

TENEMENT: S.M.L. 531

TENEMENT HOLDER; MINES ADMINISTRATION PTY. LTD

REPORT:

WECKER, R. 1971

South Lake Frome.

1st January 1971 to 5th May 1971

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- (2) Lithology LOG.
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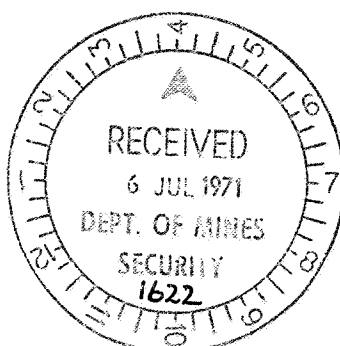
FINAL REPORT - SML.531 (SOUTH LAKE FROME)

MINES ADMINISTRATION PTY. LIMITED

14/1/71 TO 5/5/71

by

R. WECKER



FINAL REPORT - SML.531 (SOUTH LAKE FROME)

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Special Mining Lease 531 covering an area of 193 square miles was granted to Mines Administration Pty. Limited on the 14th January 1971 for the purpose of searching for all minerals; the special emphasis however was on uranium. The area covered by this Special Mining Lease is located in the south western portion of the Frome Embayment - a basin which has attracted wide interest with companies searching for sedimentary uranium; encouraging results have been obtained in other parts of the Embayment within the Tertiary and possibly Cretaceous sediments.

The previous lease-holders of the SML.531 area, Exoil-Transoil-Petromin, conducted an intensive drilling programme encompassing most of the solid ground of the Lease area. This can be seen from the drill hole locations plotted on the Location Map attached to this report. No anomalous radioactivity was detected and sands appeared to be almost entirely absent in the section.

The approach adopted by Mines Administration Pty. Limited in its exploration programme was three fold; a groundwater survey, an airborne radiometric survey and finally a reconnaissance drilling programme. In general the exploration results were most disappointing; the Tertiary and Mesozoic sections were comprised almost entirely of impermeable clays and silts and no radioactive anomalies were recorded.

GROUNDWATER SURVEY

An extensive groundwater sampling programme in the south western portion of the Frome Embayment was carried out by the company; however, due to the scarcity of bores and other technical problems, no groundwater samples could be obtained on the SML.531 area.

Analyses of groundwater samples from the area immediately west gave only weakly anomalous U_3O_8 values. No value exceeded twice the background value which was arbitrarily fixed at 5 parts per billion U_3O_8 (lower limit of determination). Sampling points are shown on the attached map.

AIRBORNE RADIOMETRIC SURVEY

An airborne scintillometer survey over the whole of SML.531 was undertaken in early 1971 by Mines Administration Pty. Limited.

A Cessna 182 was used, operating at an average altitude of 210 feet and an air speed of 105 knots. Line spacing was approximately 1 mile.

A 1:250,000 map showing the flight lines and scintillometer readings is attached to this report.

No significant anomalies were detected although Balcoracana Creek did produce a peak reading of $X1\frac{1}{2}$ background. The Pasmore River gave only normal background readings.

DRILLING DETAILS

During early 1971, three holes were drilled in the South Lake Frome area for an aggregate footage of 1500 feet. All holes were logged for S.P., resistivity and gamma response.

The Drill Hole Data sheet (attached) contains the general information on the numbers, locations, depths, formation tops and radioactive anomalies. Composite (40 feet to 1 inch), lithologic, S.P.-resistivity-gamma logs have also been prepared. A north-south profile relating geology to radioactivity has been prepared (Plate 3); a location diagram of drill holes is included on that plate.

GEOLOGY

The Frome Embayment is defined by outcropping Palaeozoic and Precambrian rocks on the east (Broken Hill and Tibooburra blocks), the south (Olary block) and the west (North Flinders Range). The Mount Painter Ridge, a basement high, constitutes a partial barrier to the north.

Within the embayment a thick sequence of Cainozoic and Mesozoic sediments overlie Precambrian granites and metasediments and Cambrian sediments.

