



### Appendix A: Petrophysical and Sedimentological Data.

Sample I.D.	Depth (m)	Reservoir Horizon	Length (mm)	Diameter (mm)	Density (Kg/m <sup>3</sup> )	Ambient Porosity (%)	Klinkenberg Permeability (mD)	Sorting	Grain Size	Grain Shape	Minerology (% Wt)
AFA-1	2787.2	Famgee	75.99	36.95	2655	31.26	591.1	poor to moderate	fine to coarse	angular - rounded	quartz-69.5%, feldspar-12%, mica-2%, kaolinite-7.0%, trace
AFA-2	2791.7	Famgee	75.10	37.16	2649	29.92	976.6	poor to moderate	fine to coarse	angular - rounded	quartz-66.9%, feldspar-12.5%, mica-3.5%, trace
AFA-3	2796.8	Famgee	73.16	36.58	2652	20.09	452.4	moderate	fine to coarse	angular - subrounded	quartz-73.0%, feldspar-10.5%, mica-1.0%, kaolinite-3.5%, trace
AFA-4	2818.2	Famgee	76.95	37.13	2660	21.01	648.6	moderate to well	medium	subangular	quartz-77.5%, feldspar-7.5%, mica-1.5%, kaolinite-2.0%, trace
AFA-5	3709.1	Deekay	76.76	37.37	2614	35.42	26.7	poor	very fine to coarse	angular - rounded	quartz-61.0%, feldspar-3.0%, mica-2.5%, kaolinite-3.0%, trace
AFA-6	3722.8	Deekay	73.20	37.41	2656	25.27	21.5	poor	very fine to coarse	angular - subrounded	quartz-76.0%, feldspar-1.5%, mica-0.5%, trace
AFA-7	3724.3	Deekay	75.32	35.36	2645	26.59	461.7	moderate	very fine to fine	subangular - subrounded	quartz-70.0%, feldspar-3.5%, mica-2.0%, kaolinite-9.0%, trace
AFA-8	3727.5	Deekay	73.25	37.51	2644	24.51	201.5	poor	very fine to fine	subangular - wellrounded	quartz-72.0%, feldspar-5.0%, mica-3.5%, kaolinite-4.5%, trace
AFB-1	2750.3	Famgee	75.31	37.14	2639	32.37	873.6	poor to moderate	fine to medium	subangular - subrounded	quartz-75.5%, feldspar-7.5%, mica-2.0%, kaolinite-1.5%, trace
AFB-2	3427.8	Deekay	76.10	37.48	2610	20.55	22.8	poor to moderate	fine to coarse	subangular - subrounded	quartz-63.5%, feldspar-2.5%, mica-3.5%, kaolinite-3.5%, trace

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AFC-1	5494.05	Deekay	76.29	37.25	1850	29.49	550.62	moderate	fine to medium	subangular - subrounded	quartz-70.0%, feldspar-6.0%, mica-4.0%, kaolinite-6.5%, trace
AFC-2	5498.59	Deekay	52.58	37.34	2100	17.65	16.48	moderate to well	fine to medium	angular - subrounded	quartz-70.0%, feldspar-5.0%, mica-3.0%, kaolinite-1.5%, trace
AFC-3	5509.41	Deekay	50.05	37.42	2150	18.52	13.19	moderate to well	fine to medium	subangular - subrounded	quartz-79.5%, feldspar-0.5%, mica-1.0%, kaolinite-3.5%, trace
AFC-4	5520.93	Deekay	50.93	37.37	1860	28.95	450.62	moderate	medium	angular - rounded	quartz-77.0%, feldspar-3.5%, mica-2.5%, kaolinite-5.5%, trace
AFC-5	5561.32	Deekay	55.02	37.38	2090	20.93	18.94	moderate	very fine to medium	angular - rounded	quartz-70.0%, feldspar-6.0%, mica-4.0%, kaolinite-6.5%, trace
AFC-6	5572.05	Deekay	50.70	36.89	1880	28.18	696.04	moderate	fine to coarse	angular - subrounded	quartz-68.5%, feldspar-3.0%, mica-4.0%, kaolinite-2.0%, trace
AFC-7	5573.48	Deekay	56.25	37.36	1960	25.35	204.75	moderate to well	med to fine	angular - rounded	quartz-71.0%, feldspar-7.0%, mica-2.50%, kaolinite-3.0%, trace
AFC-8	5585.95	Deekay	57.84	37.36	2110	20.42	7.93	moderate	fine to medium	subangular - wellrounded	quartz-74.5%, feldspar-6.5%, mica-2.5%, kaolinite-0.5%, trace
AFC-9	5601.77	Deekay	75.46	37.40	1960	25.43	11.04	moderate to well	very fine to medium	angular - subrounded	quartz-69.5%, feldspar-5.5%, mica-3.5%, kaolinite-4.0%, trace
AFC-10	5692.23	Deekay	55.46	37.35	2230	12.26	8.00	moderate	fine to medium	subangular - subrounded	quartz-69.5%, feldspar-7.0%, mica-5.5%, kaolinite-2.5%, trace

