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DEPARTMENT OF MINES, SOUTH AUSTRALIA.

GEOLOGICAL EXPLORATION REPORT NO. WD5

WILD DOG URANIUM PROSPECT
SECTION 75 HUNDRED MYPONGA
PROGRESS GEOLOGICAL REPORT

by

F.E. HUGHES

ASSISTANT GEOLOGIST

SR 11/2/64

9

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Associated Plans

US - 276

US - 287

US - 288

US - 289

US - 290

I Introduction

Since the completion of the previous Progress Report (No. WD4) test excavations have been started on each of the two prospects (Nos. 1 & 2 Lodes) and two short diamond drill holes have been completed, with another in progress.

A departmental camp is being established at the foot of the hill to the South of the workings, (~~plate 1~~) and gravelled access roads have been completed to the camp and from there to each of the prospects.

To assist in the more rapid location of diamond drill sites and other developments, a local survey grid has been superimposed over the area immediately embracing the No.2 lode workings (plan No.US.276).

II The Testing Programme and Developments in Geology of the Orebodies

(A) No.1 Lode

(1) An open cut some 6 ft. deep started on No.1 Lode (Plate) has allowed a much better understanding of its geological setting. The orebody is seen to occupy part of a bed on the crest of a minor anticlinal fold, and pitches with the surrounding rocks at about 25° to the north. The average thickness of the mineralised horizon as exposed is 42", at an average grade of 32 lb. U_3O_8 per ton as estimated from channel samples taken on the walls of the cut.

Radioactivity is mainly due to segregations of the secondary uranium minerals, uranophane, gummite, meta-antunite etc. (described in Report No. WD4) these minerals being derived from pitchblende weathering in place. They are disseminated throughout the ore horizon which is a biotite felspar gneiss, with biotite developed to a much greater degree than in the surrounding rocks. A somewhat discontinuous seam of intense mineralisation can be traced through the ore horizon some 18" above the footwall. A specimen submitted to the petrologist revealed pitchblende in advanced stages of weathering, occurring as small blebs, rounded remnants and veinlets; the specimen was surrounded by a halo of intense secondary minerals and limonite.

Overlying the orebody the rocks are the felspar-biotite gneisses common to the area, demonstrating the tight anticlinal dragfold to which the orebody is confined. Because outcrop is poor the structure cannot readily be traced for any distance on the surface. Beneath the ore is a soft felspar gneiss carrying only a little biotite, and of "spotty" appearance due to greyish-green decomposed felspar. Structure is very poorly reflected in this rock, and mineralisation is absent or very weak; two samples cut from it in the open cut each indicate a grade of 1 lb. U_3O_8 per ton, possibly due to contamination or to weak secondary uranium mineralisation derived by ground water circulation from the orebody immediately above.

(ii) Diamond Drilling Two holes have been completed (see plan US - 287 and sections US - 289, US - 290), and radiometrically logged by the Geophysical Section. Geological logs of these two holes are appended.

DDH No. 7 (10600N, 10815E) was directed to intersect near the crest of the orebody on pitch. The biotite-rich horizon was traversed from 12 ft. to 15'8", but strong mineralisation appears in only the lower 14" of the intersection. The grade of the split core sample (30" at 0.6 lb/ton and 14" at 4.9 lb/ton) is considerably lower than that indicated by the radiometric borehole log, this may be due to the washing out of weakly fixed secondary minerals from the soft core during drilling. Beneath the ore zone is a considerable thickness (44 ft.) of the spotty felspar gneiss referred to above.

DDH No. 10 (10580N, 10795E) directed to intersect the west limb of the structure traversed the biotite rich horizon from 9'6" to 14'9" but recorded no mineralisation. From this depth to 47 ft. the spotty felspar gneiss was encountered, a weakly mineralised section almost vertically beneath the orebody returning an assay of 0.8 lb/ton over 15 ft.

(iii) Production From the open cut 83 tons of ore were transported to Thebarton to 1.3.54, at an average grade of 10.0 lbs U_3O_8 / long ton, as indicated by chemical assay. Considerable dilution of ore is therefore assumed, both by

"overbreak" in the open cut and by inclusion of soil etc. by bulk loading methods from an uneven ground surface.