The post-Palaeozoic section encountered during drilling is as follows.

Recent alluvium and aeolium forms a thin veneer over the area.

Quaternary red-brown clays, silts and minor interbedded fine sands blanket the area to a depth of at least 60 feet. These sediments were derived principally from the Precambrian and Palaeozoic rocks to the south and west. The amount of reworked Tertiary material is difficult to ascertain but appears to have been small.

Tertiary clays and minor silts and fine sands have a relatively uniform thickness of 150 to 200 feet. These sediments were deposited mainly under a fluvial-lacustrine regime. The argillaceous nature of these sediments would be compatible with the view that the fine grained Cambrian sediments outcropping to the west constituted the main provenance area.

Cretaceous. Recognition of the Tertiary-Cretaceous boundary is rather tenuous but has been arbitrarily placed at the top of the whitish clay zone overlying the dark greenish-grey, slightly carbonaceous clay. Elsewhere in the basin this clay has been placed in the Cretaceous on the basis of palaeontological work. These argillites were deposited in a marine environment.

RADIOACTIVITY

No anomalous radioactivity was encountered in any of the drill holes. This concurs with the results obtained by Exoil, Transoil and Petromin.

CONCLUSIONS

The Cainozoic section which blankets the area to depths of 200 to 300 feet consists of impermeable clays and silts with rare, thin, fine grained sands. The Cretaceous section is similar in lithology. Stratigraphic correlations were too poor to enable meaningful comment on structure.

Both sections lack sandy horizons with potential as host rocks for sedimentary uranium. It is considered that the main area of interest would be closer to the source areas - to the south or west - where sandy intercalations could be reasonably expected.

It seems most unlikely that further exploration on the South Lake Frome area would produce a different and more promising pattern. For this reason SML.531 was relinquished on 5th May 1971.

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PROJECT STH. WEST, FROME 1st SEASON HOLE SIZE 4 3/4 ☐ AIR ☒ WATER HOLE NO. F. 1
ELEVATION Act. 127' NORTH _____ EAST _____ LOGGED BY R. Wecker DATE 1-2-4-71
SECTION _____ TOWNSHIP _____ RANGE _____ T.D. 500' P.D. 497'

DEPTH	STRIP LOG	LITHOLOGY LOG	ANALYSIS OR RADIOACTIVITY
		0-20 <u>Gritty Clay</u> - Lt. brown, sticky, melam. well rounded grs gypsum notable.	007
20		20-25 <u>Clayey Sand</u> - med. brown, sticky, Sand - v. f. gr., subang to subrounded, qtzose, well sorted.	
40		25-35 <u>Clay</u> - med. brown, sticky, Iron soln. tracts.	
60		35-40 <u>Clayey Sand</u> - Lt. brown, sticky, Sand - f. gr., subrounded, well sorted, qtzose.	
80		40-60 <u>Clay</u> - med. brown, sl. puggy.	
100		60-70 <u>Clayey Sand</u> - Lt. brown, sticky, Sand - v. f. to f. gr., subrounded to rounded, qtzose mainly, fair sorting.	
120		70-80 <u>Clay</u> - med. brown, puggy, iron soln. tracts.	
140		80-90 <u>Sandy Clay</u> - med brown, sl. puggy, iron soln. tracts, Sand - v. f. to f. gr., rounded, qtzose & melam grs, fair sorting.	
160		90-130 <u>Clay</u> - med. brown, puggy, iron soln. tracts common. Bl grey clay clasts from 100'. Sl. sandy from 90'-95'. Sl. gravelly from 100'-105'.	
180		130-180 <u>Clay</u> - yellowish brown, puggy, iron soln. tracts common, minor bl grey clay.	
200		180-185 <u>Clay</u> - bluish grey & reddish brown, mottled, puggy.	
220		185-200 <u>Clay</u> - As for 130'-185'.	
240		200-205 <u>Clay</u> - mottled yellowish brown, bluish grey & reddish brown, slightly puggy.	
260		205-235 <u>Clay</u> - bluish grey, puggy. minor mottling of yellowish & reddish browns. minor olive grey.	
280		235-295 <u>Clay</u> - whitish, minor bluish to olive grey, puggy. Dark brown noted from 250'. Dark grey or minor olive grey first noted at 285'.	
300		295-500 <u>Clay</u> - med. to dark grey, puggy, yellowish clay from 315'. Silty in parts e.g. 315', 335'-350'. minor lt brown from 320'-340' & 395'-415'. minor lime green clay over 335'-350'. minor black, carb. clay over 360'-365', 405'-440', 460-500'. minor olive grey from 405'-440' & 465'-475'. Sandy intervals from 450'-465' with v. fine, subrounded, quartzose grains.	
320			
340			
360			
380			
400			
420			
440			
460			
480			
500			

