (shale): Dark brownish gray (2.5Y 2/2-3/2). Rubble; sample length doubtful; grab sampled.
2,684.9	2,687.6	Missing.
2,687.6	2,691.0	Shale (oil shale in part?): Medium to dark brownish gray (2.5Y 5/1-2/1, some 3/2-2/2), slightly dolomitic. Faint laminae and streaked bedding. Regular to irregular, thick to rare thin parting. A thin brownish-gray dolomite stringer with oolitic streaks and rare clamshell fragments at 2,687.8; some thin dolomite laminae at 2,688.3-2,688.4 and some contorted stringers at 2,689.5-2,689.7.
2,691.0	2,692.1	Oil shale (shale): Very dark brownish gray (2.5Y 2/2 and 2/1, some 3/1), noncalcareous. Very faint streaked bedding. Regular to some irregular, thick to thin shaly parting; slightly unctuous. A very thin vermiform brownish-gray dolomite(?) stringer in lower 0.5 foot.
2,692.1	2,693.3	Oil shale (shale): Dark to medium brownish gray (2.5Y 3/1 and 3/2-4/2, some 5/2 upper part), slightly dolomitic. Very faint laminae and streaked bedding. Regular thick parting; slightly unctuous.
2,693.3	2,697.3	Oil shale (shale): Dark brownish gray (2.5Y 3/2 and 3/1-2/2), dolomitic. Very faint streaked bedding. Regular thick to medium parting; slightly unctuous. Very rare ostracodal streaks.
2,697.3	2,697.6	Dolomite: Brownish gray to tan (2.5Y 5/2-6/3). Very faintly bedded; some faint laminae in upper part.
2,697.6	2,698.6	Oil shale (shale): Dark brownish gray (2.5Y 3/2-2/2), slightly dolomitic to slightly calcareous. Very faint streaked bedding. Regular thick to thin shaly parting; slightly unctuous. Some ostracodal streaks.
2,698.6	2,700.0	Oil shale (shale): Dark brownish gray (2.5Y 3/2 and 3/1-2/2), slightly calcareous to dolomitic. Very faint streaked bedding. Regular to slightly irregular, thick to rare thin parting; slightly unctuous. A thin coal seam at 2,699.2 with a 2-inch zone of dark to medium brownish-gray silty calcareous mudstone below. Rare ostracods.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		Sample of dark to medium brownish-gray mudstone (oil shale) from 2,699.3 feet: X-ray - illite, quartz, calcite, pyrite, feldspar, montmorillonite, kaolin.
2,700.0	2,702.0	Oil shale (shale): Dark brownish gray (2.5Y 3/2-3/1, some 2/2-2/1), dolomitic in upper part to calcareous in lower part. Very faintly bedded. Regular thick to medium parting; slightly unctuous. Some scattered ostracods.
2,702.0	2,704.0	Oil shale (shale): Dark brownish gray (2.5Y 3/1 and 3/2, some 2/1), slightly calcareous. Very faint laminae and streaked bedding. Regular thick to some thin shaly parting. Sparse scattered ostracods. Sample of shale from 2,703.7 feet: X-ray - quartz, illite, calcite, pyrite, feldspar, ferroan, kaolin, montmorillonite?
2,704.0	2,705.7	Shale (oil shale?): Dark brownish gray (2.5Y 3/1), calcareous. Very faint laminae and streaked bedding. Regular medium to thick parting; slightly unctuous. Sparse ostracods.
2,705.7	2,706.7	Oil shale (shale): Dark brownish gray (2.5Y 3/1-3/2, some 2/2 lower part), calcareous to dolomitic. Very faint laminae and streaked bedding. Regular medium to thin shaly parting. Abundant ostracods. A fine gray mudstone lamina at 2,706.4. Some very irregular glossy shear surfaces with slickensides near base.
2,706.7	2,707.5	Dolomite breccia: Dark to medium brownish gray (2.5Y 3/2-4/2). Tightly fractured with yellowish-brown to buff coatings and some crusty calcite fillings. Some irregular pieces of olive-gray marlstone near base. Uneven sample split. Sample of brecciated dolomite from 2,706.9 feet: X-ray - dolomite; trace quartz, illite.