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BFA-1	3020.27	Rotliegendes	75.26	36.98	2110	11.50	45.05	moderate	fine to medium	angular - subangular	quartz-64.5%, feldspar-3.5%, others trace
BFA-2	3033.45	Rotliegendes	76.70	37.02	2215	8.20	21.07	poor to moderate	medium to coarse	angular - rounded	quartz-63.0%, feldspar-8.5%, others trace
BFA-3	3036.14	Rotliegendes	71.60	37.65	2010	12.80	99.98	poor to moderate	medium to coarse	rounded - subrounded	quartz-70.0%, feldspar-7.5%, others trace
BFA-4	3041.90	Rotliegendes	75.57	38.01	2150	17.30	291.03	moderate	fine to medium	angular - subangular	quartz-77.5%, feldspar-7.5%, others trace
BFB-1	3282.15	Rotliegendes	76.54	37.98	2010	18.20	98.80	moderate	fine to medium	subangular - subrounded	quartz-69.5%, feldspar-5.5%, others trace
BFB-2	3286.07	Rotliegendes	78.21	36.99	2110	13.02	78.01	moderate to well	fine to coarse	angular - rounded	quartz-70.0%, feldspar-5.0%, others trace
BFB-3	3298.99	Rotliegendes	77.54	37.54	1960	13.05	109.50	moderate to well	medium	subangular - subrounded	quartz-76.5%, feldspar-5.5%, others trace
BFB-4	3308.36	Rotliegendes	76.98	38.01	2100	15.09	271.54	moderate	fine to medium	rounded - subrounded	quartz-74.5%, feldspar-7.5%, others trace
BFC-1	3441.87	Rotliegendes	78.58	38.21	2510	9.50	55.25	poor to moderate	fine to coarse	angular - subrounded	quartz-67.0%, feldspar-5.5%, others trace
BFC-2	3446.98	Rotliegendes	75.38	36.78	2500	9.08	49.58	moderate	fine to medium	angular - subangular	quartz-79.5%, feldspar-3.5%, others trace
BFC-3	3451.90	Rotliegendes	75.62	37.11	2110	12.07	79.89	moderate	medium	angular - rounded	quartz-76.5%, feldspar-2.5%, others trace

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CFA-1	1738.15	Kay	73.45	38.03	2160	13.60	18.32	moderate	very fine to fine	rounded - subrounded	quartz-89.5%, feldspar-2.5%
CFA-2	1739.98	Kay	75.89	38.05	2230	4.80	13.11	moderate to well	fine to medium	subangular - subrounded	quartz-96.0%, feldspar-3.0%
CFA-3	1887.09	Kay	76.77	37.95	2120	9.90	11.32	moderate to well	fine to medium	rounded - subrounded	quartz-95.5%, feldspar-0.5%
CFA-4	1889.76	Kay	78.61	38.06	2250	12.40	22.43	moderate to well	very fine to fine	angular - subrounded	quartz-89.5%, feldspar-3.5%
CFA-5	1919.94	Kay	77.25	37.96	2010	13.00	23.78	moderate	very fine to fine	subangular - subrounded	quartz-96.5%, feldspar-2.5%