PROJECT 8TH WEST FROM E 1ST SEASON HOLE SIZE 4 3/4" ☐ AIR ☒ WATER HOLE NO. F. 2.
ELEVATION Act. 91' NORTH _____ EAST _____ LOGGED BY R. Wecker DATE 13-4-71.
SECTION _____ TOWNSHIP _____ RANGE _____ T.D. 500' P.D. 497'

DEPTH	STRIP LOG	LITHOLOGY LOG	ANALYSIS OR RADIOACTIVITY
		0-15. Clay — med. brown, sticky, sl. sandy, gypsiferous.	008
20		15-90. Clay — med. to reddish brown, sticky, gypsiferous in part, iron salt tracts common. minor bluish grey clay clasts. Silty from 65'-75'. Puggy from 60'.	
40	GYP		
60			
80	GYP	90-115 Clay — yellowish brown, minor bluish grey, puggy, gypsiferous over 90'-115'.	
100	GYP		
120	GYP	115-155. Clay — mottled bluish grey & yellowish brown, puggy. minor reddish brown from 145'.	
140			
160		155-170. Clay — Reddish brown & yellowish brown, mottled, sl. sticky, minor olive grey.	
180		170-190 Clay — As for 115'-155'.	
200		190-195. Clay — Pinkish brown, minor mottling with bl. grey, sl. sticky.	
220		195-200 Clay — Bluish grey, minor reddish brown, sl. sticky.	
240		200-265 Clay — Whitish & olive grey, sl. sticky. minor dark brown at 220' & 240'. Dark greenish grey at 255'.	
260		265-500 Clay — med. to dark grey, sometimes olive grey, puggy. Deep brown clay noted thro' out. Dark grey parting over 280'-290'. Slightly silty at 335', 345', 365'. Black, carb. clay at 375', 385', 410-420'. minor dark olive grey from 435'. minor yellowish clay from 330'. Sandy interval at 485'-495' — g. to s. v. f. to f. g., subang. to subrounded, well-sorted, abundant bluish grey clay matrix.	
280			
300			
320			
340			
360			
380			
400			
420			
440			
460			
480			
500			

T.D.

PROJECT 3TH. WEST. FROME 1ST SEASON HOLE SIZE 4 $\frac{3}{4}$ " ☐ AIR ☒ WATER HOLE NO. F. 3.
ELEVATION Act. 75' NORTH _____ EAST _____ LOGGED BY R. Wecker DATE 13-4-71.
SECTION _____ TOWNSHIP _____ RANGE _____ T.D. 500' P.D. 497'

