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P. Kabanov[1], W.Abdi[2], I. Bilot[3], W. Dwyer[1], R. Fontaine[1], K. Klassen[2], P. Middlestead[2], J.B. Percival[3], J. Pinard[3], and M. Wygergangs[3]

[1]Geological Survey of Canada, 3303 33rd Street Northwest, Calgary, Alberta
[2]Ján Veizer Stable Isotope Laboratory, University of Ottawa, 25 Templeton Street, Ottawa, Ontario
[3]Geological Survey of Canada, 601 Booth Street, Ottawa, Ontario

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Publications in this series have not been edited; they are released as submitted by the author.

ABSTRACT

This collection of data and description of lab protocols supplements publication (Kabanov, 2021). The diamond-drill cores from historical exploration wells of Northwest Territories, Canada, were sampled over the period from 2013 to 2020 for the study of subaerial exposure profiles (paleosols and paleokarsts) and other facies in the shallow-marine (peritidal) carbonates of the Early-Middle Devonian Landry and Headless formations. Samples were collected with hand tools under hand lens and, where required, binocular microscope. Stable carbon and oxygen measurements ($\delta^{13}C$ and $\delta^{18}O$ *vs.* VPDB) were performed at the Jan Veizer Stable Isotope Lab of the University of Ottawa. Mineralogy of 18 samples were completed by powder X-ray diffraction (XRD) analyses for bulk-rock and clay-size fractions at the Mineralogy Lab of GSC-Ottawa. Our analytical results provide the largest set of mineralogy and stable isotope data available from the Landry and Headless formations and can be reused in future projects exploring the diagenetic pathways of isotopic reset in these strata and the follow-up studies of subaerial exposure profiles. We also describe the curation procedure and give sample access information for the core and sample repository at GSC Calgary.

MATERIALS AND DATA

Multiple subaerial exposure surfaces and thin beds of palustrine carbonates were identified by the first author when documenting continuous diamond drill cores from the Landry, Arnica, Headless, and Nahanni formations of the Mackenzie River corridor in N.W.T. (Kabanov, 2014, 2015; Kabanov and Borrero Gomez, 2019). Over the period of 2013-2020, cores from three wells were sampled for stable isotope and XRD analyses:

- KPOG Kugaluk N-02 (LAT/LONG: 68.53196°N, 131.52447°W)
- CANDEX et al. Dahadinni 2M-43 (LAT/LONG: 63.88314°N, 124.65436°W)
- IOE TRIAD Ebbutt D-50 (LAT/LONG: 62.31704°N, 122.40294°W)

The sampling focus was on thicker and well preserved subaerial exposure profiles. In addition, a variety of shallow-water facies not involved in subaerial exposure profiles was sampled. Sedimentological comments on each sample are given below in the table reporting stable isotope data. The samples were collected from core sides using mostly lancet and pliers under the hand lens or, where required, binocular microscope. A microdrill was used where special sampling precision was required. The scientific results of this study are reported by Kabanov (2021) and not repeated herewith.

The XRD data are reported in Table 1 (whole-rock XRD) and table 2 (clay-size fraction XRD). The oxygen and carbon stable isotope data are reported in Table 3. Specifications to these datasheets are provided in notes under each table.

LAB PROTOCOLS

XRD mineralogy

XRD measurements were conducted at the Mineralogy Lab of GSC-Ottawa. Measurements were performed on 18 samples from two thick paleosols underlying and overlying marine limestones in Ebbutt D-50 section, following protocols for whole-rock and clay-size fraction analyses (Tables 1 and 2).

The mineralogy of bulk materials and clay-size separates was determined by X-ray powder diffraction (XRD) analysis. Bulk samples were micronized using a McCrone Mill in isopropyl alcohol until a grain size of about 5- 10 μm was obtained (~ 5 minutes). The samples were air-dried in a fume hood and then back pressed into an aluminum holder to produce a randomly-oriented specimen. For clay-size separates, 40 mg were suspended in distilled water and pipetted onto glass slides and air-dried overnight to produce oriented (smear) mounts. X-ray patterns of the pressed powders or air-dried samples were recorded on a Bruker D8 Advance Powder Diffractometer equipped with a Lynx-Eye Detector, Co Kα radiation set at 35 kV and 35 mA. The smear mounts were also X-rayed following saturation with ethylene glycol and heat treatment (550°C).

To obtain a clay-size fraction, bulk samples were mixed with distilled water in a milk shaker to produce a slurry suitable for centrifugation. The clay-size (< 2 μm) fraction was obtained through centrifugation followed by freeze-drying (Girard et al., 2004).

Identification of minerals was verified using EVA (Bruker AXS Inc.) software with comparison to reference mineral patterns using Powder Diffraction Files (PDF) of the International Centre for Diffraction Data (ICDD) and other available databases. Quantitative analysis of the pressed powder mounts is carried out using TOPAS (Bruker AXS Inc.), a PC-based program that performs Rietveld refinement (RR) of XRD spectra. The degree of confidence in the results is provided by the goodness of fit calculated by the program (i.e., the closer the value to one the better the fit). Semi-quantitative analysis of the clay-size fraction is based on the Reference Intensity Ratio (RIR) method (EVA software). The RIR method uses corundum as an internal standard such that the most intense X-ray peak for each mineral phase is compared to the 100% intensity corundum peak (i.e., I/Ic). These constants are collected and recorded in the PDF files of each reference mineral. The software allows iterative comparisons between the unknown sample and the reference minerals using the PDF database.

