

RESERVES OF LIMESTONE ON THE GOLIATH CEMENT
COMPANY'S PROPERTY AT FAILTON

A series of Gemco auger holes was drilled for the purpose of determining the thickness of clay overburden over limestone which is being quarried for cement manufacture. Sufficient holes were drilled to indicate the trends in overburden thickness and diamond drilling was carried out in selected areas, those with a maximum of 20 m overburden, to prove limestone reserves. An estimated 30×10^6 tonnes of limestone should be obtained from the proposed quarry extension area. Some further prospecting is recommended.

GEOLOGY

Gordon limestone crops out in several restricted localities in the Failton area, the two largest are the Blenhorn's disused quarry on the east side of the Latrobe-Railton road and the present Goliath Cement Company quarry. Other minor outcrops extend for 6 km north-west from this quarry. The underlying Moina Sandstone does not occur in contact with the limestone at the surface anywhere in the area but can be seen in road cuttings immediately to the north on the Latrobe road. All bedding in limestone outcrops and quarry exposures dips at low to moderate angles to the west and south-west. Moina sandstone outcrops east and west of Railton and suggests a synclinal structure with the axis to the west of the cement works.

The overburden is predominantly clay with some pebbles and basalt fragments and boulders. It varies in thickness up to 50 m. Much of this material has been derived from limestone due to solution weathering leaving the non-calcareous fraction of the original limestone as a residual deposit which accumulated in the synclinal basin. Additional clay and detritus from other sources includes Permian sediments, Jurassic dolerite and Tertiary basalt which overlay the basin in earlier times. Pebbles and basalt boulders have been recorded from many of the diamond drill holes on the property. The overburden on the average is a uniform yellow brown and red plastic clay which has been tested for ceramic properties, the results of which are appended to this report.

THE DRILLING PROGRAMME

Test drilling of the property has been carried out intermittently since 1927 using diamond drills, churn drills and augers. The current programme consists of 24 auger holes to test the overburden depth; a one metre diamond drill core sample was taken from the bottom of each hole. Three diamond drill holes were also drilled in the floor of the quarry (No. 5 level) and other diamond drill holes from surface to prove reserves.

The drilling results and surface levels supplied by the company have been used to prepare Figure 1 (contour map of the area); Figure 2 (contour map of subsurface, top of limestone); Figure 3 (isopach map of overburden) and Figure 4 (cross sections of area). A summary of drilling data is attached. Company levels are given with respect to an arbitrary datum (R.L. = 100 ft or 30.48 m). A factor of +93.07 ft (28.37 m) is needed to convert to height above sea level.

The detailed configuration of the limestone surface is more irregular than shown in Figure 2. This is due to solution weathering along joints and fissures which has led to the formation of a network of residual pinnacles of limestone surrounded by and overlain by the clay overburden. Disregarding these irregularities, there is a general north-westerly drainage direction which is sub-parallel to the surface drainage. Of special note are the steep sided gullies in the limestone surface east and west of the quarry. Bore holes shown on Figure 2 with circles are those which recorded gravel, basalt boulders and broken limestone or did not bottom on solid limestone. These drainage lines may represent lines of sink holes along fault or joint planes.

Jennings (1960) remarked on the prevalence of fissures in limestone terrains and the volumes of water that are sometimes carried in them. The Goliath Cement Company's workings have been surprisingly free of underground water and it may well be that the gullies in the buried surface of the limestone are water-carrying fissures which have acted as drains for the quarrying area. If this is so, quarrying to greater depths may eventually reverse the flow and flood the workings. Three diamond drill holes Nos. 12, 13, 14/74 were drilled in the quarry floor proving 65 m of solid limestone reaching depths of 69 m below sea level without intersecting fissures or underground water. Four diamond drill holes were drilled in the proposed quarry extension area for assessment of limestone reserves.

19/74 and 22/74 Both holes encountered weathered limestone and are both on the line of underground gullies.

20/74 and 21/74 Both holes drilled through solid limestone and proved thicknesses of 29 and 67 m respectively.

It was noted that in holes 21 and 22 there was no return of drilling water indicating that water is escaping into fissures, even, in the case of No. 21, ⁱⁿapparently solid limestone. It would be inadvisable to allow quarrying at depth to extend into the underground drainage channels to the east and west of the existing quarry.

Limestone Reserves

Proof of limestone reserves to the required depth is contained in only three holes in the existing quarry and two in the proposed quarry. Estimates based on this data are given below:

Level No.	area (m ²) x 10 ⁵	Thickness (m)	Volume (m ³) x 10 ⁶	Mass (tonnes) x 10 ⁶
2 - 3	2.5	250 000	12	3 060 000 (3.1) 8.4 2.7097
3 - 4	2.3	230 000	12	2 760 000 (2.8) 7.5 2.5786
4 - 5	2.0	200 000	12	2 400 000 (2.4) 6.7 2.7917
5 - 6	1.8	180 000	12	2 160 000 (2.2) 5.9 2.6818
6 - 7	1.6	160 000	12	1 920 000 (1.9) 5.1 2.6521
7 - 8	1.4	140 000	12	1 680 000 (1.7) 4.5 2.6471
8 - 9	1.15	115 000	12	1 380 000 (1.4) 3.8 2.7143
9 - 10	0.9	90 000	12	1 080 000 (1.1) 2.9 2.6364
Total:				44.8

Overburden over the proposed quarry area:

Area (m ² x 10 ⁵)	Thickness (m)	Volume (m ³ x 10 ⁶)	Mass (tonnes) x 10 ⁶
1.65	15	2.3	6.2
1.10	35 (covered by overburden dump)	3.8	9.7
Total 270 000 m ²		Total 6.1	15.9

The limestone reserves calculation is based on 100% recovery which implies that the entire volume of material in the reserves area is devoid of low quality stone or cavities. Allowing for a possible 30% loss, a reserves estimate of 30 million tonnes is suggested; it should be stated however that this is an indicated, rather than proven tonnage for the above reasons.

Other areas

It is recommended that the company prospect the vicinity for an alternative quarry site in order to ensure continuity of production in the event of delays occurring in the main quarry. Three holes were proposed in the area north of the plant and lying between the Latrobe road and the railway. The first hole (No. 24) proved 31.6 m of overburden which was excessive and the project was abandoned. It is suggested that the area 'B' lying to the west of this abandoned area and bounded by the 20 m isopach and area C lying between Blenkhorns and the Goliath quarry and bounded by the 10 m isopach be further investigated. Both areas are crossed by the railway but re-routing the line may merit consideration in the case of 'B' which is at least twice the area of the proposed quarry and may prove a valuable addition to the company's reserves. The exact location of the underground drainage channel would need to be determined as it would form the western boundary of any future quarry.

CONCLUSION

An estimated 30 million tonnes of extractable limestone occurs in the Goliath Cement Company's proposed quarry area. The nature of the ground is such that a prospect drilling programme keeping ahead of quarry development is advisable so that bad ground can be avoided should it occur, and a uniform quarry product can be maintained should variation in quality of stone be encountered.

Prospecting for an alternative site is recommended, initially by diamond drilling along the road to Dulverton in the north-west corner of the area of the attached maps.

REFERENCES

JENNINGS, I.B. 1959. Geology and site investigations in the vicinity of the Goliath Portland Cement Company works, Railton, Tasmania.
Tech. Rep. Dep. Mines Tasm. 4:62-90.

JENNINGS, I.B. 1959. Geological atlas 1 mile series. Zone 7 Sheet 37.
Department of Mines, Tasmania.

Compressive strength, by firing at 700°C, was obtained with all samples except 1.51 m and 3.12 m and the values of the modulus in all cases were 1.2 x 10¹⁰ N/m².

Prepared by: B.

C

APPENDIX

samples supplied by V. Threader from exploratory drillings
at Goliath Cement Co. BH 1/73.

Reg. No.	Depth (m)	% Sand	Bond of Fired Brick
740161	1.52	89	None
162	3.12	92	None
163	4.92	51	Satisfactory
164	6.71	43	Satisfactory
165	8.53	64	Satisfactory
166	10.36	62	Satisfactory
167	12.19	43	Satisfactory
168	14.01	47	Satisfactory
169	15.85	45	Satisfactory
740170	17.67	33	Satisfactory

8 328 (48) 52

For brick manufacture, the material from each depth was dried, ground and with water addition, pressed into bricks.

Excellent bonding strength, by firing at 1000°C, was obtained with all depths except 1.52 m and 3.12 m and the colours of the product in all cases was light red.

