OFFSHORE 39
PART 1
081001

OTWAY/KING PART-VIII*

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

FINAL SUBSIDY REPORT

HEMATITE PETROLEUM PROPRIETARY LIMITED

April 1974

OR-067

081002

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ABSTRACT

The Cape Nelson to Cape Otway Seismic Survey was shot by G.S.I. for Hematite in the offshore Otway Basin in September and October 1973.

Shooting used an airgun energy source to record 48 traces, 3 x 24 CDP, with a trace interval of 66.67 metres and a shot interval of 22.22 metres. A total of approximately 1800 miles was shot. The ship's location was determined by SR-Shoran. Shotpoint co-ordination was determined by Geonav II.

Processing was 24 fold, with either a 3:1 or 2:1 vertical stack and using continuous velocity analysis.

Record quality was improved over the Portland-King Island Seismic Survey, but not to the extent expected. Two horizons were mapped on a regional basis, resulting in several leads being developed and also allowing mapping of the section in deep water. Further seismic work will be necessary to fully evaluate the results of this survey.

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1. GENERAL DATA

The Cape Nelson to Cape Otway Seismic Survey was carried out for the operator, Hematite Petroleum Pty. Ltd., by Geophysical Service International, in an area extending from the South Australia, Victoria border to near King Island, in permits Vic/P6, Vic/P7 and T/3P.

The seismic interpretation was undertaken by J.I. Denham, Senior Geophysicist, E. G. Urschel, Geophysicist, M. McNicol, Geophysicist, and N. O'Halloran, Consultant, and the section on regional geology was written by I. Mellins, Geologist, and B.R. Brown, Senior Geologist.

Shooting commenced on 15th September 1973, and was completed on 22nd October 1973. Further details are given in the contractor's reports which appear as Appendices 1, 2 and 3 to this report.

2. OBJECTIVES

(a) Regional Geology

During late Jurassic and early Cretaceous times, southern Victoria was the site of an east-west rift valley extending continuously from South Australia to Gippsland. A monotonous sequence of fluvio-lacustrine mudstones, felspathic and lithic sandstones, and minor coals, known as the Otway Group, accumulated in this trough and was probably derived from the bordering Palaeozoic and early Mesozoic cratonic highs then existent to the north and south. Seismic evidence indicates that these sediments attain thicknesses as great as 15,000 feet in the deeper parts of the basin.

Four major depositional cycles were developed across the area beginning in the mid-Cretaceous and continuing up to the Pliocene. At least two basin-wide unconformities, which can be reasonably well detected on seismic records, separate the successive sedimentation cycles.

The major depositional breaks relate approximately to :

1. Top of Otway Group: Unconformity between the Upper Cretaceous Sherbrook Group above and lower Cretaceous Otway Group and/or Palaeozoic rocks below. From the Portland-King Island Survey records, it appears that the Otway and Sherbrook Groups could be conformable in the deeper parts of the basin.

2. Base of Wangerrip Group: Unconformity between Tertiary and Upper Cretaceous sequences.

A local unconformity or disconformity in the mid-Oligocene between Nirranda Group and the Wangerrip Group developed in the Port Campbell area, east of the Warrnambool High.

The Upper Cretaceous cycle is represented by sediments of the Sherbrook Group which attain thicknesses of more than 5,000 feet. This first cycle consists of a suite of non-marine sands, thin coals, paralic silts and marine shales and minor dolomites, representing transgressive and regressive facies.

Sands at the base (Waarre Formation) and top (Curdies Formation) are believed to be the most prospective hydrocarbon reservoirs in the Sherbrook Group. The Good reservoir properties of the Waarre and the effectiveness of the overlying cap rocks (Belfast Mudstone, Flaxmans Formation) are demonstrated by

(a) Regional Geology Cont'd

the oil and gas occurrences in the Port Campbell Embayment. The Belfast Mudstone is also regarded as a possible source rock for the hydrocarbons. The regional distribution of the stratigraphic units of the Sherbrook Group has not been easy to determine from the five wells drilled and the correlation between them remains problematical in the area to the west of King Island. The geological link between Whelk-1, Prawn-A1 and Mussel-1 is confused in the Prawn area.

Previous geophysical interpretations in the Prawn area have not been able to satisfactorily reconcile the geophysical events with the recorded stratigraphy. On present seismic evidence, the sediments in Prawn-A1 may represent a localised development which shows evidence of thickening into a deep to the south-east but thinning again rapidly towards Whelk-1, where the Belfast is not developed and 420 feet of Waarre and Flaxmans may be present.

The Upper Cretaceous clastic suite in Prawn-A1 may be related to a rapidly subsiding fault controlled embayment which was filled equally rapidly by sediments derived from the north and east. The specific environmental conditions cannot be clearly established either from the sedimentary record or the recent seismic survey at this stage.

The Lower Tertiary cycle is represented by the Wangerrip Group, of similar overall lithology to the previous cycle. Deposits of up to 1,500 feet are known in the offshore area.

In the Port Campbell area, a minor sedimentation cycle comprising paralic and marine muds, marls and sandy limestone forms a transitional sequence between the Wangerrip Group and the overlying more marine Heytesbury Group.

The main Upper Tertiary cycle is represented by the Heytesbury Group, a normal marine carbonate suite consisting of limestones and marls. The total Tertiary section thickens to the south-west of the Port Campbell-King Island area with overall regional dip to the south-west. Thicknesses reach about 6000 feet.

Tectonic activity at the end of the Miocene culminated in the Kosciuskan Orogeny, causing further uplift of the Otway Ranges and regression and shallowing of the sea. In the Pliocene and possibly the early

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(a) Regional Geology Cont'd

Pleistocene, continental deposition became increasingly dominant as gradual uplift of the coastal areas continued. Gentle folding of the Tertiary sediments and extrusion of the New Volcanics probably occurred at this time.

The stratigraphic succession in the Port Campbell Embayment, onshore and offshore, can be summarized as follows (after Leslie, 1966; B.M.R. 1964) :

Age	Rock Unit
Upper Oligocene - Pleistocene	Heytesbury Group - Port Campbell Limestone, Gellibrand Marl, Clifton Formation
	disconformity or transitional
mid-Eocene - Oligocene	Nirranda Group - Narrawaturk Marl, Mepunga Formation
	local unconformity or transitional
Paleocene - mid-Eocene	Wangerrip Group - Dilwyn Formation, Rivernook Member, Pebble Point Formation
	major unconformity or transitional
Upper Cretaceous	Sherbrook Group - Curdies Formation, Paaratte Formation, Belfast Mudstone, Flaxmans Formation, Waarre Formation
	major unconformity or transitional
Lower Cretaceous	Otway Group
	unconformity
Pre-Cretaceous	undifferentiated Palaeozoic/ Pre Cambrian metasediments, intrusives, etc.

References

Hematite Petroleum Pty. Ltd. 1973 "Final Subsidy Report - Portland-King Island Seismic Survey" (includes bibliography)

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(b) Previous Geophysical Work

The area of this survey has been covered by seismic surveys by Hematite in 1962-63, 1964-65 and 1972, and by Esso in 1966-67, 1967, 1968 and 1969. The early Hematite shooting used single coverage with some 3 CDP, analogue recording, and dynamite energy source. The 1966-67 survey introduced 6 CDP shooting and digital recording, although this was not digitally processed until a year later. The 1968 and 1969 surveys used a gas exploder energy source with 48 CDP recording (processed 12 CDP), but this resulted in no significant improvement in record quality.

In 1972, the Portland-King Island Seismic Survey was shot using an airgun energy source, 48 CDP recording, 48 trace, using a longer (3200 metres) streamer, and processed 24 fold using velocity analysis on alternate traces with an automatic picking programme. In addition, about 250 miles of Esso records were reprocessed, using similar methods.

Results of Previous Surveys

The early Hematite surveys covered the area with a regional grid to which the later Esso Surveys added, giving a 5 x 10 to 5 x 5 mile grid with closer coverage in some locations. Record quality was fair to good down to the Upper Cretaceous/Tertiary uncomformity, but relatively poor to very poor on the Esso records, and unusable on the early Hematite records, below this level.

The 1972 survey provided a single line extending across most of the area, with two cross lines. The improvements in technique with this survey offered for the first time the possibility of mapping within the Mesozoic section with some degree of confidence. The reprocessing of old data resulted in an improvement, but much less that than from the new shooting.

(c) Survey Objectives

The objectives of the survey were:

1) To map on a regional basis the structure within The Mesozoic Section.

2) To follow up leads from the previous survey.

3) To map the section in deep water out to the boundaries of permits.

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3. METHODS USED

(a) Shooting

Details of shooting methods are given in the contractor's reports (Appendices 1 and 3).

The noise limits for the entire survey were set at a maximum of 2 μ bar averaged over 5 sec., which is more stringent than is normally specified for the Otway Basin, in an attempt to improve record quality and to map deep reflections. A 3200 metre cable was used with a shot interval of 22.22 metres to give 3 x 24 fold data. The short shot interval was used to increase energy input to enhance record quality. Record length was 5 sec. except in deep water areas where it was increased to either 6 or 7 sec. to maintain 4 sec. of data below water bottom. One sonobuoy refraction probe was attempted on Line H03-20 with good results. The maximum offset recorded was 50,112 feet.

Navigation was by a combined XR-Shoran and G.S.I. Geonav satellite/sonar doppler system. The XR-Shoran was used for the ship's location and the Geonav was used for shotpoint co-ordination. The XR-Shoran was used for the ship's location in place of the Geonav system because of the deep water encountered in the survey. The use of the combined systems worked well, and gave an even shot spacing unaffected by short term changes in boat speed.

(b) Processing

(1) Reflection

Details of processing are given in the contractor's report (Appendix 2).

Processing methods largely followed the methods used in the Portland-King Island Survey. The bulk of the survey used a 2:1 vertical stack to give 24 fold 22.22 metre depth point spacing data. The remainder of the survey used a 3:1 vertical stack to give 24 fold 33.33 metre depth point spacing data. A few lines were processed using both methods. Originally the processing was done using the 3:1 vertical stack but the 2:1 vertical stack was found to give better quality data, due to greater coherent noise cancellation.

The continuous velocity analysis (the 700 package) was used to give control over velocity variations and to ensure optimum stack. Previous experience using alternate depth points gave fair results in

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the area, however more accurate velocity control was desired, so that the analysis used a depth point spacing of 33.33 metres or 44.44 metres.

The data with a 3:1 vertical stack showed a marked noise problem (the 2:1 vertical stack data to a lesser degree) which is referred to on page 19 of Appendix 2. It was found that this could be overcome with a small (15%) two-way mix of adjacent traces.

Filter analyses were done over the entire area and upon analysis of them it was found that the quality of the sections could be improved by re-displaying them using a number of different filters.

Migration was done on several dip lines and on a few of the cross lines to assist in interpretation of the data in areas of complex structure. Primarily for economy, the traces were summed to give a 66.67 metre depth point spacing before migration.

A major change from previous processing methods is that no time variant scaling or trace normalisation was used, so as to approximately preserve true amplitude.

(2) Refraction

The refraction records were processed to enhance high velocity refractors and simplify interpretation by producing delay time displays with a 3:1 trace sum. Velocity used was 15,000 ft/sec.

(c) Interpretation

(1) Reflection

Two horizons were mapped, the Blue horizon, corresponding to the Top of Sherbrook Group-Base of Wangerrip Group unconformity, and the Red horizon, which is close to the Top of Otway Group - Base of Sherbrook unconformity. Only the new lines and the lines from the Portland-King Island Survey were interpreted.

In using velocity data for a depth interpretation there is the problem that the reflection times are much more accurate than velocity data, so that it is desirable to smooth the velocity data, or average it over a number of shotpoints.

Since the velocity is known to vary with depth, this cannot be done directly. However, the variation with depth can be predicted, at least approximately, and can be allowed for by subtracting from the velocity value for each reflection given by the velocity analysis, the velocity value from a "standard" velocity function (in this case, an arbitrary function which is close to an average of velocity data from the middle area of the prospect, extrapolated to 7 sec.) to give a residual referred to as a "velocity anomaly" (This is done in terms of R.M.S. velocity). The velocity anomaly may then be smoothed and this was done using a modified inverse square weighting which uses all values within a given maximum radius.

This gave a smoothed velocity anomaly, which was then added to the velocity from the standard function to give a smoothed R.M.S. velocity. Sufficient horizons were picked above those mapped to give a reasonable approximation to average velocity by calculating interval velocities and thicknesses, which were summed to give depth.

The average velocity for each horizon was then mapped, both to give a picture of velocity variations over the area and to show which velocities were used for the interpretation.

No correction to R.M.S. velocity was made for dip. No "on set" correction was made, so that reflection horizon depths will be deeper than the corresponding geological horizons.

(2) Refraction

Refraction interpretation was carried out for the profile on Line H03-20.

The delay time method was used (refer Gardner, L.W., Seismic Refraction Prospecting, S.E.G., 1967) with modifications to use data from the reflection shooting on the same line. The velocity distribution of the overburden was derived from the reflection velocity analyses. Depths and offsets were calculated using an assumed refractor velocity of 15,000 ft/sec, and then this velocity was corrected using the dip shown from the reflection profile, and recalculated after correcting the delay times for the difference in velocity. Delay times were partitioned between shot and detector using the reflection record dip.

The results are presented in tabular form and as a plotted profile.

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4. INTERPRETATION

Blue Horizon

The Blue Horizon is tied to the base of Wangerrip unconformity at each of the wells, 4501 feet at Mussel-2, 4055 feet at Prawn-1, 2412 feet at Whelk-1 and 2555 feet at Pecten-1. The Blue Horizon is the same as Horizon 'B' of the Portland-King Island Survey. There is generally little difficulty in picking this horizon, and it can mostly be recognized within a cycle on the records as the base of the zone of good reflections, with foreset bedding and channelling. However, in the western half of the prospect it loses its distinctive character and there is no sharp change in record appearance between the Paleocene and Upper Cretaceous section.

Structurally the map shows the expected offshore dip and is quite similar to previous maps. There are a few closed highs which are of interest. The large closed high at the intersection of Lines H03-32 and H03-46 exhibits about 0.020 sec. of closure. The large closed high on Line H03-26 exhibits 0.020 sec. of closure. The remaining closed high on Line H03-7 is small and doubtful.

Red Horizon

This horizon, which is more difficult to follow than the Blue Horizon, is identified as the Sherbrook Group/Otway Group unconformity at Mussel No. 1 and Pecten No. 1. This is confirmed on the grounds of refractor velocity at the location of the refraction probe on Line H03-20. At Prawn No. 1 the horizon is not positively tied, as the unconformity has not been satisfactorily identified in the well.

Away from the above tie points, and particularly in the west, the horizon is probably above the unconformity, in some areas as much as 0.500 seconds. The lines running into deep water show good record quality in the deep water, but in all cases continuity is very poor over the area of steep water bottom, so that the dip shown between deep water lines is, in the absence of a deep water tie line, unreliable.

The horizon as shown on the time map shows two distinct areas, a shallow platform in the east and a deeper trough in the central and western part of the survey area, the boundary between the two being approximately 142°30' E.

The platform area shows very complex structure with extensive faulting, particularly in the eastern half. Over much of the area, particularly in the

southern (T/3P) area, the mapping is not reliable, as the structures tend to be smaller than the survey grid. However, there are a number of structural leads, the best being those described below.

A. Three miles west of Mussel No. 1 is a structure of about 8 square miles, with about 0.070 seconds (approximately 350 feet) of closure.

B. A nose along Line H03-52 shows up to about 0.050 seconds reversal at its southern end, and at the intersection of this line with H03-60 is a high which shows as a terrace on the .100 second contour interval used.

C. A high with about 0.050 seconds closure and an area of about 8 square miles is located at the intersection of H03-12 and H03-67 with H03-60.

D. The area near Prawn No. 1 appears to have at least one high, but the survey grid is too open to adequately map this complex area.

E. A high at the intersection of H03-28 and H03-42 is mapped with .200 seconds of closure over 16 square miles, although closure to the north is not definitely proved.

In the trough, the unconformity is much less easily picked on the records and the upper and lower Cretaceous may be conformable, with continuous deposition. Because of this, the red horizon is probably not at the top Otway, and it is thought more likely to be picked too shallow than too deep.

The time map shows a NW trending trough approximately along the west end of Line H0-22 which separates a major high trend from the Platform area. This high trend has a closed high of about 15 square miles. In time at least the remainder of the trough shows fairly uniform offshore dip. None of the trough area has close control, and further structures may exist, particularly in the deep water area.

Refraction

The sonobuoy refraction profile on Line H03-20 was quite successful, with arrivals at about 15,000 ft/sec being recorded over an offset of approximately 15,000-50,000 feet, although the closest 8,000 feet of this is second arrival data, and may not be the same event.

The interpretation, whose details are given below and in Figures 1 & 2, gave a refractor velocity of 16,910 ft/sec, using the dip from the reflection records to correct the assumed 15,000 ft/sec velocity, which is compatible with the velocity for the Otway Group measured in wells. This refractor is correlated with the Red reflection horizon.