2,707.5	2,707.8	Oil shale: Brownish black (2.5Y 1/2). Contorted bedding. Riddled with very irregular shiny fracture surfaces. Sample of brecciated oil shale from 2,707.7 feet: X-ray - illite, quartz, kaolin, feldspar, calcite, pyrite.
2,707.8	2,709.1	Oil shale (shale): Very dark brownish gray (2.5Y 2/2, some 3/2), slightly dolomitic. Very faint laminae and streaked bedding. Regular thick to thin shaly parting; slightly unctuous. Some low angle glossy shear surfaces. A <u>very</u> fine gray silty biotitic tuff layer at 2,708.1.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,709.1	2,710.1	Dolomite: Medium brownish gray (2.5Y 5/1-4/1, some 5/2), slightly calcareous in upper part. Very faintly bedded to massive; some faint laminae in upper part. A 1-inch brown algal band 2,709.5 with wavy upper surface and flat lower surface; thin brown crevice fillings extend to 2,709.9. An irregular high angle fracture with slight varnish-like coatings and very fine buff specks in upper part. Sample of brownish-gray dolomite from 2,709.6 feet: X-ray - dolomite.
2,710.1	2,711.7	Oil shale (shale): Very dark brownish gray (2.5Y 2/2, some 3/2), noncalcareous in upper part to dolomitic and slightly calcareous in lower part. <u>Very</u> faintly bedded in upper part to faint laminae and streaked bedding in lower part. Slightly irregular to regular, thick to thin shaly parting; slightly unctuous in upper part. Rare low angle glossy shear surfaces. Abundant ostracods near base. Abrupt change to dark gray shale at base. Sample of oil shale from 2,710.9 feet: X-ray - illite, quartz, pyrite, feldspar, kaolin, dolomite?, montmorillonite?
2,711.7	2,712.2	Oil shale (shale): Very dark gray to black (N 2-1; slight brown tint), slightly calcareous. Very faint laminae and streaked bedding. Regular medium to thin shaly parting. Abundant very fine ostracodal streaks and laminae. Very rare very fine vitreous black streaks. Sample of black ostracodal shale from 2,711.8 feet: X-ray - quartz, illite, calcite (double peak--partly shifted), pyrite, feldspar, kaolin, montmorillonite?
2,712.2	2,713.0	Oil shale (shale): Dark gray (N 2-3; slight brown tint), calcareous. Very faint laminae and streaked bedding. Regular thick to thin shaly parting. Abundant ostracods.
2,713.0	2,717.0	Shale (oil shale?): Dark to medium gray (N 3-4; slight brown tint), calcareous. Very faint streaked bedding. Regular thick to thin shaly parting. Fairly abundant ostracods--commonly nearly obliterated. A fine zone of light brownish-gray silty streaks at 2,714.0.
2,717.0	2,719.0	Oil shale (shale): Dark brownish gray (2.5Y 3/1 and 3/2-2/2), calcareous to dolomitic. Very faint laminae and streaked bedding. Regular medium to thin shaly parting. Abundant ostracods.
2,719.0	2,724.0	Oil shale (shale): Dark to medium brownish gray (2.5Y 3/1-4/1), calcareous. Very faint laminae and streaked bedding. Regular thick to very thin shaly parting. Abundant nearly obliterated ostracods.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,724.0	2,732.0	Shale (oil shale?): Medium to some dark brownish gray (2.5Y 4/1, some 3/1), very calcareous. Very faint laminae and streaked bedding. Regular to irregular, thick to very thin shaly parting. Abundant ostracods. Broken core at 2,726.3-2,727.0 and 2,729.4-2,730.5.
2,732.0	2,734.0	Oil shale (shale): Dark and some medium brownish gray (2.5Y 3/2-3/1, some 4/1), slightly calcareous to dolomitic. Faint streaked bedding. Regular to some irregular, thick to thin shaly parting. Some ostracods and rare clam(?) shell fragments. Sample of dark oil shale from 2,733.1 feet: X-ray - quartz, illite, pyrite, feldspar, calcite, kaolin, extra peak.
2,734.0	2,742.0	Oil shale (shaly marlstone): Dark brownish gray (2.5Y 3/2, some 3/1), very calcareous. Very faint streaked bedding. Irregular thick to thin shaly parting. Very abundant tan to buff-white clam-shell fragments ( <u>Elliptio mendax?</u> ) and some planispiral snails ( <u>Austral-orbis sp.?</u> ). Sample of oil shale with rare fine shell fragments from 2,739.6 feet: X-ray - calcite, illite, quartz, pyrite, montmorillonite.