Examined by: D. Clements

632117

SUMMARY OF DRILLING DATA

	<u>R.N. NO.</u>	<u>R.L. Surface</u>	<u>R.L. Top- Levels</u>	<u>Overburden Thickness</u>	<u>Limestone Drilled</u>	<u>Remarks</u>
1927	1	38.10	35.66	4.44	58.52	2 seams of clay 30.6 m
	2	70.10			>20.42	Log of top 43.32 m missing.
	3	65.53	48.16	17.37	26.82	
	4	69.80	67.96	1.83	32.0	
	5	49.99	30.18	19.81	12.20	
	6	50.11	34.26	31.85	60.05	With clay seams cavities and broken stone poor quality
	7	53.37	52.12	7.01	51.52	
	8	62.18	39.01	23.17	39.02	Poor quality
1937	9	59.12	54.21	4.91	26.21	Broken and sandy clay 3 m cavity at bottom of hole.
	10	66.95	51.10	15.85	47.00	80 m broken limestone
	11	57.81	15.74	42.07	14.63	65 m solid limestone
1938	12	64.69	37.10	27.74	30.48	6 m cave at top levels
	13	54.97	31.80	23.16	37.80	
	14	53.04	37.49	13.41	17.07	
	15	46.33	below 14.33	>32.00	Nil	basalt and quartzite pebbles.
	16	44.20	23.47	20.73	40.84	
	17	44.81	28.96	15.85	43.89	
	18	32.31	18.29	14.02	22.25	
	19	29.87	18.59	11.28	20.12	
	20	32.31	16.76	15.54	25.91	
	21)	Drilled			17.37	1.5 m cavity
22)	in quarry			15.86		
23)	floor			15.09	Mostly broken 3.2 m clay.	
1958	1	45.11	45.11	Nil	60.96	3 m clay ^{at} bottom
	2	37.49	13.11	24.38	33.52	2 x 3 m clay seams
	3	27.13	5.49	21.64	13.11	
1959	1	-	-	-	60.96	
	2	-	-	-	33.53	
	3	-	-	-	33.53	
	4	44.20	28.60	15.60	22.04	
	5	42.21	21.87	20.34	10.44	
	6	64.01	16.46	47.55	5.49	First levels at 35.05 2 m cavity present
1960	1	51.72	9.27	42.45	5.43	
	2	43.65	1.58	42.07	4.69	
	3	48.01	-8.03	51.04	12.50	
	4	52.40	11.86	40.54	2.74	
	5	65.87	below -3.02	>68.89	Nil	

	<u>R.L. Surface</u>	<u>R.L. Top-Levels</u>	<u>Overburden Thickness</u>	<u>Limestone drilled</u>	<u>Remarks</u>
	29.99	26.11	3.88	4.05	cavities
6	29.66	25.54	4.12	3.05	
7	44.17	23.47	20.70	-	
1	41.64	21.21	20.43	11.89	Redrilled in 1972
2	45.45	26.21	19.24		
3	45.08	25.91	19.17		
4	44.93	22.25	22.68		
5	43.83	8.84	34.99		
6	42.40	23.47	18.93		
7	41.88	17.98	23.90		
8	39.04	17.07	21.97		
9	31.70	17.07	14.63		
10	32.77	below 18.29	14.48	Nil	
11	32.28	4.88	27.40		
12	32.83	12.19	20.64		
13	33.01	13.11	19.90		
14	29.69	20.73	8.96		
15	29.72	24.69	5.03		
16	30.02	22.56	7.46		
17	30.24	23.77	6.44		
1963 1	30.48	28.04	2.44		
2	30.63	26.21	4.42		
3	32.00	11.28	20.72		
4	32.40	24.69	7.41		
5	32.11	22.86	9.25		
6	31.29	18.90	12.39		
7	30.94	15.54	15.40		
8	30.53	19.81	10.72		
9	29.66	24.69	4.97		
10	52.73	10.67	42.06		
11	53.04	4.27	49.74		
12	53.34	4.57	48.74		

Note: Nos. 1962/1-17 and 1963/1-13 were churn drill holes and stopped at top of limestone. Assay results recorded were determined on limestone chips from from the upper surface of the limestone.

20	32.27	23.70	8.57	18.00	
21	32.00	20.22	11.78	27.46	
22	33.21	18.00	15.21		
	(Below level)				
24	30.71	11.00	19.71	18.00	

632/19

1972
F. NO.

	<u>R.L. Surface</u>	<u>R.L. Top-Levels</u>	<u>Overburden Thickness</u>	<u>Limestone drilled</u>	<u>Remarks</u>
	35.64	19.12	16.52	2.28	
	36.33	-11.05	>47.38	-	Limestone and clay
	18.18	-16.74	>34.92	-	" " "
	21.51	6.69	14.52	0.91	
	34.07	25.15		3.71	
	(false level)				
1973	27.09	7.73	19.36	1.07	
	24.29	9.04	15.25	7.02	
	23.19	4.74	18.45	2.14	
	20.93	2.02	18.91	2.74	
	17.06	4.55	12.51	2.52	
	23.52 below	12.85	>36.37	Nil	
	36.24	" 11.34	>24.90	Nil	
	31.39	" -2.26	>39.65	Nil	
	27.28	12.07	>39.35	Nil	
1974	23.11	-4.03	27.14	2.75	Water struck 2.32 m (R.L. 15.79)
	21.67	1.09	20.58	1.89	
	28.30	23.12	5.18	2.44	
	32.21	26.42	5.79	3.05	
	28.68	7.02	21.66	1.52	
	30.44	2.07	28.37	5.94	
	32.53	19.72	22.81	1.52	
	31.85	11.72	20.13	1.94	
	33.88	15.58	18.30	2.13	
	35.71	15.45	20.26	3.66	
	37.46	24.95	12.51	2.74	
	-6.12	-	0	62.54)	Drilled in quarry
	-6.33	-	0	61.70)	floor
	-6.65	-	0	65.53)	
	31.97	19.08	12.68	2.60	
	55.55	21.27	34.35	2.30)	Drilled on
	(false level)			)	overburden dump
	57.56	22.73	34.83	2.07)	
	(false level)				
	23.56	0.63	22.95	2.71	
	30.63	12.52	18.15	1.80	Broken l/s and clay
	32.28	23.28	9.00	29.03	
	32.89	25.72	7.16	67.46	
	55.21	12.89	42.32	9.72	30m clay
	(false level)				
	30.21	-1.39	31.60	9.60	

(Add 30.48 m to convert to mSL)

GOLIATH PORTLAND CEMENT COMPANY LIMITED

SUMMARY OF DRILL HOLES

<u>Hole No.</u>	<u>R.L. of Surface</u>	<u>R.L. of Stone</u>	<u>R.L. Bottom of Hole</u>	
1/27	125.00	117.00	-75.00	
2/27	230.00	55.00	- 7.00	62.0
3/27	215.00	158.00	70.00	82.0
4/27	229.00	223.00	118.00	105.0 32.0
5/27	164.00	99.00	59.00	40.0
6/37	164.40	69.80	-69.60	127.40 188.0 60.0
7/37	175.09	below -16.91	-16.91	
8/37	204.00	118.00	0.00	
9/37	193.97	below 81.97	81.97	
10/37	219.64	84.64	19.64	
11/37	189.65	51.65	2.65	
12/37	212.25	113.25	13.25	
13/37	180.34	104.34	-19.66	
14/38	174.00	123.00	-26.00	
15/38	152.00	below 47.00	47.00	
16/38	145.00	77.00	-57.00	
17/38	147.00	74.00	-49.00	
18/38	106.00	60.00	-13.00	
19/38	98.00	58.50	- 5.00	
20/38	106.00	55.00	-30.00	
21/38	130.00	130.00	73.00	
22/38	130.00	130.00	63.00	
23/38	130.00	130.00	80.50	
1/58	148.00	78.00	-52.00	
2/58	123.00	43.00	-77.00	
3/58	89.00	18.00	-26.00	
1/59	16.30	16.30	-183.70 x	
2/59	16.30	16.30	-61.47	
3/59	16.30	16.30	-78.96	
4/59	145.50	93.84	20.50	
5/59	138.50	71.75	37.50	
6/59	210.00	54.00	35.00	
1/60	169.70	30.37	22.70	
2/60	143.20	5.20	-10.22	
3/60	157.50	-16.50	-57.50	
4/60	171.90	38.90	29.90	
5/60	216.10	below - 9.90	9.90	
6/60	98.40	85.65	69.40	
7/60	97.30	83.80	below 83.80	
1/62	144.90	77.00	below 77.00	
2/62	136.60	69.60	38.10	
3/62	149.10	86.00	below 86.00	
4/62	147.90	85.00	below 85.00	
5/62	147.40	72.73	below 72.73	
6/62	143.80	29.00	below 29.00	
7/62	139.10	77.00	below 77.00	
8/62	137.40	59.00	below 59.00	
9/62	128.10	56.00	below 56.00	
10/62	104.00	56.00	below 56.00	
11/62	107.50	below 60.00	60.00	
12/62	105.80	16.00	below 16.00	
13/62	107.70	40.00	below 40.00	
14/62	108.30	43.00	below 43.00	
15/62	97.40	68.00	below 68.00	
16/62	97.50	81.00	below 81.00	
17/62	98.50	74.00	below 74.00	