Stable carbon and oxygen isotope analyses

One hundred fifteen calcite-dominated and dolomite-dominated samples were run for carbon and oxygen stable isotopes and reported in $\delta^{13}C$ and $\delta^{18}O$ vs. VPDB notation (Table 3). The samples have been analyzed over 2014-2021 time period by the Ján Veizer (formerly G.G. Hatch) Stable Isotope Laboratory (University of Ottawa). The samples were collected from the Landry Formation of Kugaluk N-02 and Dahadinni 2M-43 wells, as well as from two thick paleosols in Ebbutt D-50 well (Figs. A1-B,C). Samples were weighed into Exetainers®, 0.1 mL of H_3PO_4 (S.P. 1.91) was added to the side, exetainers were capped and Helium-flushed while horizontal. Reaction at 25.0°C for 24hrs (calcite) or 50.0°C for 24 hrs (dolomite) was followed by extraction in continuous flow. The measurements were performed on a Delta XP and a Gas Bench II, both from Thermo Finnigan. About 0.5 mg of crushed sample was used. Data were normalized to international standards NBS18, NBS19 and LSVEC. Analytical precision (2σ) is ± 0.1‰. Five mixed calcite-dolomite samples from the lower Landry Formation of the Kugaluk N-02 well, including a thick paleosol at 1166.3 m (3826.4 ft.), have been run

in both calcite and dolomite modes, and match between calcite and dolomite results was excellent for $\delta^{13}C$ (Pearson $r = 0.999$) and good for $\delta^{18}O$ (Pearson $r = 0.636$).

CORE ARCHIVE AND DATA CURATION

Core and Cuttings collected from exploration on public lands is considered to be a public resource and is maintained and managed to promote further research and exploration activities. Archived material is located at the Core and Sample Repository, Geological Survey of Canada, Calgary. Requests for visual examination are directed to the Curator, Geological Survey of Canada. Applications for destructive sampling of archived materials must be made in writing to the appropriate regulator.

The Canada Energy Regulator (CER), formerly National Energy Board (NEB), has jurisdiction over wells located in Nunavut (under COGOA), Arctic offshore areas, Norman Wells Proven area (under COGOA) and the onshore Inuvialuit Settlement region (under OGOA), Hudson, James and Ungava Bays and British Columbia Offshore areas. Contact information: Team Leader, Canada Energy Regulator 444 7th Avenue SW Calgary, AB, T2P 0X8. Tel +1-403-2924800.

The NWT Office of the Regulator of Oil and gas Operations (OROGO) has jurisdiction over wells drilled within the onshore NWT (exceptions noted above). Contact information: Information Office Office of the Regulator of Oil and Gas Operations Government of the Northwest Territories, PO Box 1320, Yellowknife, NT X1A 2L9. Tel. +1-867-767-9097 x78004. Email: orogo@gov.nt.ca

All data and samples derived from analysis of well material, upon completion of study, must be returned to the Core and Sample Repository and are curated in the Core and Sample Database.

Analytical data obtained within Government of Canada geoscience programs, including reported here XRD and isotope results, are curated in SAMS database (Internal Sample and Analysis Management System Version 7.8.1, Geological Survey of Canada, Calgary. 2010). Contact information: Geological Survey of Canada, 3303, 33rd St., NW Calgary, AB, T2L 2N2. Tel. +1-403-2927000. Email: calgary.commissionaire@canada.ca

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Table 1. Whole rock XRD data from Ebbutt D-50 well

GSC Curation #	Well name	Depth, MD, ft (original)	Depth (m)	Collector's Sample ID	Qtz	Ms	Cal	Dol	Gp	Py	GoF
C-636985	Ebbutt D-50	1876	571.8	Ebbutt D-50 1876ft	4	1	94			1	1.69
C-636986	Ebbutt D-50	1877.1	572.1	Ebbutt D-50 1877.1ft	38	25	34			3	2.40
C-636987	Ebbutt D-50	1877.6	572.3	Ebbutt D-50 1877.6ft	2	1	96			1	1.67
C-636988	Ebbutt D-50	1879	572.7	Ebbutt D-50 1879ft	1	tr	99			tr	1.64
C-636989	Ebbutt D-50	1880	573.0	Ebbutt D-50 1880ft	3	tr	97			tr	1.91
C-636990	Ebbutt D-50	1880.5	573.1	Ebbutt D-50 1881ft	2		98			tr	1.73
C-636991	Ebbutt D-50	1881.4	573.4	Ebbutt D-50 1881.4ft	1		99				1.69
C-636992	Ebbutt D-50	1882.8	573.8	Ebbutt D-50 1882.8ft	2	tr	97		1		1.93
C-636993	Ebbutt D-50	1966	599.2	Ebbutt D-50 1966ft	7	4	88	tr		1	1.68
C-636994	Ebbutt D-50	1967	599.5	Ebbutt D-50 1967ft	7	1	91			1	1.67
C-636995	Ebbutt D-50	1969.2	600.2	Ebbutt D-50 1969.2ft	6	3	85	1		5	1.79
C-636996	Ebbutt D-50	1969.5	600.3	Ebbutt D-50 1969.5ft	3		97			tr	1.88
C-636997	Ebbutt D-50	1971	600.7	Ebbutt D-50 1971ft	6	2	86	5		1	2.03
C-636998	Ebbutt D-50	1972	601.0	Ebbutt D-50 1972ft	6	2	87	4		1	1.97
C-636999	Ebbutt D-50	1973.1	601.4	Ebbutt D-50 1973.1ft	3	1	96			tr	1.89
C-637000	Ebbutt D-50	1974	601.6	Ebbutt D-50 1974ft	12	9	73	3		3	2.66
C-637001	Ebbutt D-50	1975	602.0	Ebbutt D-50 1975ft	16	29	48	3		4	1.90
C-637002	Ebbutt D-50	1976	602.3	Ebbutt D-50 1976ft	8	tr	92				1.85