2,742.0	2,744.6	Oil shale (marlstone): Dark brownish gray (2.5Y and 10YR 3/2), calcareous. Very faintly bedded. Irregular thick parting. Very common fine to thick coquinal zones of clam and snailshell fragments (few identifiable <u>Goniobasis</u> ). Sample of coquinal oil shale from 2,744.5 feet: X-ray - aragonite, quartz, pyrite, siderite, calcite, illite.
2,744.6	2,745.0	Missing?
2,745.0	2,745.5	Oil shale (shale): Very dark grayish brown (10YR 2/2-3/2), slightly calcareous. Very faintly bedded. Slightly irregular thin shaly parting; slightly unctuous. Some ostracods. Sparse shell fragments. Sample of very dark oil shale from 2,745.4 feet: X-ray - illite, quartz, calcite, feldspar, pyrite, siderite, kaolin, montmorillonite.
2,745.5	2,750.0	Oil shale (shaly marlstone): Dark to medium grayish brown and rare brown to tan (10YR 2/2-4/2, rare 5/2 and 5/3-6/3), calcareous to some dolomitic. Faint streaked bedding. Irregular thick to rare thin parting. Common thin to thick coquinal zones and scattered shell fragments (clams and <u>Goniobasis</u> , possibly some <u>Viviparus</u> ). Very rare fine vitreous black organic streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,750.0	2,752.0	Oil shale (shaly marlstone): Dark to medium brownish gray (10YR and 2.5Y 3/2-4/2), slightly calcareous. Very faint streaked bedding. Irregular thick to thin shaly parting. Abundant shell fragments as above.
2,752.0	2,754.0	Oil shale (shaly marlstone): Medium to some dark brownish gray (2.5Y and 10YR 4/2, some 3/2), calcareous. Very faintly bedded. Irregular thick to thin shaly parting. Shell fragments less abundant than above--commonly concentrated in fine streaks.
2,754.0	2,758.0	Oil shale (shaly marlstone): Medium to dark brownish gray (2.5Y 4/2-3/2), calcareous. Very faintly bedded. Irregular thick to rare thin parting. Very abundant shell fragments concentrated in fine to thin zones. Sample of medium brownish-gray oil shale from 2,755.6 feet: X-ray - illite, quartz, calcite, feldspar, ferroan, pyrite.
2,758.0	2,760.0	Oil shale (marlstone): Dark to medium brownish gray (2.5Y and 10YR 3/2-4/2), calcareous. Very faintly bedded. Irregular thick parting. Very abundant fine to thick coquinal zones (clams and snails).
2,760.0	2,765.1	Oil shale (shaly marlstone): Dark to rare medium brownish gray (10YR 3/2, some 2/2, rare 4/2), calcareous to dolomitic. Very faintly bedded. Irregular thick to some thin shaly parting. Abundant fine to rare thick coquinal zones and scattered shell fragments (mostly snails, rare identifiable <u>Goniobasis</u> ). Some broken core in lower foot; uneven sample split.
2,765.1	2,767.2	Siltstone and shale: Light gray and brownish-gray calcareous siltstone (N 7-6 and 10YR 7/1-6/1) and medium to dark brownish-gray silty shale (10YR 5/1-3/1 and 3/2). Distinct interbedded streaks, laminae, and thin bands. Rare very fine black carbonaceous streaks (plant debris). Very rare shell fragments. A thin tan silty dolomite band at 2,765.9; a 2-inch tan dolomite band at 2,766.6 with a thin irregular dark brownish-gray zone in middle. Sample of siltstone with some very fine shale streaks from 2,765.5 feet: X-ray - quartz, illite, calcite, feldspar, kaolin, pyrite, dolomite.
2,767.2	2,768.4	Oil shale (shale): Dark brownish gray (10YR and 2.5Y 3/2), very slightly calcareous. Very faint streaked bedding. Irregular medium to thin shaly parting. Some <u>Goniobasis</u> and clam fragments. Thin massive grayish-brown dolomite(?) bands at 2,767.3 and at base. Sample of oil shale from 2,767.8 feet: X-ray - quartz, illite, kaolin, feldspar, pyrite, siderite, dolomite.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,768.4	2,771.4	Oil shale (shale): Dark brownish gray (10YR and 2.5Y 3/2, some 2/2 upper part), slightly calcareous. Very faintly bedded. Irregular thick to thin shaly parting; slightly unctuous. Abundant <u>Goniobasis</u> and fewer clam fragments.