Sample I.D.	Sandstone Type	Length (mm)	Diameter (mm)	Density (Kg/m <sup>3</sup> )	Ambient Porosity (%)	Klinkenberg Permeability (mD)	Sorting	Mean Grain Size (µm)	Grain Shape	Minerology (% Wt)
CLS-1	Clashach	77.74	37.68	2618	20.23	305.87	well sorted	298	rounded	quartz-95%
CLS-2	Clashach	79.73	37.70	2627	25.99	654.58	well sorted	317	rounded	quartz-95%
CLS-3	Clashach	77.39	37.96	2626	24.87	455.36	well sorted	293	rounded	quartz-95%
CLS-4	Clashach	76.67	37.94	2626	19.05	197.89	well sorted	320	rounded	quartz-95%
DDG-1	Doddington	76.01	37.90	2630	18.55	377.61	well sorted	199	angular-wellround	quartz-97%
DDG-2	Doddington	76.96	37.94	2640	19.32	377.61	well sorted	197	angular-wellround	quartz-98%
DDG-3	Doddington	76.21	38.13	2630	21.79	592.85	well sorted	201	angular-wellround	quartz-99%
DDG-4	Doddington	76.21	38.13	2630	21.79	592.85	well sorted	213	angular-wellround	quartz-99%
DDG-5	Doddington	76.21	38.13	2630	21.79	592.85	well sorted	215	angular-wellround	quartz-99%
FSS-1	Fife Silica	75.70	38.10	2640	21.05	348.66	well sorted	328	angular-rounded	quartz-100%
FSS-2	Fife Silica	76.10	38.05	2640	21.62	314.59	well sorted	326	angular-rounded	quartz-97%, microline-3%
FSS-3	Fife Silica	74.39	38.51	2640	23.99	291.02	well sorted	324	angular-rounded	quartz-97%, microline-1%
FSS-4	Fife Silica	74.39	38.51	2640	23.99	291.02	well sorted	341	angular-rounded	quartz-97%, microline-2%
FSS-5	Fife Silica	74.39	38.51	2640	23.99	291.02	well sorted	359	angular-rounded	quartz-97%, microline-3%
LCS-1	Lochaline	76.29	37.25	2620	4.98	5.70	well sorted	216	angular-rounded	quartz-99%
LCS-2	Lochaline	71.82	37.42	2620	5.30	5.80	well sorted	227	angular-rounded	quartz-97%
LCS-3	Lochaline	78.34	38.10	2640	6.00	7.85	well sorted	203	angular-rounded	quartz-99%
LCS-4	Lochaline	78.34	38.10	2640	6.00	7.85	well sorted	234	angular-rounded	quartz-97%
LBG-1	Locharbriggs	77.80	38.00	2620	30.01	459.69	very well sorted	205	rounded to well	quartz-87%, feldspar-6%
LBG-2	Locharbriggs	77.94	38.67	2630	20.13	298.54	very well sorted	216	rounded to well	quartz-85%, feldspar-5%
LBG-3	Locharbriggs	76.12	38.64	2630	18.99	257.89	very well sorted	232	rounded to well	quartz-88%, feldspar-3%
LBG-4	Locharbriggs	75.30	38.61	2630	19.55	358.65	very well sorted	224	rounded to well	quartz-83%, feldspar-2%
LBG-5	Locharbriggs	76.48	38.58	2630	21.01	301.58	very well sorted	207	rounded to well	quartz-85%, feldspar-3%
LBG-6	Locharbriggs	76.48	38.58	2630	31.45	568.60	very well sorted	214	rounded to well	quartz-86%, feldspar-5%
LBG-7	Locharbriggs	76.48	38.58	2630	33.07	568.60	very well sorted	223	rounded to well	quartz-84%, feldspar-6%