Notes: Qtz: quartz, Ms: muscovite, Cal: calcite, Dol: dolomite, Gp: gypsum, Py: pyrite; GoF: goodness of fit

Table 2. Clay fraction XRD data from Ebbutt D-50 well

GSC Curation #	Well name	Depth, MD, ft (original)	Depth (m)	Sample Name	Qtz	Ill	Cal	Dol
C-636985	Ebbutt D-50	1876	571.8	Ebbutt D-50 1876ft	2	11	87	
C-636986	Ebbutt D-50	1877.1	572.1	Ebbutt D-50 1877.1ft	11	65	24	
C-636987	Ebbutt D-50	1877.6	572.3	Ebbutt D-50 1877.6ft	4	4	92	
C-636988	Ebbutt D-50	1879	572.7	Ebbutt D-50 1879ft	2	tr	98	
C-636989	Ebbutt D-50	1880	573.0	Ebbutt D-50 1880ft	1	10	89	
C-636990	Ebbutt D-50	1880.5	573.1	Ebbutt D-50 1881ft	Not enough sample			
C-636991	Ebbutt D-50	1881.4	573.4	Ebbutt D-50 1881.4ft	Not enough sample			
C-636992	Ebbutt D-50	1882.8	573.8	Ebbutt D-50 1882.8ft	1	tr	99	
C-636993	Ebbutt D-50	1966	599.2	Ebbutt D-50 1966ft	6	16	78	
C-636994	Ebbutt D-50	1967	599.5	Ebbutt D-50 1967ft	6	21	73	
C-636995	Ebbutt D-50	1969.2	600.2	Ebbutt D-50 1969.2ft	3	47	50	
C-636996	Ebbutt D-50	1969.5	600.3	Ebbutt D-50 1969.5ft	Not enough sample			
C-636997	Ebbutt D-50	1971	600.7	Ebbutt D-50 1971ft	10	54	35	1
C-636998	Ebbutt D-50	1972	601.0	Ebbutt D-50 1972ft	11	34	54	1
C-636999	Ebbutt D-50	1973.1	601.4	Ebbutt D-50 1973.1ft	Not enough sample			
C-637000	Ebbutt D-50	1974	601.6	Ebbutt D-50 1974ft	7	76	16	1
C-637001	Ebbutt D-50	1975	602.0	Ebbutt D-50 1975ft	5	75	20	
C-637002	Ebbutt D-50	1976	602.3	Ebbutt D-50 1976ft	Not enough sample			

Notes: Qtz: quartz, Ms: muscovite, Cal: calcite, Dol: dolomite, Gp: gypsum, Py: pyrite; GoF: goodness of fit