2,771.4	2,772.4	Oil shale: As above. Very abundant shell fragments concentrated in fine to 1-inch coquinal zones.
2,772.4	2,775.4	Oil shale (shaly marlstone): Dark to medium brownish gray (2.5Y and 10YR 3/2-4/2, rare 2/2), calcareous. Very faintly bedded. Irregular thick to medium parting. Abundant scattered <u>Goniobasis</u> and clam fragments and thin to thick coquinal zones; a 0.1-foot grayish-brown coquinal limestone at 2,774.6.
2,775.4	2,778.4	Oil shale (shaly marlstone): Dark and some medium brownish gray (10YR and 2.5Y 3/2, some 4/2, rare 2/2), calcareous to slightly calcareous. Very faintly bedded. Irregular thick to some thin parting. Very abundant scattered shell fragments and coquinal zones as above.
2,778.4	2,781.7	Oil shale (shaly marlstone): Dark brownish gray (10YR 3/2 some 2/2 lower part), slightly calcareous to calcareous. Irregular thick to some thin parting. Abundant scattered <u>Goniobasis</u> and clam fragments; some thick coquinal zones in lower part. Sample of very dark oil shale with few shell fragments from 2,781.4 feet: X-ray - illite, quartz, calcite, aragonite, kaolin, feldspar, pyrite.
2,781.7	2,785.3	Missing.
2,785.3	2,789.0	Oil shale (shaly marlstone): Very dark brownish gray (10YR and 2.5Y 3/2-2/2), calcareous. Very faintly bedded. Irregular thick to thin shaly parting. Abundant scattered snail and clam fragments in upper part becoming sparse in lower part (mostly <u>Australorbis</u> with few <u>Goniobasis</u> ). Some broken core with muddy coatings; uneven sample split.
2,789.0	2,795.0	Shale and shaly marlstone(oil shale?): Dark to some medium brownish gray (10YR 3/2 and 2/2 upper part to 3/2 and some 4/2 lower part), calcareous. Very faint streaked bedding. Irregular to fairly regular, thick to thin shaly parting. Very abundant scattered ostracods and some zones with fairly abundant clam fragments and fewer <u>Australorbis</u> . Very rare plant fragments and carbonaceous streaks. Sample of dark brownish-gray shaly marlstone with abundant ostracods from 2,792.7 feet: X-ray - quartz, illite, siderite, calcite, feldspar, kaolin.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,795.0	2,798.0	Shaly marlstone (oil shale?): Dark brownish gray (10YR 3/2), calcareous. Very faint streaked bedding. Irregular thick to medium parting. Abundant scattered ostracods, clam fragments, <u>Goniobasis</u> , and <u>Australorbis</u> . Split surfaces have turned to almost neutral gray.
2,798.0	2,801.0	Shale (oil shale?): Dark brownish gray (10YR 3/2), calcareous. Very faintly bedded. Irregular thick to thin shaly parting. Very abundant ostracods; fairly abundant mollusks as above in upper part becoming rare in lower part. Rare carbonaceous streaks.
2,801.0	2,804.0	Shaly marlstone: Dark to medium brownish gray (10YR and 2.5Y 3/2-4/2), calcareous. Very faintly bedded. Irregular thick to some thin parting. Very abundant ostracods; fairly abundant clams and <u>Goniobasis</u> in lower part. Some broken core; uneven sample split.
2,804.0	2,808.3	Shaly marlstone (oil shale?): Dark brownish gray (10YR 3/2, some 2/2 middle part), calcareous. Very faintly bedded. Irregular thick to rare thin parting. Abundant ostracods, <u>Goniobasis</u> , and clams. Sample of very dark ostracodal shale from 2,806.6 feet: X-ray - illite, quartz, feldspar, calcite, pyrite, kaolin, dolomite.
2,808.3	2,809.1	Oil shale (shale): Very dark brownish gray to black (10YR 2/2-1/2), calcareous. <u>Very</u> faint streaked bedding. Very regular thick to thin shaly parting; slightly unctuous. Some ostracods and rare <u>Goniobasis</u> near top. Sample of black shale from 2,808.5 feet: X-ray - illite, quartz, calcite, pyrite, kaolin.