Hole No.	R.L. of Surface	R.L. of Stone	R.L. Bottom of Hole	
1/63	99.20	78.00	74.20	5-8
2/63	100.00	92.00	90.00	2-0
3/63	100.50	86.00	83.00	3-0
4/63	105.00	37.00	below 37.00	-
5/63	106.29	81.04	79.29	2-75
6/63	105.36	75.00	72.36	2-64
7/63	102.67	62.00	58.67	3-33
8/63	101.52	51.00	48.52	2-48
9/63	100.15	65.00	below 65.00	-
10/63	97.32	75.65	below 75.65	-
11/63	173.00	35.00	below 35.00	-
12/63	174.00	14.00	below -6.00	-
13/63	175.00	-15.00	below -18.00	-
1/72	116.86	62.70	55.20	
2/72	119.11	below -36.22	-36.22	
3/72	59.62	below -54.88	-54.88	
4/72	70.52	21.94	18.77	
5/72	111.71	82.46	70.29	
1/73	88.83	25.33	21.83	
2/73	79.63	below 6.63	6.63	
3/73	76.03	15.53	8.53	
4/73	68.63	6.63	-2.37	
5/73	55.93	14.93	9.93	
6/73	77.13	below -27.87	-27.87	
7/73	118.83	below 35.83	35.83	
8/73	102.93	below -27.07	-27.07	
9/73	89.43	below -39.57	-39.57	
1/74	75.78	-13.22	-22.22	
2/74	71.05	3.55	- 1.45	
3/74	92.79	75.79	67.79	
4/74	105.62	86.62	76.62	
5/74	94.02	23.02	18.02	
6/74	99.80	- 7.20	-12.70	
7/74	106.67	75.17	59.67	
8/74	104.42	38.42	32.08	
9/74	111.09	51.09	44.09	
10/74	117.67	50.67	38.67	
11/74	122.81	81.81	72.81	
12/74	-20.07	-20.07	-225.13	
13/74	-20.74	-20.74	-223.04	
14/74	-21.66	-21.66	-226.52	
15/74	104.13	62.56	54.03	
16/74	182.13	69.50	61.95	
17/74	188.73	74.52	67.73	
18/74	77.23	1.98	- 6.77	
19/74	100.43	39.93 (not solid stone)	-33.54	
20/74	105.83			
21/74	107.83			
22/74	181.03	42.31 (32ft thick only)	-89.47	

Note:

1. The above R.L.'s are based on level of plant datum taken as R.L. 100.00.

To convert to a correct R.L. above sea level add 93.07 ft. (2837m)

2. The R.L.'s of various floor levels of existing quarry based on plant datum of R.L. 100.00, are as follows

No. 3 Level	57.00	approx 40
No. 4 Level	17.00	"
No. 5 Level	-23.00	"
No. 6 Level	-63.00	"
Future No. 7 Level	-103.00	"
Future No. 8 Level	-143.00	"
Future No. 9 Level	-183.00	"
Future No. 10 Level	-223.00	"

Drilling Log

Hole No. 1/27

Commenced: 10/6/27

Completed: 9/8/27

Location: 1613 ft East, 748 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	125.00		
8'0"	117.00	Struck limestone	
15'0"	110.00	Solid limestone	
16'0"	109.00	Clay	
21'0"	104.00	Solid limestone	
23'0"	102.00	Clay	
200'0"	-75.00	Solid limestone	

End of Hole R.L. - 75.00

Drilling Log

Hole No. 2/27

Commenced: 1927 - Actual date not recorded
Completed: 20/5/37
Location: 1031 ft East, 178 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO</u>
Surface	230.00)	Originally drilled 1927	
	)	No information in GPC files	
)		
165'0"	65.00)		
170'0"	60.00	No core	
175'0"	55.00	5'0" solid stone	
180'0"	50.00	Full core solid stone	87.7%
190'0"	40.00	" " " "	
205'0"	25.00	" " " "	
221'0"	9.00	" " " "	90.9%
237'0"	-7.00	" " " "	

End of Hole R.L. -7.00

Reported but not confirmed as limestone at R.L. 224.00

Drilling Log

Hole No. 3/27

Commenced: 1927 - Actual date not recorded

Completed: " " " " "

Location: 1336 ft East, 197 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	215.00		
57'0"	158.00	Struck limestone	90%
145 0"	70.00		

End of Hole R.L. 70.00

Drilling Log

Hole No. 4/27

Commenced: 1927 - Actual date not recorded

Completed: 1927 " " " "

Location: 1141 ft East, 390 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>
Surface	229.00	
6'0"	223.00	Struck limestone
46'0"	183.00	Solid limestone
111'0"	118.00	Broken limestone

End of Hole R.L. 118.00

Drilling Log

Hole No. 5/27

Commenced: 1927 - Actual date not recorded

Completed: 1927 " " " "

Location: 1564 ft East, 75 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	164.00		
65 0"	99.00	Struck limestone	90%
105 0"	59.00		

End of Hole R.L. 59.00

Drilling LogHole No. 6/37Commenced: 9/2/37Completed: 24/2/37Location: 935' East, 603' North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	164.40		
16'6"	147.90	Clay	
37'0"	127.40	Clay	
52'0"	112.40	Broken Limestone	
	3		
53'0"	111.40	Solid Limestone)
54'0"	110.40	Broken ")
55'0"	109.40	" ")
73'0"	91.40	16'0" Limestone with 3 clay seams	) 92.35%
77'0"	87.40	9" Limestone - Cave)
84'0"	80.40	Cave)
94'6"	69.90	Bottom of Cave)	
108'6"	55.90	Solid Limestone)	
111'0"	53.40	Broken ")	
113'0"	51.40	Solid ")	91.50%
129'6"	34.90	" ")	
134'0"	30.40	" ")	
140'0"	24.40	Solid Limestone)	
163'6"	0.90	Solid Limestone with a few streaks)	
		of calcite	) 88.85%
179'0"	-14.60	Solid Limestone)	
184'0"	-19.60	" ")	
189'0"	-24.60	Solid Limestone)	
208'0"	-43.60	" ")	
228'0"	-63.60	Solid Limestone with a few streaks)	86.97%
		of calcite)
234'0"	-69.60	Solid Limestone)	
End of Hole	R.L. - 69.60		

Drilling LogHole No. 7/37

Commenced: 27/2/37
 Hole abandoned on 11/3/37
 New hole commenced alongside old one on 12/3/37
 and completed on 7/4/37.

Location: 930 ft East, 188 ft South referred to plant base lines.

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	175.09		
19'0"	156.09	Limestone boulder	
23'0"	152.09	Clay	
24'0"	151.09	Broken Limestone	
28'0"	147.09	1'5" Weathered Stone	
35'0"	140.09	Weathered Stone	
41'0"	134.09	1'0" Broken Limestone	
45'0"	130.09)		
50'0"	125.09)	5'0" Broken Limestone	
60'0"	115.09	3'3" " "	
72'0"	103.09	6'0" Fairly Solid Limestone	
82'0"	93.09	2'0" Very Broken " "	79.2%
87'0"	88.09	1'0" " " " "	
92'0"	83.09	4'0" Fairly Solid " "	
95'0"	80.09)		
97'0"	78.09)	4'0" Fairly Solid Limestone)	
102'0"	73.09	6" Very Broken Limestone)	
109'0"	66.09	5'0" Fairly Solid Limestone)	
118'0"	57.09	6'0" " " " "	
123'0"	52.09	3'0" Broken Limestone)	83.0%
128'0"	47.09	1'6" " " " "	
132'0"	43.09	3'6" Solid Limestone)	
136'0"	39.09	2'0" Broken " "	
143'0"	32.09	2'0" " " " "	
145'0"	30.09)	2'9" very broken stone with)	
156'0"	19.09)	clay)	83.0%
161'0"	14.09	2'0" very broken stone)	
168'0"	7.09	1'6" very broken stone)	
172'0"	3.09))	
175'0"	0.09)	11" very broken stone)	51.0%
182'0"	- 6.91)	
185'0"	- 9.91	1'9" very broken stone)	
191'0"	-15.91	Low grade stone and basalt)	33.15%
192'0"	-16.91	Low grade limestone	29.0%

End of Hole R.L. - 16.91

Drilling Log

Hole No. 8/37

Commenced: 9/4/37

Completed: 21/4/37

Location: 636 ft East, 200 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	204.00		
28'0"	176.00	Clay	
35'0"	169.00	Basalt	
36'0"	168.00	Clay	
60'0"	144.00	Clay	
76'0"	128.00	Clay	
83'0"	121.00	6" Limestone)
86'0"	118.00	1'0" clay 2'0" cave)
94'0"	110.00	8'0" solid limestone	) 86.80%
115'0"	89.00	21'0" " ")
124'0"	80.00	9'0" " ")
129'0"	75.00	5'0" " ")
143'0"	61.00	14'0" " ")
153'0"	51.00	10'0" " "	) 78.65%
166'0"	38.00	13'0" " ")
174'0"	30.00	8'0" " ")
182'0"	22.00	8'0" " ")
204'0"	0.00	22'0" " "	) 85.80%

End of Hole R.L. 0.00

Drilling Log

Hole No. 9/37

Commenced: 23/4/37

Completed: 6/5/37

Location: 640 ft East, 138 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	193.97		
16'0"	177.97	Clay	
37'0"	156.97	2" broken limestone	
47'0"	146.97	8" " ")	
50'0"	143.97	1'8" broken limestone)	76.85%
54'0"	139.97	8" " ")	
65'0"	128.97	3'0" " ")	
69'0"	124.97	1'3" broken limestone)	
72'0"	121.97	3'0" " ")	
78'0"	115.97	1'6" " ")	
86'0"	107.97	3'0" " ")	77.4%
89'0"	104.97	2'6" " ")	
94'0"	99.97	5'0" solid limestone)	
99'0"	94.97	4'0" broken limestone)	
102'0"	91.97	2'0" broken stone and hard clay	
109'0"	84.97	No core	
112'0"	81.97	No core	