(B) No.2 Lode

(i) A prospecting shaft (see section US - 288)was collared in the centre of the richest lens of ore (on the surface, a zone of secondary mineralisation some 50 ft. long and 2-3 ft. wide). Near the surface the lode was ill-defined and of low grade, but from 4-5 ft. depth a rolling but well defined hanging wall dipping 40° west and flattening slightly with depth was followed down to approximately 19 ft. underlay depth. To this depth, the lode, which occupied a width of approximately 2 ft. at an average grade of 1.2% U_3O_8. Below 19 ft. there is a sudden lensing out, the plane of the lode being occupied by weak irregular shears in the country rock, approximately parallel to bedding foliation.

Small amounts of weathered pitchblende are encountered in a seam in the ore adjacent to the hanging wall, and, to a lesser degree, in another adjacent to the poorly defined footwall. The alteration products of the primary mineral (described above) are also present, together with small amounts of pale yellowish-green uranospinite (calcium-uranium-arsenate), appearing as disseminations in footwall rock adjacent to the ore.

The shaft was extended to a depth of 27 ft, and discontinued, pending results of diamond drilling and a further test pit. It appears from the evidence of shallow flutings on the walls that the ore shoot has a low angle pitch to the north.

The South wall of the shaft is occupied for the first 12 ft by a dyke of very coarse grained microcline pegmatite which transects the lode striking east-west and dips steeply to the south, its margin being defined by strong jointing in the country rock. It is apparently unrelated to the other pegmatites on the field balk in composition of the felspars and in field relationships. It transgresses both bedding and lode formation, in contrast to the general sill-like form of the most of the pegmatites recorded in the area.

(ii) Production To 19.2.54, 18.5 tons of ore were transported from the prospecting shaft to Thebarton at an average grade of 4.9 lb. U_3O_8 per ton. This figure again indicates considerable dilution of ore by "overbreak" of waste in the shaft.

III. Recommendations for testing of other anomalies

At least three other anomalies on the field require further investigation, viz. those centred at:

(a) 10770N, 10590E

(b) 10550N, 10690E

(c) 10440N, 10710E.

as well as (d) the probable extension of the No.2 Lode to the north under deep soil cover.

(a) This anomaly which is of a relatively low order, appears near an outcrop of bedrock and is to some extent obscured by very shallow soil cover. It should be tested by preliminary hand trenching, followed by one or two shallow test holes (for this purpose the track mounted wagon drill would be most suitable.).

(b) Some hand trenching could be used to advantage here also, followed by shallow wagon-drill holes to be probed by the borehole logging equipment.

(c) This anomaly is of relatively high order, and although it could conceivably be caused by the migration down slope of material from the No.1 Lode should be tested (a preliminary test pit 2 feet deep produced some secondary uranium minerals). The outcrop, comprising very large boulders on a steep hillside, would make hand trenching difficult, but a bulldozer could possibly be used to make a shallow excavation. Later, test boring should be undertaken, either by wagon drill or light diamond drill.

(d) Northerly extension of No.2 lode Use of a bulldozer for two to three days is recommended for this purpose. Soil cover is estimated at upwards of 6 ft. over a potential lode zone of some 200 ft. Some encouragement for this work is given by a weak radiometric anomaly noted in this direction during the radiometric survey of the area. Further to the north on

the south slopes of the timbered hill opposite the workings a number of significant geiger readings were encountered by prospector Amtmanis during routine prospecting survey. These also should be investigated by hand trenching through the soil.

Summary The use of a bulldozer for two or three days, together with the wagon drill for a week, and manual labour for two men for three weeks is recommended for the testing of several significant radioactive anomalies in the area.

IV. Local Water Supply

The spring quarter mile northwest of the camp has been cleared out to a depth of 6 ft, and is yielding an adequate supply of water for diamond drilling and mining purposes. A sample submitted for analysis showed 187 grains per gallon.

The larger water hole in the Wild Dog Creek half mile south west of the camp returned an analysis of 71 grains per gallon. The flow through this water hole, tested by V-notch on 22.2.54 was approximately 7000 gallons per day.

F.E. HUGHES.
ASSISTANT GEOLOGIST.