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REFRACTION INTERPRETATION

X = Offset

H = Depth to refractor

Hi = Thickness of overburden with velocity Vi

Vr = Refractor velocity

$\beta i = \frac{hi}{H}$

$H = tR$

$$R = \left(\Sigma \frac{\beta i \quad \text{CosSin}^{-1} \left(\frac{Vi}{Vr}\right)}{Vi} \right)^{-1}$$

$$X = H \left(\Sigma \beta i \ \text{TanSin}^{-1} \left(\frac{Vi}{Vr}\right) \right) = H.S.$$

For Shot point 169, hi, H, Vi from reflection data. Refractor velocity = 16,910 ft/sec

hi	$\beta i = \frac{hi}{H}$	Vi	$\frac{\beta i}{Vi}\left(1 - \left(\frac{Vi}{Vr}\right)^2\right)^{\frac{1}{2}}$	$\beta i \left(\frac{Vi^2}{Vr^2 - Vi^2}\right)^{\frac{1}{2}}$
250	·0497	4900	$\cdot 9710 \times 10^{-5}$	·0150
2060	·3238	6700	$4 \cdot 438 \times 10^{-5}$	·1395
2630	·1019	8700	$\cdot 6526 \times 10^{-5}$	·0612
4540	·3417	9550	$2 \cdot 952 \times 10^{-5}$	·2340
5590	·1878	11100	$1 \cdot 277 \times 10^{-5}$	·1633
			$\Sigma = \cdot 0001029$	$s = \Sigma = \cdot 6130$

$R = \Sigma^{-1} = 9718$

SONOBUOY REFRACTION INTERPRETATION

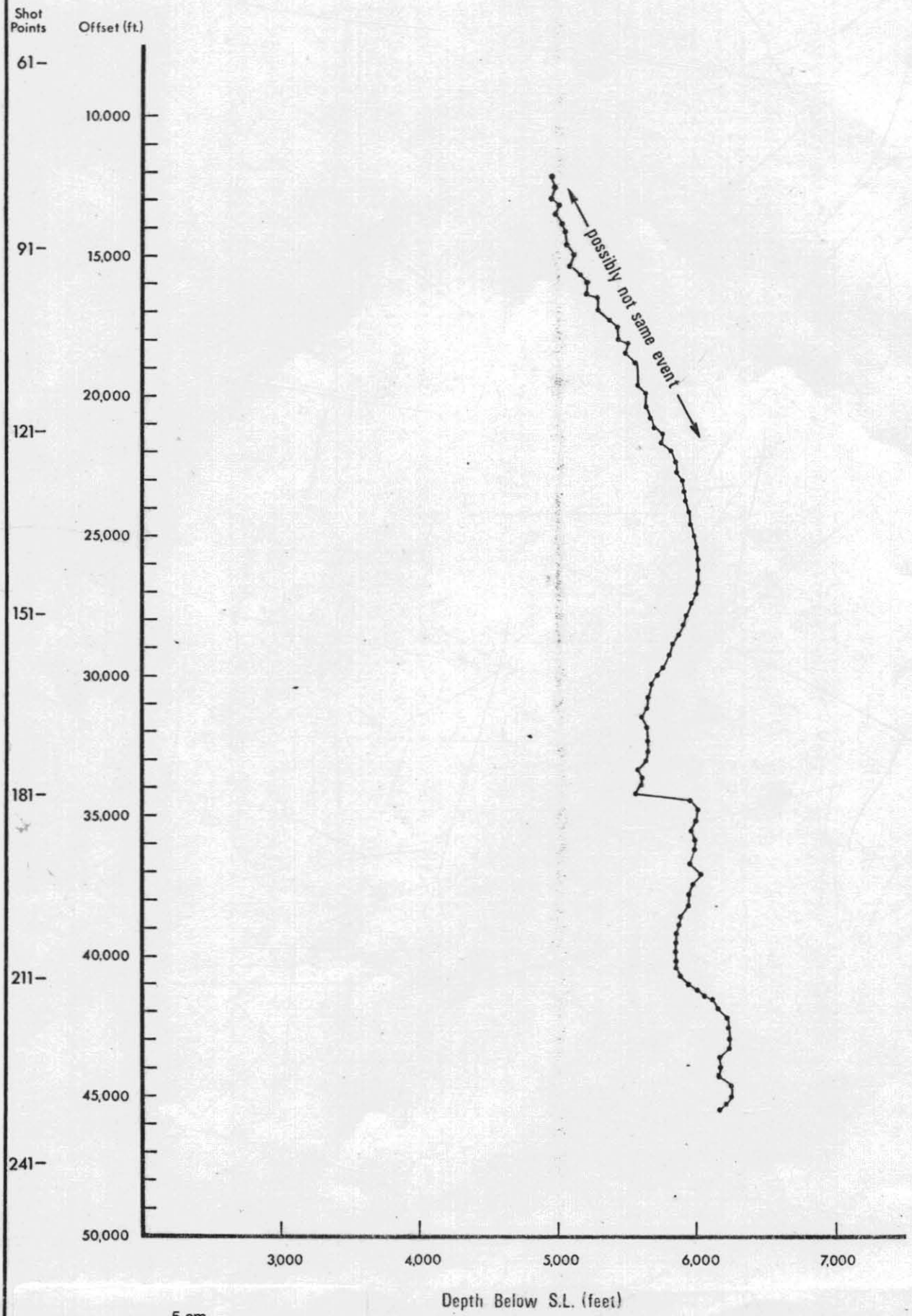
Fig.1

Dist.	TA	TC	T	TB	t=TB-ta	Dist.R	X=H.S.	Offset
49320	1.430	.051	1.481	1.401	.651	6190	3794	45526
48960	1.435	.051	1.486	1.406	.642	6240	3825	45135
48600	1.435	.051	1.486	1.406	.642	6240	3825	44775
48240	1.430	.050	1.480	1.400	.636	6182	3790	44450
47880	1.430	.050	1.480	1.400	.636	6182	3790	44090
47520	1.430	.050	1.480	1.400	.636	6182	3790	43730
47160	1.435	.049	1.484	1.404	.640	6221	3813	43347
46800	1.435	.049	1.484	1.404	.640	6221	3813	42987
46440	1.435	.048	1.483	1.403	.639	6211	3807	42633
46080	1.435	.048	1.483	1.403	.639	6211	3807	42273
45720	1.430	.048	1.478	1.398	.634	6162	3777	41943
45360	1.425	.047	1.472	1.392	.628	6104	3742	41618
45000	1.425	.047	1.472	1.392	.628	6104	3742	41258
44640	1.415	.046	1.461	1.381	.617	5997	3676	40964
44280	1.400	.046	1.486	1.366	.602	5851	3587	40693
43920	1.405	.045	1.450	1.370	.606	5890	3611	40309
43560	1.400	.045	1.445	1.365	.601	5842	3581	39979
43200	1.400	.045	1.445	1.365	.601	5842	3581	39619
42840	1.400	.044	1.444	1.364	.600	5832	3575	39265
42480	1.400	.044	1.444	1.364	.600	5852	3575	38905
42120	1.405	.044	1.449	1.369	.605	5881	3605	38515
41760	1.410	.043	1.453	1.373	.609	5919	3628	38132
41400	1.410	.043	1.453	1.373	.609	5919	3628	37772
41040	1.415	.042	1.457	1.377	.613	5958	3652	37388
40680	1.420	.042	1.462	1.382	.618	6007	3682	36998
40320	1.415	.042	1.457	1.377	.613	5958	3652	36668
39960	1.420	.041	1.461	1.381	.617	5997	3676	36284
39600	1.420	.041	1.461	1.381	.617	5997	3676	35924
39240	1.415	.041	1.456	1.376	.612	5949	3647	35593
38880	1.420	.040	1.460	1.380	.616	5988	3671	35209
38520	1.420	.040	1.460	1.380	.616	5988	3671	34849
38160	1.415	.040	1.455	1.375	.611	5939	3641	34519
37800	1.375	.039	1.414	1.334	.570	5540	3396	34404
37440	1.380	.039	1.419	1.339	.575	5589	3426	34014
37080	1.380	.039	1.419	1.339	.575	5589	3426	33654
36720	1.380	.038	1.418	1.338	.574	5579	3420	33300
36360	1.385	.038	1.423	1.343	.579	5628	3450	32910
36000	1.385	.037	1.422	1.342	.578	5618	3444	32556
35640	1.385	.037	1.422	1.342	.578	5618	3444	32196
35280	1.385	.037	1.422	1.342	.578	5618	3444	31836
34920	1.385	.036	1.421	1.341	.577	5608	3438	31482
34560	1.390	.036	1.426	1.346	.582	5657	3468	31092
34200	1.395	.036	1.431	1.351	.587	5706	3498	30702
33840	1.390	.035	1.425	1.345	.581	5647	3462	30378
33480	1.405	.035	1.440	1.360	.596	5793	3551	29929
33120	1.400	.035	1.435	1.355	.591	5745	3522	29598
32760	1.405	.034	1.439	1.359	.595	5783	3545	29215
32400	1.405	.034	1.439	1.359	.595	5783	3545	28855
32040	1.410	.033	1.443	1.363	.599	5822	3569	28471
31680	1.410	.033	1.443	1.363	.599	5822	3569	28111
31320	1.420	.033	1.453	1.373	.609	5919	3628	27692
30960	1.420	.033	1.453	1.373	.609	5919	3628	27332
30600	1.425	.032	1.457	1.377	.613	5958	3652	26948
30240	1.425	.032	1.457	1.377	.613	5958	3652	26588
29880	1.425	.032	1.457	1.377	.613	5958	3652	26228
29520	1.430	.031	1.461	1.381	.617	5997	3676	25844
29160	1.430	.031	1.461	1.381	.617	5997	3676	25484
28800	1.430	.030	1.460	1.380	.616	5988	3671	25129
28440	1.425	.030	1.455	1.375	.611	5939	3641	25159
28080	1.425	.029	1.454	1.374	.610	5929	3634	24446
27720	1.425	.029	1.454	1.374	.610	5929	3634	24086
27360	1.420	.028	1.448	1.368	.604	5871	3599	23761
27000	1.420	.028	1.448	1.368	.604	5871	3599	23401
26640	1.420	.028	1.448	1.368	.604	5871	3599	23041
26280	1.415	.027	1.442	1.362	.598	5813	3563	22717
25920	1.415	.027	1.442	1.362	.598	5813	3563	22357
25560	1.415	.027	1.478	1.398	.634	6162	3777	21783
25200	1.415	.026	1.441	1.361	.597	5803	3557	21643
24840	1.415	.026	1.441	1.361	.597	5803	2557	21283
24480	1.410	.025	1.435	1.355	.591	5745	3522	20958
24120	1.410	.025	1.425	1.345	.581	5647	3462	20658
23760	1.405	.025	1.430	1.350	.586	5696	3492	20268
23400	1.400	.024	1.424	1.344	.580	5638	3456	19944
23040	1.400	.024	1.424	1.344	.580	5638	3456	19584
22680	1.395	.023	1.418	1.338	.574	5579	3420	19260
22320	1.395	.023	1.418	1.338	.571	5550	3402	18918
21960	1.390	.023	1.413	1.333	.569	5531	3391	18569
21600	1.390	.022	1.412	1.332	.568	5521	3384	18216
21240	1.385	.022	1.407	1.327	.563	5472	3354	17886
20880	1.380	.021	1.401	1.321	.557	5414	3319	17561
20520	1.375	.021	1.396	1.316	.552	5365	3289	17231
20160	1.370	.021	1.391	1.311	.547	5317	3259	16901
19800	1.365	.020	1.385	1.305	.541	5259	3224	16576
19440	1.360	.020	1.380	1.300	.536	5210	3194	16246
19080	1.355	.020	1.375	1.295	.531	5161	3164	15916
18720	1.355	.019	1.374	1.295	.530	5152	3158	15562
18360	1.350	.019	1.369	1.289	.525	5103	3128	15232
18000	1.350	.019	1.369	1.289	.525	5103	3128	14872
17640	1.350	.018	1.368	1.288	.524	5093	3122	20762
17280	1.345	.018	1.363	1.283	.519	5045	3093	14187
16920	1.340	.018	1.358	1.278	.514	4996	3063	13857
16560	1.335	.018	1.353	1.273	.509	4947	3033	13527
16200	1.335	.017	1.352	1.272	.508	4938	3027	13173
15840	1.330	.017	1.347	1.267	.503	4889	2997	12843
15480	1.330	.016	1.346	1.266	.502	4879	2991	12489
15120	1.325	.016	1.341	1.261	.497	4831	2961	12159
14760	1.320	.016	1.336	1.256	.492	4782	2931	11829

081017

SONOBUOY REFRACTION INTERPRETATION H03-20

FIG. 2



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5. CONCLUSIONS

The primary objectives of the survey were fulfilled, establishing regional maps for horizons within the Mesozoic section and allowing the deep water areas to be mapped.

The most advanced shooting and processing techniques were employed on this survey, giving relatively good quality records. The record quality was only slightly improved over the Portland-King Island Survey despite increased energy input and a decrease in noise level. Further reduction in noise level should improve data quality, especially for the deep data. The use of continuous velocity analysis increased record quality due to more accurate stacking velocities and also helped in interpretation of the data.

This survey has developed several promising leads in both the eastern platform area and in the western trough area. However, to fully evaluate the potential of these leads more seismic work is required and further seismic work is necessary in the deep water areas to give a deep water tie line and to reduce the grid size.

An unexpected problem was the noise resulting from the constant offset vertical stack, but this was effectively overcome by the cross record mix.

The experimental sonobuoy refraction line was moderately successful and recorded arrivals from the top of the Otway Group, identifying this by refractor velocity, and confirming the correlation of the Red Horizon with the top of the the Otway Group, at least in this area.

APPENDIX 1

OPERATIONS REPORT

081020

OPERATIONS REPORT

CAPE NELSON TO CAPE OTWAY

SEISMIC SURVEY

For

HEMATITE PETROLEUM PROPRIETARY LIMITED
G.P.O. BOX 86A, MELBOURNE. VIC. 3000

Client Representative : Mr. E. Urschel

By

GEOPHYSICAL SERVICE INTERNATIONAL
P.O. BOX 437, CROWS NEST. N.S.W. 2065

Party 931 : M.V."Eugene McDermott II"
Operations Supervisor : G. Shilliday
Quality Control Seismologists : B. Nelson, J. Butler

SEPTEMBER/OCTOBER, 1973.

GSI-709

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B	EQUIPMENT a) Recording b) Survey Vessel
C	OPERATION STATISTICS
D	FIELD TAPE LOG

LIST OF PLATES

PLATE	DESCRIPTION
1	LOCATION OF PROSPECT
2	CABLE AND SPREAD ARRANGEMENT 3200 METRE STREAMER
3	AIRGUN ARRAY
4	AIRGUN PULSE AND SPECTRUM
5	TAPE FORMAT

SECTION I

INTRODUCTION

A marine seismic reflection survey was conducted by the M.V. "Eugene McDermott II" in the Cape Otway - Cape Nelson (Bass Strait) for Hematite Petroleum Proprietary Limited between 15th September, 1973 and 22nd October, 1973.

Approximately 1800 miles/2900 kilometres of 72-fold reflection coverage were shot utilising a 3200 metre streamer under continuous tow in conjunction with a Pneumatic Acoustic Energy Source (Airguns), generally operating 24 hours a day.

Recordings were made using two sets of 24 trace DFS III's with 3 tape transports recording on 1" magnetic tape in 21 track TIAC* Binary Gain Digital Format. Record length varied from 5 seconds to 7 seconds mainly according to water depth. In all instances the sample rate was 4 milliseconds.

The ship's location was determined by XR-Shoran. Shotpoint co-ordination was determined by Geonav II*.

* Trademark of Texas Instruments Inc.

SECTION II

OPERATION PROCEDURES

A. RECORDING :

A Texas Instruments Digital Field System III (DFS III) with 3 tape transports was used for all recording. A Servo-Writer Profiler was utilized to obtain 100% (Near Trace Gather) subsurface coverage (uncorrected section) of 5-7 seconds duration, directly from monitor recording.

Direct Read After Write (RAW) monitors were generated approximately every 8 shotpoints for quality control purposes.

B. STREAMER :

The 3200 metre, neutrally buoyant, continuous tow streamer consisted of 48 live sections each 50 metres in length and 6 Waterbreak/Depth Transducer sections each 1.52 metres in length, placed immediately in front of group 48 and between groups 40D and 40L, 30D and 30L, 20D and 20L, 10D and 10L, 2D and 2L. A 16 2/3 metre dead section was placed in front of each live group except group 48.

Six to seven nylon stretch sections were placed between group 48 and the recording vessel to attenuate ship generated noise. Three to seven Condep** cable depth controllers were placed between the depth transducers on the streamer at the centre of dead groups 3, 9, 16, 22, 26, 34 and 40.

Four nylon stretch sections followed group 1 and were joined to the tailbuoy by 122 metres of nylon rope. Tailbuoy bearings were taken by radar every 40 'pops', when the weather permitted, to ensure that maximum feathering angle was not exceeded.

The average streamer depth was 18.29 metres.

C. ENERGY SOURCE (AIRGUNS) :

An Electro-Pneumatic Acoustic Energy Source known as "Airguns" was used for all reflection work.

