

APPENDIX 1

Characteristics of the samples studied, results of XRF analyses and stoichiometry of dolomite based on the equation:
 $\text{mol\% CaCO}_3 = 333.333 \times d_{104} - 911.99$ (Lumsden and Chimahusky, 1980)

Number	Sample	Depth [m]	Sample characteristics	Content [%]					d ₁₀₄	CaCO ₃ [%]
				Cal-cite	Dolo-mite	Anhy-drite	Quartz	Other		
1	P21-15	2391.1	finely crystalline dolomite with coarse calcite aggregates	92	6	0	<1	-	2.88625	50.09
2	P21-16	2400.6	calcite mosaic with finely crystalline dolomite	75	18	6	<1	HI <1	2.88359	49.21
3	P21-17	2401.5	calcite mosaic with finely crystalline dolomite	90	8	0	0	-	2.88391	49.31
4	P21-19	2404.1	calcite mosaic with recrystallized bivalves and brachiopods	95	4	0	<1	FI <1	2.87992	47.98
5	P21-20	2406.2	finely crystalline dolomite (originally grainstone) with anhydrite cement	<1	36	61	0	-	2.88349	49.17
6	P21-22	2409.55	finely crystalline dolomite (originally foraminiferal wackestone) with anhydrite cement	<1	92	6	0	HI <1	2.88437	49.47
7	P21-26	2420.2	finely crystalline dolomite (originally grainstone) with anhydrite cement	<1	70	29	0	FI <1, HI <1	2.88259	48.87
8	P21-29	2428.55	finely crystalline dolomite (originally grainstone/packstone) with anhydrite cement	0	53	45	<1	-	2.87652	46.85
9	P21-31	2430.4	partly dolomitized bryozoan grainstone with thick rims of fibrous cement	75	10	14	0	-	2.884	49.34
10	P21-36	2442.55	dolomitized bryozoan grainstone with thick rims of fibrous cement	87	7	4	0	-	2.87206	45.36
11	P21-37	2436.45	dolomitized bryozoan grainstone	<1	42	55	0	HI <1	2.88537	49.80

12	P21-39	2457.3	dolomitized bryozoan grainstone	2	32	65	0	HI <1	2.88871	50.91
13	P21-41	2461.4	dolomitized bryozoan grainstone with poikilitic cement	8	78	13	0	HI <1	2.88714	50.39
14	P29-37	2416.1	finely crystalline dolomite and mosaic of coarse calcite	13	70	12	2	-	2.89076	51.60
15	P29-38	2416.7	calcite mosaic with small content of finely crystalline dolomite (5-10%)	80	18	<1	0	-	2.89173	51.92
16	P29-39	2431.1	calcite mosaic with small content of finely crystalline dolomite (5-10%)	72	15	11	0	FI <1	2.88502	49.68
17	P29-42	2436.3	finely crystalline dolomite and mosaic of coarse calcite	70	28	<1	0	-	2.88153	48.52
18	P29-45	2439.1	calcite mosaic with small content of finely crystalline dolomite (5-10%)	80	10	8	0	-	2.87733	47.12
19	P29-48	2443.2	finely crystalline dolomite	<1	46	53	0	-	2.86567	43.23
20	P29-53	2448.8	finely crystalline dolomite	0	76	23	<1	-	2.87772	47.25
21	P29-54A1	2449.1	calcite mosaic with small content of finely crystalline dolomite (5-10%)	92	6	1	0	-	2.87942	47.82
22	P29-54A2	2449.1	finely crystalline dolomite	3	85	8	1	HI <1	2.88873	50.92
23	P29-55	2450.3	finely crystalline dolomite	50	42	6	0	FI <1	2.8843	49.44
24	P29-58	2453.2	finely crystalline dolomite	5	53	40	<1	HI <1	2.89061	51.55
25	P29-62	2456.3	finely crystalline dolomite	0	65	34	0	FI <1	2.88472	49.58
26	P29-67	2460.1	finely crystalline dolomite	<1	43	56	0	HI <1	2.88601	50.01
27	P29-74	2467.2	dolomitized grainstone with poikilitic cement	15	80	3	0	-	2.89231	52.11
28	P29-78	2471.0	dolomitized grainstone with poikilitic cement	11	42	45	0	-	2.89091	51.65
29	P29-82	2479.7	dolomitized grainstone with poikilitic cement	5	69	25	0	-	2.86093	41.65
30	P29-87	2486.2	calcite mosaic (poikilitic)	50	4	45	0	HI <1	2.88515	49.73