FEH/GC
12.3.54.

DEPARTMENT OF MINES, ADELAIDE

DIAMOND DRILL LOG

6527-218

Project Wild Dog Mine Hyponga — DM SR 11/2/64

Bore No. 7 — Bore Serial No. DD

Hundred Hyponga — Section 75 — Plan Reference US-287

Co-ordinates 10600N 10815E — R.L. of Collar 1003.4 305.84

Bearing — Depressed Vertical — Driller F. Noble

Date Drilling commenced 23.2.54 — Date Drilling completed 26.2.54

LOG

Depth From Ft.	Depth From In.	Depth To Ft.	Depth To In.	Core Recovered Ft.	Core Recovered In.	Note "Dip" readings refer to the angle between Foliation and axis of drill core.
0'	-	2	-	2	0	0' - 2'0 soil and weathered rock
2	0	3	7	1	3	2' - 12'0 fine grained felspar biotite gneiss,
3	7	5	9	1	8	developing more biotite
5	9	7	9	1	10	from 10' - 12'
7	9	8	5	-	5	dip 40° at 4'0
8	5	10	5	1	7	60° at 5'9
10	5	12	-	1	3	40° at 7'6
12	-	14	6	2	-	60° at 10'0
14	6	16	8	1	8	45° at 11'
16	8	20	5	1	6	12'0 - 14'6 biotite felspar gneiss, mineralised
20	5	25	-	3	1	along joints and cracks from 13'0 - 14'6
25	-	26	9	1	-	with secondary uranium minerals, dip 50°
26	9	29	-	1	6	14'6 - 15'8 Strong lode, biotite felspar gneiss with
29	-	30	-	1	-	strong impregnations of secondary
30	-	31	6	1	3	uranium minerals.
31	6	35	2	3	8	15'8 - 16'0 biotite felspar gneiss, weakly mineralised.
35	2	38	2	3	-	16'0 - 60'0 "Spotted" gneiss, of soft decomposed grey-
38	2	42	-	2	-	green felspar with little biotite and
42	-	45	-	1	5	weak banding very weakly mineralised to
45	-	50	-	5	-	40 ft.
50	-	52	6	1	3	dip flat at 54°
52	6	54	8	2	-	pegmatite 44' - 44'6, 57'8 - 60'
54	8	57	8	3	-	60'0 - 70'1" Weakly banded medium - grained biotite
57	8	60	2	-	7	(end of bore) felspar gneiss
60	2	65	-	4	3	pegmatite 68'6 - 69'9
65	-	66	10	1	2	
66	10	70	1	3	-	