The airgun has basically two moving parts, the shuttle and the solenoid. Compressed air is supplied to this unit at a pressure of 13,780 kPa. The shuttle is forced to close on initial application of pressure. Compressed air fills the reservoir chamber through a central orifice in the shuttle. To discharge the gun an electrical current activates the solenoid and retracts a plunger, thus enabling compressed air to pass through a port hole to the underside of a

** Trademark of Continental Oil Company

flange at the top of the shuttle. The pressure difference above and below the shuttle then thrusts it open. The air from the chamber then escapes through four port holes near the centre of the gun and expands rapidly through the water, producing a single bubble and resultant shock wave. The air bubble collapses in a manner similar to that caused by explosives with one notable exception in that its period is controllable and is placed in the desired seismic frequency band.

There are three variables used to control the frequency content of the shock waves. These are:-

(i) depth of the airgun in the water,

(ii) pressure at which the gun is operated,

and

(iii) size of the chambers used on the gun.

Using different guns of various chamber sizes broadens and flattens the frequency spectrum of the pulse (Plate 3).

The depth of the airguns was 11 metres and they were operated at a pressure of 12,746.5 - 13,780 kPa with the pressure never falling below 12,402 kPa. The individual airguns were arranged to produce a 19.665 litre array. This array consisted of :

(i) 1 x 3.933 litres (3 x 1.311 litre guns seperate)
1 x 3.278 litres (2 x 1.639 litre guns seperate)

(ii) 2 x 1.639 litre guns
2 x 1.311 litre guns

(iii) 6 x 0.655 litre guns

(iv) 6 x 0.328 litre guns

(v) 4 x 0.164 litre guns

10.489 litres Spare

These arrays were arranged and spaced so as to operate as a tuned array which yields a flat frequency spectrum. (Plate 3).

The time co-ordinator unit triggered the Digital Field System which in turn discharged the Texas Instruments Airgun Control Unit (Blaster), causing a current to flow simultaneously through all the solenoids, resulting in the guns firing. The guns were fired every 22.22 metres giving 72-fold coverage. The airgun array was mounted on two Gun Strings, one port astern and the other starboard astern and towed behind the recording vessel at a distance of 27.4 metres from the stern to the centre of the array.

D. INSTRUMENT AND NOISE TESTS :

Instrument tests were carried out prior to each day's operations and the results were examined in an analogue form in the field. These tests consisted of Dynamic Range Determination, Amplifier Noise Test and Automatic Gain Control (AGC) Test. Frequent checks on tape speed and skew were made.

A set of monthly tests were carried out prior to commencement of operations. These tests included Harmonic Distortion, Gain Linearity, Periodic Calibration checks, skew checks and the above-mentioned tests. A similar set of tests were conducted after the survey was completed.

The tests were analysed in the Sydney, Australia, Processing Centre using TIAC routines.

A streamer noise analysis was made at the beginning of each line shot. Some of these tests were recorded on tape.

E. FATHOMETER :

A Ross Model 400A fathometer and an Elac Deneb, Model LAZ-17DDL, AGN8 fathometer were used.

The Ross fathometer operated at 50 KHz and the Elac fathometer at 15-20 KHz. Each fathogram was identified by line number, direction shot, time and date of first shotpoints and scale. The fathograms were marked every 12 'pops' and labelled every 60-100 'pops'. The zero line for the fathograms was not corrected for the ship's draught.

F. REFRACTION SURVEY :

Refraction seismic data was recorded for Line H03-20, up to field shotpoint 256, utilizing a Teleseis STR-70-2F Sonobuoy and an Aquatronics Sonobuoy receiver. This data was displayed on the Servo-Profiler unit via Water-break 5 and recorded on tape channel 27.

G. SURVEY :

The ship's position at every 3rd 'pop' was determined by XR-Shoran, supplied and operated by Offshore Navigation Inc. of Sydney, Australia. A seperate report has been supplied.

Equipment calibration was carried out on 6th September, 1973. Six sets of base station equipment occupied station Mt. Warrnambool with the mobile equipment on station Mt. Richmond. All observed calibration readings were satisfactory and the equipment was accepted as functioning within its specifications.

Geonav was used as the secondary survey system for the operation with an added responsibility of maintaining shotpoint interval. This was achieved by two methods :

(i) Through use of the Sonar Doppler sub-system of the Geonav to determine along track velocity. This was employed when water depth was such that usable data was being produced by the sub-system.

(ii) When water depth increased beyond the sub-system's capability, rate from the Shoran read ranges was interpreted and fed to the Geonav as a manual velocity.

Two lines, H03-45 and H03-78, were located by Geonav and processed for mapping as such, due to Shoran loss of signal.

Preplots were prepared by G.S.I. through Engineering Computer Services of St, Leonards, Sydney. Postplots were prepared by the same agency, showing the position of the antenna using observed range readings. By employing a constant setback, the position of the shot-point was determined and used in the preparation of

final location maps at scales of 1:100,000 and 1:250,000 utilising the Australian National Spheroid, Universal Transverse Mercator Projection and Mapping Zone 54.

Station pairs were selected so that all shotpoint fixes were made from range position line intersecting angles falling between 30 and 150 degrees.

H. PERMITTING :

Shore station site information was supplied by G.S.I. and permits obtained by Hematite Petroleum Proprietary Limited. The Marine Operations Centre, Canberra, was advised as to the ship's location throughout the survey to enable the necessary navigation warning to mariners to be issued.

APPENDICES

APPENDIX A

KEY PERSONNEL

G. Shilliday	Supervisor
J. McGrath	Party Manager
B. Pettigrew	Administrator
B. Nelson J. Butler	Quality Control Seismologists
Steve Clutter T. Morgan B. Lyon	Instrument Engineers
S. Griffin K. Karlson	Instrument Engineer Trainees
J. Jesske M. Cormier	Geonav Operators
P. Reichle S. Martin L. Campbell R. Howell	Airgun Mechanics
M. Gustersen I. Jones	Captains
P. Murray	Survey Supervisor
I. Cartner T. Loose L. Rowley J. Mahlum	Survey Operators (Shoran)

APPENDIX B

EQUIPMENT

a) Recording

i) 3200 Metre Streamer (Plate 2)

Type Cable	: 48 live group, neutrally buoyant, universal gland streamer. 47 dead sections.
Length of Live Section	: 50 metres
Length of Dead Section	: 16.67 metres
Length of Depth Transducer Section	: 1.52 metres
Distance Group 1 to 48 (centres)	: 3133.33 metres
Group Interval	: 66.67 metres
Seismometer Type	: Pavey Acceleration Cancelling
Seismometers per Group	: 30
Seismometer Interval	: Linear, 1.14 metres except centre two which are 8.33 metres apart.
Sensitivity	: 6.0 uV/uBar

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ii) Recording Parameters

Amplifiers	: TI DFS III Binary Gain
Gain Mode	: Binary Gain
Record Length	: 5.0 - 7.0 seconds
Sample Rate	: 4 milliseconds
Gain Constant	: 30 db
Attack Rate	: 1500 db/sec.
Final Gain	: 120 db
Trip	: As necessary
Initial Gain	: 24 - 42 db
Upper Set Limit	: 62.5%
Lower Set Limit	: 25%
Filter -	
Low Cut	: 8 Hz, 18 db/octave
High Cut	: 62 Hz, 72 db/octave
Release Rate	: Fast 94 db/sec.
Delay time for RAW Monitors caused by displacement of RAW and record heads	: 26.7 milliseconds

iii) Data Channel Allocations

Function	Monitor Trace No.	System	Tape Channel
Timing	-	Both	0
Streamer Odd Groups 1 - 47	1 - 24	System I	1 - 24
Streamer Even Groups 2 - 48	31 - 54	System II	1 - 24
Waterbreak 1 (between groups 2L & 2D)	27	Both	31
Waterbreak 2 (between groups 10L & 10D)	26	Both	28
Waterbreak 3 (between groups 20L & 20D)	28	Both	29
Waterbreak 4 (between groups 30L & 30D)	27	Both	31
Disconnected: Used for Sonobuoy recording			
(Waterbreak 5 ((between groups 40L & 40D)	25	Both	27
Waterbreak 6 (in front of group 48)	26	Both	28
Field Timebreak	4	System I	-
Field Timebreak	28	System II	-
DFS Synthetic Timebreak	8	System I	-
DFS Synthetic Timebreak	32	System II	-
Sonobuoy Data	25	Both	27

b) Survey Vessel

M.V. "EUGENE McDERMOTT II"

Flag	: Bahamas
Homeport	: Nassau
Trade	: Foreign Going, Seismic Exploration
Owners	: Worldwide Surveys Limited
Call Sign	: ZQA-2012
Length	: 52.73 metres
Breadth	: 12.19 metres
Depth	: 4.27 metres
Draught	: 3.05 metres
Official Number	: 343728
Gross Tonnage	: 929.89 tonnes
Net Tonnage	: 249.09 tonnes
Engine Power	: 2 x 839.25 KW engines

APPENDIX C

OPERATION STATISTICS

Prospect	: Cape Otway - Cape Nelson
Operational period	: 15th September - 22nd October, 1973.
Time spent on recording	: 27 days
Time lost due to bad weather	: 4 days
Time lost due to other reasons, (includes supplies, equipment and survey failures)	: 7 days
Field tapes used	: 627
Water depth range	: 30 - 1100 fathoms
Total production mileage	: 1798.23 miles/2893.97 kilometres
Production shotpoints	: 43419.7
Autofires	: 144 not including 3 turnarounds.
Delay due to Streamer Noise Levels	: 14 hours 12.69 minutes

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APPENDIX D

FIELD TAPE LOG

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
15/9/73	H03-40	001A-084C		112
		001A-140C	113	
		085C-224C		114
		141A-224C	115	
		225A-284C		115
		225A-368C	116	
		285A-428C		117
		369A-428C	118	
		429A-512C		118
		429A-576B	119	
		513A-658C		120
		576C-658C	121	
		659A-720C		121
		659A-804C	122	
		721A-868C		123
		805A-868C	124	
		869A-948C		124
		869A-1016C	125	
		949A-1096C		126
		1017A-1096C	127	
		1097A-1164C		127
		1097A-1244C	128	
		1165A-1312C		129
		1245A-1312C	130	
		1313A-1388C		130
		1313A-1431C	131	
		1389A-1431C		132

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd 544-	Even 544-
15/9/73	H03-41	001A-028C	131	
and		001A-104C		132
16/9/73		029A-104C	133	
		105A-172C		133
		105A-252C	134	
		173A-318C		135
		253A-318C	136	
		319A-392C		136
		319A-464C	137	
		393A-536C		138
		465A-536C	139	
		537A-608C		139
		537A-680C	140	
		609A-752C		141
		681A-752C	142	
		753A-822C		142
		753A-896C	143	
		823A-960C		144
		897A-960C	145	
		961A-1042C		145
		961A-1104C	146	
		1043A-1188C		147
		1105A-1188C	148	
		1189A-1252C		148
		1189A-1336C	149	
		1253A-1396C		150
		1337A-1396C	151	
		1397A-1480C		151
		1397A-1544C	152	
		1481A-1555C		153
		1545A-1555C	154	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Evens
			544-	544-
16/9/73	H03-62	001A-064C		153
		001A-064C	154	
		065A-132C		154
		065A-205C	155	
		133A-276C		156
		206A-307C	157	
		277A-307C		158
"	H03-29	001A-043C		157
		001A-119A	158	
		044A-191C		159
		119B-191C	160	
		192A-240B		160
		192A-240B	161	
"	H03-56	001A-023C		160
		001A-099C	161	
		024A-168C		162
		100A-168C	163	
		169A-243C		163
		169A-287C	164	
		244A-287C		165
16/9/73	H03-29R	001A-022C	164	
and		001A-095C		165
17/9/73		023A-095C	166	
		096A-170C		166
		096A-241C	167	
		171A-316C		168
		242A-316C	169	
		317A-386B		169
		317A-386B	170	

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Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
17/9/73	H03-28	001A-076C	170	
		001A-144C		171
		077A-144C	172	
		145A-220C		172
		145A-296C	173	
		221A-364C		174
		297A-364C	175	
		365A-440C		175
		365A-508C	176	
		441A-584C		177
		509A-584C	178	
		585A-644C		178
		585A-708C	179	
		645A-760C		180
		709A-760C	181	
		761A-828C		181
		761A-877C	182	
		829A-877C		183
"	H03-30	001A-074C		183
		001A-074C	184	
		075A-124C		184
		075A-201C	185	
		125A-250C		186
		202A-250C	187	
		251A-326C		187
		251A-376C	188	
		327A-461C		189
		377A-461C	190	
		462A-522C		190
		462A-609C	191	
		523A-653C		192

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
17/9/73	H03-30 (Cont'd)	654A-669C		192
		610A-669C	193	
		670A-753C		193
		670A-817C	194	
		754A-862C		195
		818A-862C	196	
"	H03-57	001A-036C		195
		001A-180C	197	
		037A-245C		198
		181A-245C	199	
		246A-263C		199
		246A-263C	200	
18/9/73	H03-63	001A-061C		199
		001A-127C	200	
		062A-208C		201
		128A-208C	202	
		209A-271C		202
		209A-271C	203	
19/9/73	H03-42	001A-068C	203	
		001A-131C		204
		069A-131C	205	
		132A-212C		205
		132A-276C	206	
		213A-357A		207
		277A-357A	208	
		357B-416C		208
		357B-505C	209	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
19/9/73	H03-42 (Cont'd)	417A-565C		210
		506A-565C	211	
		566A-650C		211
		566A-711C	212	
		651A-795C		213
		712A-795C	214	
		796A-859C		214
		796A-943C	215	
		860A-1007C		216
		944A-1007C	217	
		1008A-1090C		217
		1008A-1155C	218	
		1091A-1237C		219
		1156A-1237C	220	
		1238A-1302C		220
		1238A-1386C	221	
		1303A-1446C		222
		1387A-1446C	223	
		1447A-1531C		223
		1447A-1594C	224	
		1532A-1678C		225
		1595A-1678C	226	
		1679A-1741C		226
		1679A-1822C	227	
		1742A-1886C		228
		1823A-1886C	229	
		1887A-1927C		229
		1887A-1927C	230	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
20/9/73	H03-48	001A-036C		229
		001A-104C	230	
		037A-184C		231
		105A-184C	232	
		185A-248C		232
		185A-328B	233	
		249A-303C		234
		328A-457C	235	
		304A-457C		236
"	H03-49	001A-016C		235
		001A-084C	236	
		017A-164C		237
		085A-231C	238	
		165A-312C		239
		232A-378C	240	
		313A-459C		241
		379A-527C	242	
		460A-608C		243
		528A-608C	244	
		609A-675C		244
		609A-703C	245	
		676A-703C		246
"	H03-50	001A-052C	245	
		001A-117C		246
		053A-117C	247	
		118A-196C		247
		118A-264C	248	
		197A-283C		249
		265A-283C	250	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Evens
			544-	544-
21/9/73	H03-44	001A-024C		249
		001A-024C	250	
		025A-092C		250
		025A-173C	251	
		093A-141C		252
		174A-141C	253	
		142A-320C		253
		142A-393A	254	
		321A-469C		255
		393B-469C	256	
		470A-540C		256
		470A-621C	257	
		541A-689B		258
		622A-689B	259	
		689C-768C		259
		689C-839C	260	
		769A-839C		261
21/9/73	H03-45	001A-076C		261
and		001A-076C	262	
22/9/73		077A-146C		262
		077A-220C	263	
		147A-295C		264
		221A-295C	265	
		296A-367C		265
		296A-440C	266	
		368A-512C		267
		441A-512C	268	
		513A-588C		268
		513A-656C	269	
		589A-732C		270
		657B-732C	271	
		733A-765C		271
		733A-765C	272	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
24/9/73	H03-43	001A-064C		273
		001A-075C	274	
		065A-075C		275
		076A-151C	274	
		076A-223C		275
		152A-223C	276	
		224A-300C		276
		224A-376C	277	
		301A-444C		278
		377A-444C	279	
		445A-523C		279
		445A-595C	280	
		524A-663C		281
		596A-663C	282	
		664A-739C		282
		664A-758C	283	
		740A-758C		284
"	H03-61	001A-052C	283	
		001A-124C		284
		053A-124C	285	
		125A-200C		285
		125A-276C	286	
		201A-344C		287
		277A-344C	288	
		345A-367C		288
		345A-367C	289	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
24/9/73	H03-27	001A-056C		288
		001A-128C	289	
		057A-200C		290
		129A-200C	291	
		201A-276C		291
		201A-252C	292	
		277A-424C		293
		253A-424C	294	
		425A-463C		294
		425A-463C	295	
25/9/73	H03-26	001A-032C		294
		001A-112C	295	
		033A-180C		296
		113A-180C	297	
		181A-256C		297
		181A-332C	298	
		257A-404C		299
		333A-404C	300	
		405A-477C		300
		405A-477C	301	
"	H03-55	001A-076C	301	
		001A-148C		302
		077A-148C	303	
		149A-224C		303
		149A-300C	304	
		225A-321C		305
		301A-321C	306	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
25/9/73	H03-23	001A-044C		305
		001A-044C	306	
		045A-120C		306
		045A-192C	307	
		121A-264C		308
		193A-264C	309	
		265A-275C		309
		265A-275C	310	
"	H03-22	001A-060C		309
		001A-140C	310	
		061A-206C		311
		141A-206C	312	
		207A-259C		312
		207A-259C	313	
	H03-21	001A-024C		312
		001A-100C	313	
		025A-172C		314
		101A-172C	315	
		173A-247C		315
		173A-251C	316	
		248A-251C		317
26/9/73	H03-75	001A-072C	316	
		001A-140C		317
		073A-140C	318	
		141A-216C		318
		141A-269C	319	
		217A-269C		320