DEPTH	STRIP LOG	LITHOLOGY LOG	ANALYSIS OR RADIOACTIVITY
			009
	GYP	0-5 <u>Evaporite</u> - gypsum, minor lgt. brown clay.	
20		5-10 <u>Gritty Clay</u> - subrounded metam. grt grs. in a lgt. brown clay matrix, gypsiferous.	
40		10-35 <u>Clay</u> - Reddish brown, sticky.	
60		35-55. <u>Clayey Sand</u> - lgt brown, sticky sand - v.f. to med gr., subrounded to rounded, fair sorting, gravelly towards base.	
80		55-75. <u>Clay</u> - med. brown, slightly silty, sticky, iron soln tracts.	
100	GYP GYP	75-80 <u>Sandy Clay</u> - med. brown, sticky sand. - v.f. to f. gr, well rounded, mainly qtzose.	
20		80-125. <u>Clay</u> - med. brown, puggy, iron soln. tracts. Evaporite bands between 95' & 105'. Silty at 115'.	
40		125-145. <u>Clay</u> - yellowish brown with increasing reddish brown mottling, puggy.	
60		145-165. <u>Clay</u> - Dark olive grey, pinkish & yellowish brown, sl. sticky.	
80		165-170 <u>Clay</u> - Pinkish brown & whitish, sticky.	
200		170-190 <u>Clay</u> - Olive grey to a yellowish green, sl. sticky. minor reddish brown & bluish grey mottling from 185'.	
40		190-195 <u>Clay</u> - Reddish brown & bluish grey, mottled, sticky.	
60		195-205 <u>Clay</u> - Bluish grey, whitish & reddish brown, sl. mottling, sticky.	
80		205-260 <u>Clay</u> - Whitish & bluish grey, sticky. med grey over 220'-230'. Dark olive grey noted from 230'.	
300		260-500 <u>Clay</u> - med. to dark grey, puggy. minor yellowish clay noted from 300'. minor olive grey 325'-340'. minor black carb. clay from 385'. Slightly silty from 460'-475'.	
20			
40			
60			
80			
400			
20			
40			
60			
80			
500			

DRILL HOLE DATA

010

SML.531 (SOUTH LAKE FROME)

Drill Hole No.	Grid Reference	Act. Elev.	T.D.	P.D.	Formation Tops	Alt.	Fresh	Radioactivity	Remarks
F-1	246153 Curnamona 1:250,000	127	500	497	0 - 255(?) Quaternary, (?)225 - T.D. Tertiary Cretaceous	Surf.		No anomalies recorded.	Total depth in Cretaceous argillite.
F-2	247164 Frome 1:250,000	91	500	497	0 - 195(?) Quaternary, (?)195 - T.D. Tertiary Cretaceous	Surf.		No anomalies recorded.	Total depth in Cretaceous argillite.
F-3	243169 Frome 1:250,000	75	500	497	0 - 195(?) Quaternary, (?)195 - T.D. Tertiary Cretaceous	Surf.		No anomalies recorded.	Total depth in Cretaceous argillite.

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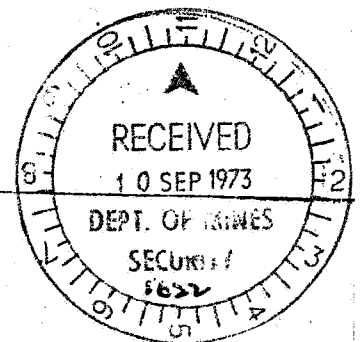
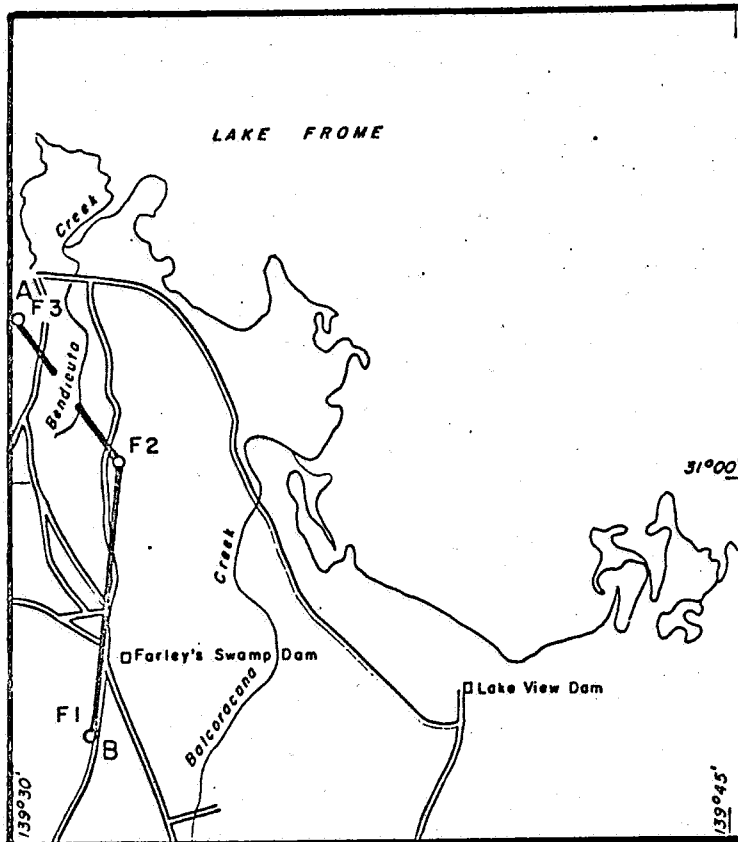
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(SOUTH LAKE FROME)

