

LITHOLOGIC DESCRIPTION OF USEM GREEN RIVER 1-1 WELL
NWNENE Sec 24 T18N R107W SWEETWATER COUNTY, WYOMING

July 27, 1967

by

George F. (Pete) Dana

Footage	Description
360.0-361.3	Shale, oil, brownish-gray to sooty black, varved, abundant scattered crystal faces.
361.3-361.5	Shale, oil, greenish-gray and brownish-gray dense, occasional crystals.
361.5-363.9	Shale, oil, medium brown, grayish-brown, dark to sooty and waxy black, abundant small individual crystals.
363.9-366.4	Shale, oil (?), and siltstone, light tannish-gray, light gray, slightly dolomitic, zones and streaks of clustered crystals, dense, hard.
366.4-370.4	Shale, oil, medium gray, finely laminated, occasional scattered crystals, slightly silty becoming darker gray with depth.
370.4-373.2	Shale, oil, medium brown, tannish-brown, brownish-gray, scattered individual crystals, partly pyritic.
373.2-375.9	Shale, oil, medium and dark gray with tannish-gray laminae, some sooty black, pyritic streaks horizontal, occasional crystals.
375.9-376.0	Sandstone, yellowish-brown, grayish-tan, gray, very fine to fine-grained, slight porosity, some shale partings, calcareous.
376.0-377.1	Shale, oil, as in 373.2-375.9 feet.
377.1-377.3	Shale, oil, dark gray, injected with and distorted by tan silty shale, slightly dolomitic.
377.3-377.8	Shale, oil, as in 376.0-377.1 feet.
377.8-379.4	Shale, oil, medium gray to light brownish-gray, some crystal faces, fine varves.
379.4-380.9	Shale, oil, medium gray to dark gray, some vertical fractures along which minor movement and subsequent crystal filling has taken place, possibly dolomite.
380.9-381.5	Shale, oil, sooty black, minor scattered crystals.
381.5-382.6	Missing.
382.6-383.7	Shale, oil, as 380.9-381.5 feet.
383.7-385.6	Shale, oil, medium to dark gray, laminated with some lighter shale layers, vertical fractures filled with lighter, pyritic shale, some of which has been injected into darker shale.
385.6-389.0	Shale, oil, medium to dark gray, some black, with pods and layers of purple, very dense dolomite, some tan dolomite as same features, abundant larger scattered pyritic crystal clusters.
389.0-389.3	Sandstone, gray to brown, tuffaceous, very fine-grained, very slightly calcareous, abundant oil stain, fair porosity, shale partings.
389.3-389.9	Shale, oil, banded black and medium brown to tan, distinctly varved.
389.9-390.8	Shale, oil, dark gray to black, trace brownish-gray dense, featureless.
390.8-392.0	Shale, oil, tan to brown to grayish-brown, partly banded.
392.0-392.1	Sandstone, tuffaceous, light gray to brown with gray shale partings, quite distorted, some porosity, oil-stained, minor iron stain.