End of Hole R.L. 81.97

Drilling Log

Hole No. 10/37

Commenced: 24/5/37

Completed: 11/6/37

Location: 783 ft East, 25 ft North referred to plant base lines

<u>Drill Depth</u>	<u>RL.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	219.64		
20'0"	199.64	Clay	
26'0"	193.64	Clay	
38'6"	181.14	6" of Limestone	
42'0"	177.64	No core	
52'0"	167.64	No core	
53'0"	166.64	Limestone	81.75%
57'0"	162.64	12" broken stone	
64'0"	155.64	No core	
68'0"	151.64	Solid limestone	
69'0"	150.64	8" limestone	
74'0"	145.64	No core	
76'0"	143.64	2'0" broken limestone	
83'0"	136.64	2'0" " "	
89'6"	130.14	20" broken limestone	
97'6"	122.14	18" " "		86.35%
107'6"	112.14	5'6" " "	
115'6"	104.14	2'6" " "	
119'6"	100.14	1'6" " "	
124'0"	95.64	1'6" " "	
128'0"	91.64	1'6" " "	
135'0"	84.64	1'3" " "	
139'6"	80.14	Full core solid limestone	87.75%
146'0"	73.64	" " " "	
161'0"	58.64	" " " "	
179'0"	40.64	" " " "	
200'0"	19.64	" " " "	
	60.50		
End of Hole	R.L.	19.64	

139
52
87

167.64
~~180.14~~
87.50

Drilling Log

Hole No. 11/37

Commenced: 16/6/37

Hole abandoned on 22/6/37 at 142 0" below surface
New hole commenced alongside old one on 1/7/37

Completed: 12/7/37

Location: 785 ft East, 400 ft North referred to plant base lines

<u>Drill Depth</u>	<u>RL</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	189.65		
14'0"	175.65	Clay and pebbles	
50'0"	139.65	" " "	51 15.54
60'0"	129.65	" " "	65
137'0"	52.65	Clay	
138'0"	51.65	Struck limestone	
155'0"	34.65	Full core solid limestone)	
165'0"	24.65	" " " ")	
180'0"	9.65	" " " ")	87.7%
185'0"	4.65	" " " ")	
187'0"	2.65	" " " ")	

End of Hole R.L. 2.65

Drilling Log

Hole No. 12/37

Commenced: 13/11/37

Completed: 4/12/37

Location: 1090 ft East, 31 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	212.25		
20'0"	192.25	Clay	
43'0"	169.25	Clay with basalt boulder	
91'0"	121.25	Clay	
93'0"	119.25	Limestone - entered cave	
99'0"	113.25	Struck limestone	
104'0"	108.25	Full core solid limestone)	
109'0"	103.25	" " " ")	
114'0"	98.25	" " " ")	
119'0"	93.25	" " " ")	82.8%
129'0"	83.25	" " " ")	
144'0"	68.25	" " " ")	
149'0"	63.25	" " " ")	
159'0"	53.25	" " " ")	
174'0"	38.25	" " " ")	
189'0"	23.25	" " " ")	89.4%
199'0"	13.25	" " " ")	

End of Hole R.L. 13.25

Drilling Log

Hole No. 13/37

Commenced: 8/12/37

Completed: 15/1/38

Location: 1291' East, 187' South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	180.34		
25'0"	155.34	Clay	
40'0"	140.34	Clay with basalt	
43'9"	136.59	Basalt 3'6"	
47'9"	132.59	Clay and pebbles	
58'0"	122.34	Clay with basalt	
60'0"	120.34	Clay and gravel	
62'0"	118.34	" " "	
65'0"	115.34	" " "	
76'0"	104.34	" " "	
79'0"	101.34	Full core solid limestone)	
87'0"	93.34	" " " ")	90.0%
97'0"	83.34	" " " ")	
101'0"	79.34	" " " ")	
112'0"	68.34	" " " ")	
122'0"	58.34	" " " ")	
137'0"	43.34	" " " ")	92.6%
148'0"	32.34	" " " ")	
160'0"	20.34	" " " ")	
163'0"	17.34	" " " ")	
177'0"	3.34	" " " ")	
192'0"	-11.66	" " " ")	92.4%
200'0"	-19.66	" " " ")	
End of Hole	R.L. - 19.66		

Drilling Log

Hole No. 14/38

Commenced: 21/1/38

Completed: 11/2/38

Location: 1565 ft East, 184 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	174.0		
25'0"	149.00	Clay	
40'0"	134.00	Clay 12" Limestone	
44'0"	130.00		
51'0"	123.00	Struck limestone)
53'0"	121.00	18" limestone)
64'0"	110.00	Solid limestone)
65'6"	108.50	Clay)
70'0"	104.00	Solid limestone	) 90.2%
80'0"	94.00	Full core solid limestone)
93'0"	81.00	" " " ")
94'0"	80.00	" " " ")
113'0"	61.00	" " " ")
121'0"	53.00	" " " ")
141'0"	33.00	" " " "	) 90.5%
144'0"	30.00	" " " ")
156'0"	18.00	" " " ")
175'0"	-1.00	" " " ")
193'0"	-19.00	" " " "	) 84.6%
200'0"	-26.00	" " " ")
End of Hole	R.L. - 26.00		

Drilling Log

Hole No. 15/38

Commenced: 14/2/38

Completed: 18/3/38

Location: 1427 ft East, 338 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	152.00		
20'0"	132.00	Clay and 9" basalt	
50'0"	102.00	Clay and 5' basalt	
73'0"	79.00	Clay	
87'0"	65.00	3" basalt and quartzite pebbles	
92'0"	60.00	3'0" broken limestone	
103'0"	49.00	Broken limestone and basalt	
105'0"	47.00	Basalt and quartzite pebbles	

End of Hole R.L. 47.00

Drilling LogHole No. 16/38Commenced: 18/2/38Completed: 5/3/38Location: 1758 ft East, 21 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	145.00		
7'0"	138.00	Clay	
12'0"	133.00	Clay	
30'0"	115.00	"	
50'0"	95.00	"	
68'0"	77.00	Clay - struck stone	
76'0"	69.00	Solid limestone)	
89'0"	56.00	" ")	
106'0"	39.00	" ")	85.7%
114'0"	31.00	" ")	
115'0"	30.00	" ")	
130'0"	15.00	" ")	
146'0"	- 1.00	" ")	
162'0"	-17.00	" ")	89.7%
165'0"	-20.00	" ")	
179'0"	-34.00	" ")	
193'0"	-48.00	" ")	91.0%
202'0"	-57.00	" ")	
End of Hole	R.L. - 57.00		

Drilling Log

Hole No. 17/38

Commenced: 22/3/38

Completed: 5/4/38

Location: 1949 ft East, 550 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	147.00		
18'0"	129.00	Clay	
52'0"	95.00	Clay	
73'0"	74.00	Solid limestone	
93'0"	54.00	" "	
103'0"	44.00	" "	88.0%
117'0"	30.00	" "	
119'0"	28.00	" "	
136'0"	11.00	" "	
152'0"	- 5.00	" "	78.2%
160'0"	-13.00	" "	
167'0"	-20.00	" "	
176'0"	-29.00	" "	77.3%
196'0"	-49.00	" "	
End of Hole	R.L. - 49.00		

Drilling Log

Hole No. 18/38

Commenced: 8/4/38

Completed: 20/4/38

Location: 1704 ft East, 1031 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	106.00		
35'0"	71.00	Clay	
46'0"	60.00	Struck limestone	
52'0"	54.00	Solid limestone)
56'0"	50.00	Break in stone - clay)
66'0"	40.00	Struck limestone	) 84.8%
72'0"	34.00	Solid limestone)
76'0"	30.00	" ")
90'0"	16.00	" ")
108'0"	- 2.00	" "	) 84.3%
119'0"	-13.00	" ")

End of Hole R.L. -13.00

Drilling Log

Hole No. 19/38

Commenced: 22/4/38

Completed: 2/5/38

Location: 1441 ft East, 1162 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	98.00		
37'0"	61.00	Struck limestone	
39'6"	58.50	Break in stone)	
40'6"	57.50	Solid limestone)	
42'0"	56.00	" ")	86.7%
54'0"	44.00	" ")	
67'0"	31.00	" ")	
69'0"	29.00	" ")	
84'0"	14.00	" ")	
92'0"	6.00	" ")	84.4%
103'0"	-5.00	" ")	

End of Hole R.L. - 5.00

Drilling LogHole No. 20/38Commenced: 4/5/38Completed: 13/5/58Location: 2063 ft East, 803 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	106.00		
32'0"	74.00	Clay	
51'0"	55.00	Clay - struck limestone	
52'0"	54.00	Limestone)
54'6"	51.50	Struck clay)
56'0"	50.00	Struck limestone)
61'6"	44.50	18" core of stone	) 85.3%
66'0"	40.00	Solid limestone)
72'0"	34.00	" ")
76'0"	30.00	" ")
77'0"	29.00	Clay)
87'0"	19.00	Solid limestone)
100'0"	6.00	" ")
116'0"	-10.00	" "	) 83.6%
131'0"	-25.00	" ")
136'0"	-30.00	" ")