DRILL HOLE LOCATION MAP

SAMPLES AT
DEPOT.

SCALE: 1:250,000



GROUNDWATER SURVEY

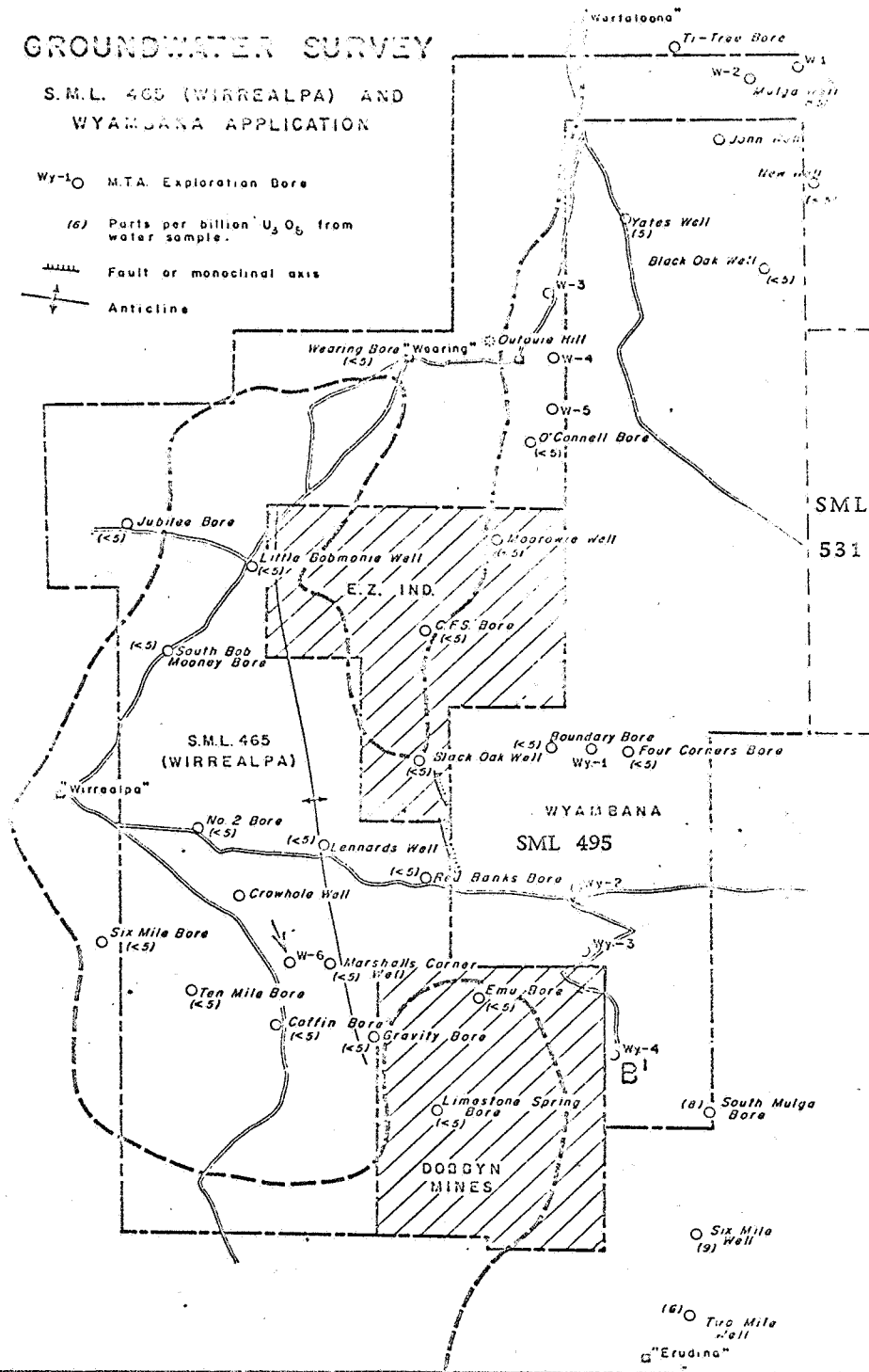
S.M.L. 465 (WIRREALPA) AND
WYAMBANA APPLICATION