Footage	Description
392.1-392.4	Shale, oil, dark gray, finely laminated, larger pyrite crystal clusters.
392.4-392.8	Shale, oil, tan, brown, medium gray, fine laminated, slightly dolomitic, silty.
392.8-394.7	Shale, oil, dark gray to black with minor brownish-gray laminae, pyritic in part.
394.7-395.9	Shale, oil, tan to medium brown to grayish-brown, slightly dolomitic.
395.9-396.8	Shale, oil, tan to dark gray, both thinly and thickly banded with pods and inclusions of brown to purple dolomite, crystal zone at 396.1 to 396.3 feet.
396.8-397.2	Shale, oil, medium gray, numerous crystal faces.
397.2-397.3	Sandstone, tuffaceous, bluish-gray, brown, tan, fine-grained, some porosity, shaley, slight oil stain.
397.3-398.8	Shale, oil, medium brownish-gray to dark gray, finely laminated, one purple dolomite inclusion at 397.6 feet.
398.8-399.1	Shale, oil, light gray to tannish-gray, slightly silty, occasional crystal faces.
399.1-399.8	Shale, oil, medium gray, finely laminated, minor pyritic zone at 399.2 feet.
399.8-399.9	Tuff, white to gray, sandy, minor shale fragments, very porous.
399.9-400.0	Sandstone, buff to maroon, fine-grained, interbedded with salt and pepper to gray sandstone, fine-grained, both fair porosity. M-E.A.
400.0-404.0	Shale, oil, tan, light brown, medium brown, light gray, brownish-gray and medium gray broadly banded, silty in part, trace crystal faces at 402.7 to 404.0 feet, conchoidal fracturing, dense.
404.0-407.5	Shale, oil, medium to dark gray and black, thinly banded and laminated with tan to brown dolomitic bands, some exhibit distortion and flow, occasional pods tan dolomite.
407.5-407.7	Tuff, limey to dolomitic, tan to buff, silty to sandy in part, very porous, earthy to chalky in part,
407.7-407.8	Shale, oil, medium to dark gray.
407.8-407.9	Tuff as in 407.5-407.7 feet.
407.9-408.4	Shale, oil, as in 404.0-407.5 feet.
408.4-408.6	Limestone, bluish-gray, finely crystalline, injected into tan dolomitic shale.
408.6-409.0	Shale, oil, brownish-gray to dark gray.
409.0-409.5	Shale, oil(?), tan to gray, very fine laminae, very calcareous, fractures filled with calcite.
409.5-412.3	Shale, oil, medium to dark gray, finely laminated with bluish-gray and tan layers, several thin layers of light gray silty tuffs at 411.7, 411.8, and 411.9 feet.
412.3-412.4	Sandstone, tuffaceous, brown, gray to dark gray, fine-grained, some massive quartz, some calcite crystals, poor porosity, some oil stain
412.4-413.0	Shale, oil, light and dark gray, thinly varved with tan dolomitic layers and small pods, very calcareous and limey.
413.0-416.3	Shale, oil, medium to dark gray, dense, slightly calcareous.
416.3-416.7	Tuff, white to gray and salt and pepper, earthy, chalky, silty, very friable, very porous.
416.7-418.7	Shale, oil, medium to dark gray to black, some light tan layers.

Footage	Description
418.7-418.9	Dolomite, tan to brown, very finely crystalline, fossiliferous to oolitic, slight porosity, silty in part, oil-stained streak at 418.8 feet.
418.9-419.0	Shale, oil, as in 416.7-418.7 feet.
419.0-419.3	Sandstone, tuffaceous, gray salt and pepper, fine-grained, micaceous silty to chalky in part, very calcareous, very porous, slightly friable.
419.3-419.4	Shale, oil, brownish-gray, finely laminated, vertical fractures filled with gray, crystalline quartz-like material, which is very hard.
419.4-421.5	Shale, oil, brown, brownish-gray, grayish-brown, dark gray, some zones of fine laminae of tan dolomitic shale, thin layers of gilsonite (?) or coal (?) from 420.6-420.8 feet, poker chip fracturing below 420.9 feet.
421.5-422.2	Shale, oil (?) grayish-brown, dense, dolomitic, conchoidal fracturing.
422.2-422.4	Shale, oil, grayish-green, silty, calcareous, blocky fracturing.
422.4-422.5	Shale, oil (?), as in 421.5-422.2 feet.
422.5-422.8	Shale, oil as in 422.2-422.4 feet.
422.8-424.2	Shale and siltstone, light to medium gray, sandy in part, minor banding, very calcareous, porous.
424.2-424.5	Shale, oil, medium gray, greenish in part, calcareous.
424.5-424.9	Shale and siltstone as in 422.8-424.2 feet.
424.9-425.0	Shale, oil, tan to medium brown, dolomitic, dense, conchoidal fracturing, slightly silty.
425.0-425.5	Shale, oil, gray to greenish-gray, some brownish-gray, silty, calcareous, brown layer at 425.2 feet, the top of which is a gilsonite layer.
425.5-425.6	Shale, oil as in 424.9-425.0 feet.
425.6-427.3	Siltstone and shale, light gray, sandy, layered in part, very porous very calcareous, gilsonite in parting at 426.0 feet.
427.3-429.9	Sandstone, light gray, salt and pepper, fine to medium-grained, very porous, very calcareous, micaceous in part, some minor shale parting.
429.9-431.0	Shale and siltstone, tan to light gray, sandy in part, slightly calcareous to calcareous, minor vertical fractures.
431.0-431.8	Shale, oil, medium gray with darker shale layers, sandy to silty, very calcareous, thin layer of fish scales at 431.1 feet.
431.8-432.5	Shale, tan to gray, nearly a dolomite, dense, hard, conchoidal fracturing, well-indurated.
432.5-434.0	Shale, oil, light gray, brownish-gray, medium gray, silty to sandy in part, dolomitic, slightly calcareous to very calcareous, occasional fish scales.
434.0-434.3	Shale, oil, black, featureless.
434.3-434.5	Shale, tan, dolomitic, silty, dense, hairline fractures filled with dark shale, granular texture.
434.5-434.8	Shale, oil, greenish-brown and dark gray, broadly banded.
434.8-435.1	Shale, oil, brownish gray, finely laminated with tan dolomitic layers calcareous.