31	P29-89	2490.5	calcite mosaic (poikilitic)	48	6	43	0	-	2.88383	49.29
32	P29-91	2492.4	calcite mosaic (poikilitic)	0	40	55	3	-	2.89084	51.62
33	K9-10	2206.95	sabkha – finely crystalline dolomite with anhydrite cement	0	38	58	2	-	2.88619	50.07
34	K9-13	2207.2	sabkha – finely crystalline recrystallized dolomite with anhydrite cement	0	75	20	4	-	2.90329	55.77
35	K9-16	2207.9	cryptocrystalline dolomite (oncoids) with coarse calcitic and anhydrite cements	0	55	40	2	FI <1, Fds + CM	2.87364	45.89
36	K9-18	2208.25	sabkha - cryptocrystalline dolomite	78	3	14		Sf=1, Fds + CM	2.87964	47.89
37	K9-19	2208.6	sabkha - cryptocrystalline laminated dolomite	<1	80	9	6	Fds + CM.	2.88475	49.59
38	K9-23	2210.25	calcitic grainstone (?recrystallized calcimicrobes) with blocky cement	86	10	0	<1	CM	2.88823	50.75
39	K9-26	2213.6	finely crystalline dolomite	<1	70	27	<1	-	2.8849	49.64
40	K9-28	2216.95	dolomitized grainstone/packstone	<1	35	60	3	FI <1, HI <1	2.88983	51.29
41	K9-30	2221.55	dolomitized grainstone	4	60	18	9	Fds + CM	2.8871	50.38
42	K9-34	2224.3	mosaic of saddle dolomite (originally bryozoan grainstone)	90	8	<1	0	-	2.8872	50.41
43	K9-35	2226.25	mosaic of saddle dolomite (?originally bryozoan grainstone) with calcite crystals	5	75	7	6	Fds + CM	2.90018	54.74
44	K10-19	2208.75	calcitic recrystallized ?microbialite with blocky cement	80	9	8	2	-	2.88981	51.28
45	K10-20A	2210.45	sabkha - cryptocrystalline dolomite with saddle dolomite and anhydrite cements in caverns	<1	75	23	0	-	2.87657	46.87
46	K10-20B	2210.45	sabkha - cryptocrystalline dolomite with saddle dolomite and anhydrite	<1	70	20	5	CM	2.87692	46.98

			cements in caverns							
47	K10-24	2221.15	calcitic peloid microbialite in places recrystallized in coarse calcite	81	12	5	0	-	2.88557	49.87
48	K10-27	2227.1	calcitic grainstone (recrystallized ?microbialites) with coarse blocky cement	90	8	<1	<1	FI <1	2.87831	47.45
49	K10-28	2228.1	peloid dolomite	7	83	8	<1	FI <1, HI =1	2.89176	51.93
50	K10-32	2238.75	bryozoan grainstone with fibrous and blocky cements	91	8	<1	<1	-	2.88481	49.61
51	K10-34	2242.15	calcitic bryozoan grainstone with very abundant blocky cement	95	4	0	<1	-	2.86938	44.47
52	K10-41	2269.0	calcitic bryozoan grainstone with sparse rhombohedrons of fine dolomite (10-15%)	70	12	16	<1	HI <1	2.88296	49.00
53	K10-41A	2271.25	dolomitized wackestone	<1	76	22	0	HI =1	2.88262	48.88
54	K10-42	2272.6	dolomitized wackestone/mudstone	0	77	18	3	HI <1	2.8956	53.21