Wy-1 ○ M.T.A. Exploration Bore

(6) Parts per billion U_3O_8 from
water sample.

Fault or monoclinical axis

Anticline

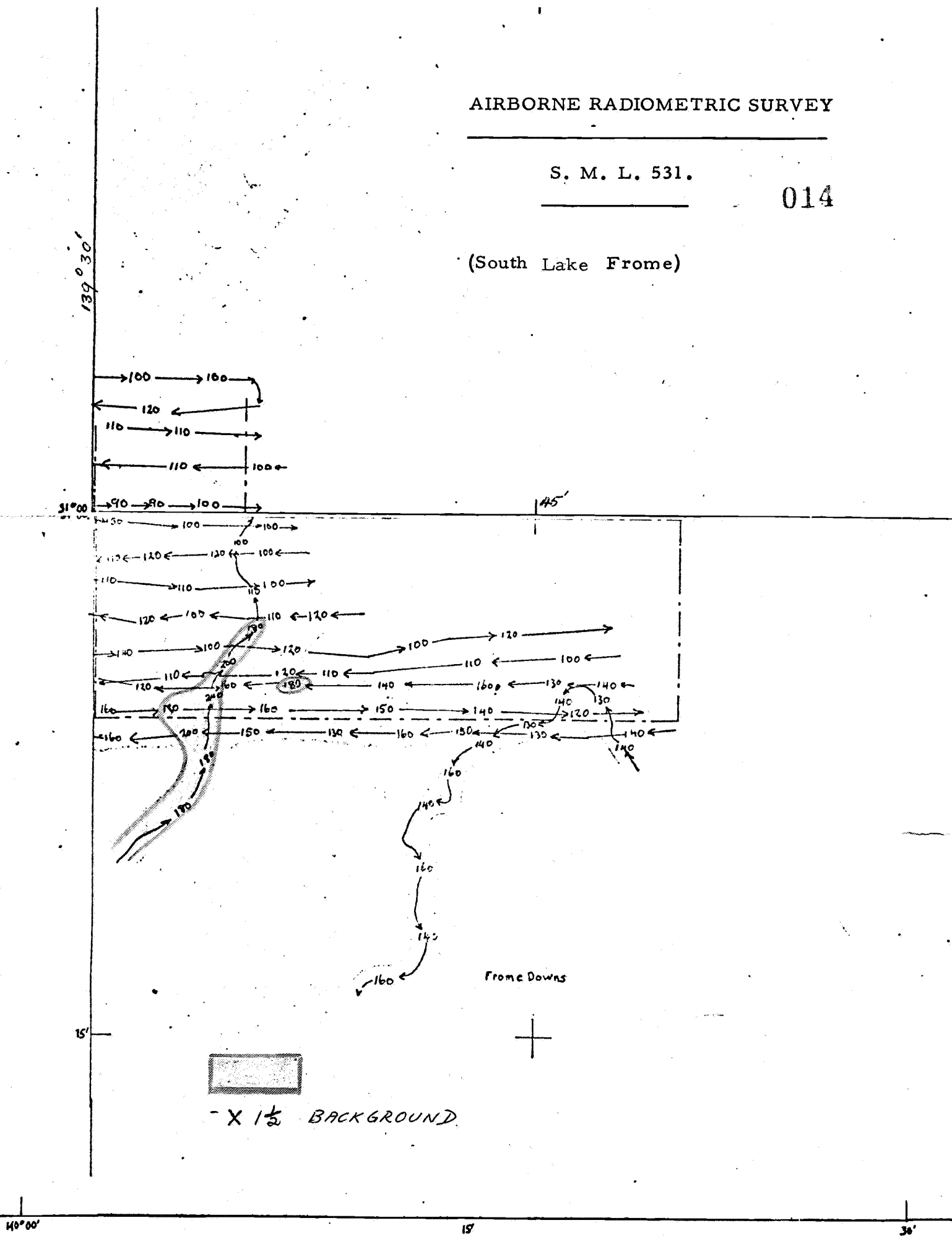


AIRBORNE RADIOMETRIC SURVEY

S. M. L. 531.

014

(South Lake Frome)



Scale 1:250,000



B

F-1

Elev. 127'
T.D. 500'
P.D. 497'

F-2

Elev. 91'
T.D. 500'
P.D. 497'

F-3

Elev. 75'
T.D. 500'
P.D. 497'

