

WELL: NEWFIELD PEACEMAKER #1-5
 FORMATION: Lodgepole, Bakken, Three Forks,
 Potlatch, and Nisku

LOCATION: Sec. 5 - T133N - R6W
 CORE DEPTH: 4652 - 5037

DEPTH	A GS M	GRAIN SIZE AND LITHOLOGY PS F	WS VF	MS SILT	SH SH	FACIES	SEDIMENTARY STRUCTURES	CONTACTS	POROSITY	CEMENTS	COMMENTS		
-4650													
-4652							Clasts and shale fragments				Burrowed at the base of the unit		
-4655							Silty laminations				Facies 1 - Shale - Black, calcareous to non-calcareous, fissile, silty, and siliceous. Laminations are commonly silty. Depositional Environment: Deep Shelf Reservoir Potential: None		
-4660						1	Glauconitic grains		A	N	C	Burrowed and slightly bioturbated dolomitic siltstone and silty and shaley dolomite.	
-4665							Silty		G			Scalarituba and/or Helminthopsis burrow structures	
-4670							Silty		G			4666-4673.5 - Scalarituba and/or Helminthopsis burrow structures	
-4675							Anhydrite cement		G				
-4680						2						Facies 2 - Limestone - Gray to dark gray, shaley, cherty, and skeletal lime mudstone with rare wackestone beds. Skeletal fragments are dominantly crinoid ossicles and stems and rare brachiopod fragments. Chert nodules are dark gray and interspersed throughout the interval and are common from 4673.5-4705. Calcite-occluded vertical to subvertical fractures are common, and these are thin (less than 0.1 mm thick) and less than 1 ft long. Fractures are more common in chert-rich beds and nodules. Burrow structures are compacted and resemble Helminthopsis and possibly Phycosiphon. Depositional Environment: Deep Shelf Reservoir Potential: None unless fractured	
-4685												Cherty intervals commonly fractured	
-4690												Pyrite disseminated throughout the unit	
-4695						2			G	N	C	Facies 2 - Limestone - Gray to dark gray, shaley, cherty, and skeletal lime mudstone with rare wackestone beds. Skeletal fragments are dominantly crinoid ossicles and stems and rare brachiopod fragments. Chert nodules are dark gray and interspersed throughout the interval and are common from 4673.5-4705. Calcite-occluded vertical to subvertical fractures are common, and these are thin (less than 0.1 mm thick) and less than 1 ft long. Fractures are more common in chert-rich beds and nodules. Burrow structures are compacted and resemble Helminthopsis and possibly Phycosiphon. Depositional Environment: Deep Shelf Reservoir Potential: None unless fractured	
-4700							Faint Laminations						
-4705							Massive						
-4710						5	Black shale Shale and fossil grains P						Facies 3 - Limestone - Gray to dark gray, skeletal and shaley lime wackestone to packstone. Skeletal fragments are common crinoid and brachiopod fragments, ostracod carapaces, bryozoan fragments, and rare rugose coral fragments. Compaction produced nodular bedding. Siltolites are common. Depositional Environment: Shallow Shelf Reservoir Potential: None unless fractured
-4715						3			AE				
-4720						6	S P Faintly Laminated		G	P	C	Facies 6 - Siltstone - Gray, dolomitic, sparsely skeletal, sparsely burrow-mottled. Skeletal near the top of the facies. Depositional Environment: Shallow restricted shelf Reservoir Potential: None unless fractured	
-4725						5							
-4730						3			A	P to N	C		
-4735						5						Facies 5 - Siltstone - Gray, dolomitic, burrow-mottled, and skeletal. Skeletal fragments are dominantly brachiopod fragments. Depositional Environment: Shallow slightly restricted shelf Reservoir Potential: None unless fractured	
-4740						4	Sample						
-4740							Sample						
-4745							Rare to no fossils					Pyrite disseminated throughout the interval.	