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
26/9/73	H03-70	001A-020C	319	
		001A-092C		320
		021A-092C	321	
		093A-160C		321
		093A-235C	322	
		161A-235C		323
28/9/73	H03-60	001A-068C		323
		001A-068C	324	
		069A-140C		324
		069A-216C	325	
		141A-284C		326
		217A-284C	327	
		285A-364C		327
		285A-436C	328	
		365A-512C		329
		437A-512C	330	
		513A-584C		330
		513A-664C	331	
		585A-732C		332
		665A-732C	333	
		733A-808C		333
		733A-888A	334	
		809A-952C		335
		888C-952C	336	
		953A-1032C		336
		953A-1051C	337	
		1033A-1051C		338

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd 544-	Even 544-
29/9/73	H03-46	001A-044C	337	
and		001A-124C		338
30/9/73		045A-124C	339	
		125A-188C		339
		125A-268C	340	
		189A-332C		341
		269A-332C	342	
		333A-412C		342
		333A-476C	343	
		413A-556C		344
		477A-556C	345	
		557A-616C		345
		557A-700C	346	
		617A-760C		347
		701A-760C	348	
		761A-840C		348
		761A-912C	349	
		841A-984C		350
		913A-984C	351	
		985A-1056C		351
		985A-1132C	352	
		1057A-1204C		353
		1133A-1204C	354	
		1205A-1277C		354
		1205A-1354C	355	
		1278A-1424C		356
		1355A-1424C	357	
		1425A-1500C		357
		1425A-1576C	358	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
29/9/73	H03-46	1501A-1644C		359
and	(Cont'd)	1577A-1644C	360	
30/9/73		1645A-1724C		360
		1645A-1792C	361	
		1725A-1872C		362
		1793A-1872C	363	
		1873A-1929C		363
		1873A-1929C	364	
30/9/73	H03-79	001A-092C	364	
		001A-144C		365
		093A-144C	366	
		145A-240C		366
		145A-303C	367	
		241A-355A		368
		304A-355A	369	
		356A-383C		368
		356A-383C	369	
		384A-411C		369
		384A-411C	370	
1/10/73	H03-78	001A-032C		369
		001A-120C	370	
		033A-180C		371
		121A-180C	372	
		181A-264C		372
		181A-328C	373	
		365A-356C		374
		329A-356C	375	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
1/10/73	H03-47	001A-048C		374
and		001A-048C	375	
2/10/73		049A-112C		375
		049A-196C	376	
		113A-258C		377
		197A-258C	378	
		259A-340C		378
		259A-408C	379	
		341A-484C		380
		409A-484C	381	
		485A-552C		381
		485A-636C	382	
		553A-696C		383
		637A-696C	384	
		697A-780C		384
		697A-848C	385	
		781A-924C		386
		849A-924C	387	
		925A-992C		387
		925A-1072C	388	
		993A-1136C		389
		1073A-1136C	390	
		1137A-1216C		390
		1137A-1288C	391	
		1217A-1335C		392
		1289A-1335C	393	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
2/10/73	H03-79	412A-435C		392
		412A-435C	393	
		436A-507C		393
		436A-583C	394	
		508A-651C		395
		584A-651C	396	
		652A-730C		396
		652A-787C	397	
		731A-859C		398
		788A-859C	399	
		860A-911C		399
		860A-995C	400	
		912A-1059C		401
		996A-1059C	402	
		1060A-1139C		402
		1060A-1203C	403	
		1140A-1267C		404
		1204A-1267C	405	
		1268A-1274C		405
		1268A-1274C	406	
"	H03-64	001A-052C		405
		001A-120C	406	
		053A-188C		407
		121A-188C	408	
		189A-267C		408
		189A-336C	409	
		268A-410C		410
		339A-410C	411	
		411A-485C		411
		411A-485C	412	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
Daily Tests and Polarity Shots			412	
				413
5/10/73	H03-77	001A-088C		414
		001A-148C	415	
		089A-232C		416
		149A-232C	417	
		233A-292C		417
		233A-383C	418	
		293A-383C		419
"	H03-39	001A-044C		419
		001A-044C	420	
		045A-128C		420
		045A-188C	421	
		129A-273C		422
		189A-273C	423	
5/10/73	H03-38	001A-056C		423
and		001A-148C	424	
6/10/73		057A-193C		425
		149A-273C	426	
		194A-312C		427
		274A-312C	428	
6/10/73	H03-37	001A-012C	427	
		001A-104C		428
		013A-104C	429	
		107B-158C		429
		107B-242C	430	
		159A-261C		431
		243A-261C	432	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
7/10/73	H03-36	001A-096C		432
		001A-152C	433	
		097A-232C		434
		153A-232C	435	
		233A-265C		435
		233A-265C	436	
"	H03-35	001A-016C		435
		001A-104C	436	
		017A-156C		437
		105A-156C	438	
		157A-248C		438
		157A-268C	439	
		249A-268C		440
"	H03-34	001A-036C	439	
		001A-120C		440
		037A-120C	441	
		121A-183C		441
		121A-360C	442	
		184A-267C		443
		261A-267C	444	
"	H03-76	001A-052C		443
		001A-052C	444	
		053A-132C		444
		053A-200C	445	
		133A-276C		446
		201A-276C	447	
		277A-295C		447
		277A-295C	448	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
8/10/73	H03-33	001A-052C		447
		001A-132C	448	
		053A-196C		449
		133A-196C	450	
		197A-280C		450
		197A-348C	451	
		281A-428C		452
		349A-428C	453	
		429A-484C		453
		429A-545C	454	
		485A-545C		455
"	H03-32	001A-010C	454	
		001A-056C		455
		011A-056C	456	
		057A-128C		456
		057A-184C	457	
		129A-260C		458
		185A-260C	459	
		261A-328C		459
		261A-408C	460	
		329A-472C		461
		409A-472C	462	
		473A-502C		462
		473A-620C	463	
		503A-695C		464
		621A-695C	465	
		696A-763C		465
		696A-839C	466	
		764A-880C		467
		840A-880C	468	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
8/10/73	H03-59	001A-028C		467
and		001A-028C	468	
9/10/73		029A-100C		468
		029A-172C	469	
		101A-244C		470
		173A-244C	471	
		245A-320C		471
		245A-388C	472	
		321A-425C		473
		389A-425C	474	
9/10/73	H03-58	001A-036C		473
		001A-036C	474	
		037A-104C		474
		037A-184C	475	
		105A-248C		476
		185A-248C	477	
		249A-328C		477
		249A-396C	478	
		329A-451C		479
		397A-451C	480	
"	H03-31	001A-020C		479
		001A-020C	480	
		021A-088C		480
		021A-168C	481	
		089A-232C		482
		169A-232C	483	
		233A-312C		483
		233A-380C	484	
		313A-452C		485

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
9/10/73	H03-31 (Cont'd)	381A-452C	486	
		453A-524C		486
		453A-584C	487	
		525A-648C		488
		585A-648C	489	
		649A-708C		489
		649A-768C	490	
		709A-779C		491
		769A-779C	492	
9/10/73 and 10/10/73	H03-24	001A-048C		491
		001A-048C	492	
		049A-112C		492
		049A-168C	493	
		113A-236C		494
		169A-236C	495	
		237A-300C		495
		237A-376C	496	
		305B-376C		498
		377A-448C	498	
		377B-520C		497
		449A-596C	499	
		521A-596C		500
		597A-668C	500	
		597A-740C		501
		669A-812C	502	
		741A-812C		503
		813A-873C	503	
		813A-873C		504

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd 544-	Even 544-
10/10/73	H03-54	001A-012C	503	
		001A-084C		504
		013A-160C	505	
		085C-160C		506
		161A-228C	506	
		161A-291C		507
		229A-291C	508	
"	H03-53	001A-012C		507
		001A- 82B	508	
		013A- 80C		509
		082C-156C	509	
		081A-224C		510
		157A-273C	511	
		225A-273C		512
"	H03-51	001A-024C		511
		001A-046C	512	
		025A-168C		513
		047A-168C	514	
		169A-236C		514
		169A-312C	515	
		237A-380C		516
		313A-380C	517	
		381A-456C		517
		381A-475C	518	
		457A-475C		519

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
12/10/73	H03-52	001A-024C	518	
		001A-100C		519
		025A-100C	520	
		101A-164C		520
		101A-248C	521	
		165A-263C		522
		249A-263C	523	
"	H03-74	001A-044C		522
		001A-044C	523	
		045A-124C		523
		045A-188C	524	
		125A-268C		525
		189A-268C	526	
		269A-328C		526
		269A-412C	527	
		329A-472C		528
		413A-472C	529	
		473A-501C		529
		473A-501C	530	
13/10/73	H03-18	001A-056C		529
		001A-120C	530	
		057A-204C		531
		121A-204C	532	
		205A-264C		532
		205A-348C	533	
		265A-412C		534
		349A-412C	535	
		413A-453C		535
		413A-453C	536	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
13/10/73	H03-19	001A-040C		535
		001A-104C	536	
		041A-184C		537
		105A-184C	538	
		185A-248C		538
		185A-332C	539	
		249A-388C		540
		333A-388C	541	
		389A-402A		541
		389A-402A	542	
		402B-472C	541	
		402B-544C		543
		473A-616C	544	
		545A-616C		545
		617A-635C	545	
		617A-635C		546
"	H03-17	001A-048C		545
		001A-120C	546	
		049A-192C		547
		121A-192C	548	
		193A-264C		548
		193A-336C	549	
		265A-408C		550
		337A-408C	551	
		409A-480C		551
		409A-552C	552	
		481A-621C		553
		553A-621C	554	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
13/10/73	H03-20	001A-072C		554
and		001A-144C	555	
14/10/73		073A-208C		556
		145A-208C	557	
		209A-284C		557
		209A-348C	558	
		285A-424C		559
		349A-424C	560	
		425A-492C		560
		425A-568C	561	
		493A-636C		562
		569A-636C	563	
		637A-712C		563
		637A-772C	564	
		713A-836C		565
		773A-836C	566	
		837A-885C		566
		837A-885C	567	
14/10/73	H03-15	001A-008C		566
		001A-072C	567	
		009A-132C		568
		073A-132C	569	
		133A-200C		569
		133A-272C	570	
		201A-340C		571
		273A-340C	572	
		341A-412C		572
		341A-484C	573	
		413A-556C		574
		485A-556C	575	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
14/10/73	H03-15	557A-624C		575
	(Cont'd)	557A-700C	576	
		625A-768C		577
		701A-768C	578	
		769A-849C		578
		769A-889C	579	
		850A-889C		580
"	H03-73	001A-024C	579	
		001A-104C		580
		025A-104C	581	
		105A-168C		581
		105A-252C	582	
		169A-312C		583
		253A-312C	584	
		313A-396C		584
		313A-456C	585	
		397A-537C		586
		457A-537C	587	
15/10/73	H03-72	001A-060C		587
		001A-144C	588	
		061A-200C		589
		145A-200C	590	
		201A-288C		590
		201A-344C	591	
		289A-432C		592
		345A-432C	593	
		433A-488C		593
		433A-539C	594	
		489A-539C		595

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
15/10/73	H03-16	001A-028C	594	
		001A-088C		595
		029A-088C	596	
		089A-172C		596
		089A-232C	597	
		173A-316C		598
		233A-316C	599	
		317A-376C		599
		317A-460C	600	
		377A-520C		601
		461A-520C	602	
		521A-596C		602
		521A-668C	603	
		597A-673C		604
		669A-673C	605	
16/10/73	H03-71	001A-064C		604
		001A-064C	605	
		065A-136C		605
		065A-208C	606	
		137A-276C		607
		209A-276C	608	
		277A-348C		608
		277A-420C	609	
		349A-492C		610
		421A-492C	611	
		493A-567C		611
		493A-567C	612	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd 544-	Even 544-
16/10/73	H03-14	001A-072C	612	
		001A-144C		613
		073A-144C	614	
		145A-216C		614
		145A-288C	615	
		217A-360C		616
		289A-360C	617	
		361A-432C		617
		361A-504C	618	
		433A-521C		619
		505A-521C	620	
"	H03-13	001A-052C		619
		001A-052C	620	
		053A-124C		620
		053A-196C	621	
		125A-268C		622
		197A-268C	623	
		269A-340C		623
		269A-412C	624	
		341A-484C		625
		413A-484C	626	
		485A-513C		626
		485A-513C	627	
"	H03-69	001A-040C		626
		001A-112C	627	
		041A-184C		628
		113A-184C	629	
		185A-259C		629
		185A-259C	630	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd 544-	Even 544-
17/10/73	H03-67	001A-068C	630	
		001A-141C		631
		069A-141C	632	
		142A-212C		632
		142A-257C	633	
		213A-257C		634
"	H03-68	001A-028C	633	
		001A-096C		634
		029A-096C	635	
		097A-172C		635
		097A-240C	636	
		173A-316C		637
		241A-316C	638	
		317A-380C		638
		317A-464C	639	
		381A-521C		640
		465A-521C	641	
"	H03-12	001A-004C		640
		001A-004C	641	
		005A-008C		641
		005A-152C	642	
		009A-011C		643
		012A-084C		641
		085A-228C		643
		153A-228C	644	
		229A-296C		644
		229A-372C	645	
		297A-440C		646
		373A-440C	647	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
17/10/73	H03-12	441A-517C		647
	(Cont'd)	441A-517C	648	
"	H03-66	001A-068C	648	
		001A-140C		649
		069A-140C	650	
		141A-208C		650
		141A-277C	651	
		209A-277C		652
"	H03-10	001A-072C		652
		001A-072C	653	
		073A-144C		653
		073A-216C	654	
		145A-277C		655
		217A-277C	656	
18/10/73	H03-65	001A-009C		655
		001A-009C	656	
		010A-084C		656
		010A-152C	657	
		085A-228C		658
		153A-228C	659	
		229A-287C		659
		229A-287C	660	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
18/9/73	H03-11	001A-080C	660	
		001A-144C		661
		081A-144c	662	
		145A-224C		662
		145A-292C	663	
		225A-368C		664
		293A-368C	665	
		369A-436C		665
		369A-512C	666	
		437A-576C		667
		513A-576C	668	
		577A-605B		668
		577A-605B	669	
"	H03-11R	633A-680C		668
		633A-748C	669	
		681A-824C		670
		749A-824C	671	
		825A-892C		671
		825A-972C	672	
		893A-1036C		673
		973A-1036C	674	
		1037A-1112C		674
		1037A-1180C	675	
		1113A-1252C		676
		1181A-1252C	677	
		1253A-1312C		677
		1253A-1381B	678	
		1313A-1393C		679
		1382B-1393C	680	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
19/10/73	H03-9	001A-040C		679
		001A-040C	680	
		041A-112C		680
		041A-172C	681	
		113A-252C		682
		173A-252C	683	
		253A-316C		683
		253A-396C	684	
		317A-456C		685
		397A-456C	686	
		457A-540C		686
		457A-604C	687	
		541A-684C		688
		605A-684C	689	
		685A-699C		689
		685A-699C	690	
"	H03-8	001A-048C		689
		001A-128C	690	
		049A-192C		691
		129A-192C	692	
		193A-268C		692
		193A-336C	693	
		269A-375C		694
		337A-375C	695	