Table 3. Carbon and oxygen stable isotope data

Year	GSC Curation	Well	original collector's sample ID QCD = quality control duplicate	Stratigraphy	Measured depth, ft (original units)	Measured depth, m	Delta 13C x 1000	Delta 18O x 1000	Weight used	1. Marine limestone/dolomitic limestone 2. palustrine carbonate 3a. Pedogenic claystone 3b. Karstified limestone and limestone rubble in paleosol matrix 3c. Calcrete (including dolomitized calcrete) 3d. Vadose silt	Lithologic comments	Sampling approval ID	Sampling approval date
2014	C-638914	Dahadinni 2M-43	2M43-4295.7	Landry Fm.	4295.7	1309.33	-7.79	-7.32	0.67	1	Limestone: packstone matrix-rich polybioclastic (domonantly thin shells), bioturbated micritic matrix up to 60%.	NEB 12599	02/22/2013
2014	C-638915	Dahadinni 2M-43	2M43-4297	Landry Fm.	4297	1309.73	-7.79	-9.04	0.731	1	Limestone: grainstone very fine-grained bioclastic-peloidal massive	NEB 12599	02/22/2013
2014	C-638916	Dahadinni 2M-43	2M43-4297.4	Landry Fm.	4297.4	1309.85	-5.89	-8.14	0.746	1	Limestone: gray, ligher than above, calcimudstone wih abundant vermiform fenestrate (solution-enlarged?) but without bioclasts	NEB 12599	02/22/2013
2014	C-638917	Dahadinni 2M-43	2M43-4298.3	Landry Fm.	4298.3	1310.12	-6.18	-9.54	0.719	3b	Limestone : calcimudstone with 5-15% of small curved solution channels and vugs	NEB 12599	02/22/2013
2014	C-638918	Dahadinni 2M-43	2M43-4298.9	Landry Fm.	4298.9	1310.30	-7.74	-8.03	0.74	1	Limestone: dark gray faintly laminated micropeloidal/clotted micrite (calcisiltite); no distinct solution features	NEB 12599	02/22/2013
2014	C-638919	Dahadinni 2M-43	2M43-4299.5	Landry Fm.	4299.5	1310.49	-7.06	-9.54	0.746	3d	Limestone: black, filling of karst cavities - "vadose silt"? 3-5 cm bellow stylolitized paleokarst top	NEB 12599	02/22/2013
2014	C-638920	Dahadinni 2M-43	2M43-4299.5(1)	Landry Fm.	4299.50	1310.49	-6.13	-8.06	0.712	3b	Limestone: gray host-rock calcimudstone from brecciated solution zone near the paleokarst top	NEB 12599	02/22/2013
2014	C-638921	Dahadinni 2M-43	2M43-4300	Landry Fm.	4300	1310.64	-6.05	-8.07	0.699	3b	Limestone: gray calcimudstone with 5-10% of small fenestrae or rounded vugs (solution-enlarged gyrogonites?)	NEB 12599	02/22/2013
2014	C-638922	Dahadinni 2M-43	2M43-4300.6	Landry Fm.	4300.6	1310.82	-5.90	-11.96	0.741	3d	Limestone ?argillaceous: laminated geopetal "vadose silt" (speleothem) in a collapsed cave	NEB 12599	02/22/2013
2014	C-638923	Dahadinni 2M-43	2M43-4301.1	Landry Fm.	4301.1	1310.98	-5.98	-8.09	0.737	3b	limestone: moderately karstified (finely vuggy) calcimudstone with rare thin-shelled bioclasts	NEB 12599	02/22/2013
2014	C-638923	Dahadinni 2M-43	2M43-4301.1 QCD	Landry Fm.	4301.10	1310.98	-5.99	-8.02	0.734			NEB 12599	02/22/2013
2014	C-638924	Dahadinni 2M-43	2M43-4390	Landry Fm.	4390	1338.07	-6.14	-6.49	0.722	1	Limestone weakly dolomitic: hard, dark gray, bioturbated comes from unevenly dolomitized interval; this less dolomitized spot may contain up to 20% dolomite.	NEB 12599	02/22/2013
2014	C-638925	Dahadinni 2M-43	2M43-4391.3	Landry Fm.	4391.3	1338.47	-6.36	-6.08	0.724	1	Limestone: hard, dark gray, bioturbated and moderately compacted, micritic; one piece from from intenesely brecciated zone	NEB 12599	02/22/2013
2014	C-638926	Dahadinni 2M-43	2M43-4393.2	Landry Fm.	4393.2	1339.05	-6.36	-7.02	0.726	1	Limestone: hard, dark gray; loose, matrix-rich coquina mad of small thin-shelled bivalves(?); matrix uniform micritic, 75-85% of sampled rock.	NEB 12599	02/22/2013
2014	C-638927	Dahadinni 2M-43	2M43-4393.4	Landry Fm.	4393.4	1339.11	-6.36	-7.95	0.699	1	Limestone probably weakly argillaceous: compacted conglobreccia; clasts brownish micritic, subangular; matrix black, aphanic.	NEB 12599	02/22/2013
2014	C-638928	Dahadinni 2M-43	2M43-4393.5	Landry Fm.	4393.5	1339.14	-4.80	-9.18	0.725	2	Limestone: micritic, lighter than above, small-vuggy; top of preserved core with few stylolites.	NEB 12599	02/22/2013
2014	C-638929	Dahadinni 2M-43	2M43-4393.8	Landry Fm.	4393.8	1339.23	-4.84	-8.28	0.752	2	Limestone: calcimudstone finelly syngenetically brecciated, with rare solution-enchanced channels and incipient polymud features (or coatings). No distinct bioclasts.	NEB 12599	02/22/2013
2014	C-638930	Dahadinni 2M-43	2M43-4394.2	Landry Fm.	4394.2	1339.35	-5.06	-8.77	0.737	2	Limestone: same texture.	NEB 12599	02/22/2013
2014	C-638931	Dahadinni 2M-43	2M43-4394.8	Landry Fm.	4394.8	1339.54	-4.84	-7.94	0.7	2	Limestone: same texture.	NEB 12599	02/22/2013
2014	C-638932	Dahadinni 2M-43	2M43-4395.1	Landry Fm.	4395.1	1339.63	-4.71	-7.90	0.707	2	Limestone: calcimudstone ostracodal with fine vugs, texture similar but not same as above.	NEB 12599	02/22/2013
2014	C-638933	Dahadinni 2M-43	2M43-4396	Landry Fm.	4396	1339.90	-4.68	-9.22	0.739	1	Limestone ?weakly argillaceous: calcimudstone ostracodal, flaser (strongly compacted)	NEB 12599	02/22/2013
2014	C-638933	Dahadinni 2M-43	2M43-4396 QCD	Landry Fm.	4396.00	1339.90	-4.67	-9.25	0.728			NEB 12599	02/22/2013
2021	C-636985	Ebbutt D-50	D-50/1876 ft	Headless Fm	1876	571.80	-6.5	-11.6	1.75	1	laminated, partly bioturbated arcillaceous calcimudstone	OROGO SR-2020-001	09/30/2020
2021	C-636986	Ebbutt D-50	D-50/1877.1 ft	Headless Fm	1877.1	572.14	-4.3	-11.9	1.65	3a	paleosol claystone with limestone crumbles and with mm-scale brecciated fabric (pedality)	OROGO SR-2020-001	09/30/2020