-4750						7	Rare to no fossils					Facies 7 - Limestone - Dark brown to gray, skeletal and shaley lime mudstone to wackestone. Skeletal fragments are dominantly brachiopod fragments. Chert and calcite nodules are rare to common. Calcite-filled fractures are sparse to common. Depositional Environment: Shallow restricted shelf Reservoir Potential: None unless fractured	
-4755									G				
-4760							Dead oil					Black shale	
-4765							Rare to no fossils						
-4770													
-4775						7	Rare to no fossils						
-4780							Rare to no fossils					Facies 7 - Limestone - Dark brown to gray, skeletal and shaley lime mudstone to wackestone. Skeletal fragments are dominantly brachiopod fragments. Chert and calcite nodules are rare to common. Calcite-filled fractures are sparse to common. Depositional Environment: Shallow restricted shelf Reservoir Potential: None unless fractured	
-4785							Siltstone laminations					Common brachiopod fragments	
-4790									A	N	A	Common calcite spar cement	
-4795						8	Oil staining					Facies 8 - Limestone - Gray to light brown, oolitic, peloidal, and intra-clastic lime packstone to grainstone. Common calcite cement (sparite). Depositional Environment: Shoreline to shallow shoal Reservoir Potential: None	
-4799						8	Oil staining		AE	N	C	Brecciated and stylolitized with deformed shale laminations	
-4800												Shaley lime mudstone	
-4944							Drilled						
-4945						10			A				
-4950						10						Cyanobacterial laminations	
-4955						10	Oil and mineral fluorescence in dolomitic beds					Slightly deformed dolomite laminations	
-4960						10						Facies 10 - Anhydrite - Gray to white, nodular, bedded, and enterolithic anhydrite with interbedded light gray to light brown, laminated and stromatolitic dolomite. Depositional Environment: Intertidal to lagoonal (salina) Reservoir Potential: None	
-4965						10							
-4970						9	Anhydrite nodules					Facies 9 - Dolomite - Light brown to gray, algal laminated (cyanobacteria) and stromatolitic. Porosity commonly reduced by anhydrite cement and anhydrite replacement. Depositional Environment: Intertidal to lagoonal (salina) Reservoir Potential: Fair	
-4975						10						Facies 8 - Limestone - Gray to light brown, oolitic, peloidal, and intra-clastic lime packstone to grainstone. Common calcite cement (sparite). Depositional Environment: Shoreline-shoal Reservoir Potential: None	
-4980						10						Slightly oxidized nodular anhydrite with minor enterolithic structures	
-4985						9							
-4990						10							
-4995						10							
-5000						10						Facies 10 - Anhydrite - Gray to white, nodular, bedded, and enterolithic anhydrite with interbedded light gray to light brown, laminated and stromatolitic dolomite. Depositional Environment: Intertidal to lagoonal (salina) Reservoir Potential: None	
-5005						9	Slightly shaley					Facies 9 - Dolomite - Light brown to gray, algal laminated (cyanobacteria) and stromatolitic. Porosity commonly reduced by anhydrite cement and anhydrite replacement. Depositional Environment: Intertidal to lagoonal (salina) Reservoir Potential: Fair	
-5010						10							
-5015						9	Anhydrite nodules						
-5020						N2						N2- Dolomite and Anhydrite - Gray to light brown dolomite with replacive and displacive anhydrite nodules. Depositional Environment: Intertidal to salina-sabkha Reservoir Potential: Poor to fair	
-5025							Anhydrite occluded fractures						
-5030						9	Massive to laminated					Facies 9 - Dolomite - Light brown to gray, algal laminated (cyanobacteria) and stromatolitic. Porosity commonly reduced by anhydrite cement and anhydrite replacement. Depositional Environment: Intertidal to lagoonal (salina) Reservoir Potential: Fair	
-5035							Anhydrite occluded fractures					Laminated dolomite with common anhydrite occluded fractures	
-5037												Oil staining along fractures	