2,809.1	2,809.4	Limestone: Dark to medium brownish gray (10YR 3/1-5/1), hard, dense, silty textured. Massive with abundant fine irregular tan to brown inclusions. Very fine coaly streaks and some clam fragments near top. Wavy contacts at top and bottom. Sample of dark limestone with fine tan to brown inclusions from 2,809.2 feet: X-ray - calcite, pyrite, quartz, illite, siderite, kaolin.

TOP NILAND TONGUE OF WASATCH FORMATION

2,809.4	2,809.5	Shaly coal: Black (N 1), subvitreous, brittle. Very faintly bedded.
2,809.5	2,810.3	Oil shale (shaly marlstone): Very dark brownish gray (10YR 2/2-3/2), calcareous. Very faint streaked bedding. Slight irregular thick parting. Abundant ostracods, some clams and <u>Goniobasis</u> , and rare <u>Australorbis</u> . Some coaly streaks near top.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,810.3	2,812.3	Oil shale (shaly marlstone): Dark and rare medium brownish gray (10YR 3/2, some 3/1-4/1 lower part), calcareous. Very faintly bedded. Abundant clams in upper part; scattered shells and thick coquinal zones of <u>Goniobasis</u> and rare <u>Australorbis</u> in lower part. Brownish-gray fine crystalline limestone with abundant shell fragments at 2,810.6-2,810.8. Rare plant fossils in lower part.
2,812.3	2,815.9	Coaly shale and coal: Dark brownish gray to black (10YR 3/2 and 3/1 to N 1), calcareous to noncalcareous shale. Very faint streaked bedding. Regular to irregular, thick to thin shaly parting. Shale with fine coal streaks grading to 0.2- to 0.5-foot zones of vitreous black shaly coal. Abundant ostracods and some <u>Goniobasis</u> and clams. Sample of very dark coaly shale from 2,813.7 feet: X-ray - quartz, illite, pyrite, feldspar, kaolin.
2,815.9	2,817.3	Claystone: Medium to light brownish gray (10YR and 2.5Y 5/1-6/1), slightly dolomitic to noncalcareous. Very badly broken and mixed up; some irregular glossy shear surfaces. Can be broken into irregular pieces with fingers. Grab sampled. Sample of claystone from 2,815.9 to 2,817.3 feet: X-ray - quartz, illite, kaolin.
2,817.3	2,819.0	Claystone and silty mudstone: Medium brownish gray (10YR 4/1-5/1). Faint streaked bedding. Irregular thick to very thin parting. Some glossy shear surfaces. Uneven sample split.
2,819.0	2,820.0	Mudstone, siltstone, and very fine sandstone: Medium to dark brownish gray (10YR 5/1-3/1) and some medium to light neutral gray (N 4-6), calcareous. Faint to some distinct, regular to irregular streaked bedding. Irregular to regular, thick to thin parting. Common very fine vitreous black coal streaks. Rare very fine pyrite streaks.
2,820.0	2,821.0	Coal and coaly shale: Black to dark and some medium brownish gray (N 1 to 10YR 3/1 and some 4/1), slightly calcareous shale. Very faint streaked bedding. Common very fine silty-textured pyrite streaks. Some ostracods near top. Common small gray siltstone blebs and fine streaks in lower 0.3 foot. Sample of coal from 2,820.5 feet: X-ray - halo, pyrite, some quartz.
2,821.0	2,822.0	Siltstone and very fine sandstone: Light to medium gray (N 6-5, rare 4) and rare brownish gray (10YR 5/1-4/1) calcareous. Fairly distinct irregular fine streaks and stringers. Common very fine dull black carbonaceous streaks.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		Sample of siltstone from 2,821.2 feet: X-ray - quartz, calcite, feldspar, illite, dolomite, kaolin.
2,822.0	2,823.0	Mudstone and siltstone: Medium to dark brownish gray (10YR 5/1-3/1 and 3/2) and light gray (N 6), calcareous. Distinct to faint, distorted to smooth streaks, stringers, and laminae. Common very fine dull black carbonaceous streaks and some vitreous coal streaks.