Footage	Description
435.1-435.2	Shale, oil, dark gray to black, with globular concentrations of waxy black shale (?) or material.
435.2-436.1	Shale, oil, light to dark gray, distinctly varved with thin layers and some pods of tan dolomitic shale, somewhat calcareous.
436.1-437.1	Shale, oil, light to medium gray and tan to light brown, banded, occasional buff dolomitic shale pods, nahcolite filled fracture at 436.9 feet.
437.1-437.4	Shale, oil, dark gray to black, with a thin dolomitic shale streak at 437.3 feet.
437.4-441.9	Shale, oil, tan, light brown, light gray, medium gray, banded with concentrations (pods) of tan dolomitic shale, silty in part, very calcareous, dense, hard.
441.9-442.9	Shale, oil, medium to dark gray, distinctly varved with tan dolomitic shale, occasional fish scales.
442.9-444.7	Shale, light to medium gray with some tan, banded, similar to 437.4-441.9 feet but grayer.
444.7-446.1	Missing.
446.1-450.3	Shale, oil, and/or mudstone, light to medium gray and some light brown faint banding.
450.3-452.6	Shale, oil, very similar to 446.1-450.3 feet but medium to dark gray.
452.6-454.6	Shale, oil, medium to dark gray, brown to grayish-brown, very thinly laminated with tan to brown dolomitic shale, calcareous, occasional stringer of bluish-gray shale.
454.6-454.8	Shale, oil, dark gray, faint laminae.
454.8-455.5	Shale, oil, light to medium gray, finely laminated as in 452.6-454.6 feet.
455.5-456.2	Shale, oil, brownish-gray to dark gray, one tan streak at 455.9 feet faintly laminated, blocky fracturing.
456.2-457.3	Shale, oil, grayish-tan, brownish-gray, medium gray and greenish-gray distinctly laminated with tan to light brown layers, slightly silty in part, fish backbone at 457.1 feet.
457.3-457.5	Shale, oil, dark brownish-gray to black, featureless.
457.5-457.9	Shale, tan, very dolomitic, silty, dense, hard.
457.9-458.1	Shale, oil, gray to greenish-gray, occasional thin layers of tan dolomitic shale.
458.1-458.3	Shale, grayish-green to light green with abundant massive, finely crystalline limestone, some porosity, poor permeability.
458.3-458.4	Shale, oil, medium greenish-gray to dark gray, banded.
458.4-459.0	Shale, oil, light to dark grayish-green, broadly banded, calcareous with some finely crystalline white limestone streaks and concentrations.
459.0-460.3	Missing.
460.3-460.5	Shale, dark brownish-gray and greenish-gray with thin bed of gray, conglomeratic sandstone at 460.3 feet, calcareous.
460.5-460.7	Shale, oil, greenish-gray, silty with numerous concentrations of gray to white, finely crystalline limestone, some sand grains, oolitic in part.
460.7-461.0	Shale, oil, tan to brownish-gray, irregularly laminated.
461.0-463.0	Shale, oil, gray to greenish-gray, with abundant medium crystalline limestone, white to light gray, as individual crystals and as veinlets of crystals, vertical, horizontal, and diagonal, trace dark gray shale partings.