End of Hole R.L. - 30.00

Drilling Log

Hole No. 21/38

Commenced: 16/5/38

Completed: 20/5/38

Location: 1174 ft East, 364 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	130.00	Quarry floor level	
3'0"	127.00	Solid limestone	
13'0"	117.00	" "	
25'0"	105.00	" "	
30'0"	100.00	" "	
36'0"	93.50	Entered cave	
41'0"	89.00	End of cave	
57'0"	73.00	Solid limestone	

End of Hole R.L. 73.00

Drilling Log

Hole No. 22/38

Commenced: 23/5/38

Completed: 30/5/38

Location: 1187 ft East, 213 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	130.00	Quarry floor	
14'6"	115.50	Clay - struck stone	
20'0"	110.00	Solid limestone)	
25'0"	105.00	" ")	83.4%
36'0"	94.00	" ")	
47'0"	83.00	" ")	82.5%
51'0"	79.00	" ")	90.7%
67'0"	63.00	" ")	89.3%

End of Hole R.L. 63.00

Drilling Log

Hole No. 23/38

Commenced: 26/5/38

Completed: 29/5/38

Location: 1174 ft East, 568 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	130.00	Quarry floor level	
5'0"	125.00	Stone)	
20'0"	110.00	Broken limestone)	89.3%
21'0"	109.00	" ")	
35'0"	95.00	" ")	
37'0"	93.00	" ")	90.5%
47'6"	82.50	Clay)	
49'6"	80.50	Solid limestone)	91.1%

End of Hole R.L. 80.50

Drilling Log

Hole No. 1/5B

Commenced: 1958 Actual date not recordedCompleted: 1958 " " " "Location: 2390 ft West, 1150 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	148.00		
10'0"	138.00	Pebbly limestone	90.1%
20'0"	128.00	Limestone and clay	91.3%
30'0"	118.00	Pebbly limestone	92.0%
40'0"	108.00	" "	94.0%
50'0"	98.00	" "	93.1%
60'0"	88.00	" "	96.0%
70'0"	78.00	Limestone	93.2%
80'0"	68.00	Pebbly limestone	94.1%
90'0"	58.00	Limestone	94.8%
100'0"	48.00	Limestone (10% calcite)	93.9%
110'0"	38.00	Limestone	91.6%
120'0"	28.00	Limestone and clay	37.1%
130'0"	18.00	Broken limestone	75.9%
140'0"	8.00	Limestone	84.8%
150'0"	-2.00	Limestone and clay	86.8%
160'0"	-12.00	Pebbly limestone	88.5%
170'0"	-22.00	" "	85.7%
180'0"	-32.00	Limestone	91.1%
190'0"	-42.00	Broken limestone	87.2%
200'0"	-52.00	Clay	5.5%

End of Hole R.L. - 52.00

Drilling LogHole No. 2/58Commenced: 1958 Actual date not recordedCompleted: 1958 " " " "Location: 980 ft West, 980 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	123.00		
10'0"	113.00	Clay	
20'0"	103.00	Clay	
30'0"	93.00	Clay	
40'0"	83.00	Clay	
50'0"	73.00	Clay	
61'0"	62.00	Limestone	83.2%
70'0"	53.00	Clay	5.8%
80'0"	43.00	Limestone	83.3%
90'0"	33.00	"	78.8%
100'0"	23.00	"	88.4%
110'0"	13.00	"	81.1%
120'0"	3.00	Broken limestone	77.0%
130'0"	-7.00	Limestone	82.6%
140'0"	-17.00	"	83.0%
150'0"	-27.00	"	89.8%
160'0"	-37.00	"	91.2%
170'0"	-47.00	Clay	5.0%
180'0"	-57.00	Limestone	93.5%
190'0"	-67.00	Broken limestone	93.7%
200'0"	-77.00	Limestone	93.8%

End of Hole R.L. - 77.00

Drilling Log

Hole No. 3/58

Commenced: 1958 Actual date not recorded
Completed: 1958 " " " "
Location: 1290 ft West, 1580 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	89.00		
71'0"	18.00	Limestone	77.1%
73'0"	16.00	"	80.7%
100'0"	-11.00	Limestone with clay	84.0%
105'0"	-16.00	Limestone	92.2%
110'0"	-21.00	"	92.2%
115'0"	-26.00	"	92.6%

End of Hole R.L. - 26.00

Drilling LogHole No. 1/59Commenced: 1959 - Actual date not recordedCompleted: 1959 - " " " "Location: 1559 ft East, 535 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	16.30	No. 4 Floor level	
10'0"	6.30	Solid limestone	94.0%
20'0"	- 3.70	" "	92.8%
30'0"	-13.70	" "	92.1%
40'0"	-23.70	" "	91.0%
50'0"	-33.70	" "	91.9%
60'0"	-43.70	" "	94.3%
70'0"	-53.70	" "	92.9%
80'0"	-63.70	" "	93.9%
90'0"	-73.70	" "	92.2%
100'0"	-83.70	" "	91.1%
110'0"	-93.70	" "	92.5%
120'0"	-103.70	50% limestone 50% calcite	89.7%
130'0"	-113.70	Limestone	91.4%
140'0"	-123.70	"	91.0%
150'0"	-133.70	"	91.2%
160'0"	-143.70	"	90.1%
170'0"	-153.70	"	89.6%
180'0"	-163.70	"	87.4%
190'0"	-173.70	"	84.6%
200'0"	-183.70	"	87.3%

End of Hole R.L. -183.70

Drilling Log

Hole No. 2/59

Commenced: 1959 Actual date not recorded

Completed: 1959 " " " "

Location: 1488 ft East, 590 ft North referred to plant base lines
Hole drilled at 45°

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	16.30	No. 4 floor level	
10'0"		Limestone	94.4%
20'0"		"	91.6%
30'0"		"	89.1%
40'0"		"	93.2%
50'0"		"	91.0%
60'0"		"	91.2%
70'0"		"	92.0%
80'0"		"	90.1%
90'0"		"	92.4%
100'0"		"	96.1%
110'0"	-61.47	"	95.1%

End of Hole R.L. - 61.47

Drilling Log

Hole No. 3/59

Commenced: 1959 Actual date not recorded

Completed: 1959 " " " "

Location: 1500 ft East, 584 ft North referred to plant base lines
Hole drilled at 30° for 110 ft

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	16.30	Floor level No. 4	
10'0"		Limestone	94.8%
20'0"		"	91.6%
30'0"		"	92.1%
40'0"		"	92.2%
50'0"		"	92.4%
60'0"		"	90.3%
70'0"		"	91.4%
80'0"		"	93.0%
90'0"		"	89.5%
100'0"		"	89.8%
110'0"	-78.96	"	

End of Hole R.L. - 78.96

Drilling Log

Hole No. 4/59

Commenced: 1959 Actual date not recorded

Completed: 1959 Actual date not recorded

Location: 957 ft East, 730 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	145.50		
51'8"	93.84	Struck solid stone	
60'0"	85.50	Solid limestone	89.6%
70'0"	75.50	" "	85.7%
80'0"	65.50	" "	86.2%
90'0"	55.50	" "	85.0%
100'0"	45.50	" "	88.0%
110'0"	35.50	" "	89.5%
125'0"	20.50	" "	88.9%

End of Hole R.L. 20.50

Drilling Log

Hole No. 5/59

Commenced: 1959 Actual date not recorded

Completed: 1959 " " " "

Location: 1219 ft East, 894 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	138.50		
66 9"	71.75	Struck solid stone	
70'0"	68.50	Solid limestone	84.7%
80'0"	58.50	" "	88.0%
90'0"	48.50	" "	87.3%
100'0"	38.50	" "	88.0%
101'0"	37.50	" "	

End of Hole R.L. 37.50

Drilling Log

Hole No. 6/59

Commenced: 1959 Actual date not recorded
Completed: 1959 " " " "
Location: 708 ft East, 1163 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	210.00		
95'0"	115.00	Clay	
139'3"	70.75	Broken limestone	44.25
149'11"	60.08	No sample	67.1%
156'0"	54.00	Cavity	
159'7"	50.40	Solid limestone	19
175'0"	35.00	" "	<u>63.25</u>

End of Hole R.L. 35.00

Drilling Log

Hole No. 1/60

Commenced: 1960 Actual date not recorded
Completed: 1960 " " " "
Location: 335 ft East, 603 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	169.70		
139'4"	30.37	Struck stone	
140'0"	29.70	Solid stone	93.1%
144'0"	25.70	" "	93.4%
147'0"	22.70	" "	

End of Hole R.L. 22.70

Drilling Log

Hole No. 2/60

Commenced: 1960 Actual date not recorded
Completed: 1960 " " " "
Location: 1687 ft East, 1275 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	143.20		
138'0"	5.20	Struck limestone	91.2%
140'0"	3.20	Solid limestone	90.8%
150'0"	-6.80	" "	87.8%
153'5"	-10.22	" "	87.0%

End of Hole R.L. - 10.22

Drilling Log

Hole No. 3/60

Commenced: 1960 Actual date not recorded

Completed: 1960 " " " " "

Location: 918 ft East, 803 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	157.50		
174'0"	-16.50	First struck stone	94.7%
180'0"	-22.50	Limestone (Solid)	91.8%
190'0"	-32.50	" "	87.9%
200'0"	-42.50	" "	93.8%
210'0"	-52.50	" "	92.0%
215'0"	-57.50	" "	