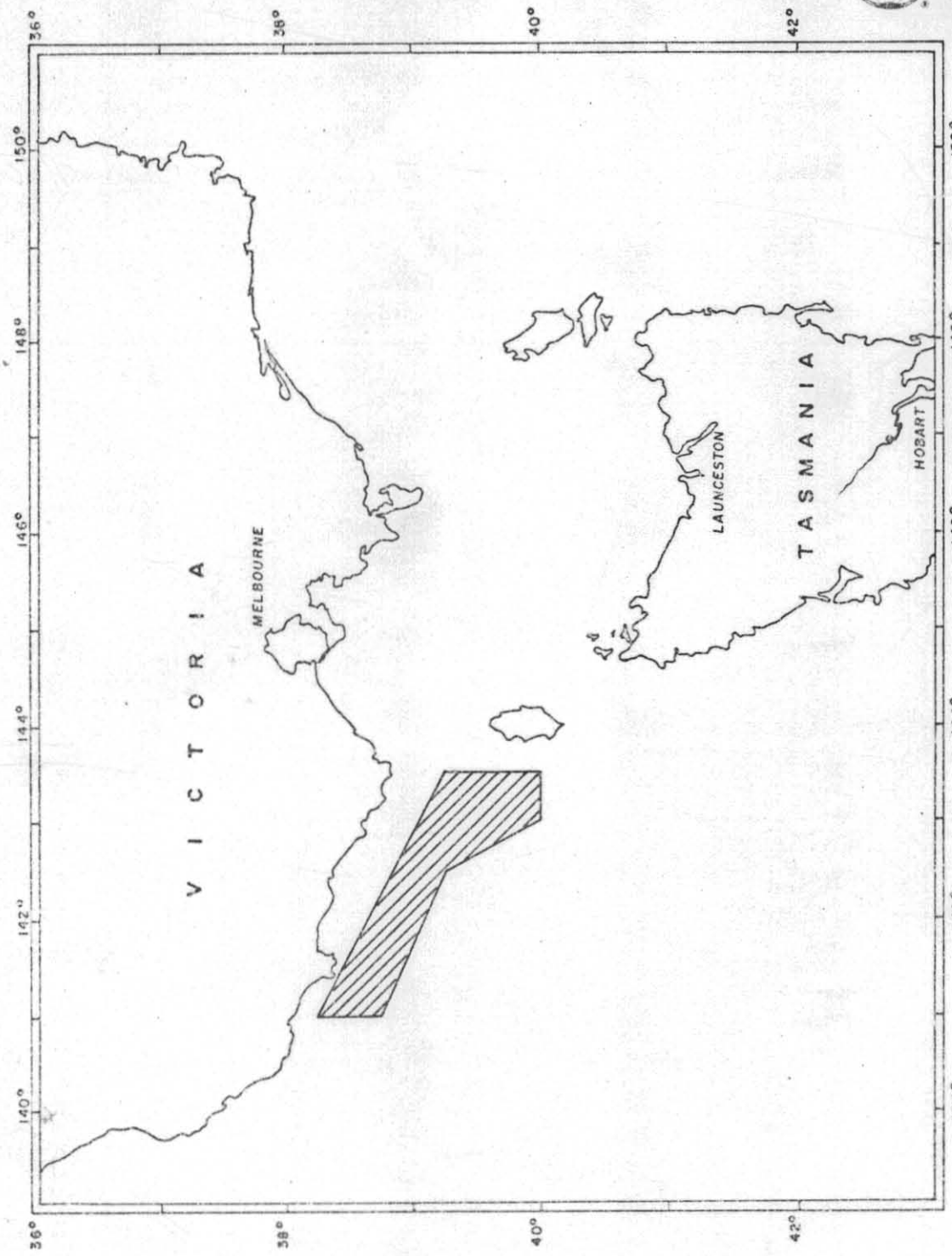
Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
19/10/73	H03-7	001A-032C		694
		001A-032C	695	
		033A-100C		695
		033A-176C	696	
		101A-244C		697
		177A-244C	698	
		245A-316C		698
		245A-388C	699	
		317A-460C		700
		389A-460C	701	
		461A-532C		701
		461A-565C	702	
		533A-565C		703
20/10/73	H03-6	001A-040C	702	
		001A-108C		703
		041A-108C	704	
		109A-184C		704
		109A-252C	705	
		185A-328C		706
		253A-328C	707	
		329A-396C		707
		329A-468C	708	
		397A-524C		709
		469A-524C	710	
		525A-592C		710
		525A-601C	711	
		593A-601C		712

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
20/10/73	H03-4	001A-048C	711	
		001A-112C		712
		049A-112C	713	
		113A-172C		713
		113A-247C	714	
		173A-316C		715
		248A-316C	716	
		317A-392C		716
		317A-464C	717	
		393A-536C		718
		465A-536C	719	
		537A-599C		719
		537A-599C	720	
21/10/73	H03-5	001A-008C		719
		001A-080C	720	
		009A-152C		721
		081A-152C	722	
		153A-220C		722
		153A-231C	723	
		221A-231C		724
"	H0-3	001A-064C	723	
		001A-132C		724
		065A-132C	725	
		133A-204C		725
		133A-276C	726	
		205C-313C		727
		277A-313C	728	

Date Shot	Line Number	List of Shotpoints	Field Tape Numbers Odd	Even
			544-	544-
21/10/73	H03-2	001A-032C		727
		001A-032C	728	
		033A-104C		728
		033A-176C	729	
		105A-207C		730
		177A-207C	731	
22/10/73	H03-1	001A-036C		730
		001A-036C	731	
		037A-108C		731
		037A-182C	732	
		109A-252C		733
		183A-252C	734	
		253A-324C		734
		253A-396C	735	
		325A-468C		736
		397A-468C	737	
		469A-528C		737
		469A-559C	738	
		529A-559C		739

PLATES

081075

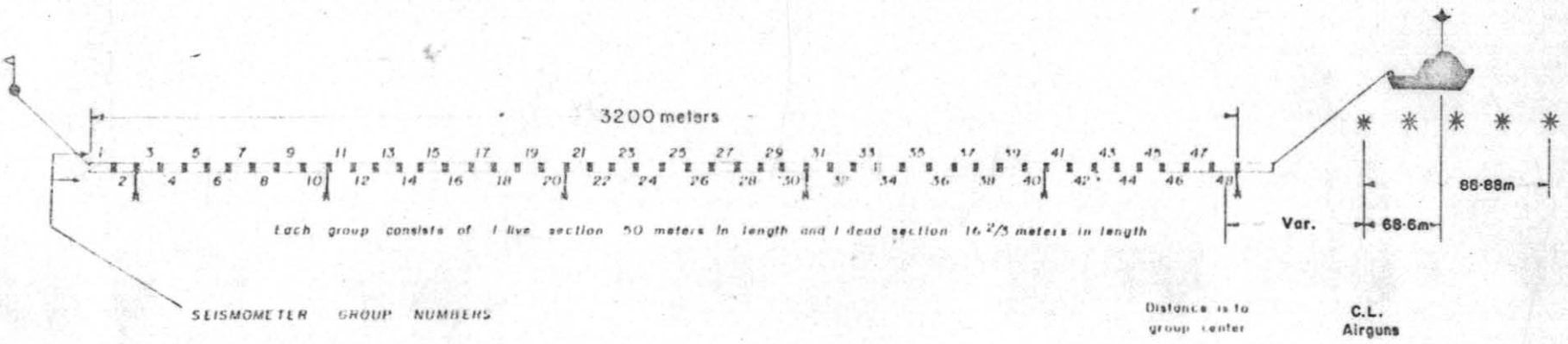


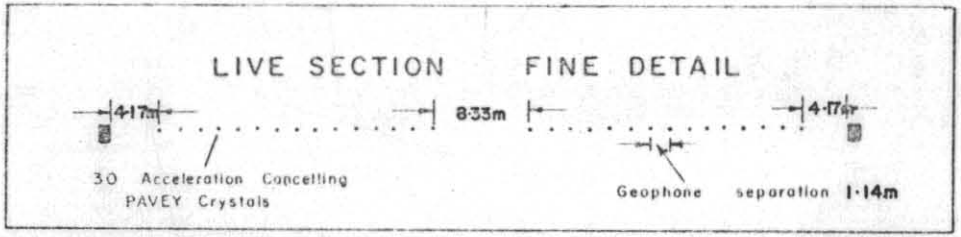
HEMATITE PETROLEUM PTY. LTD.

LOCATION OF PROSPECT

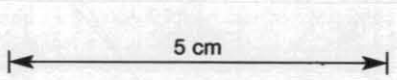
GEOPHYSICAL SERVICE INTERNATIONAL PARTY 931

PLATE 1





WATER BREAKS	DISPLAYED ON SEISMOGRAM TRACES	RECORDED ON TAPE CHANNELS
1	27	31
2	26	28
3	28	29
4	27	31
5	25	27
6	26	28

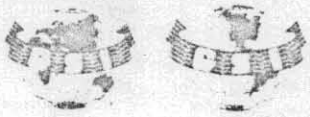


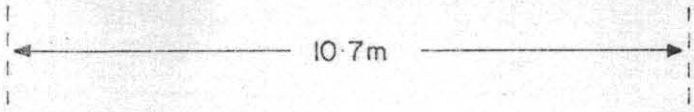
MARINE CABLE DIAGRAM
3200 METER
(OFF END SPREAD – 48 GROUPS)

G.S.I. Party 931
Ship EUGENE McDERMOTT II
Client HEMATITE PETROLEUM P/L
Area OTWAY-NELSON
Date SEP./OCT., 1973

PLATE 2

0810076

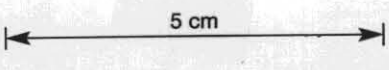




GUN N°		SIZE	Distances		GUN N°		SIZE
1		1·311 litres	0m		17		1·639 litres
2		1·311	0·46		18		1·639
3		1·311	0·91		19		1·639
4		1·311	1·37		20		1·639
5		1·639	3·20	3·28	21		1·639
6		1·639	3·66	3·73	22		1·639
7		1·311	5·49	5·64	23		1·311
8		1·311	5·94	6·10	24		1·311
9		0·655	7·77	8·00	25		0·655
10		0·655	8·99	9·30	26		0·655
11		0·655	10·21	10·59	27		0·655
12		0·328	11·43	11·89	28		0·328
13		0·328	12·65	13·11	29		0·328
14		0·328	13·87	14·33	30		0·328
15		0·164	15·09	15·54	31		0·164
16		0·164	16·31	16·76	32		0·164
PORT					STARBOARD		

m/v EUGENE Mc DERMOTT II

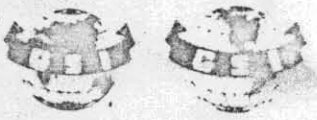
AIR GUN ARRAY

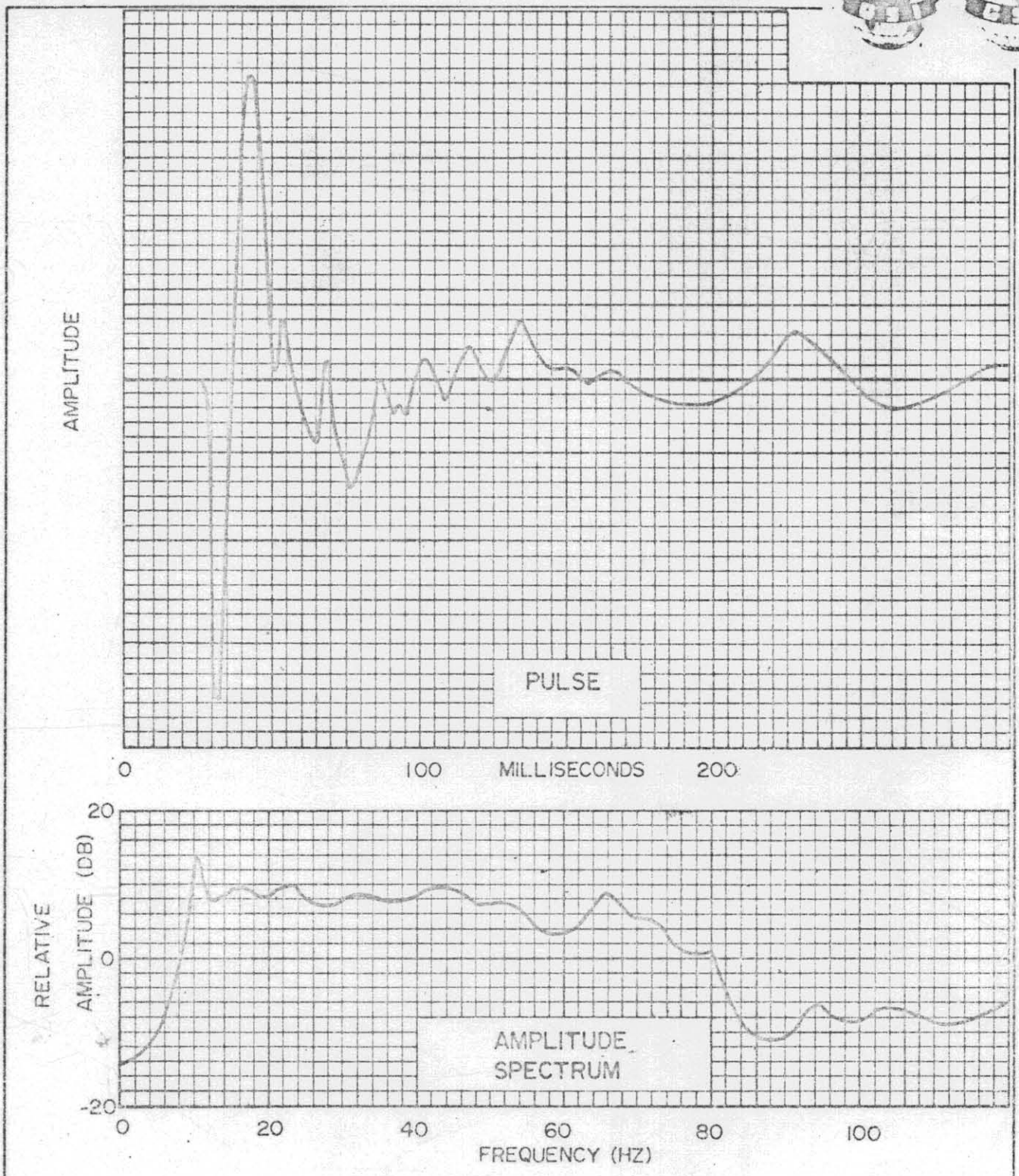


SEPTEMBER 1973

PLATE 3

081078





GUN	SIZES
4X0·164 litres	2X1·311 litres
6X0·328 "	2X1·639 "
6X0·655 "	1X3·278 "
	1X3·933 "

AIRGUN ARRAY PULSE AND SPECTRUM

Vessel EUGENE MCDERMOTT II

Array Capacity 19·655 litres

Recording Filter OUT - 248 Hz

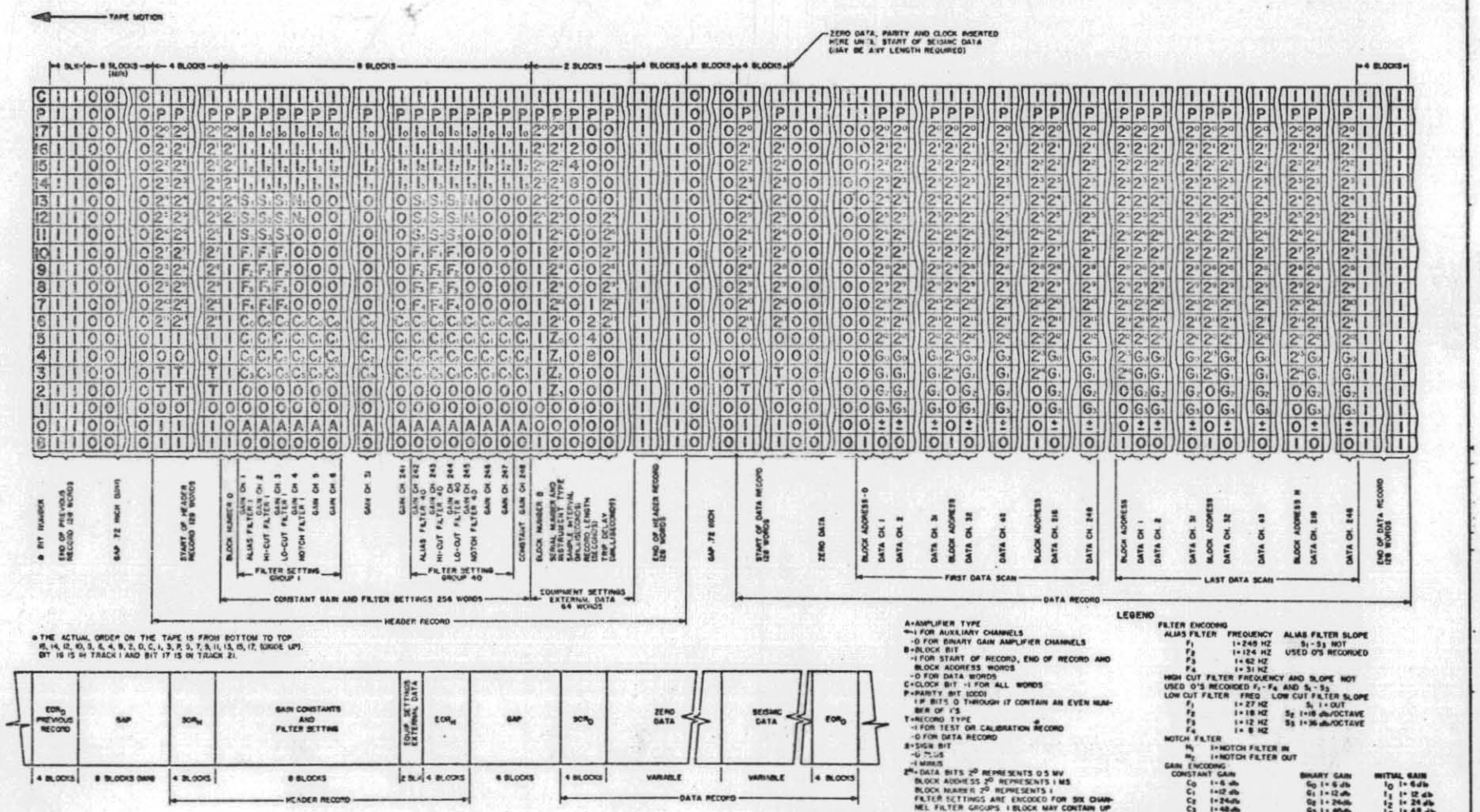
Date MARCH 1973

GSI-709

5 cm

PLATE 4

GSI-709



* THE ACTUAL ORDER ON THE TAPE IS FROM BOTTOM TO TOP
15, 14, 12, 10, 9, 8, 6, 4, 3, 2, 0, C, 1, 3, P, 5, 7, 9, 11, 13, 15, 17. (SIDE UP).
BIT 16 IS IN TRACK 1 AND BIT 17 IS IN TRACK 21.