2,823.1	2,824.8	Shale and shaly mudstone: Dark to medium brownish gray (10YR and 2.5Y 3/2 and 3/1-4/1), slightly calcareous. Faint streaked bedding. Irregular thick to thin parting. Abundant <u>Goniobasis</u> and some clams.
		Sample of dark brownish-gray shale from 2,824.7 feet: X-ray - illite, quartz, calcite, kaolin, feldspar.
2,824.8	2,830.0	Shaly marlstone: Dark to medium brownish gray (2.5Y and 10YR 3/2-4/2, some 5/2), calcareous. Faint streaked bedding and some very faint laminae. Irregular thick to rare thin parting. Abundant ostracods. Common very thin to 1-inch irregular dark to medium brownish-gray coquinal limestones with clams and <u>Goniobasis</u> ; also some scattered shells in shale.
2,830.0	2,833.4	Shaly marlstone (oil shale in part?): Dark to medium brownish gray (10YR 3/2-4/2 and 4/1, rare 2/2), calcareous. Faint streaked bedding. Irregular thick to medium parting. Abundant ostracods and mollusks as above. Rare plant fossils.
2,833.4	2,834.8	Shaly marlstone (oil shale?): Very dark to medium brownish gray (10YR 2/2-4/2, rare 5/2), calcareous to slightly calcareous. Faint streaked bedding. Irregular thick to rare thin parting. Abundant ostracods, clams, and <u>Goniobasis</u> .
		Sample of very dark oil shale from 2,833.9 feet: X-ray - quartz, illite, calcite, feldspar, kaolin, pyrite.
2,834.8	2,836.4	Siltstone and fine sandstone: Dark to medium brownish gray (10YR 3/1-5/1) and medium to light gray (N 5-7; slight brown tint), calcareous to very calcareous, micaceous. Faint to distinct irregular fine streaks and stringers. Very common fine carbonaceous to coaly streaks in middle part. A thin tan calcareous claystone band at 2,836.0. Some dark brownish-gray shale in lower 0.4 foot.
2,836.4	2,837.0	Missing.
2,837.0	2,837.9	Very fine sandstone, siltstone, and shale: Light to dark brownish gray (10YR 6/1-3/1), slightly calcareous, micaceous. Moderately distinct distorted streaks and stringers to very faint smooth streaked bedding. Some plant fossils.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
2,837.9	2,838.7	Coaly shale and coal: Medium and dark brownish gray to black (10YR 4/1 to N 1), calcareous. Faint streaked bedding. Regular thick to thin shaly parting. Very abundant gray silty streaks and vitreous black coal streaks. Abundant ostracods and some clams. Resinous to vitreous black shaly coal in lower 2 inches.
2,838.7	2,839.7	Sandstone: Light gray (N 7-6; slight brownish tint), very fine to fine grained, calcareous, micaceous. Distinct very distorted to smooth carbonaceous streaks.
2,839.7	2,841.6	Siltstone, mudstone, and shale: Dark to medium brownish gray (10YR 3/1-5/1; some almost neutral), very slightly calcareous. Faint streaked bedding. Some irregular to regular thin shaly parting. Some light gray sandstone streaks and stringers. Common carbonaceous plant debris.
2,841.6	2,842.2	Sandstone: Light gray (N 7; slightly buff), fine grained, micaceous, calcareous. Regularly bedded with very abundant distinct black carbonaceous streaks. A 1-inch band of dark brownish-gray shale with common very fine coaly streaks in middle.
2,842.2	2,843.2	Mudstone and shale: Dark to rare medium brownish gray (10YR 2/1-3/1 and 3/2, rare 4/2-5/2), very slightly calcareous. Very faint streaked bedding. Some fine light gray siltstone and sandstone streaks in upper and lower parts. Few clam and snail shell fragments at 2,842.7.
2,843.2	2,844.9	Sandstone: Light gray (N 7-6; slightly buff), very fine grained, micaceous, calcareous. Irregularly bedded with very abundant distinct carbonaceous streaks and stringers; some thin irregular dark brownish-gray shaly mudstone layers in lower part. Sample of sandstone from 2,844.1 feet: X-ray - quartz, illite, feldspar, calcite, kaolin, dolomite.
