

LITHOLOGIC DESCRIPTION OF USBM ROCK SPRINGS WELL NO. 4-1  
 N7SE14 SEC 15 T18N R106W SWEETWATER COUNTY, WYOMING  
 June 15, 1966  
 by  
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Footage	Description	Remarks
34.3-36.8	Sandstone and siltstone, yellow, buff and light gray, fine-grained, fractured, weathered, with occasional thin streaks of light gray sandy shale.	
36.8-37.0	Shale, oil, medium brown to brownish gray, silty.	
37.0-39.6	Sandstone, brown to gray, very fine to fine-grained, fractured, weathered with yellow and white streaks and iron staining.	
39.6-42.4	Shale and siltstone, medium gray, horizontal calcite in discontinuous veinlets, banding present below 40.0'. Fracturing and iron staining from 40.5-41.7'.	
42.4-42.8	Shale, light gray, iron oxide staining, silty.	
42.8-43.9	Shale, oil, medium to dark gray and greenish gray with interbedded light gray siltstone, calcareous to limey.	
43.9-44.0	Limestone, light brown to gray-brown, finely crystalline, dense.	
44.0-44.2	Shale, oil, dark gray, silty, slightly calcareous.	
44.2-46.2	Shale, oil, light to medium gray-green to olive drab to medium gray with finely disseminated crystalline forms, probably carbonate derivatives.	
46.2-47.1	Shale, oil, medium to dark gray, finely laminated with brown shale zones, same crystallization present.	
47.1-47.2	Siltstone, tuffaceous, sandy, gray to buff, appears to have been injected into fractures in a gray-green shale.	
47.2-47.6	Shale, oil, medium gray with varves of tan to brown, fine crystals through matrix.	
47.6-59.2	Shale, oil, light gray, dense, occasional thin calcite veinlets, some banding with tan limey shale.	
59.2-61.0	Shale, oil, medium to dark gray, minor amounts of fine crystallization.	
61.0-62.4	Shale, oil, light to medium grayish-green, some mineralization, dense.	
62.4-63.7	Shale, oil, light gray with diagonal, very thin veinlets of mineralization.	
63.7-65.8	Shale, oil banded, buff, tan and varying shades of gray, some lighter streaks are dolomitic.	
65.8-66.0	Shale, oil, medium gray, with intermittent veins and inclusions of white crystalline calcite with gray areas.	
66.0-67.3	Shale, oil, same as 63.7-65.8.	

Footage	Description	Remarks
67.3-69.3	Shale, oil, brown to sooty black, finely banded, abundant fine crystallization from 68.0-68.9.	
69.3-69.9	Shale, oil, tan to earthy brown, some crystals as veinlets.	
69.9-72.3	Shale, oil light gray to light olive gray-green, mineralization as elongated inclusions.	
72.3-75.0	Shale, oil, tan to light gray banding with horizontal veins of limestone and some gray calcite crystals.	
75.0-75.3	Shale, oil, medium gray to grayish-green, with discontinuous veins and some inclusions of white calcite crystals.	
75.3-75.9	Shale, oil, gray to light greenish-gray.	
75.9-77.2	Shale, oil, light to medium gray, minor banding and mineralization scattered through matrix.	
77.2-77.9	Shale, medium gray, dense, tight, few crystals.	
77.9-81.5	Shale, oil, olive to yellowish gray, finely laminated, with dark, fairly brittle residue along natural fractures, some limestone inclusions.	
81.5-83.3	Shale, oil, light gray, dense, horizontal and thin veinlets of mineralization.	
83.3-84.1	Shale, oil, tan to light gray, banded, with thin layers of finely crystalline gray limestone.	
84.1-84.8	Shale, oil, medium gray, dense with layers of limestone as above.	
84.8-88.7	Shale, oil, medium gray to dark gray to olive drab with layers of limestone as above, some lighter gray beds of shale below 88.1.	
88.7-89.3	Shale, oil, light gray, silty, minor contortions in bedding planes.	
89.3-90.3	Shale, oil, gray-brown to dark brown, some disseminated very small crystals.	
90.3-90.6	Shale, oil, dark brown to black, thinly varved.	
90.6-93.5	Shale, oil, olive drab to medium gray, considerable mineralization with some natural fractures containing light crystals, probably of carbonates.	
93.5-95.5	Shale, oil, light gray to tan, thinly to thickly banded, silty in part.	
95.5-96.9	Shale, oil same as above without banding and with abundant scattered crystals, some aligned in veins, gives salt and pepper appearance.	
96.9-97.9	Shale, oil, light gray and tan, mildly contorted.	
97.9-98.5	Shale, oil, medium gray, slightly greenish, minor contortions.	
98.5-98.8	Shale, oil, medium to dark gray to olive, more contorted than above, zones of sandy green shale, slightly calcareous.	

Footage	Description	Remarks
98.8-99.6	Shale, oil, brownish-gray, minor crystallization.	
99.6-100.1	Shale, oil, dark brown to black, finely laminated, scattered mineralization.	
100.1-101.2	Shale, oil, medium gray-brown, less crystallization than above.	
101.2-103.0	Shale, oil, dark brown to sooty black, laminated, with occasional fractures with solidified oil residue.	
103.0-103.3	Shale, oil, grayish-green to olive, mineralization scattered through matrix.	
103.3-104.5	Shale, oil, dark gray to sooty and shiny black.	
104.5-105.7	Shale, oil, medium to dark grayish-brown, laminated, mineralized, fractures with oil residue.	
105.7-106.1	Shale, oil, medium gray and brown, dense, slightly calcareous.	
106.1-108.5	Shale, oil, light greenish-gray to olive with fairly thick bands of tan dense shale, entire section contains crystallization both scattered and as horizontal veinlets.	
108.5-109.6	Shale, oil, medium gray, dense.	
109.6-112.6	Shale, oil, brown to dark gray, thinly bedded, some zones of mineralization, one vein of mineralization cuts bedding plane at 110.2-110.3.	
112.6-114.9	Shale, oil, medium gray to olive, occasional brown streaks, occasional purplish-brown limestone inclusions, abundant and comparatively large crystals present throughout this section.	
114.9-115.6	Shale, oil, medium brownish-gray, occasional limestone inclusions as above.	
115.6-118.7	Shale, oil, dark brown and dark gray to black, finely laminated, medium gray zone 117.3-117.5.	
118.7-119.0	Ash, tuff and siltstone, white to yellow, minor fractures containing dark shale, good porosity, slightly stained in upper part.	
119.0-119.3	Shale, oil, same as 115.6-118.7.	
119.3-120.3	Shale, oil, medium gray to olive, abundant carbonate (?) crystallization, with numerous inclusions of limestone in parallel zones.	
120.3-120.6	Shale, oil, grayish-green, dense.	
120.6-122.0	Shale, oil, medium to dark gray, some limestone inclusions.	
122.0-124.0	Shale, oil, dark gray to sooty black, black	
124.0-126.0	Shale, oil, medium to dark gray and/finely laminated.	
126.0-126.2	Ash, tuffaceous, white to gray with some very fine-grained associated sandstone, gray, pyritic, porous, mostly filling fine fractures.	
126.2-126.8	Shale, oil, olive green to dark gray, limestone inclusions, several zones of mineralization.	