LEGEND

A=AMPLIFIER TYPE
-1 FOR AUXILIARY CHANNELS
-0 FOR BINARY GAIN AMPLIFIER CHANNELS
B=BLOCK BIT
-1 FOR START OF RECORD, END OF RECORD AND BLOCK ADDRESS WORDS
-0 FOR DATA WORDS
C=CLOCK BIT -1 FOR ALL WORDS
P=PARITY BIT (ODD)
-IF BITS 0 THROUGH 17 CONTAIN AN EVEN NUMBER OF 1'S
T=RECORD TYPE
-1 FOR TEST OR CALIBRATION RECORD
-0 FOR DATA RECORD
S=SIGN BIT
-0 PLUS
-1 MINUS
2^{n}=DATA BITS 2^{0} REPRESENTS 0.5 MV
BLOCK ADDRESS 2^{0} REPRESENTS 1 MS
BLOCK NUMBER 2^{0} REPRESENTS 1
FILTER SETTINGS ARE ENCODED FOR SIX CHANNEL FILTER GROUPS. 1 BLOCK MAY CONTAIN UP TO 5 FILTER GROUPS.
Z=INSTRUMENT TYPE
0000=BINARY GAIN

LEGEND

FILTER ENCODING
ALIAS FILTER — FREQUENCY — ALIAS FILTER SLOPE
F_1 1=248 HZ — S_1-S_3 NOT
F_2 1=124 HZ — USED 0'S RECORDED
F_3 1=62 HZ
F_4 1=31 HZ
HIGH CUT FILTER FREQUENCY AND SLOPE NOT USED 0'S RECORDED F_1-F_4 AND S_1-S_3
LOW CUT FILTER — FREQ — LOW CUT FILTER SLOPE
F_1 1=27 HZ — S_1 1=OUT
F_2 1=18 HZ — S_2 1=18 db/OCTAVE
F_3 1=12 HZ — S_3 1=36 db/OCTAVE
F_4 1=8 HZ
NOTCH FILTER
N_1 1=NOTCH FILTER IN
N_2 1=NOTCH FILTER OUT
GAIN ENCODING

CONSTANT GAIN		BINARY GAIN	INITIAL GAIN
C_0	1=6 db	G_0 1=6 db	I_0 1=6 db
C_1	1=12 db	G_1 1=12 db	I_1 1=12 db
C_2	1=24 db	G_2 1=24 db	I_2 1=24 db
C_3	1=48 db	G_3 1=48 db	I_3 1=48 db

QTY REQD		LIST OF MATERIALS					
-0002	-0001	ITEM	SUB	PART NUMBER	DESCRIPTION	UNIT OF ISSUE	VENDOR PART NUMBER

REV LTR	SUB	ASSY NO.	QTY	EACH ON
453	A	223000 9901	REF	9901

PA22181

UNLESS OTHERWISE SPECIFIED
DECIMAL XX ± .02 XXX ± .010
FRACTIONAL ± 1/64 ANGULAR ± 1°
CONCENTRICITY MACHINED DIAMETERS .004 TIR
ALL DIMENSIONS TO BE MET BEFORE PLATING
REMOVE ALL BURRS AND SHARP EDGES
DO NOT SCALE THIS DRAWING
X DIMENSIONS IN INCHES
FACES MARKED ✓ TO HAVE
DRILLED HOLE TOLERANCES
.013 TO .136 ± .005 — .136 TO .250 ± .007
.250 AND MORE ± .010

DRAFTSMAN
CHIEF DRAFTSMAN
DESIGN ENGINEER
PROJECT ENGINEER
APPROVED

TEXAS INSTRUMENTS INCORPORATED
APPARATUS DIVISION HOUSTON TEXAS

21 TRACK TAPE FORMAT
SDFS III

SCALE NONE | D | DRAWING NUMBER 225451 | REV A

PLATE 5

5 cm

0810179

APPENDIX 2

PROCESSING REPORT

081081

PROCESSING REPORT
MARINE SEISMIC SURVEY
CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY
PERMIT NUMBERS VIC-P6, VIC-P7, T3P
1973

For

HEMATITE PETROLEUM PROPRIETARY LIMITED
140 WILLIAM STREET,
MELBOURNE. VICTORIA 3000

By

GEOPHYSICAL SERVICE INTERNATIONAL
120 CHRISTIE STREET,
ST. LEONARDS. N.S.W. 2065

PARTY 103-HEM-1

SEPTEMBER, 1973/FEBRUARY, 1974

TABLE OF CONTENTS

SECTION	TITLE	PAGE
I	INTRODUCTION	1
II	DIGITAL PROCESSING	
	A. SEQUENCE	2
	B. PROGRAM AND PARAMETER DETAILS	4
	C. TIME MIGRATION AND DEPTH CONVERSION	5
	D. REFRACTION	18
III	DISCUSSION	19

LIST OF APPENDICES

APPENDIX	TITLE
A	LINE AND SHOTPOINT INDEX
B	PROCESSING SEQUENCE CODES
C	LINES MIGRATED AND DEPTH CONVERTED
D	PARAMETERS FOR 700 PACKAGE

PLATE NO. 1 - LOCATION MAP

PLATE NO. 2 - MIGRATION OF A TRACE

SECTION I

INTRODUCTION

A marine seismic reflection survey was conducted by the M.V. "Eugene McDermott II" in the Otway Basin from Cape Nelson to Cape Otway for Hematite Petroleum Proprietary Limited between 15th September and 29th October, 1973.

Approximately 2900 kilometres (1800 miles) of "72-fold" reflection coverage were shot using a 48 trace, 3200 metre, acceleration cancelling streamer under continuous tow in conjunction with a Pneumatic Acoustic Energy Source, a 19.655 litre tuned airgun array. Field and survey operations are fully discussed under separate covers.

Digital data processing was performed in the Sydney and Singapore offices of Geophysical Service International. All data were vertically stacked and processed as 24-fold data. Continuous Velocity Analysis was effected by the 700 Package Event Detection Module at our Singapore office.

SECTION II

DIGITAL PROCESSING

The following processing sequence was applied to the data. Data were processed to record times of 5 to 7 seconds, depending on the water depth, at a sample period of 4 milliseconds.

A. SEQUENCE

1. Vertical Stack :
   a. True Amplitude Recovery.
   b. Vertical Stack (as required).

2. Pre-Processing :
   a. Trace Edit.
   b. Pre-deconvolution Ramp Scaling.
   c. Static Corrections.
   d. Deconvolution.
   e. Common Depth Point Gather.
   f. Annotation of Water Depth and Offset Information.
   g. Preliminary Stack.

3. Velocity Processing :

Full 700 Package Continuous Velocity Analysis.

a. Moveout scan, dip search and reflection identification.

b. Plot of picked events as a function of velocity, amplitude and dip.

c. Primary Segment Display.

4. Post-Processing :

a. Normal Moveout Correction.

b. Single-fold Display.

c. Common Depth Point Stack.

d. Time Variant Deconvolution (TVD).

e. Cross Record Mix.

f. Time Variant Filtering (TVF).

g. Display.

B. PROGRAM AND PARAMETER DETAILS

1. Vertical Stack :

a. True Amplitude Recovery (TAR)

TAR was applied to all field records. This process removed the gain imposed by the DFS III Binary Gain Control System and corrected for inelastic attenuation and spherical divergence losses.

b. 3 on 1 Vertical Stack (Sequences A, B, C, D from Appendix B)

The "72-fold" shooting was reduced to 24-fold 48 trace by stacking the 48 traces of three contiguous shots. This summing produces a depth point smear, but maintains correct offsets. The main advantage of Vertical Stack is the cancellation of random noise and the reinforcing of primary data.

c. Even/Odd Vertical Stack (Sequences B, C, D, E)

Even/Odd Vertical Stack was performed reducing the 48 trace cable to 24 trace data. The Even 24 groups were stacked with the Odd 24 groups of the same shot. This produced three sets of 24-fold Common Depth Point records. Each set was processed separately and combined after Common Depth Point Stack. Using the field Q.C. reports as a guide, as well as on a random basis, the Vertical Stack records were displayed for further editing.

C. TIME MIGRATION AND DEPTH CONVERSION

1. Mixing :

Before migration, all data were reduced to a 66.6 metre depth point interval. This involved a vertical stack of three adjacent traces on Sequences B, C, D and E data and a stack of 2 traces on Sequence A lines.

2. Migration Stack :

Migration stack is a two-dimensional process that presents the image of reflections and diffractions at their true subsurface position, assuming that they are in the plane of the section.

The method can be considered as a two-dimensional convolution of the input time section with a wavefront chart. Hence, the "impulse response" of the multichannel filter process is a wavefront chart. For example, if a single live trace is input to the system, the output shows the peaks and troughs of that trace duplicated at many points in space on either side of the input but distributed along the contours of a wavefront chart (see Plate 2).

2. Pre-Processing :

a. Trace Edit

Trace editing was performed based on the Vertical Stack displays. This consisted primarily of trace zeroing.

b. Pre-deconvolution Ramp Scaling

Pre-deconvolution ramp scaling was designed to suppress direct arrival energy. This was to prevent the high amplitude direct arrivals from being "blown-up" when the deconvolution operator was applied.

c. Static Corrections

Static corrections were applied to correct for a sea level datum. A positive static correction was applied to compensate for the depth of the airgun array and streamer below sea level. A water velocity of 4900 ft./sec. was assumed when making these corrections. At the same time, a correction of 12 milliseconds was removed for the airgun delay.

d. Deconvolution (less than 600' of water
greater than 5000' of water)

The approximate deconvolution was accomplished by the application of a whitening filter designed from auto-correlation functions, which were derived from the trace to be deconvolved. Two filters were designed per trace and applied with a 50% overlap, such that the first filter tapered off while the second filter tapered on. The operators were designed as double section operators; i.e., to dereverberate the first and second water bottom reverberations.

De-Water (600' - 5000' of water)

Deep Water Trapped Energy Removal (De-Water) is non-whitening deconvolution which is designed to significantly attenuate simple coherent multiples generated from a deep water bottom and to attenuate peg-leg multiples generated from a primary reflecting horizon and the deep water bottom.
Firstly, normal moveout is applied to the CDP records using a constant velocity that will flatten all water bottom multiples. These corrections are removed later, after the De-Water process. De-Water utilizes an improved inverse filtering technique. The filter is designed and applied in a time variant manner to allow for changes in the frequency spectrum of the seismic data as a function of record time. The frequency spectrum of the output from De-Water approximates the envelope of the input frequency spectrum.

e. Common Depth Point (CDP) Gather

All data were output from the Pre-Processing Module in CDP format. For the data now reduced to 24-fold, each 24 trace output record represented one CDP point.

f. Annotation

The offset and the shot plus receiver water depth for each trace was annotated in channel 25 of the CDP gather record.

g. Preliminary Stack

Velocities obtained from previous years' processing were applied to alternate depth points after CDP gather and the data stacked. This post-processing sequence omitted deconvolution. Velocities from this year's work were used when available.

3. Velocity Analysis :

1. Program 700-2 provides a continuous velocity analysis technique which was used to determine the complete velocity field along a line.

   Inputs to this program are pre-processed CDP gather records. For Sequences A, B and C data, every depth point was submitted (33.3 metre depth point interval). For Sequences D and E data, only alternate depth points were used (44.4 metre depth point interval). On these CDP records the following processed were performed :-

   o Moveout and Dip Scan Building -

   A moveout scan is generated for each depth point and is formed by the application of a constant shift to each trace in proportion to the square of the offset of the trace and then stacking by mixing together all the traces in the gather to form a scan trace. The moveout applied is then incremented by a constant amount and the process repeated until the range of moveout applied exceeds the expected seismic range.

Dip scans are built by stacking together series of moveout scans from consecutive depth points along linear planes of dip which are automatically incremented within a specified dip aperture designed to cover the expected range of dips on the seismic section. Dip apertures for each processing time gate were determined from the preliminary stack sections. The number of consecutive moveout scans stacked to form a dip scan is termed the SMASH rate and may also vary with the time gates.

o Interpretation of Moveout/Dip Scans to detect valid events with time, amplitude and moveout, and dip information -

The automatic interpretation is based on the fact that any coherent event on the gather record will stack at the optimum moveout value to a maximum (or minimum for negative values) in the two-dimensional time moveout plane of the scan. When stacking again takes place along the dip plane, which most approximates the true geological time-dip, maximum dip scan response will be achieved. The dip scan domain is a three-dimensional one in which every coherent event from the input gather records will be represented by a maximum or minimum at that time, moveout and dip which correctly describes the original seismic event.

The resulting "TAMD picks" represent the mean time, amplitude, moveout and dip of the seismic event over a space gate of width SMASH depth points. The move-up rate is another important consideration. It refers to the number of depth points between the centre of each successive dip scan set and for these lines was made equal to the SMASH rate to give a continuous suite of dip scans sets.

- Output to magnetic tape are the event files for each Space/Time gate -

  After the event detection is performed for all space points in each time gate the Event files are written on magnetic tape.

- Extensions of the Event files in each time gate to produce Work files -

  Using search windows in time, amplitude, moveout and dip, the picked seismic events from neighbouring dip scan files can be correlated and thos evolving from the same seismic horizon identified and connected. This process is called Extension and the set of connected seismic horizon events are termed Segments which are output as Work (Segment) files.

o Summary files and Consolidation files -

After all time gates have been processed, the program outputs Summary and Consolidation files in the following manner.

- Hook-up of segments between time gates to allow continuous segments across time gates.
- Output Summary Files.
- Consolidation of Summary files into continuous segments with time, amplitude and moveout at every depth point.
- Output of Consolidated Segment files on magnetic tape to be submitted for display on analysis routines.

2. Program 701 - Velocity Analysis Module - provides statistical displays (scattergrams) of velocity, amplitude and dip as a function of time over the entire space and also over specified space gates. The RMS velocities are computed from the segment times and moveouts averaged over each space gate and plotted as a coded symbol for each segment. The symbols are coded according to segment length within each space gate or according to the relative length in the entire Consolidated file. The

highest amplitude segment within each 100 msec. gate is also shown by circling the rank or grading symbol. Dip and amplitude information is plotted on the right-hand side of the velocity versus time plot.

A scattergram with a listing was generated for the entire space and for each individual space gate.

3. Program 602 - Segment Sort and Display - displays the Consolidated file in a fashion suitable for section overlay. Various sorting and annotation techniques are available to aid in the interpretation of the file.

   Initially, the total file was displayed as a quality control measure. Only segments greater than 12 depth points were plotted with segment numbers annotated on segments longer than 24 depth points.

   The final displays (segments $\geq$ 6 d.p.).

   a) Primary Peaks with RMS velocities averaged and annotated every 12 depth points.

   b) Primary Troughs with RMS velocities averaged and annotated every 12 depth points.

Input to Program 602 was the Consolidated file and output was on 5" CRT frame. These were enlarged to a horizontal scale of the section to be overlain (see "Display").

4. Post-Processing :

The CDP gather records were input to the Post-Processing Module and the following processes applied:-

a. Normal Moveout Correction

The Normal Moveout Correction was performed utilizing the velocity functions interpreted from the scattergrams. A velocity function was input at the location of each velocity module. A linear interpolation was performed between these functions and a velocity function calculated for and applied to each of the intermediate depth points. All velocity functions are referenced to the water top and are annotated on the section header.

b. Single-Fold Display

A single-fold section with the final stacking velocities applied was generated from the normal moveout program. This section was filtered and displayed on paper.

c. Common Depth Point Stack

Common Depth Point Stack was performed with a scaling response equal to the reciprocal of the number of live traces contributing after first break suppression. The first break suppression ramps were derived from single-fold records, to remove unwanted water-borne energy, refractions and low frequencies due to stretching in the moveout process.

d. Time Variant Deconvolution (TVD)

Time Variant Deconvolution is a multiple operator, whitening, deconvolution designed from and applied to each trace in a series of overlapping gates. Two operators (70 points) were used on all lines. The TVD operators were designed from two 50% overlapping gates extending from 200 msec. below the water bottom to 100 msec. less than total record time.

e. Cross Record Mix

This process performed a weighted trace mix on the stacked data. The weighting used for Permits VIC-P6 and VIC-P7 was 15%, 70%, 15%. For Permit Area T3P the weighting was increased to 20%, 60%, 20%.

The first output trace of a record section would have 20% contribution from trace #1, 60% from input trace #2 and 20% from trace #3.

The second output trace of a record would have 20% from input trace #2, 60% from trace #3 and 20% from trace #4. This process continued for the entire line.

f. Time Variant Filtering (TVF)

A time variant, zero phase, digital filter was applied as shown on the side panel of each section.

g. Display

All plotter displays were in a wiggle trace/ variable area format at a horizontal scale of .53 mile/inch and a vertical scale of 3.75 inches/second.
For the Sequence A data, this resulted in trace spacing of 10 traces/cm. For the Sequences B, C, D and E data, this resulted in trace spacing of 15 traces/cm.

The principal results one should expect from this process are :

1. Lateral displacement of dipping events.
2. Diffraction patterns "collapsing" into points.
3. "Sorting out" of the complex event patterns due to buried foci.
4. "Collapsing" event overlap at faults due to diffractions at bed terminations to produce more distinct fault definition.