21.36

3.7
12.2

4.4 - 4.8

Bore logged by F.E. Hughes

Date 26.2.54

50 ks50—6.53 3341

DEPARTMENT OF MINES, ADELAIDE

DIAMOND DRILL LOG

6527-221

Project Wild Dog Mine, Myponga — DW SR 11/2/64

Bore No. 10 — Bore Serial No. DD

Hundred Myponga — Section 75 — Plan Reference US-287

Co-ordinates 1058ON 1079.5E — R.L. of Collar 1004.1 306.05

Bearing 090 — Depressed 45° — Driller W. Noble

Date Drilling commenced 12.2.54 — Date Drilling completed 22.2.54

LOG

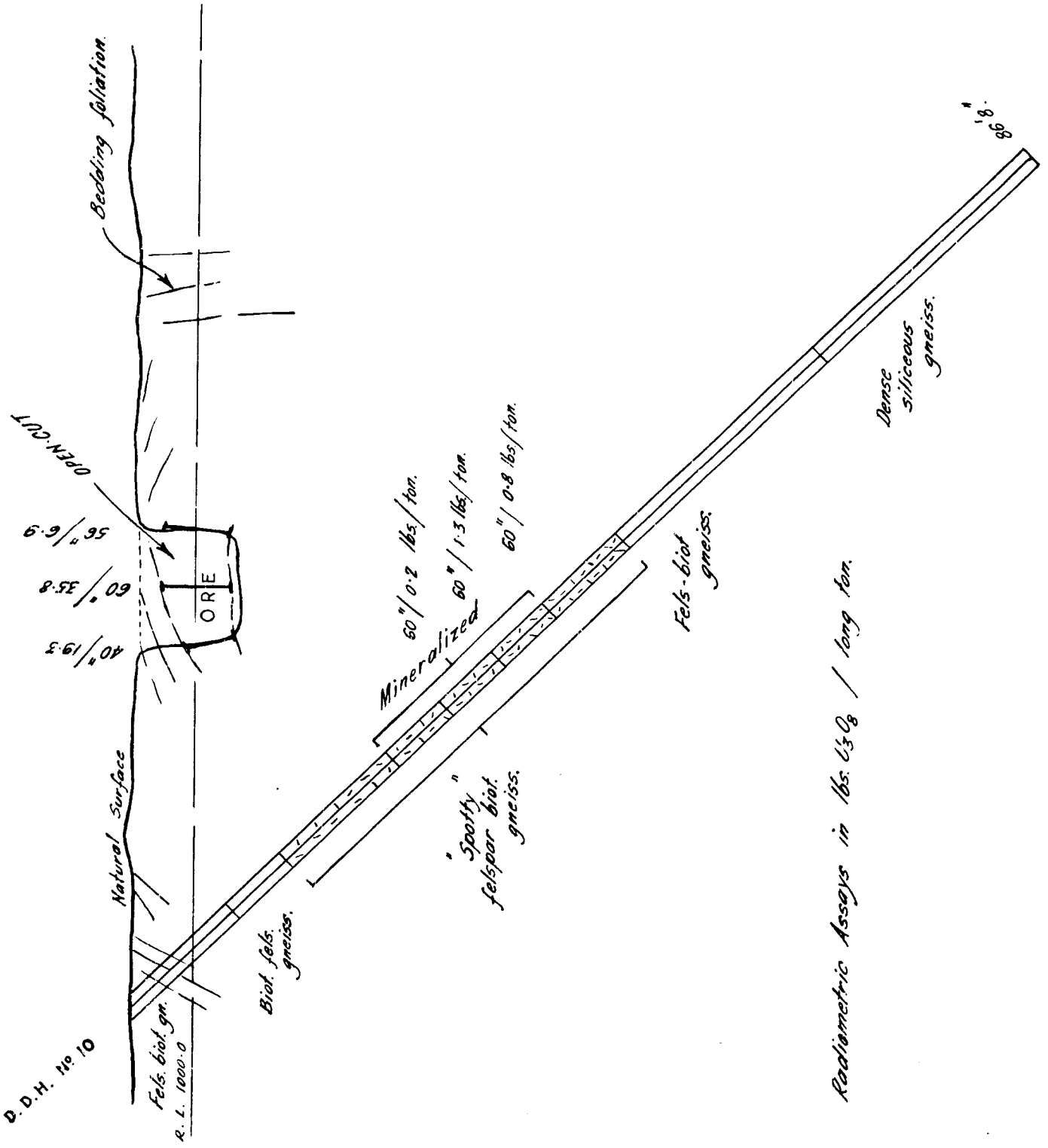
Depth From Ft.	Depth From In.	Depth To Ft.	Depth To In.	Core Recovered Ft.	Core Recovered In.	Note "Dip" readings refer to the angle between bedding foliation and axis of drill core.
0'	-	1	0	1	0	0' - 1'0 soil and weathered gneiss
1'	0	2	3		9	1'0 - 9'6 banded felspar - biotite gneiss
2'	3	3	6	1	1	dip 45°
3	6	5	9	1	4	9'6 - 14'9 soft biotite felspar gneiss, weakly
5	9	7	9	1	11	banded
7	9	9	6	1	-	
9	6	12	2	1	6	14'9 - 47' soft felspar biotite gneiss, with
12	2	14	9	1	7	(approx) "Spotty" appearance due to pale grey-green