2021	C-636987	Ebbutt D-50	D-50/1877.6 ft	Headless Fm	1877.6	572.29	-6.5	-9.6	1.43	3c	Calcrete with minor veins of claystone	OROGO SR-2020-001	09/30/2020
2021	C-636988	Ebbutt D-50	D-50/1879 ft	Headless Fm	1879	572.72	-7.5	-9.5	1.49	3c	calcrete intermixed with clay, limestone crumbles (lithoclasts)	OROGO SR-2020-001	09/30/2020
2021	C-636989	Ebbutt D-50	D-50/1880 ft	Headless Fm	1880	573.02	-7.0	-10.4	1.47	3c	calcrete	OROGO SR-2020-001	09/30/2020
2021	C-636989	Ebbutt D-50	D-50/1880 ft QCD	Headless Fm	1880	573.02	-7.0	-10.4	1.37			OROGO SR-2020-001	09/30/2020
2021	C-636990	Ebbutt D-50	D-50/1881 ft	Headless Fm	1881	573.33	-7.8	-9.6	1.56	3c	calcrete	OROGO SR-2020-001	09/30/2020
2021	C-636991	Ebbutt D-50	D-50/1881.4 ft	Headless Fm	1881.4	573.45	-7.9	-10.3	2.02	3c	calcrete, somewhat argillcaeous	OROGO SR-2020-001	09/30/2020
2021	C-636992	Ebbutt D-50	D-50/1882.8 ft	Headless Fm	1882.8	573.88	-5.7	-11.8	1.67	3b	marine limestone (fine-grained peloidal grainstone)	OROGO SR-2020-001	09/30/2020
2021	C-636993	Ebbutt D-50	D-50/1966 ft	Headless Fm	1966	599.24	-3.1	-13.5	1.44	1	marine limestone (otracodal wackestone), bioturbated	OROGO SR-2020-001	09/30/2020
2021	C-636994	Ebbutt D-50	D-50/1967 ft	Headless Fm	1967	599.54	-3.0	-13.4	1.45	1	same	OROGO SR-2020-001	09/30/2020
2021	C-636995	Ebbutt D-50	D-50/1969.2 ft	Landry Fm.	1969.2	600.21	-2.6	-13.6	1.67	1	fissile argillaceous limestone	OROGO SR-2020-001	09/30/2020
2021	C-636996	Ebbutt D-50	D-50/1969.5 ft	Landry Fm.	1969.5	600.30	-4.5	-10.5	1.64	3c	calcrete	OROGO SR-2020-001	09/30/2020
2021	C-636997	Ebbutt D-50	D-50/1971 ft	Landry Fm.	1971	600.76	-6.2	-9.3	1.47	3a	pedogenic claystone	OROGO SR-2020-001	09/30/2020
2021	C-636998	Ebbutt D-50	D-50/1972 ft	Landry Fm.	1972	601.07	-6.2	-9.3	1.42	3a-b	pedogenic claystone with crumbles of marine limestone	OROGO SR-2020-001	09/30/2020
2021	C-636999	Ebbutt D-50	D-50/1973.1 ft	Landry Fm.	1973.1	601.40	-6.4	-9.7	1.49	3b-c	calcrete and crumbles of marine limestone	OROGO SR-2020-001	09/30/2020
2021	C-636999	Ebbutt D-50	D-50/1973.1 ft QCD	Landry Fm.	1973.1	601.40	-6.3	-9.7	1.40			OROGO SR-2020-001	09/30/2020
2021	C-637000	Ebbutt D-50	D-50/1974 ft	Landry Fm.	1974	601.68	-5.6	-12.7	1.95	3a	pedogenic claystone	OROGO SR-2020-001	09/30/2020
2021	C-637001	Ebbutt D-50	D-50/1975 ft	Landry Fm.	1975	601.98	-4.2	-13.0	1.39	3b-c	calcrete-claystone intermixture	OROGO SR-2020-001	09/30/2020
2021	C-637002	Ebbutt D-50	D-50/1976 ft	Landry Fm.	1976	602.28	-4.1	-12.9	1.46	3b	karstified limestone	OROGO SR-2020-001	09/30/2020
2015	C-590236	Ebbutt D-50	D-50 1838.7	Headless Fm	1838.7	560.44	-4.2	-8.44	0.676	1	dark lenticular limestone (wackestone) locally with amphiporas, sample from micrite-rich layer without amphiporas	NEB 12609	06/24/2014
2015	C-590239	Ebbutt D-50	D-50 1875.7	Headless Fm	1875.7	571.71	-3.21	-11.77	0.652	1	calcimudstone with microfenestrae	NEB 12609	06/24/2014
2015	C-590240	Ebbutt D-50	D-50 1877.1	Headless Fm	1877.1	572.14	-4.5	-12.01	1.784	3a-c	Marl with rare black sand-sized lithoclasts	NEB 12609	06/24/2014
2015	C-590241	Ebbutt D-50	D-50 1878.1c	Headless Fm	1878.1	572.44	-5.52	-10.73	0.744	3b	breccia, from limestone fragments	NEB 12609	06/24/2014
2015	C-590242	Ebbutt D-50	D-50 1878.1m	Headless Fm	1878.1	572.44	-6.65	-8.98	0.625	3c	breccia, mostly from calcareous matrix	NEB 12609	06/24/2014
2015	C-590244	Ebbutt D-50	D-50 1879.1c	Headless Fm	1879.1	572.75	-5.17	-11.48	0.773	3b	breccia, from clasts of brown micritic limestone	NEB 12609	06/24/2014
2015	C-590243	Ebbutt D-50	D-50 1879.1m	Headless Fm	1879.1	572.75	-7.56	-9.14	0.608	3c	breccia, mostly (80-90%) from calcareous matrix	NEB 12609	06/24/2014
2015	C-590243	Ebbutt D-50	D-50 1879.1m QCD	Headless Fm	1879.1	572.75	-7.54	-9.14	0.608			NEB 12609	06/24/2014
2015	C-590246	Ebbutt D-50	D-50 1880.3m	Headless Fm	1880.3	573.12	-7.76	-8.43	0.741	3c	breccia, from calcareous matrix	NEB 12609	06/24/2014
2015	C-590245	Ebbutt D-50	D-50 1880.3c	Headless Fm	1880.3	573.12	-5.29	-11.45	0.611	3b	breccia, from clasts of brown micritic limestone	NEB 12609	06/24/2014
2015	C-590115	Ebbutt D-50	D-50 1881.7	Headless Fm	1881.7	573.54	-5.02	-11.32	0.512	1	dismicrite, ca. 70% of micrite matrix and some sparite cement from birds-eyes.	NEB 12609	06/24/2014
2015	C-590247	Ebbutt D-50	D-50 1882.8	Headless Fm	1882.8	573.88	-4.45	-11.63	0.521	1	peloidal grainstone, ca. 15% of intergranular sparitic cement	NEB 12609	06/24/2014
2015	C-590129	Ebbutt D-50	D-50 1968,5	Landry Fm.	1968.5	600.00	-1.87	-13.28	0.51	1	Limestone bioclasts, laminated peritidal facies with dwarf Amphipora	NEB 12609	06/24/2014
2015	C-590130	Ebbutt D-50	D-50 1969.4	Landry Fm.	1969.4	600.27	-1.4	-13.12	0.844	1	argillaceous limestone - bioclastic wackestone with dark lithoclasts	NEB 12609	06/24/2014
2015	C-590254	Ebbutt D-50	D-50 1969.5c	Landry Fm.	1969.5	600.30	-6.32	-8.85	0.654	3b	dark limestone clasts	NEB 12609	06/24/2014
2015	C-590253	Ebbutt D-50	D-50 1969.5m	Landry Fm.	1969.5	600.30	-3.4	-10.49	0.762	3c	tight pedogetic breccia, matrix-dominated, with minor small dark lime clasts	NEB 12609	06/24/2014
2015	C-590258	Ebbutt D-50	D-50 1970.2c	Landry Fm.	1971.2	600.82	-3.76	-12.48	0.648	3b	Limestone clasts (laminated peritidal facies with dwarf Amphipora)	NEB 12609	06/24/2014
2015	C-590257	Ebbutt D-50	D-50 1970.2m	Landry Fm.	1971.2	600.82	-4.29	-7.99	0.736	3c	Calcareous matrix	NEB 12609	06/24/2014
2015	C-590257	Ebbutt D-50	D-50 1970.2m QCD	Landry Fm.	1971.2	600.82	-4.29	-8	0.752			NEB 12609	06/24/2014
2015	C-590261	Ebbutt D-50	D-50 1972c	Landry Fm.	1972	601.07	-5.03	-10.57	0.52	3b	bioclastic wackestone (ca. 70 of micritic matrix)	NEB 12609	06/24/2014
2015	C-590133	Ebbutt D-50	D-50 1972pm	Landry Fm.	1972	601.07	-4.45	-8.32	0.659	3c	Calcareous clay-poor matrix (micrite)	NEB 12609	06/24/2014
2015	C-590260	Ebbutt D-50	D-50 1972rm	Landry Fm.	1972	601.07	-4.64	-9.52	1.385	3a	Calcareous clay-rich matrix (on transition to clay windows)	NEB 12609	06/24/2014
2015	C-590263	Ebbutt D-50	D-50 1973.8	Landry Fm.	1973.8	601.61	-5.87	-12.33	0.839	3c	pale gray calcareous matrix above clay window	NEB 12609	06/24/2014