3. Depth Conversion :

This process allows the transformation of the migrated section having a linear time scale to a section having a linear depth scale.

The velocities used for depth conversion were the same as those used for normal moveout corrections. These functions are then smoothed to remove any sudden variations in velocity.

The migrated time sections were displayed with a horizontal scale of 5 traces/cm. (0.53 miles/inch) and a vertical scale of 3.75 inches/second.

The depth sections were displayed with a horizontal scale of 5 traces/cm. and a vertical scale of 5 feet/millisecond.

D. REFRACTION

A marine seismic refraction line, H03-20, was included in this survey. Teleseis Sonobuoys were used to record and transmit the signals to an Aquatronics Sonobuoy receiver on board ship. The data were recorded using waterbreak channel 5 onto tape channel 27.

The refraction line was gathered from the field tapes such that recordings from successive shots could be displayed adjacent to each other on the final plot.

The refraction profile was filtered with a 5-20 Hz bandpass filter and then corrected to give a delay time profile of 15,000'/sec. After shifting, each three adjacent traces were summed before final display (10 traces/cm., 3.75 inches/sec.).

SECTION III

DISCUSSION

Data quality from the Cape Nelson to Cape Otway Seismic Survey was not quite as good as expected due to the presence of high amplitude reflected refractions. This energy, sometimes called "leaking P-mode" energy cannot be accounted for by simple ray path theory; but is explained by wave theory, based on the constructive interference of plane waves totally reflected in a wave guide. This phenomenon produced high amplitude noise trains on the field records. A vertical stack of consecutive field records tended to reinforce this coherent, shot-generated noise. Because this leaking P-mode energy was offset dependent, some attenuation was obtained by mixing traces of different offsets (i.e. #47 and #48). This form of vertical stack was performed on the majority of the data (see Appendix A). To improve the data further, a Cross Record Mix was run on all lines in the prospect.

Respectfully submitted,
GEOPHYSICAL SERVICE INTERNATIONAL

Steve Jeffrey.

Steve Jeffrey,
Assistant Party Chief.

Bill Pailthorpe

Bill Pailthorpe,
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Ken Graybill

Ken Graybill,
Data Processing Supervisor.

APPENDIX A

LINE AND SHOTPOINT INDEX

Line	Shotpoints	Miles	Mode of Processing (See Appendix B)
H03-1	1-559	23.16	E
-2	1-207	8.57	E
-3	1-313	12.96	A
-4	1-599	24.81	E
-5	1-231	9.57	A
-6	1-601	24.89	E
-7	1-565	23.40	A
-8	1-375	15.53	A
-9	1-699	28.96	D
-10	1-277	11.47	D
-11	1-1393	41.54	E
-12	1-517	21.41	C
-13	1-513	21.25	C
-14	1-521	21.58	C
-15	1-889	36.82	A
-16	1-673	27.88	E
-17	1-621	25.72	D
-18	1-453	18.76	E
-19	1-635	26.30	D
-20	1-885	34.75	E
-21	1-251	10.40	B
-22	1-259	10.73	C
-23	1-275	11.39	C
-24	1-873	36.12	A
-26	1-477	19.76	C
-27	1-463	19.18	C
-28	1-877	24.83	A

Line	Shotpoints	Miles	Mode of Processing (See Appendix B)
H03-29	1-386	15.97	B
-30	1-626	23.09	A
-30R	654-862	8.66	B
-31	1-779	32.27	E
-32	1-655	27.13	E
-32R	685-880	8.08	E
-33	1-545	22.52	E
-34	1-267	11.06	E
-35	1-268	11.10	E
-36	1-265	10.98	E
-37	1-261	10.81	E
-38	1-312	11.47	E
-39	1-273	11.31	E
-40	1-1431	59.28	B
-41	1-1555	64.41	B
-42	1-1927	79.82	B
-43	1-758	29.95	C
-44	1-839	34.75	A
-45	1-765	31.68	B
-46	1-1929	79.90	A
-47	1-1335	55.30	C
-48	1-457	18.93	A
-49	1-703	29.12	A
-50	1-283	11.72	A
-51	1-475	19.68	C
-52	1-263	10.89	D
-53	1-273	11.31	C
-54	1-291	12.06	C
-55	1-321	13.29	C
-56	1-287	11.89	B

Line	Shotpoints	Miles	Mode of Processing (See Appendix B)		
H03-57	1-263	10.89	B		
-58	1-451	18.68			E
-59	1-425	17.61			E
-60	1-1051	43.54		C	
-61	1-367	15.20		C	
-62	1-307	12.72	B		
-63	1-271	11.22	B		
-64	1-485	20.09		C	
-65	1-287	11.89		C	
-66	1-277	11.47		C	
-67	1-257	10.65			D
-68	1-521	21.58		C	
-69	1-257	10.73		C	
-70	1-235	9.73	B		
-71	1-567	23.49		C	
-72	1-539	22.32		C	
-73	1-537	22.25		C	
-74	1-501	20.75		C	
-75	1-269	11.14		C	
-76	1-295	12.22			E
-77	1-383	15.87			E
-78	1-356	14.75		C	
-79	1-1274	46.10		C	

APPENDIX B

PROCESSING SEQUENCE CODES

SEQUENCE A

3 on 1 Vertical Stack
2 x 24-fold CDP Gather (Odds and Evens)
700 Pkg. on every depth point (33.3 m.)
24-fold Stack
Display 10 trace/cm.

SEQUENCE B

3 on 1 Vertical Stack
2 x 24-fold CDP Gather (Odds and Evens)
700 Pkg. on every depth point (33.3 m.)
24-fold Stack
Display 10 trace/cm.
- Re-processed -
2 on 1 Vertical Stack (Odds and Evens)
3 x 24-fold CDP Gather
24-fold Stack
Display 15 trace/cm.

SEQUENCE C

3 on 1 Vertical Stack
2 x 24-fold CDP Gather (Odds and Evens)
700 Pkg. on every depth point (33.3 m.)
- Re-processed -
2 on 1 Vertical Stack (Odds and Evens)
3 x 24-fold CDP Gather
24-fold Stack
Display 15 trace/cm.

SEQUENCE D

3 on 1 Vertical Stack
2 x 24-fold CDP Gather (Odds and Evens)
- Re-processed -
2 on 1 Vertical Stack (Odds and Evens)
3 x 24-fold CDP Gather
700 Pkg. on alternate depth points (44.4 m.)
24-fold Stack
Display 15 trace/cm.

SEQUENCE E

2 on 1 Vertical Stack (Odds and Evens)
3 x 24-fold CDP Gather
700 Pkg. on alternate depth points (44.4 m.)
24-fold Stack
Display 15 trace/cm.

APPENDIX C

LINES MIGRATED AND DEPTH CONVERTED

Line	Shotpoints
H03-1	1-559
H03-2	1-207
H03-4	1-599
H03-7	1-565
H03-11	1-1393
H03-21	1-251
H03-22	1-259
H03-23	1-275
H03-26	1-477
H03-40	850-1430
H03-41	50-800
H03-42	1200-1927
H03-46	1-853
H03-49	1-703
H03-50	1-283
H03-61	1-367
H03-70	1-235
H03-71	1-567
H03-75	1-269
from 1972 Survey -	
H0-23	1-762

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVT	WORK FILES	COMMAND FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-16	1-160	240	11050	0	100	0	0	0	ALT	4001 4005	10001	1	10041	
				100	500	4	-9	9						
				500	1400	4	-10	8						
				1400	2496	4	-10	12						
				2496	3500	4	-11	10						
				3500	5000	6	-12	12						
H03-16	157-316	240	11050	0	100	0	0	0	ALT	4021 4025	1101	101	10141	
				100	500	4	-8	10						
				500	1400	4	-10	10						
				1400	2496	4	-10	14						
				2496	3500	4	-14	14						
				3500	5000	6	-12	14						
H03-16	313-472	240	11050	0	100	0	0	0	ALT	4041 4045	10201	201	10241	
				100	500	4	-10	13						
				500	1400	4	-6	9						
				1400	2496	4	-12	12						
				2496	3500	4	-10	13						
				3500	5000	6	-11	12						
H03-16	469-628	240	11050	0	100	0	0	0	ALT	4061 4065	10301	301	10341	
				100	500	4	-8	11						
				500	1400	4	-10	13						
				1400	2496	4	-9	13						
				2496	3500	4	-10	12						
				3500	5000	6	-13	13						
H03-16	625-648	36	11050	0	100	0	0	0	ALT	4101	10401	401	10441	
				100	500	4	-8	20						
				500	1400	4	-7	12						
				1400	2496	4	-10	12						
				2496	3500	4	-12	11						
				3500	5000	6	-10	20						

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LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-59	1 - 160	240	11050	0	100	0	0	0	ALT	4121 4125	10501	501	10541	
				100	500	4	-8	20						
				500	1400	4	-10	13						
				1400	2496	4	-12	16						
				2496	3500	4	-16	15						
				3500	5000	6	-14	15						
H03-59	157 - 316	240	11050	0	100	0	0	0	ALT	4141 4145	10601	601	10641	
				100	500	4	-8	6						
				500	1400	4	-10	14						
				1400	2496	4	-7	12						
				2496	3500	4	-10	15						
				3500	5000	6	-12	16						
H03-59	313-399	131.	11050	0	100	0	0	0	ALT	4161 4165	10701	701	10741	
				100	500	4	-7	8						
				500	1400	4	-9	9						
				1400	2496	4	-13	9						
				2496	3500	4	-12	10						
				3500	5000	6	-12	14						
H03-2	157-190	51	11100	0	150	0	0	0	ALT	—	11001	1001	—	
				150	500	4	-3	3						
				500	1400	4	-13	10						
				1400	2496	4	-13	13						
				2496	3500	4	-9	27						
				3500	5000	6	-13	25						
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SWATH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS/ GATHERS	REMARKS EVT.
H03-12	2-124	246	11200	0	100	0	0	0	EVY.	3001 3005	10001	1	10041	
				100	500	4	-6	6						
				500	1400	4	-10	9						
				1400	2496	4	-7	10						
				2496	3500	4	-9	11						
				3500	5000	6	-10	12						
H03-12	122-244	246	11200	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-10	10						
				2496	3500	4	-9	10						
				3500	5000	6	-10	11						
H03-12	242-364	246	11200	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-6	6						
				500	1400	4	-9	11						
				1400	2496	4	-9	12						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-12	362-484	246	11200	0	100	0	0	0	EVY.	3061 3065	10111	111	10151	
				100	500	4	-6	7						
				500	1400	4	-9	10						
				1400	2496	4	-9	10						
				2496	3500	4	-9	10						
				3500	5000	6	-10	10						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-68	2-124	246	11200	0	100	0	0	0	EVY	3101 3105	10201	201	10241	
				100	500	4	-5	6						
				500	1400	4	-10	10						
				1400	2496	4	-11	11						
				2496	3500	4	-11	10						
				3500	5000	6	-12	11						
H03-68	122-244	246	11200	0	100	0	0	0	EVY	3121 3125	10231	231	10271	
				100	500	4	-5	5						
				500	1400	4	-9	10						
				1400	2496	4	-10	12						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						
H03-68	242-364	246	11200	0	100	0	0	0	EVY	3141 3145	10261	261	10321	
				100	500	4	-4	4						
				500	1400	4	-8	10						
				1400	2496	4	-10	11						
				2496	3500	4	-10	11						
				3500	5000	6	-11	12						
H03-68	362-484	246	11200	0	100	0	0	0	EVY	3161 3165	10311	311	10351	
				100	500	4	-4	4						
				500	1400	4	-8	9						
				1400	2496	4	-9	10						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						
H03-68	482-500	36	11200	0	100	0	0	0	EVY	3201 3205	10341	341	10401	
				100	500	4	-4	4						
				500	1400	4	-8	9						
				1400	2496	4	-9	10						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						

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LINE	SP's	DP's	XREF	TIME GATE		SMP. RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	ONE FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-22	122-234	226	11300	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-10	11						
				2496	3500	4	-13	11						
				3500	5000	6	-14	11						
H03-26	2-124	246	11350	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-7	6						
				500	1400	4	-8	8						
				1400	2496	4	-9	10						
				2496	3500	4	-11	11						
				3500	5000	6	-14	11						
H03-26	122-244	246.	11350	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-7	6						
				500	1400	4	-9	8						
				1400	2496	4	-10	11						
				2496	3500	4	-12	10						
				3500	5000	6	-12	15						
H03-26	242-364	246	11350	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-5	7						
				500	1400	4	-6	8						
				1400	2496	4	-10	9						
				2496	3500	4	-11	10						
				3500	5000	6	-12	12						
H03-26	362-452	182	11350	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-7	7						
				500	1400	4	-10	8						
				1400	2496	4	-13	11						
				2496	3500	4	-13	11						
				3500	5000	6	-10	12						

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL EVY	WORK FILES	SUMMARY FILES	JOURNAL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-23	2-124	246	11350	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-8	6						
				500	1400	4	-8	8						
				1400	2496	4	-9	10						
				2496	3500	4	-12	11						
				3500	5000	6	-12	12						
H03-23	122-244	246	11350	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	5						
				500	1400	4	-9	8						
				1400	2496	4	-11	8						
				2496	3500	4	-9	10						
				3500	5000	6	-13	12						
H03-70	2-124	246	11300	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-5	6						
				500	1400	4	-7	7						
				1400	2496	4	-11	13						
				2496	3500	4	-13	13						
				3500	5000	6	-12	11						
H03-70	122-210	178	11300	0	100	0	0	0	EVY	3221 3225	10331	331	10371	
				100	500	4	-7	8						
				500	1400	4	-8	7						
				1400	2496	4	-11	10						
				2496	3500	4	-10	10						
				3500	5000	6	-11	11						
H03-22	2-124	246	11300	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-5	6						
				500	1400	4	-8	8						
				1400	2496	4	-11	9						
				2496	3500	4	-11	13						
				3500	5000	6	-11	14						

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LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS
H03-55	242-298	110	11350	0	100	0	0	0	EVY	3141 3145	10171	171	10231	
				100	500	4	-6	6						
				500	1400	4	-8	9						
				1400	2496	4	-12	10						
				2496	3500	4	-10	9						
				3500	5000	6	-12	12						
H03-54	2-124	246	11200	0	100	0	0	0	EVY	3161 3165	10221	221	10261	
				100	500	4	-6	6						
				500	1400	4	-7	9						
				1400	2496	4	-12	10						
				2496	3500	4	-11	11						
				3500	5000	6	-12	14						
H03-54	122-244	246	11200	0	100	0	0	0	EVY	3201 3205	10251	251	10311	
				100	500	4	-6	6						
				500	1400	4	-7	8						
				1400	2496	4	-7	9						
				2496	3500	4	-10	10						
				3500	5000	6	-10	12						
H03-54	242-266	50	11200	0	100	0	0	0	EVY	13221 13225	11301	1301	11341	PATCH
				100	500	4	-6	6						
				500	1400	4	-7	7						
				1400	2496	4	-8	8						
				2496	3500	4	-11	12						
				3500	5000	6	-12	14						

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LINE	SP's	DP's	XREF	TIME GATE		SLANT RATE	DIP		AL / EVY	WORK FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS GATHERS	REMARKS
H03-61	2-124	246	11350	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-4	4						
				500	1400	4	-4	6						
				1400	2496	4	-6	7						
				2496	3500	4	-8	6						
				3500	5000	6	-9	7						
H03-61	122-244	246	11350	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-3	3						
				500	1400	4	-8	6						
				1400	2496	4	-8	8						
				2496	3500	4	-8	10						
				3500	5000	6	-9	10						
H03-61	242-344	202	11350	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-3	3						
				500	1400	4	-6	6						
				1400	2496	4	-6	8						
				2496	3500	4	-8	10						
				3500	5000	6	-12	12						
H03-55	2-124	246	11350	0	100	0	0	0	EVY	3101 3105	10111	111	10151	
				100	500	4	-6	6						
				500	1400	4	-6	8						
				1400	2496	4	-8	9						
				2496	3500	4	-8	10						
				3500	5000	6	-12	12						
H03-55	122-244	246	11350	0	100	0	0	0	EVY	3121 3125	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-6	8						
				1400	2496	4	-10	9						
				2496	3500	4	-12	10						
				3500	5000	6	-12	10						

LINE	SP's	DP's	XREF	TIME GATE		CRASH RATE	DIP		ALT/EVT	WORK FILES	SUMMARY FILES	CONTROL FILES	INDEX RECORDS/GATHERS	REMARKS EVT.
H03-17	1-159	240	11000	0	100	0	0	0	ALT	501 505	10521	521	10561	
				100	500	4	-2	2						
				500	1400	4	-4	2						
				1400	2496	4	-5	2						
				2496	3500	4	-10	12						
				3500	5000	6	-12	13						
H03-17	157-315	240	11000	0	100	0	0	0	ALT	601 605	10621	621	621	
				100	500	4	-2	3						
				500	1400	4	-3	10						
				1400	2496	4	-8	13						
				2496	3500	4	-13	11						
				3500	5000	6	-13	13						
H03-17	313-469	240	11000	0	200	0	0	0	ALT	701 705	10721	721	10761	
				200	500	4	-2	2						
				500	1400	4	-4	8						
				1400	2496	4	-12	9						
				2496	3500	4	-11	8						
				3500	5000	6	-13	8						
H03-17	467-600	198	11000	0	100	0	0	0	ALT	1001 1005	11021	1021	11061	
				100	500	4	-2	2						
				500	1400	4	-6	6						
				1400	2496	4	-11	6						
				2496	3500	4	-6	6						
				3500	5000	6	7	7						
H03-67	1-159	240	11000	0	100	0	0	0	ALT	1101 1105	11121	1121	11161	
				100	500	4	-2	2						
				500	1400	4	-8	5						
				1400	2496	4	-10	6						
				2496	3500	4	-8	9						
				3500	5000	6	-9	10						