End of Hole R.L. - 57.50

Drilling Log

Hole No. 4/60

Commenced: 1960 Actual date not recorded
Completed: 1960 " " " "
Location: 855 ft East, 913 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	171.90		
133'0"	38.90	Struck limestone	84.7%
142'0"	29.90	Solid limestone	86.5%

End of Hole R.L. 29.90

Drilling Log

Hole No. 5/60

Commenced: 1960 Actual date not recorded
Completed: 1960 " " " "
Location: 302 ft East, 00 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	216.10		
226'0"	-9.90	<i>laccrite</i>	

No limestone to -9.90

End of Hole R.L. -9.90

Drilling Log

Hole No. 6/60

Commenced: 1960 Actual date not recorded
Completed: 1960 " " " "
Location: 2119 ft East, 1601 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	98.40		
12'9"	85.65	First limestone	
15'0"	83.40	Limestone	78.6%
17'0"	81.40	"	69.1%
19'0"	79.40	"	73.8%
21'0"	77.40	Cavity	-
23'0"	75.40	Limestone	58.0%
25'0"	73.40	"	68.0%
27'0"	71.40	"	75.3%
29'0"	69.40	"	66.0%

End of Hole R.L. 69.40

Drilling Log

Hole No. 7/60

Commenced: 1960 Actual date not recorded
Completed: 1960 " " " "
Location: 2063 ft East, 1452 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	97.30		
13'6"	83.80	Limestone	88.0%
10'0"			

End of Hole Not recorded 20'

Drilling Log

Hole No. 1/62

Commenced: 1962 Actual date not recorded

Completed: 1962 " " " "

Location: 1032 ft East, 604 ft South referred to plant base lines

<u>Drill depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	144.90		
67'11"	77.00	Clay	
↓	↓	Limestone	92.4%

End of Hole - Not recorded

Drilling Log

Hole No. 2/62

Commenced: 1962 Actual date not recorded

Completed: 1962 " " " "

Location: 1162 ft East, 681 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	136.60	-	
59'7"	77.00	Clay	
67'0"	69.60	Limestone	90.3%

Hole relocated in 1972 and found to be open to R.L. 69.60.

Hole cased to 30 ft and drilling continued in June 1972 to R.L. 38.10 in solid limestone.

End of Hole R.L. 38.10

Drilling Log

Hole No. 3/62

Commenced: 1962 Actual date not recorded

Completed: 1962 " " " "

Location: 905 ft East, 528 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	149.10		
63'1"	86.00	Struck limestone	83.4%
↓	↓		

End of Hole R.L. Not recorded

Drilling Log

Hole No. 4/62

Commenced: 1962 Actual date not recorded
Completed: 1962 " " " "
Location: 700 ft East, 578 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	147.90		
62'11"	85.00	Struck limestone Limestone	90.3%

End of Hole R.L. not recorded

Drilling Log

Hole No. 5/62

Commenced: Actual date not recorded

Completed: " " " "

Location: 830 ft East, 656 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	147.40		
74'8"	72.73	Struck limestone	86.8%
↓	↓	Limestone	

End of Hole R.L. not recorded

Drilling Log

Hole No. 6/62

Commenced: 1962 . Actual date not recorded
Completed: 1962 . " " " "
Location: 1088 ft East, 809 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	143.80		
114'10"	29.00	Struck limestone	77.0%

End of Hole R.L. not recorded

Drilling Log

Hole No. 7/62

Commenced: 1962 Actual date not recorded

Completed: November 1962

Location: 1350 ft East, 962 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	139.10		
62'1"	77.00	Struck limestone	83.7%
End of Hole	R.L. not recorded		

Drilling Log

Hole No. 8/62

Commenced: November 1962

Completed: November 1962

Location: 1294 ft East, 756 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	137.40		
78'5"	59.00	Struck limestone	76.6%

End of Hole R.L. not recorded

Drilling Log

Hole No. 9/62

Commenced: November 1962

Completed: November 1962

Location: 1425 ft East, 832 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	128.10		
72'1"	56.00	Struck limestone	85.3%
End of Hole	R.L. not recorded		

Drilling Log

Hole No. 10/62

Commenced: November 1962

Completed: November 1962

Location: 2668' East, 1466 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	104.00		
48'0"	56.00	Struck limestone	24.8%

End of Hole R.L. not recorded

Drilling Log

Hole No. 11/62

Commenced: November 1962

Completed: November 1962

Location: 2772 ft East, 1354 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	107.50		
47'6"	60.00		

Hole abandoned without striking limestone

End of Hole R.L. 60.00

Drilling Log

Hole No. 12/62

Commenced: December 1962

Completed: December 1962

Location: 2875 ft East, 1246 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	105.80		
89'10"	16.00	Limestone	74.5

End of Hole R.L. not recorded

Drilling Log

Hole No. 13/62

Commenced: December 1962

Completed: December 1962

Location: 2978 ft East, 1134 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	107.70		
67'8"	40.00	Limestone	64.8%

End of Hole R.L. not recorded

Drilling Log

Hole No. 15/62

Commenced: December 1962

Completed: December 1962

Location: 1807 ft East, 1734 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	97.40		
29 5"	68.00	Limestone	86.7%

End of Hole R.L. not recorded

Drilling Log

Hole No. 16/62

Commenced: December 1962

Completed: December 1962

Location: 1950 ft East, 1690 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	97.50		
16'6"	81.00	Limestone	54.0%

End of Hole R.L. not recorded

Drilling Log

Hole No. 17/62

Commenced: December 1962

Completed: December 1962

Location: 2094 ft East, 1646 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	98.50		
24'6"	74.00	Limestone	67.0%

End of Hole R.L. not recorded

Drilling Log

Hole No. 1/63

Commenced: January 1963

Completed: January 1963

Location: 2238 ft East, 1600 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	99.20		
21'2"	78.00	Limestone	74.5%
25'0"	74.20		
End of Hole	R.L. 74.20		

Drilling Log

Hole No. 2/63

Commenced: January 1963

Completed: January 1963

Location: 2381 ft East, 1556 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	100.0		
8'0"	92.00	Limestone	76.4%
10'0"	90.00		

End of Hole R.L. 90.00

Drilling Log

Hole No. 3/63

Commenced: January 1963

Completed: January 1963

Location: 2526 ft East, 1509 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	100.50		
14'6"	86.00	Limestone	76.7%
17'6"	83.00		
End of Hole	R.L. 83.00		

Drilling Log

Hole No. 4/63

Commenced: January 1963

Completed: February 1963

Location: 3184 ft East, 916 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	105.00		
68'0"	37.00	Limestone	73.6%

End of Hole R.L. not recorded

Drilling Log

Hole No. 5/63

Commenced: February 1963

Completed: February 1963

Location: 2919 ft East, 275 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	106.29		
25'3"	81.04	Limestone	83.9%
28'0"	78.29		
End of Hole	R.L. 78.29		

Drilling Log

Hole No. 6/63

Commenced: February 1963

Completed: February 1963

Location: 2556 ft East, 604 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	105.36		
30'4"	75.00	Limestone	92.0%
33'0"	72.36		
End of Hole	R.L. 72.36		

Drilling Log

Hole No. 7/63

Commenced: February 1963

Completed: February 1963

Location: 2272 ft East, 825 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	102.67		
40'8"	62.00	Limestone	83.1%
44'0"	58.67		
End of Hole	R.L. 58.67		

Drilling Log

Hole No. 8/63

Commenced: February 1963

Completed: February 1963

Location: 1944 ft East, 1038 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	101.52		
50'6"	51.00	Limestone	87.0%
53'0"	48.52		
End of Hole	R.L. 48.52		

Drilling Log

Hole No. 9/63

Commenced: February 1963

Completed: February 1963

Location: 1705 ft East, 1165 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	100.15		
35 2"	65.00	Limestone	89.5%

End of Hole R.L. not recorded

Drilling Log

Hole No. 10/63

Commenced: February 1963

Completed: February 1963

Location: 1492 ft East, 1272 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	97.32		
21'8"	75.65	Limestone	89.0%

End of Hole R.L. not recorded

Drilling Log

Hole No. 11/63

Commenced: February 1963

Completed: " "

Location: 478 ft East, 763 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	Approx. 173.00		
138'0"	" 35.00	Limestone	66.3%

End of Hole R.L. not recorded

Drilling Log

Hole No. 12/63

Commenced: February 1963

Completed: February 1963

Location: 567 ft East, 813 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	Approx. 174.0		
160'0"	" 14.0	Limestone	
180'0"	" -6.0	"	68.1%
End of Hole	R.L. not recorded		

Drilling Log

Hole No. 13/63

Commenced: February 1963

Completed: February 1963

Location: 737 ft East, 919 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	Approx. 175'0"		
190'0"	" -15.0	Limestone	7.4%
193'0"	" -18.0	"	84.0%

End of Hole R.L. not recorded

Drilling Log

Hole No. 1/72

Commenced: June 1972

Completed: June 1972

Location: 1385 ft East, 583 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	116.86	Clay	Not Analysed
18'6"	98.36	Clay and basalt	
54'2"	62.70	Limestone	
61'8"	55.20		