2015	C-590135	Ebbutt D-50	D-50 1974.8	Landry Fm.	1974.8	601.92	-2.91	-13.25	0.64	3b	laminated moderately karsted limestone with lime clasts and small clay windows	NEB 12609	06/24/2014
2015	C-590136	Ebbutt D-50	D-50 1977.1	Landry Fm.	1977.1	602.62	-3	-12.81	0.671	1	microlaminated calcimudstone	NEB 12609	06/24/2014
2015	C-590137	Ebbutt D-50	D-50 1979.7	Landry Fm.	1979.7	603.41	-1.35	-13.47	0.555	1	calcimudstone with microfenestrae	NEB 12609	06/24/2014
2014	C-590191	Kugaluk N-02	KGK N-02 3814	Landry Fm.	3814	1162.51	-2.74	-6.85	0.66	1	Calcimudstone (matrix)	NEB 12609	06/24/2014
2014	C-590192	Kugaluk N-02	KGK N-02 3817.5	Landry Fm.	3817.5	1163.57	-2.84	-9.72	0.609	1	Calcimudstone with tiny fenestrae (matrix, 3-4 cm vertical groove)	NEB 12609	06/24/2014
2014	C-590193	Kugaluk N-02	KGK N-02 3818.3	Landry Fm.	3818.3	1163.82	-2	-7.71	0.641	1	Laminated dolostone-limestone with buckled lamination and dolomite nodules (80% from dolostone laminae)	NEB 12609	06/24/2014
2014	C-590194	Kugaluk N-02	KGK N-02 3819.5	Landry Fm.	3819.5	1164.18	-1.66	-6.3	0.579	1	same	NEB 12609	06/24/2014
2014	C-590196	Kugaluk N-02	KGK N-02 3821	Landry Fm.	3821	1164.64	-1.76	-3.59	0.706	1	Pale gray massive dolostone	NEB 12609	06/24/2014
2014	C-590197	Kugaluk N-02	KGK N-02 3824.5	Landry Fm.	3824.5	1165.71	-2.54	-9.62	0.581	1	Dolomitic limestone to dolostone with shells, bioturbated (from limestone matrix)	NEB 12609	06/24/2014
2014	C-590213	Kugaluk N-02	KGK N-02 3826.4c	Landry Fm.	3826.4	1166.29	-2.04	-3.24	0.594	3b	Argillaceous dolostone to dolomitic limestone (floatbreccia), clay-rich horizon of paleosol, sample from brown lime clasts	NEB 12609	06/24/2014
2014	C-590199	Kugaluk N-02	KGK N-02 3826.4m	Landry Fm.	3826.4	1166.29	-1.93	-2.88	1.189	3a	Argillaceous dolostone to dolomitic limestone (floatbreccia), clay-rich horizon of paleosol, sample from matrix	NEB 12609	06/24/2014
2014	C-590211	Kugaluk N-02	KGK N-02 3827.4c	Landry Fm.	3827.4	1166.59	-1.76	-3.23	0.681	3b	Calcareous dolostone (floatbreccia), clay-poor horizon of paleosol, sample from carbonate clasts	NEB 12609	06/24/2014
2014	C-590211	Kugaluk N-02	KGK N-02 3827.4c QCD	Landry Fm.	3827.4	1166.59	-1.69	-3.24	0.744			NEB 12609	06/24/2014
2014	C-590200	Kugaluk N-02	KGK N-02 3827.4m	Landry Fm.	3827.4	1166.59	-2.26	-4.32	0.801	3c	Calcareous dolostone (floatbreccia), clay-poor horizon of paleosol, sample from matrix	NEB 12609	06/24/2014
2014	C-590201	Kugaluk N-02	KGK N-02 3828.3	Landry Fm.	3828.3	1166.87	-2.36	-4.86	0.651	3b	Black brecciated zone in karsted bedrock	NEB 12609	06/24/2014
2014	C-590202	Kugaluk N-02	KGK N-02 3829.6	Landry Fm.	3829.6	1167.26	-2.11	-3.65	0.562	3b	Dolostone with buckled microbial lamination, moderately brecciated (karsted)	NEB 12609	06/24/2014
2014	C-590203	Kugaluk N-02	KGK N-02 3830.5	Landry Fm.	3830.5	1167.54	-2.53	-10.45	0.828	1	Dark limestone: lithoclastic calcarenite in marly matrix	NEB 12609	06/24/2014
2014	C-590204	Kugaluk N-02	KGK N-02 3832.3	Landry Fm.	3832.3	1168.09	-2.55	-9.98	0.887	1-3b	Limestone: lithoclastic calcarenite with scattered root-like penetrations (sample from matrix)	NEB 12609	06/24/2014
2014	C-590208	Kugaluk N-02	KGK N-02 3839.3	Landry Fm.	3839.3	1170.22	-2.8	-8.98	0.894	1-3d	Dark gray dolomitized gravellite, graded-upward bed, more argillaceous in top	NEB 12609	06/24/2014
2014	C-638934	Kugaluk N-02	KGK N-02 3205.2	Landry Fm.	3205.2	976.94	-3.62	-4.77	0.756	1	marine facies with tabulate corals	NEB 12609	06/24/2014