14	9	20	-	2	2	decomposed felspar, weak structure.
20	0	22	4	1	9	dip 50° at 19'
22	4	24	6	1	-	28'6 - 40' weakly mineralised
24	6	26	8	2	2	
26	8	28	-	-	4	with disseminated
28	-	31	9	1	6	secondary uranium minerals and limonite,
31	9	34	10	2	8	dip steepening to 80° at
34	10	37	3	2	2	34' - 40'
37	3	40	6	-	10	47' - 66'2 felspar biotite gneiss structure still
40	6	44	10	1	9	weak but becoming more clearly banded,
44	10	45	2	-	4	well defined after 60'
45	2	47	2	-	7	dip 45° at 55'6
47	2	48	2	-	11	60° at 63'
48	2	51	4	3	-	dense fine grained quartz-felspar -
51	4	55	8	3	11	biotite gneiss 63'3 - 64'3
55	8	58	9	2	2	66'2 - 72'6 dense fine grained siliceous felspar
58	9	60	-	1	3	gneiss, low in biotite, with little
60	-	62	3	2	3	epidote in joint planes and along
62	3	65	3	2	6	bedding 71' - 72'
65	3	68	-	2	9	dip 55° at first and becoming shallow
	-	69	7	1	2	72'6 - 86'8 pegmatised felspar biotite gneiss
69	7	72	6	2	11	(end of bore) dip 10° - 30° at first, and becoming
72	6	75	3	2	5	steeper.
75	3	80	5	1	2	
80	5	83	-	-	8	
83	-	83	8	-	7	
83	8	85	-	1	1	
85	-	86	8	1	2	