Footage	Description
463.0-464.4	Shale, oil, tan to medium brown, some grayish-brown, some pods and streaks of dolomite and sandy limestone, white to gray finely crystalline.
464.4-470.5	Shale, oil, light to dark brown, some grayish-brown, dolomitic, faintly laminated in part, thin gray crystalline limestone streak at 469.7 feet.
470.5-470.7	Shale, tan, nearly dolomitic, silty, dense, hard.
470.7-471.7	Shale, oil, gray to dark gray, distinctly laminated with shale as above, occurring also as pods and inclusions.
471.7-472.5	Shale, oil, medium to dark gray, clayey, some faint and occasional banding with tan dolomitic varves.
472.5-474.5	Missing.
474.5-475.9	Shale, oil, as in 471.7-472.5 feet.
475.9-477.2	Shale, oil, dark gray, medium brownish-gray, broadly banded with tan to light brown dolomitic shale, fractured in part, fractures filled with overlying shale.
477.2-478.7	Shale, oil, medium to dark gray, finely laminated, injected with bluish-gray shale at 478.4 feet which is slightly calcareous.
478.7-479.7	Shale, oil, medium gray with light tannish-gray streak at 478.8 feet
479.7-479.8	Limestone, gray, finely crystalline, dense.
479.8-480.6	Shale, oil, gray to tan, dolomitic, banded both broadly and thinly.
480.6-481.3	Shale, oil, medium to dark gray, clayey, dolomitic, homogeneous.
481.3-483.4	Shale, oil, medium to dark gray, broadly banded with tan to brown dolomite and dolomitic shale, dense, hard, silty.
483.4-484.0	Shale, tan to light gray, dolomitic, hard, dense, with streaks and layers of black oil shale.
484.0-485.0	Shale, oil, dark gray, clayey, blocky fracturing, tan, dolomitic and sandy shale streaks at 484.2 and 484.9 feet.
485.0-485.1	Shale, tan to buff, dolomitic, clayey and silty.
485.1-486.0	Shale, oil, dark gray and black, featureless.
486.0-486.9	Shale, oil, as in 485.0-485.1 feet, broadly banded with medium to dark gray shale.
486.9-487.3	Shale, oil, medium brown to light brown, blocky fracturing, minor contorted dark gray shale streak.
487.3-487.9	Shale and mudstone, gray to brownish gray, sandy and silty, calcareous some fossil spines or stems and fish scales.
487.9-488.9	Shale, oil, medium to dark gray, some brownish-gray, clayey, calcareous
488.9-489.2	Shale, oil, tan to medium brown, blocky fracturing.
489.2-489.5	Shale, oil as in 487.9-488.9 feet.
489.5-489.6	Shale, medium to bright brown, thinly laminated with several layers of gilsonite.
489.6-490.1	Mudstone and shale, gray to brownish-gray, soft and crumbly, very calcareous, sandy in part.
490.1-491.9	Shale, oil, medium to dark gray, some greenish-gray, clayey.
491.9-493.0	Shale, oil, greenish-gray, brownish-gray, dark gray, finely laminated occasional layer light gray siltstone.
493.0-493.4	Mudstone, limey facies, chalky in part, white to light gray, abundant bits of brown waxy residue, probably congealed oil and wax.

Footage	Description
493.4-494.8	Limestone, gray, very finely crystalline, very sandy and silty, minor amounts of fossils, occasional pod of dolomitic tan shale.
494.8-495.1	Limestone, buff to gray, fine to medium crystalline, fossiliferous.
495.1-495.5	Shale, tan to gray, dolomitic to limey, occasional fossils, silty in part, partly banded.
495.5-503.2	Shale, very limey, gray, crumbly to fairly hard, abundant white fossil shells principally <i>Goniobasis</i> ^{sp?} , sandy streaks at 496.3 and 498.2 feet, gilsonite layer at 503.0 feet. Top of basal bed in Tipton member at 495.5 feet.