2014	C-638935	Kugaluk N-02	KGK N-02 3206.8	Landry Fm.	3206.8	977.43	-3.02	-4.46	0.739	1	bioturbated calcimudstone with ostracods	NEB 12599	02/22/2013
2014	C-605126	Kugaluk N-02	KGK N-02 3207.8	Landry Fm.	3207.8	977.74	-2.23	-4.02	0.748	1	same	NEB 12599	02/22/2013
2014	C-605126	Kugaluk N-03	KGK N-02 3207.8 QCD	Landry Fm.	3208.8	978.04	-2.24	-3.98				NEB 12599	02/22/2013
2014	C-560847	Kugaluk N-02	KGK N-02 3208.2	Landry Fm.	3208.2	977.86	-2.71	-4.41	0.718	1	bioturbated calcimudstone. One solitary rugose.	NEB 12599	02/22/2013
2014	C-560848	Kugaluk N-02	KGK N-02 3209	Landry Fm.	3209	978.10	-5.10	-4.17	0.731	1	marine fossiliferous limestone	NEB 12599	02/22/2013
2014	C-605127	Kugaluk N-02	KGK N-02 3209.4	Landry Fm.	3209.4	978.23	-3.92	-5.10	0.773	1	marine limestone	NEB 12599	02/22/2013
2014	C-638936	Kugaluk N-02	KGK N-02 3209.6	Landry Fm.	3209.6	978.29	-4.85	-4.31	0.749	3b	top of karsted limestone, micritic matrix	NEB 12599	02/22/2013
2014	C-560849	Kugaluk N-02	KGK N-02 3209.7	Landry Fm.	3209.7	978.32	-4.33	-4.32	0.727	3b	matrix of karsted limestone	NEB 12599	02/22/2013
2014	C-638937	Kugaluk N-02	KGK N-02 3210	Landry Fm.	3210	978.41	-3.90	-4.87	0.725	3d	black "vadose silt"	NEB 12599	02/22/2013
2014	C-638938	Kugaluk N-02	KGK N-02 3210(2)	Landry Fm.	3210	978.41	-4.17	-4.56	0.715	3b	host calcimudstone for black "vadose silt"	NEB 12599	02/22/2013
2014	C-638939	Kugaluk N-02	KGK N-02 3211.3	Landry Fm.	3211.3	978.80	-3.63	-4.48	0.762	3b	calcimudstone with 5-10% of sparite-plugged birds-eye vugs	NEB 12599	02/22/2013
2014	C-638940	Kugaluk N-02	KGK N-02 3212	Landry Fm.	3212	979.02	-3.06	-4.28	0.719	3b	base of light brown calcimudstone	NEB 12599	02/22/2013
2014	C-638941	Kugaluk N-02	KGK N-02 3212.6	Landry Fm.	3212.6	979.20	-4.89	-5.08	0.754	1	black calcimudstone, from RE sample 3212.6	NEB 12599	02/22/2013
2014	C-638941	Kugaluk N-02	KGK N-02 3212.6 QCD	Landry Fm.	3213.6	979.51	-4.90	-5.10				NEB 12599	02/22/2013
2014	C-638942	Kugaluk N-02	KGK N-02 3214	Landry Fm.	3214	979.63	-2.80	-3.69	0.708	1	dark gray calcimudstone, from ThSect 3214.	NEB 12599	02/22/2013
2014	C-638943	Kugaluk N-02	KGK N-02 3215	Landry Fm.	3215	979.93	-3.84	-4.27	0.719	1	dark gray calcimudstone	NEB 12599	02/22/2013
2014	C-638944	Kugaluk N-02	KGK N-02 3221.9	Landry Fm.	3221.9	982.04	-3.63	-4.93	0.756	1	calcimudstone matrix from tabulate coral thicket	NEB 12599	02/22/2013
2014	C-638945	Kugaluk N-02	KGK N-02 3454	Landry Fm.	3454	1052.78	-2.70	-5.55	0.738	1	spheral-ostracodal, with one upturned amphiprid, partially laminar	NEB 12599	02/22/2013
2014	C-638946	Kugaluk N-02	KGK N-02 3454.4	Landry Fm.	3454.4	1052.90	-2.95	-4.99	0.770	1	micritic with gastropods and tabulates, from ThSect 3454.	NEB 12599	02/22/2013
2014	C-638947	Kugaluk N-02	KGK N-02 3454.8	Landry Fm.	3454.8	1053.02	-2.34	-5.66	0.754	2	with solution-enlarged gyrogonites and weak polymud features	NEB 12599	02/22/2013
2014	C-638948	Kugaluk N-02	KGK N-02 3455	Landry Fm.	3455	1053.08	-1.91	-5.61	0.750	2	from ThSect3455: syngenetic solution features, polymud features, ?rootlet penetratins	NEB 12599	02/22/2013
2014	C-638948	Kugaluk N-02	KGK N-02 3455 QCD	Landry Fm.	3455	1053.08	-1.89	-5.63				NEB 12599	02/22/2013
2014	C-638949	Kugaluk N-02	KGK N-02 3455.3	Landry Fm.	3455.3	1053.18	-1.95	-4.44	0.721	2	same texture. No dolomite	NEB 12599	02/22/2013