26.42

Bore logged by F.E. Hughes

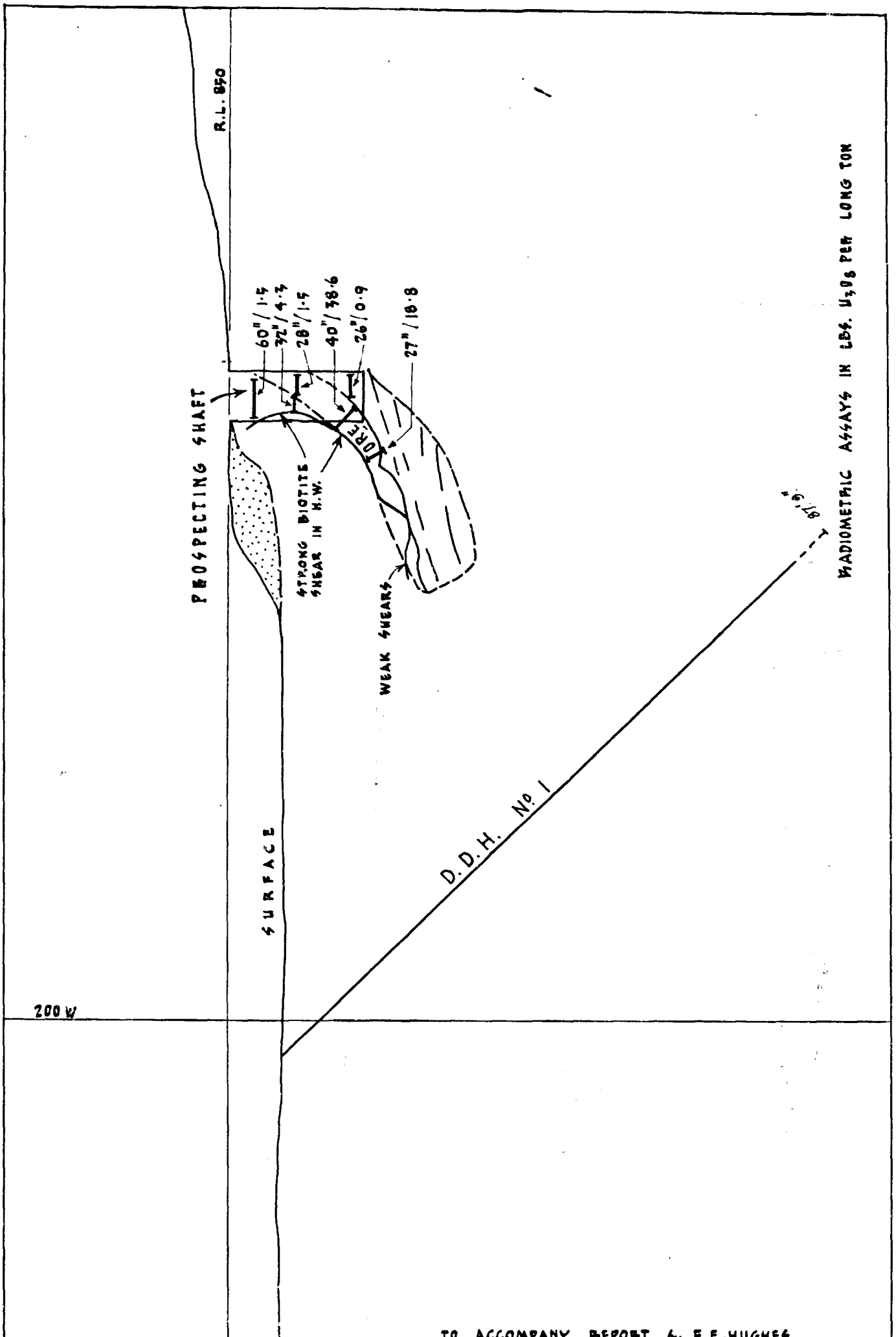
Date 22.2.54

50 ks50—6.53 3341



To accompany report by F. E. Hughes.

S.A. DEPARTMENT OF MINES					
Approved Director	Passed A.D.S. C.D.	Drn. Tcd. Ckd. Exd.	WILD DOG MINE No 1 LODE Section 10580N looking north.	D.M. Req.	Scale 10 ft. to 1 in. SUS·289 No 4 Date 24·2·54



TO ACCOMPANY REPORT by F.E.HUGHES.

S.A. DEPARTMENT OF MINES

Approved	Passed	Drn.	WILD DOG MINE MYPONGA No. 2 LODE SECTION 5100N LOOKING NORTH	D.M.	Scale 10 Ft. to 1 inch
		Tcd. K		Reg.	SU4·288
		Ckd.			Hc 4
Director	C.S.	Exd.			Date 10·3·54

10800 E

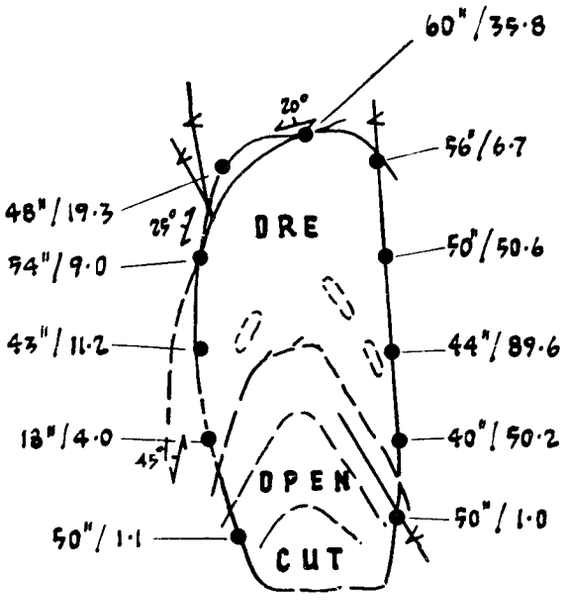
◎ D.D.H. 11 (VERTICAL)
(IN PROGRESS)

N

D.D.H. 10
45°
(COMPLETED 86'5")

D.D.H.7 (VERTICAL)
COMPLETED 70'1"