2,844.9	2,846.3	Coaly shale and mudstone: Very dark to some medium brownish gray (10YR 2/2 and 2/1-3/2 and 3/1, some 4/2), slightly calcareous to noncalcareous. Faint smooth streaked bedding. Irregular to fairly regular, thick to medium parting. Common <u>very</u> fine vitreous black coal streaks. Some clam and snail fragments; abundant in medium brownish-gray zones. Some ostracods. Sample of very dark shale from 2,846.1 feet: X-ray - quartz, illite, kaolin, feldspar, pyrite.
2,846.3	2,847.6	Shale and mudstone: Dark to medium brownish gray (10YR 3/1-4/1, some 2/2-2/1 upper part), slightly calcareous to calcareous. Very faintly bedded with fairly abundant fine distinct brownish-gray to light gray, silty to sandy streaks and laminae. Some ostracods, clams, and snails.

## LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
Washakie Basin No. 1 corehole (con.)

From	To	Description
		Sample of dark brownish-gray mudstone from 2,847.3 feet: X-ray - quartz, feldspar, illite, pyrite, kaolin, calcite?, dolomite?
2,847.6	2,848.4	Coaly shale and mudstone: Very dark brownish gray (10YR 2/2 and 2/1-3/2 and 3/1), slightly calcareous. Very faint streaked bedding. Slightly irregular thick to some thin parting. Abundant <u>very</u> fine coaly streaks. Some ostracods, clams, and snails.
2,848.4	2,849.8	Marlstone (oil shale?): Dark to some medium brownish gray (10YR 3/2-3/1, some 4/1), calcareous. Very faint streaked bedding. Abundant ostracods. Some thin irregular dark brownish-gray limestones with clams and rare snail fragments.
2,849.8	2,851.3	Shaly marlstone (oil shale?): Dark brownish gray (10YR 3/2, some 3/1 and 2/2), calcareous. Very faint streaked bedding. Irregular to fairly regular, thick to rare thin parting. Common fine to thick irregular dark ostracodal limestones with clams and <u>Goniobasis</u> .
2,851.3	2,852.3	Coal and coaly shale: Black to very dark brownish gray (N 1 to 10YR 2/2). Very faint smooth streaked bedding. In thick zones grading from subvitreous shaly coal to coaly shale. A fine <u>Goniobasis</u> coquina with abundant pyrite at 2,851.8; rare shell fragments in other parts.
2,852.3	2,853.3	Shaly marlstone (oil shale?): Dark to some medium brownish gray (10YR 3/2 and 3/1, some 4/1 lower part), calcareous. Very faint streaked bedding. Irregular to fairly regular, thick to thin shaly parting. Some ostracods, clams, <u>Goniobasis</u> , and rare <u>Australorbis</u> in upper part; very abundant ostracods and fine clam fragments in lower part.
		Sample of shale from 2,852.7 feet: X-ray - quartz, illite, calcite, pyrite, kaolin, feldspar, dolomite?
2,853.3	2,854.0	Coaly shale (oil shale?): Dark grayish brown (7.5YR 3/2-3/1, some 2/2), noncalcareous. Very faint distorted streaked bedding. Irregular thick to medium parting. Abundant very fine vitreous black coal streaks. Very thin clam shell coquina at top.
		Sample of dark grayish-brown shale with rare coaly streaks from 2,853.6 feet: X-ray - quartz, illite, kaolin, feldspar, pyrite.
2,854.0	2,855.0	Coal and coaly shale: Black to very dark brownish gray (N 1 to 10YR 2/2). Very faint smooth streaked bedding. Regular thick to thin shaly parting. Resinous to subvitreous shaly coal in upper part grading to coaly shale in lower part. Some ostracods and <u>Goniobasis</u> fragments near base.

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LITHOLOGIC DESCRIPTION OF SAMPLES SUBMITTED FOR ASSAY

Core samples of the Green River Formation from Bureau of Mines  
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From	To	Description
2,855.0	2,857.3	Coal: Black, vitreous. Some very faint smooth bedding. Some shaly zones in upper part. A 3-inch gray claystone band at 2,855.4. Some smooth vertical fractures with very fine transparent calcite crusts in lower part; calcite peels off in large papery sheets. Sample of papery calcite from 2,856.0 to 2,857.3 feet: X-ray - calcite.
		BOTTOM OF CORE

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Laramie Petroleum Research Center, Laramie, Wyoming

April 8, 1969