2014	C-638950	Kugaluk N-02	KGK N-02 3456.1	Landry Fm.	3456.1	1053.42	-1.94	-5.35	0.710	2	similar texture with more ostracods. Up to 3-4% of dolomite is possible.	NEB 12599	02/22/2013
2014	C-638951	Kugaluk N-02	KGK N-02 3457.1	Landry Fm.	3457.1	1053.72	-1.83	-5.27	0.700	2	wackestone gyrogonite-ostracodal as in ThSect3457.0	NEB 12599	02/22/2013
2014	C-638952	Kugaluk N-02	KGK N-02 3458	Landry Fm.	3458	1054.00	-1.99	-5.39	0.712	1	wackestone with gyrogonites, ostracods, and rare brachiopod bioclasts.	NEB 12599	02/22/2013
2014	C-638953	Kugaluk N-02	KGK N-02 3469.8	Landry Fm.	3469.8	1057.60	-2.49	-5.55	0.708	1	from ThSect3469.8 (bulk)	NEB 12599	02/22/2013
2014	C-638954	Kugaluk N-02	KGK N-02 3470.4	Landry Fm.	3470.4	1057.78	-2.64	-5.59	0.746	1	grainstone bioclastic-peloidal-?intraclastic	NEB 12599	02/22/2013
2014	C-638955	Kugaluk N-02	KGK N-02 3470.6	Landry Fm.	3470.7	1057.87	-2.20	-5.37	0.741	2	Palustrine limestone; thin section available	NEB 12599	02/22/2013
2014	C-638956	Kugaluk N-02	KGK N-02 3471	Landry Fm.	3471	1057.96	-2.09	-5.56	0.725	2	Similar texture with more rootlet penetrations	NEB 12599	02/22/2013
2014	C-638957	Kugaluk N-02	KGK N-02 3471.3	Landry Fm.	3471.3	1058.05	-1.45	-3.82	0.726	1	compacted peloidal grainstone	NEB 12599	02/22/2013
2014	C-638958	Kugaluk N-02	KGK N-02 3472	Landry Fm.	3472	1058.27	-1.94	-3.72	0.720	2	with upright dolomitized features (see description)	NEB 12599	02/22/2013
2014	C-638959	Kugaluk N-02	KGK N-02 3472.4	Landry Fm.	3472.4	1058.39	-2.05	-5.16	0.701	3b	karsted calcimudstone just under top; ThSect3472.5	NEB 12599	02/22/2013
2014	C-638960	Kugaluk N-02	KGK N-02 3473	Landry Fm.	3473	1058.57	-2.34	-4.95	0.721	3b	matrix of karsted calcimudstone; up to 10% of dolomite possible	NEB 12599	02/22/2013
2014	C-638961	Kugaluk N-02	KGK N-02 3473.3	Landry Fm.	3473.3	1058.66	-1.19	-5.15	0.751	3b	small-vuggy calcimudstone with few poory seen upright and polymud features.No obvious gyrogonites.	NEB 12599	02/22/2013
2014	C-638962	Kugaluk N-02	KGK N-02 3474	Landry Fm.	3474	1058.88	-2.48	-5.19	0.726	3b	weakly laminated calcimudstone, with small vugs	NEB 12599	02/22/2013