10600 N



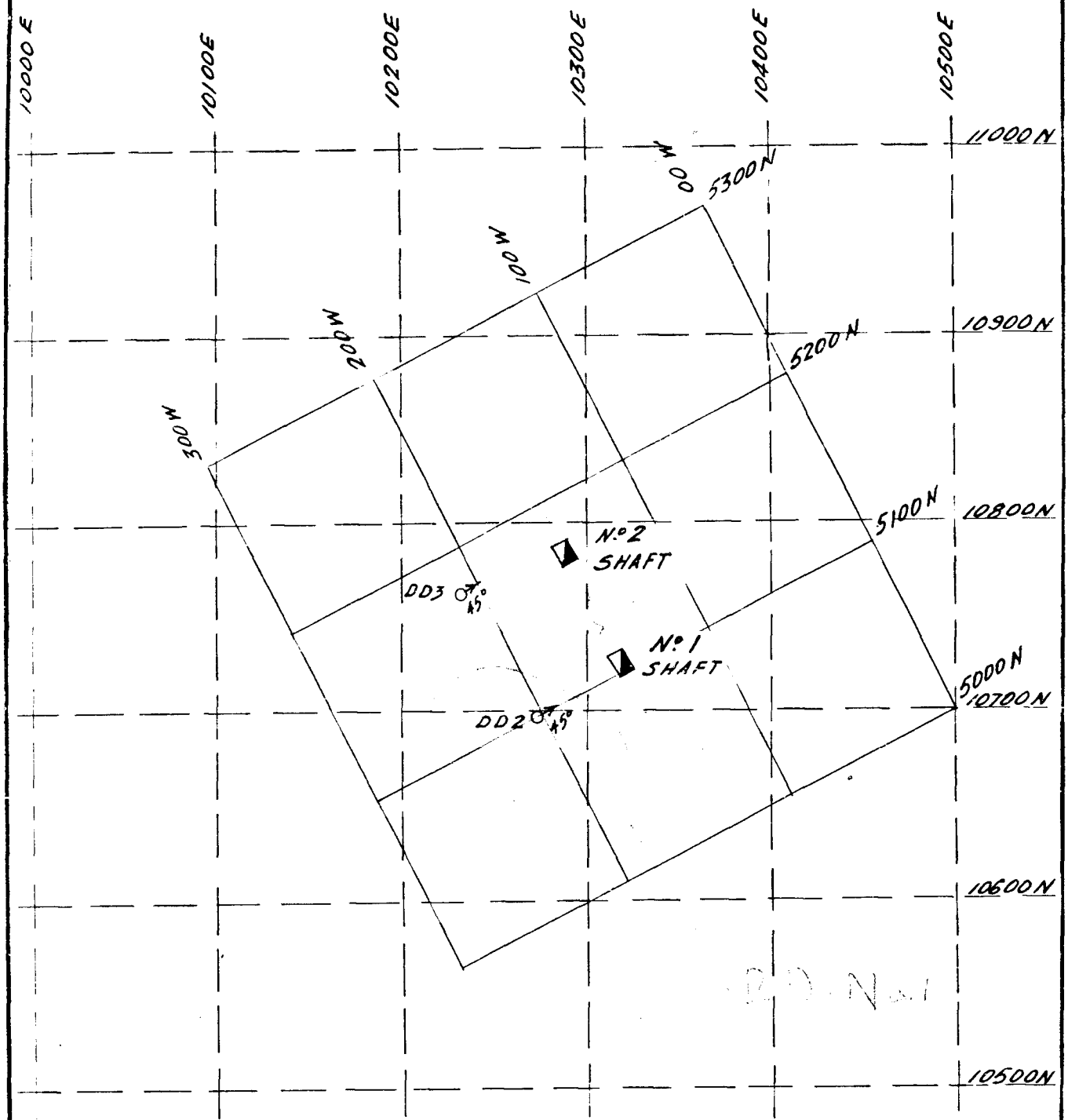
NOTE

GEOLOGY WITHIN THE LIMITS OF THE OPEN CUT HAS BEEN MAPPED AT A LEVEL 3 FEET BELOW SURFACE.

RADIOMETRIC ASSAYS IN LBS. U_3O_8 PER LONG TON.

TO ACCOMPANY REPORT by F.E. HUGHES

S.A. DEPARTMENT OF MINES					
Approved	Passed	Drn.	WILD DOG MINE MYPONGA No. 1 LODE SURFACE PLAN	D.M.	Scale 10 FT TO 1 INCH
		Tcd. K		Req.	SUR·287
		Ckd.			Hc 4
Director	20	Exd.			Date 10·3·54