End of Hole R.L. 55.20

Drilling Log

Hole No. 2/72

Commenced: June 1972

Completed: " "

Location: 1196 ft East, 518 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	119.11	Clay and basalt	Not Analysed
83'4"	35.78	Limestone and clay	
100'0"	19.11	Clay with basalt	
104'0"	15.11	Limestone and clay	
155'4"	-36.22	" " "	

End of Hole R.L. - 36.22

Drilling Log

Hole No. 3/72

Commenced: June 1972

Completed: June 1972

Location: 1335 ft East, 338 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	59.62	Red clay	Not analysed
112'0"	-52.38	Clay and basalt	
114'6"	-54.88	Clay with limestone pebbles	

End of Hole R.L. = 54.88

Drilling Log

Hole No. 4/72

Commenced: 14th June 1972

Completed: 16th June 1972

Location: 1530 ft East, 350 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	70.52	Clay	Not analysed
48'7"	21.94	Limestone	
51'9"	18.77	"	

End of Hole R.L. 18.77

Drilling Log

Hole No. 5/72

Commenced: 19th June 1972

Completed: 19th June 1972

Location: 2430 ft East, 315 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	111.71	Dumped clay	Not analysed
29'3"	82.46	Solid limestone	
41'5"	70.29	" "	

End of Hole R.L. 70.29

Drilling Log

Hole No. 1/73

Commenced: December 1973

Completed: December 1973

Location: 140 ft East, 2693 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	88.83		
63'6"	25.33	Struck limestone)	
67'0"	21.83	Solid limestone)	92.3%
End of Hole	R.L. 21.83		

Analysis of composite sample from 63'6" to 67'0"

CaO	51.0
SiO ₂	4.9
Fe ₂ O ₃	0.5
Al ₂ O ₃	1.2
MgO	0.8
Loss	40.9
SO ₃	0.04

Drilling Log

Hole No. 2/73

Commenced: December 1973

Completed: December 1973

Location: West 726 ft, North 3202 ft referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	79.63		
50'0"	29.63	Struck stone	
73'0"	6.63	Limestone with clay seams	88.0

Intersected water stream at 25'0" below surface.

End of Hole R.L. 6.63

Analysis of composite sample from 50'0" to 73'0"

CaO	49.1%
SiO ₂	7.0%
Fe ₂ O ₃	0.9%
Al ₂ O ₃	1.7%
MgO	0.8%
Loss	39.8%
SO ₃	0.2%

Drilling Log

Hole No. 3/73

Commenced: December 1973

Completed: December 1973

Location: West 1582 ft, North 3705 ft referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	76.03		
60'6"	15.53	Struck limestone)	
67'6"	8.53	Solid limestone)	89.6%

End of Hole R.L. 8.53

Analysis of composite sample from 60'6" to 67'6"

CaO	49.2%
SiO ₂	6.5%
Fe ₂ O ₃	0.8%
Al ₂ O ₃	1.4%
MgO	1.2%
Loss	39.9%
SO ₃	0.4%

Drilling Log

Hole No. 4/73

Commenced: December 1973

Completed: December 1973

Location: West 2436 ft North 4219 ft referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	68.63		
62'0"	6.63	Struck limestone)	91.5
71'0"	-2.37	Solid limestone)	

End of Hole R.L. - 2.37

Analysis of composite sample from 62'0" to 71'0"

CaO	50.6%
SiO ₂	4.9%
Fe ₂ O ₃	0.6%
Al ₂ O ₃	1.2%
MgO	0.7%
Loss	41.0%
SO ₃	0.4%

Drilling Log

Hole No. 5/73

Commenced: December 1973

Completed: December 1973

Location: West 3077 ft, North 4652 ft referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	55.93		
41'0"	14.93	Struck limestone)	
46'0"	9.93	Solid limestone)	87.1

End of Hole R.L. 9.93

Analysis of composite sample from 41'0" to 46'0"

CaO	48.4%
SiO ₂	7.2%
Fe ₂ O ₃	1.2%
Al ₂ O ₃	2.2%
MgO	0.8%
Loss	38.4%
SO ₃	1.2%

Drilling Log

Hole No. 6/73

Commenced: December 1973

Completed: December 1973

Location: West 2495 ft, North 4984 ft referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	77.13		
105'0"	-27.87	Clay	Not analysed

End of Hole R.L. - 27.87

Drilling Log

Hole No. 7/73

Commenced: December 1973

Completed: December 1973

Location: West 1946 ft, North 5057 ft referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	118.83		Not analysed
83'0"	35.83	Solid material not proven	

End of Hole R.L. 35.83

Drilling Log

Hole No. 8/73

Commenced: December 1973

Completed: February 1974

Location: East 1242 ft, North 3007 ft referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	102.93		Not analysed
130 0"	-27.07	Clay	
End of Hole	R.L. - 27.07		

Drilling Log

Hole No. 1/74

Commenced: March 1974

Completed: March 1974

Location: 2202 ft West, 2325 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	75.78		
89'0"	-13.22	Struck limestone)	
98'0"	-22.22	Full core solid stone)	84.3%

End of Hole R.L. - 22.22

Analysis of composite sample from 89'0" to 98'0"

CaO	46.9%
SiO ₂	11.9%
Fe ₂ O ₃	0.8%
Al ₂ O ₃	1.1%
MgO	0.4%
Loss	37.7%
SO ₃	0.06%

Drilling Log

Hole No. 2/74

Commenced: March 1974

Completed: March 1974

Location: 1747 ft West, 2685 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	71.05		
67'6"	3.56	Struck limestone)	
72'6"	-1.45	Full core solid stone)	82.4%
End of Hole	R.L. - 1.45		

Analysis of composite sample from 67'6" to 72'6"

CaO	45.6%
SiO ₂	13.2%
Fe ₂ O ₃	0.9%
Al ₂ O ₃	1.4%
MgO	1.0%
Loss	36.7%
SO ₃	0.7%

Drilling Log

Hole No. 3/74

Commenced: March 1974

Completed: March 1974

Location: 610 ft East, 3042 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	92.79		
17'0"	75.79	Struck limestone)	
25'0"	67.79	Full core solid stone)	76.0%

End of Hole R.L. 67.79

Analysis of composite sample from 17'0" to 25'0"

CaO	42.2%
SiO ₂	14.3%
Fe ₂ O ₃	1.8%
Al ₂ O ₃	3.8%
MgO	1.1%
Loss	34.1%
SO ₃ .	1.4%

Drilling Log

Hole No. 4/74

Commenced: March 1974

Completed: March 1974

Location: 2050 ft East, 2259 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	105.62		
19'0"	86.62	Struck limestone)	
29'0"	76.62	Full core solid stone)	86.0%

End of Hole R.L. 76.72

Analysis of composite sample from 19'0" to 29'0"

CaO	47.8%
SiO ₂	8.8%
Fe ₂ O ₃	1.1%
Al ₂ O ₃	1.9%
MgO	0.7%
Loss	38.8%
SO ₃	0.4%

Drilling Log

Hole No. 5/74

Commenced: April 1974

Completed: April 1974

Location: 708 ft East, 2258 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	94.02		
71'0"	23.02	Struck limestone)	
76'0"	18.02	Full core solid stone)	91.5%

End of Hole R.L. 18.02

Analysis of composite sample from 71'0" to 76'0"

CaO	50.7%
SiO ₂	4.6%
Fe ₂ O ₃	0.8%
Al ₂ O ₃	0.9%
MgO	0.5%
Loss	41.3%
SO ₃	0.05%

Drilling Log

Hole No. 6/74

Commenced: April 1974

Completed: April 1974

Location: 1171 ft East, 2495 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	99.80		
93'0"	6.80	Edge of Pinnacle of Stone	
107'0"	-7.20	Struck solid limestone)	
112'6"	-12.70	Full core solid stone)	82.4%

End of Hole R.L. - 12.70

Analysis of composite sample from 107'0" to 112'6"

CaO	46.0%
SiO ₂	11.9%
Fe ₂ O ₃	1.1%
Al ₂ O ₃	2.0%
MgO	0.8%
Loss	36.6%
SO ₃	1.2%

Drilling Log

Date No. 7/74

Commenced: April 1974

Completed: April 1974

Location: 3789 ft East, 353 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	106.67		
31'6"	75.17	Struck limestone)	
37'0"	69.67	Entered cave)	
42'0"	64.67	Struck limestone)	90.4%
47'0"	59.67	Full core solid stone)	

End of Hole R.L. 59.67

Analysis of composite sample from 31'6" to 47'0"

CaO	49.8%
SiO ₂	5.5%
Fe ₂ O ₃	0.8%
Al ₂ O ₃	1.4%
MgO	1.0%
Loss	40.3%
SO ₃	0.7%

Drilling Log

Hole No. 8/74

Commenced: April 1974

Completed: April 1974

Location: 3435 ft East, 860 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	104.42		
66'0"	38.42	Struck limestone)	76.9%
72'4"	32.08	Full core solid stone)	

End of Hole. R.L. 32.08

Analysis of composite sample from 66'0" to 72'4"