A

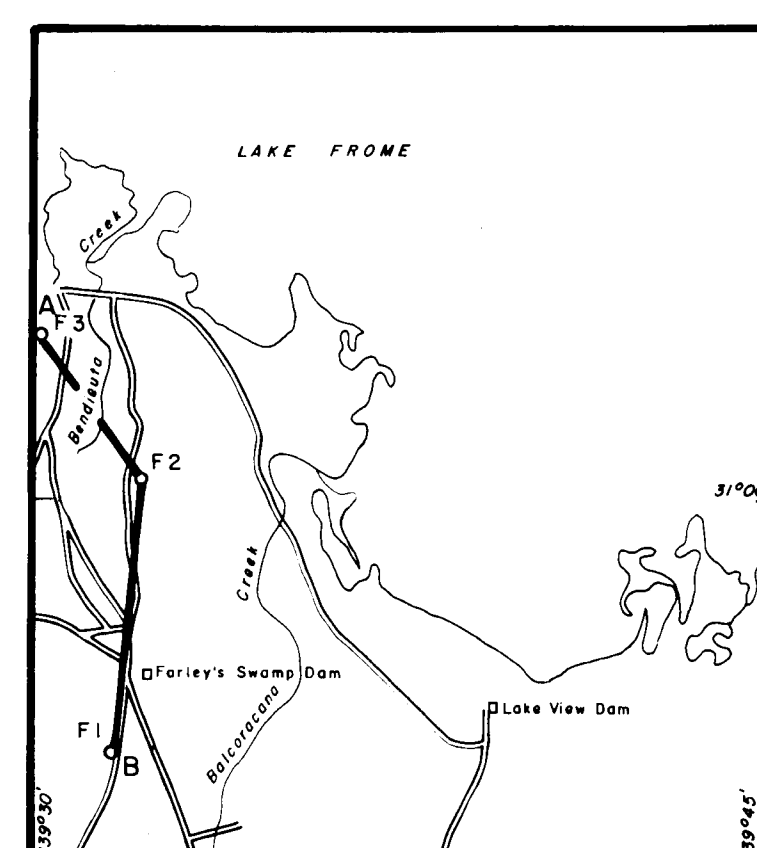
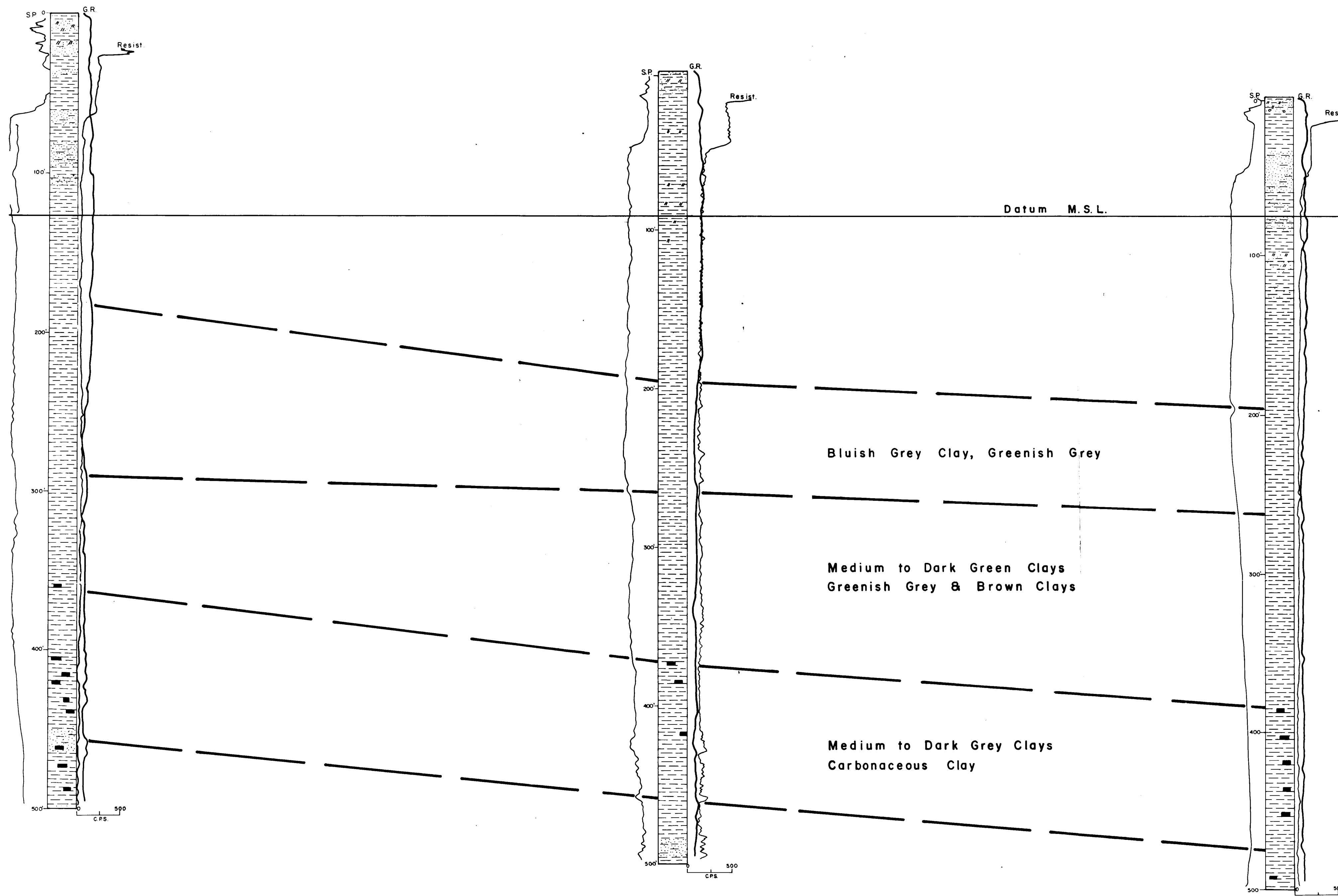


PLATE 3. CROSS SECTION A-B, S.M.L. 531 (SOUTH LAKE FROME) S.A.

Authors: R. JOHNSON & R. WECKER

Date: MAY, 1971