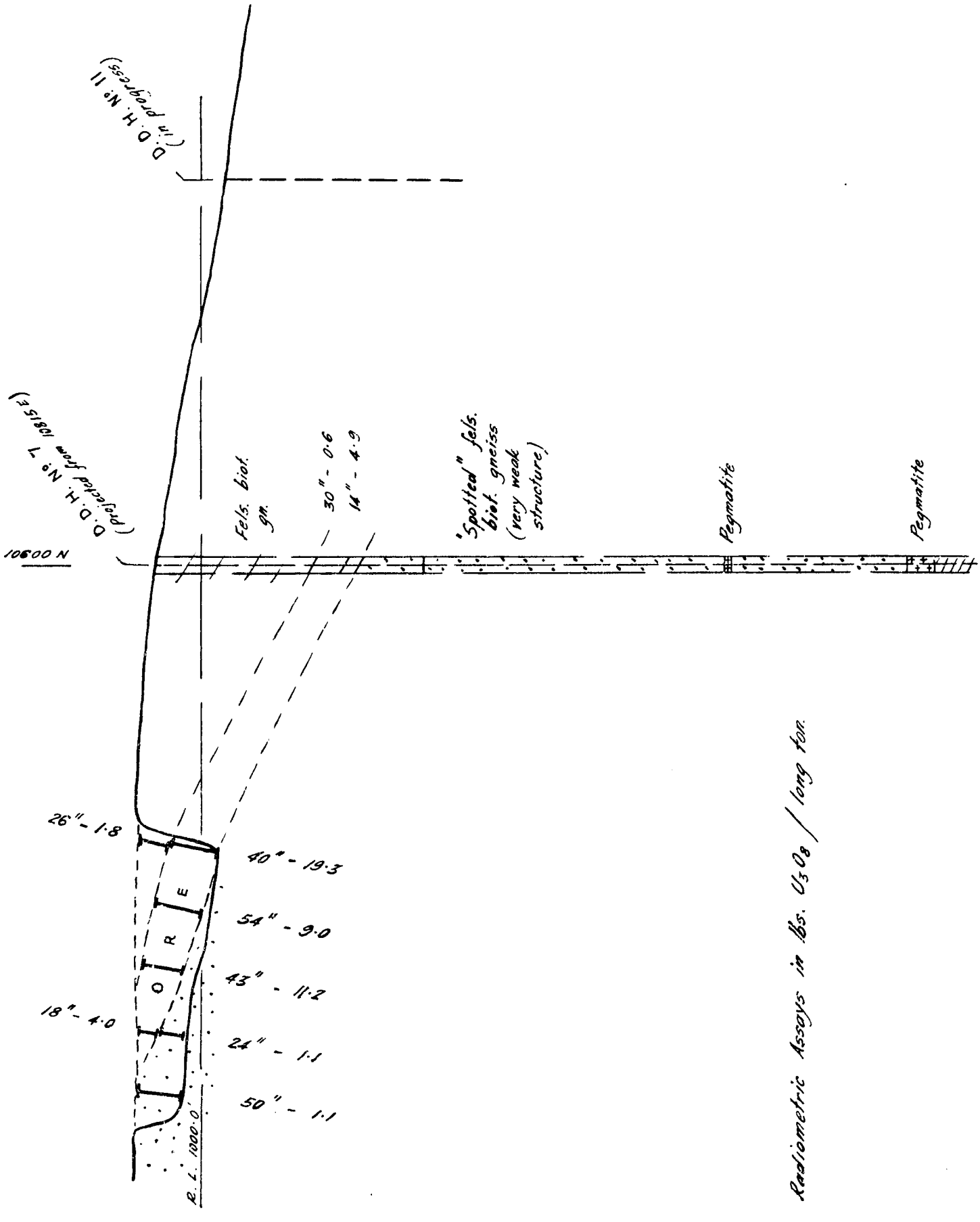
Original Grid ---------- — — —

New Grid ---------- ————

Co-ordinates of S.E. corner of shaft inside timbers 5098½ N, 147 W.

S. A. DEPT. OF MINES

Approved	Passed	Drn.	WILD DOG PROSPECT	D.M.	Scale 80ft to 1"
		Tcd. J. McC	LODE No 2	Req.	SU.S. 276
		Ckd.	NEW GRID & SHAFT LOCATION		Hc 4
Director	C.D.	Exd.			Date 26-2-54



To accompany report by F. E. Hughes.

S.A. DEPARTMENT OF MINES

Approved	Passed	Drn.	WILD DOG MINE	D.M.	Scale 10 ft. to 1 in.
		Tcd.	No 1 LODE	Req.	SUS·290
		Ckd.	Section 10820 E looking West		Hc 4
Director		Exd.			Date 24·2·54.