CaO	42.5%
SiO ₂	13.9%
Fe ₂ O ₃	1.8%
Al ₂ O ₃	3.6%
MgO	1.1%
Loss	34.2%
SO ₃	1.7%

Drilling Log

Hole No. 9/74

Commenced: May 1974

Completed: May 1974

Location: 3122 ft East, 1233 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	111.09		
60'0"	51.09	Struck limestone)	87.5%
67'0"	44.09	Full core solid stone)	

End of Hole R.L. 44.09

Analysis of composite sample from 60'0" to 67'0"

CaO	48.2%
SiO ₂	8.7%
Fe ₂ O ₃	0.8%
Al ₂ O ₃	1.2%
MgO	0.9%
Loss	39.1%
SO ₃	0.4%

Drilling Log

Hole 10/74

Commenced: May 1974

Completed: May 1974

Location: 2394 ft East, 1213 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	117.67		
67'0"	50.67	Struck limestone)	
79'0"	38.67	Full core solid stone)	88.2%

End of Hole R.L. 38.67

Analysis of composite sample from 67'0" to 79'0"

CaO	48.7%
SiO ₂	6.8%
Fe ₂ O ₃	1.0%
Al ₂ O ₃	1.8%
MgO	0.8%
Loss	39.1%
SO ₃	1.0%

Drilling Log

Hole No. 11/74

Commenced: May 1974

Completed: May 1974

Location: 1743 ft East, 960 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	122.81		
41'0"	81.81	Struck limestone)	91.0%
50'0"	72.81	Full core solid limestone)	

End of Hole R.L. 72.81

Analysis of composite sample from 41'0" to 50'0"

CaO	50.5%
SiO ₂	4.7%
Fe ₂ O ₃	0.7%
Al ₂ O ₃	1.5%
MgO	1.0%
Loss	40.9%
SO ₃	0.03%

Drilling Log

Hole No. 12/74

Commenced: May 1974

Completed: May 1974

Location: 1829 ft East, 235 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface			
(No. 5 Floor Level) -	20.07	Solid limestone	
46'8"	- 66.74	" "	92.0%
100'6"	-120.57	" "	91.8%
153'8"	-173.74	" "	89.7%
205'1"	-225.13	" "	87.8%

End of Hole R.L. - 225.13

Analyses of composite samples

	0' to 46'8"	46'8" to 100'6"	100'6" to 153'8"	153'8" to 205'1"
CaO	50.3%	50.0%	49.2%	48.6%
SiO ₂	5.2%	5.2%	6.2%	7.3%
Fe ₂ O ₃	0.6%	0.6%	0.8%	1.0%
Al ₂ O ₃	1.1%	1.1%	1.5%	1.7%
MgO	1.4%	1.3%	1.4%	1.1%
Loss	40.9%	40.7%	39.6%	38.9%
SO ₃	0.5%	0.6%	0.9%	1.1%

Drilling LogHole No. 13/74Commenced: July 1974Completed: August 1974Location: 1931 ft East, 478 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface (No. 5 floor level)			
41'6"	-20.74	Solid limestone	
	-62.24	Solid stone with wide bands of calcite	89.9%
50'0"	-70.74	Solid limestone	
100'0"	-120.74	Solid limestone	86.9%
147'2"	-160.90	Solid limestone	89.8%
202'3"	-223.04	Solid limestone	90.2%

End of Hole R.L. -223.04

Analyses of Composite Samples

	0' to 50'0"	50'0" to 100'0"	100'0" to 147'2"	147'2" to 202'3"
CaO	50.0%	48.1%	49.3%	50.0%
SiO ₂	5.8%	7.7%	5.8%	5.6%
Fe ₂ O ₃	0.8%	0.9%	0.9%	0.70%
Al ₂ O ₃	1.4%	1.8%	1.4%	1.5%
MgO	1.3%	1.3%	1.4%	1.4%
Loss	39.8%	38.6%	39.7%	40.0%

Drilling Log

Hole No. 14/74

Commenced: August 1974

Completed: August 1974

Location: 1879 ft East, 126 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface (No. 5 Floor Level)	- 21.66	Solid limestone)	
50'0"	-71.66	" ")	91.6%
100'0"	-121.66	" "	90.9%
147'4"	-168.97	" "	90.1%
204'10"	-226.52	" "	88.3%

End of Hole R.L. - 226.52

Analyses of composite samples

	0' to 50'0"	50'0" to 100'0"	100'0" to 147'4"	147'4" to 204'10"
CaO	49.8%	49.5%	49.7%	48.8%
SiO ₂	5.0%	5.3%	5.7%	6.6%
Fe ₂ O ₃	0.5%	0.5%	0.7%	0.9%
Al ₂ O ₃	1.0%	0.8%	1.4%	1.6%
MgO	1.7%	1.5%	1.6%	1.3%
Loss	41.0%	40.5%	40.1%	39.1%

Drilling Log

Hole No. 15/74

Commenced: May 1974

Completed: June 1974

Location: 2326 ft East, 707 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	104.13		
41'7"	62.56	Struck limestone)	
50'1"	54.03	Solid limestone)	90.1%

End of Hole R.L. 54.03

Analysis of composite sample

CaO	49.3%
SiO ₂	5.5%
Fe ₂ O ₃	0.8%
Al ₂ O ₃	1.4%
MgO	1.5%
Loss	40.4%

30.48
1.22
0.04

31.74

Drilling Log

Hole No. 16/74

Commenced: June 1974

Completed: June 1974

Location: 2769 ft East, 279 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	132.13		
112'7½"	69.50	Struck limestone	
120'2"	61.95	Solid limestone	89.2%

End of Hole R.L. 61.95

Analysis of composite sample from 112'7½" to 120'2"

CaO	49.4%
SiO ₂	6.2%
Fe ₂ O ₃	0.8%
Al ₂ O ₃	1.5%
MgO	1.0%
Loss	40.0%
SO ₃	0.8%

Drilling Log

Hole No. 17/74

Commenced: June 1974

Completed: June 1974

Location: 2786 ft East, 785 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	188.73		
114'2½"	74.52	Struck limestone	
121'0"	67.73	Solid limestone	87.6%

End of Hole R.L. 67.73

Analysis of composite sample from 114'2½" to 121'0"

CaO	48.2%
SiO ₂	7.5%
Fe ₂ O ₃	1.1%
Al ₂ O ₃	1.6%
MgO	1.2%
Loss	39.2%
SO ₃	1.0%

Drilling Log

Hole No. 18/74

Commenced: June 1974

Completed: June 1974

Location: 3085 ft West, 2593 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	77.23		
75'3"	1.98	Struck limestone)	
84'0"	- 6.77	Solid limestone)	85.5%

End of Hole R.L. - 6.77

Analysis of Composite sample from 75'5" to 84'0"

CaO	47.3%
SiO ₂	10.5%
Fe ₂ O ₃	0.6%
Al ₂ O ₃	1.3%
MgO	0.9%
Loss	38.2%

Drilling LogHole No. 19/74Commenced: 26th August, 1974Completed: 3rd September, 1974Location: 2317 ft East, 903 ft North referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	100.43		
40'6"	59.93	Reddish clay with gravel	
54'0"	46.43	Reddish and yellow clay seams	
59'6"	40.93	Full core broken limestone	
60'6"	39.93	Clay seam	
70'4"	30.10	3'3" broken stone - 6'7" clay	
75'5"	25.01	3'11" broken stone - 1'2" clay	
81'0"	19.43	4'4" broken stone - 1'3" clay	
90'4"	10.10	8'8" broken stone - 8" clay	
100'2"	0.26	8'2" broken stone - 1'8" clay	
109'7"	- 9.15	7'5" broken stone - 2'0" clay	
111'0"	-10.57	8" broken stone - 9" clay	
112'0"	-11.57	6" " " - 6" clay	
122'3"	-21.84	3'2" " " - 7'1" clay	
124'5"	-23.98	2'2" " "	
131'0"	-30.54	Clay	

End of Hole R.L. - 30.54

Drilling Log

Hole No. 20/74

Commenced: September, 1974

Completed: 27th September, 1974

Location: 3378 ft East, 246 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	105.83		
29'6"	76.33	Struck limestone	
49'11"	55.91	Full core solid limestone	
85'4"	20.50	Full core solid limestone	
124'8"	-18.85	Full core solid limestone	

End of Hole R.L. -18.85

Drilling Log

Hole No. 21/74

Commenced: August 1974

Completed: 20th September 1974

Location: 2850 ft East, 281 ft North referred to plant base lines.

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	107.83		
23'6"	84.34	Struck limestone	
53'9"	54.08	Full core solid limestone	
109'4"	- 1.53	Full core solid limestone	
158'4"	- 50.54	" " " "	
205'3"	- 97.42	" " " "	
244'8"	-136.83	" " " "	

End of Hole R.L. - 136.83

Drilling Log

Hole No. 22/74

Commenced: August 1974

Completed: 23rd August, 1974

Location: 1995 ft East, 806 ft South referred to plant base lines

<u>Drill Depth</u>	<u>R.L.</u>	<u>Core</u>	<u>% CaCO₃</u>
Surface	181.03		
138'9"	42.31	Struck limestone	
145'9"	35.28	Broken limestone	
170'7"	10.43	Solid limestone	
210'6"	-29.47	Yellow clay	
270'6"	-89.47	Red clay	

End of Hole R.L. -89.47