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-64	1-64	126	11400	0	1100	0	0	0	EVY	1 5	10021	21	10061	
				1100	2400	4	-8	13						
				2400	3400	4	-8	8						
				3400	4500	4	-6	8						
				4500	6000	6	-9	7						
H03-64	62-184	246	11400	0	400	0	0	0	EVY	101 105	10121	121	10161	
				400	1500	4	-5	10						
				1500	2400	4	-5	7						
				2400	3500	4	-5	6						
				3500	5000	6	-8	9						
H03-64	182-304	246	11400	0	100	0	0	0	EVY	201 205	10221	221	10261	
				100	500	4	-5	6						
				500	1400	4	-9	9						
				1400	2400	4	-9	6						
				2400	3500	4	-8	6						
				3500	5000	6	-9	9						
H03-64	302-424	246	11400	0	100	0	0	0	EVY	301 305	10321	321	10361	
				100	500	4	-5	6						
				500	1400	4	-5	8						
				1400	2400	4	-6	5						
				2400	3500	4	-5	9						
				3500	5000	6	-6	8						
H03-64	422-469	96	11400	0	100	0	0	0	EVY	401 405	10421	421	10461	
				100	500	4	-4	4						
				500	1400	4	-5	5						
				1400	2400	4	-5	7						
				2400	3500	4	-6	8						
				3500	5000	6	-7	8						

081118

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		ALT/EVT	TRUNK FILES	SUMMARY FILES	CONSOL FILES	H.I. DEF. RECORDS/ GATHERS	REMARKS E.V.T.
H03-67	157-240	126	11000	0	100	0	0	0	ALT	1201 1205	11221	1221	11261	
				100	500	4	-2	2						
				500	1400	4	-8	5						
				1400	2496	4	-13	11						
				2496	3500	4	-11	7						
				3500	5000	6	-9	9						
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-32	1-52	78	11050	0	1800	0	0	0	ALT	3001 3005	10001	1	10041	
				1800	2300	4	-6	10						
				2300	2700	4	-5	8						
				2700	3500	4	-8	10						
				3500	4500	4	-14	12						
				4500	6000	6	-14	16						
H03-32	49-208	240	11050	0	900	0	0	0	ALT	3021 3025	10101	101	1014.1	
				900	2100	4	-10	14						
				2100	2500	4	-8	8						
				2500	3000	4	-10	12						
				3000	4000	4	-18	16						
				4000	6000	6	-12	18						
H03-32	205-364	240	11050	0	100	0	0	0	ALT	3041 3045	10201	201	10241	
				100	1100	4	-10	20						
				1100	1700	4	-10	16						
				1700	2496	4	-10	14						
				2496	3500	4	-12	12						
				3500	5000	6	-12	10						
H03-32	361-520	240	11050	0	100	0	0	0	ALT	3061 3065	10301	301	10341	
				100	500	4	-8	5						
				500	1400	4	-11	14						
				1400	2496	4	-11	10						
				2496	3500	4	-14	10						
				3500	5000	6	-15	16						
H03-32	517-629	170	11050	0	100	0	0	0	ALT	3101 3105	10401	401	10441	
				100	500	4	-8	9						
				500	1400	4	-10	9						
				1400	2496	4	-12	13						
				2496	3500	4	-11	12						
				3500	5000	6	-12	10						

CON 2990

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-32	656-815	240	11050	0	100	0	0	0	ALT	3121 3125	10501	501	10541	
				100	500	4	-11	9						
				500	1400	4	-11	9						
				1400	2496	4	-10	10						
				2496	3500	4	-12	10						
				3500	5000	6	-12	10						
H03-32	812-854	65	11050	0	100	0	0	0	ALT	3141 3145	10601	601	10641	08112.1
				100	500	4	-5	5						
				500	1400	4	-10	7						
				1400	2496	4	-10	7						
				2496	3500	4	-9	12						
				3500	5000	6	-11	16						

D 13.

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-42	964-1086	246	11350	0	100	0	0	0	EVY	3301 3305	10301	301	10341	
				100	500	4	-4	5						
				500	1400	4	-7	10						
				1400	2496	4	-9	9						
				2496	3500	4	-10	9						
				3500	5000	6	-11	10						
H03-42	1084-1206	246	11350	0	100	0	0	0	EVY	3321 3325	10331	331	10371	
				100	500	4	-5	5						
				500	1400	4	-7	7						
				1400	2496	4	-8	9						
				2496	3500	4	-9	10						
				3500	5000	6	-12	12						
H03-42	1204-1326	246	11350	0	100	0	0	0	EVY	3341 3345	10361	361	10421	
				100	500	4	-7	6						
				500	1400	4	-12	9						
				1400	2496	4	-8	9						
				2496	3500	4	-11	10						
				3500	5000	6	-12	11						
H03-42	1324-1446	246	11350	0	100	0	0	0	EVY	3361 3365	10411	411	10451	
				100	500	4	-5	6						
				500	1400	4	-9	7						
				1400	2496	4	-11	10						
				2496	3500	4	-9	10						
				3500	5000	6	-10	10						
H03-42	1444-1566	246	11350	0	100	0	0	0	EVY	3401 3405	10441	441	10501	
				100	500	4	-4	6						
				500	1400	4	-9	9						
				1400	2496	4	-8	11						
				2496	3500	4	-12	11						
				3500	5000	6	-11	11						

081122

LINE	SP's	DP's	XREF	TIME GATE		SWATH RATE	DIP		AL/EVY	WORK FILES	SUMMARY FILES	JCNCOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-42	1564-1686	246	11350	0	100	0	0	0	EVY	3421 3425	10471	471	10531	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-9	8						
				2496	3500	4	-9	12						
				3500	5000	6	-11	11						
H03-42	1684-1806	246	11350	0	100	0	0	0	EVY	3441 3445	10521	521	10561	
				100	500	4	-6	5						
				500	1400	4	-9	8						
				1400	2496	4	-10	8						
				2496	3500	4	-10	10						
				3500	5000	6	-11	11						
H03-42	1804-1902	198	11350	0	100	0	0	0	EVY	3461 3465	10551	551	10601	
				100	500	4	-5	5						
				500	1400	4	-8	7						
				1400	2496	4	-9	11						
				2496	3500	4	-11	12						
				3500	5000	6	-12	13						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

081123

CON 3001

LINE	SP's	DP's	XREF	TIME GATE	SMASH RATE	DIP	ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-28	2-124	246	11350	0 100	0	0 0	EVY	3001 3005	10001	1	10041	
				100 500	4	-5 5						
				500 1400	4	-9 10						
				1400 2496	4	-9 11						
				2496 3500	4	-10 11						
				3500 5000	6	-10 11						
H03-28	122-248	246	11350	0 100	0	0 0	EVY	3021 3025	10031	31	10071	
				100 500	4	-5 5						
				500 1400	4	-11 9						
				1400 2496	4	-9 9						
				2496 3500	4	-8 8						
				3500 5000	6	-11 10						
H03-28	242-364	246	11350	0 100	0	0 0	EVY	3041 3045	10061	61	10121	
				100 500	4	-7 6						
				500 1400	4	-8 9						
				1400 2496	4	-9 9						
				2496 3500	4	-10 10						
				3500 5000	6	-11 9						
H03-28	362-484	246	11350	0 200	0	0 0	EVY	3061 3065	10111	111	10151	
				200 500	4	-7 9						
				500 1400	4	-5 10						
				1400 2496	4	-10 13						
				2496 3500	4	-10 11						
				3500 5000	6	-11 10						
H03-28	542-604	126	11350	0 700	0	0 0	EVY	3121 3125	10171	171	10231	
				700 1800	4	-2 15						
				1800 2500	4	-8 9						
				2500 3500	4	-5 11						
				3500 4500	4	-11 11						
				4500 6000	6	-11 11						

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-46	2-124	246	11360	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-8	5						
				500	1400	4	-8	9						
				1400	2496	4	-9	9						
				2496	3500	4	-10	11						
				3500	5000	6	-11	11						
H03-46	122-244	246	11360	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	5						
				500	1400	4	-6	7						
				1400	2496	4	-5	6						
				2496	3500	4	-9	9						
				3500	5000	6	-10	12						
H03-46	242-364	246	11360	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-5	7						
				500	1400	4	-10	13						
				1400	2496	4	-10	11						
				2496	3500	4	-10	13						
				3500	5000	6	-12	12						
H03-46	362-484	246	11360	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-5	6						
				500	1400	4	-11	8						
				1400	2496	4	-8	10						
				2496	3500	4	-10	13						
				3500	5000	6	-13	11						
H03-46	482-604	246	11360	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-5	5						
				500	1400	4	-9	10						
				1400	2496	4	-11	8						
				2496	3500	4	-12	12						
				3500	5000	6	-12	12						

081125

LINE	SP's	DP's	XREF	TIME GATE		SWATH RATE	DIP		AL EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-46	602-724	246	11360	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-6	5						
				500	1400	4	-6	8						
				1400	2496	4	-7	8						
				2496	3500	4	-11	13						
				3500	5000	6	-13	13						
H03-46	722-844	246	11360	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-7	7						
				500	1400	4	-7	9						
				1400	2496	4	-7	9						
				2496	3500	4	-9	11						
				3500	5000	6	-12	13						
H03-46	842-964	246	11360	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-7	8						
				500	1400	4	-11	11						
				1400	2496	4	-7	11						
				2496	3500	4	-12	13						
				3500	5000	6	-11	13						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400									
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400									
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

081126

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		AL / EVT	WORK FILES	SUMMARY FILES	JOURNAL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-13	2-124	246	11200	0	100	0	0	0	EVY	3301 3305	10301	301	10341	
				100	500	4	-5	7						
				500	1400	4	-7	8						
				1400	2496	4	-7	9						
				2496	3500	4	-11	11						
				3500	5000	6	-11	11						
H03-13	122-244	246	11200	0	100	0	0	0	EVY	3321 3321	10331	331	10371	
				100	500	4	-5	7						
				500	1400	4	-9	9						
				1400	2496	4	-9	10						
				2496	3500	4	-11	10						
				3500	5000	6	-13	11						
H03-13	242-364	246.	11200	0	100	0	0	0	EVY	3341 3345	10361	361	10421	
				100	500	4	-4	6						
				500	1400	4	-10	9						
				1400	2496	4	-10	11						
				2496	3500	4	-11	11						
				3500	5000	6	-12	11						
H03-13	362-484	246	11200	0	100	0	0	0	EVY	3361 3365	10411	411	10451	
				100	500	4	-5	6						
				500	1400	4	-10	9						
				1400	2496	4	-12	11						
				2496	3500	4	-11	11						
				3500	5000	6	-12	12						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

081127

LINE	SP's	DP's	XREF	TIME GATE		SMACH RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-29	2-124	246	11350	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-6	5						
				500	1400	4	-8	9						
				1400	2496	4	-9	9						
				2496	3500	4	-11	11						
				3500	5000	6	-12	14						
H03-29	122-245	246	11350	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-3	6						
				500	1400	4	-9	9						
				1400	2496	4	-9	9						
				2496	3500	4	-11	11						
				3500	5000	6	-12	11						
H03-29	243-361	238	11350	0	100	0	0	0	EVY	3201 3205	10141	141	10201	PATCH
				100	500	4	-5	5						
				500	1400	4	-9	9						
				1400	2496	4	-11	11						
				2496	3500	4	-12	13						
				3500	5000	6	11	10						
H03-30R	654-777	246	11350	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-5	4						
				500	1400	4	-7	7						
				1400	2496	4	-7	5						
				2496	3500	4	-8	9						
				3500	5000	6	-10	12						
H03-30R	775-837	126	11350	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-4	4						
				500	1400	4	-8	7						
				1400	2496	4	-8	9						
				2496	3500	4	-11	11						
				3500	5000	6	-10	11						

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORD& GATHERS	REMARKS EVT.
H03-28	482-544	126	11350	0	200	0	0	0	EVY	3001 3005	12001	2001	12041	
				200	1000	4	-2	13						
				1000	1800	4	-8	9						
				1800	2700	4	-9	11						
				2700	4000	4	-9	14						
				4000	5000	6	-12	15						
H03-28	602-724	246	11350	0	1500	0	0	0	EVY	3021 3025	12101	2101	12141	
				1500	2100	4	-7	7						
				2100	2700	4	-8	8						
				2700	3500	4	-8	9						
				3500	4500	4	-8	10						
				4500	6000	6	-10	10						
H03-28	722-844	246	11350	0	1800	0	0	0	EVY	3041 3045	12201	2201	12241	
				1800	2500	4	-5	9						
				2500	3000	4	-5	6						
				3000	3700	4	-8	8						
				3700	4500	4	-10	10						
				4000	6000	6	-10	10						
H03-4	1-144	216	11100	0	1500	0	0	0	ALT	3061 3065	12301	2301	12341	
				1500	2000	4	-4	10						
				2000	2496	4	-5	8						
				2496	3500	4	-12	8						
				3500	6000	6	-12	8						
H03-30	2-124	246	11350	0	1900	0	0	0	EVY	3101 3105	12401	2401	12441	
				1900	2500	4	-8	8						
				2500	3000	4	-8	10						
				3000	3700	4	-8	9						
				3700	4500	4	-14	13						
				4500	6000	6	-12	12						

0811129-

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALL/EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORD& GATHERS	REMARKS EVT.
H03-30	122-244	246	11350	0	900	0	0	0	EVY	3121 3125	12501	2501	12541	
				900	2200	4	-3	15						
				2200	2700	4	-9	10						
				2700	3500	4	-11	10						
				3500	4500	4	-12	13						
				4500	6000	6	-12	15						
H03-30	242-364	246	11350	0	400	0	0	0	EVY	3141 3145	12601	2601	12641	
				400	1200	4	-11	13						
				1200	2000	4	-9	12						
				2000	3000	4	-10	12						
				3000	4000	4	-12	10						
				4000	6000	6	-13	13						
H03-24	2-124	246	11200	0	1700	0	0	0	EVY	3201 3205	11001	1001	11041	
				1700	2500	4	-10	14						
				2500	3000	4	-11	12						
				3000	3600	4	-12	12						
				3600	4500	4	-13	15						
				4500	6000	6	-14	16						
H03-24	122-244	246	11200	0	800	0	0	0	EVY	3221 3225	11101	1101	11141	
				800	2100	4	-12	16						
				2100	2700	4	-10	14						
				2700	3500	4	-12	13						
				3500	4500	4	-12	12						
				4500	6000	6	-12	12						
H03-24	242-364	246	11200	0	100	0	0	0	EVY	3241 3245	11201	201	11241	
				100	1100	4	-12	18						
				1100	2000	4	-11	14						
				2000	3000	4	-10	12						
				3000	4000	4	-10	12						
				4000	5000	6	-10	12						

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL EVT	WORK FILES	SUMMARY FILES	JOURNAL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-45	2-124	246	11300	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-5	6						
				500	1400	4	-7	9						
				1400	2496	4	-7	7						
				2496	3500	4	-8	8						
				3500	5000	6	-11	11						
H03-45	122-244	246	11300	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-9	7						
				1400	2496	4	-7	7						
				2496	3500	4	-11	8						
				3500	5000	6	-10	10						
H03-45	242-364	246	11300	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-6	7						
				500	1400	4	-9	7						
				1400	2496	4	-7	7						
				2496	3500	4	-8	8						
				3500	5000	6	-14	12						
H03-45	362-484	246	11300	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-8	6						
				500	1400	4	-9	7						
				1400	2496	4	-7	7						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						
H03-45	482-604	246	11300	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-9	11						
				1400	2496	4	-8	8						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						

081131

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		ALT EVT	WORK FILES	SUMMARY FILES	CONTROL FILES	HOLDER RECORDS GATHERS	REMARKS EVT.
H03-45	602-724	246	11300	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-8	8						
				500	1400	4	-8	8						
				1400	2496	4	-9	8						
				2496	3500	4	-8	10						
				3500	5000	6	-10	10						
H03-45	722-741	38	11300	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-6	4						
				500	1400	4	-7	8						
				1400	2496	4	-9	9						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						
H03-75	2-124	246	11300	0	100	0	0	0	EVY	4001 4005	10301	301	10341	
				100	500	4	-6	6						
				500	1400	4	-6	8						
				1400	2496	4	-8	7						
				2496	3500	4	-8	8						
				3500	5000	6	-10	10						
H03-75	122-244	246	11300	0	100	0	0	0	EVY	4021 4025	10331	331	10371	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-8	8						
				2496	3500	4	-10	8						
				3500	5000	6	-12	12						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

0811.22

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-51	2-124	246	11350	0	100	0	0	0	EVY	3121 3125	10201	201	10241	
				100	500	4	-6	6						
				500	1400	4	-12	14						
				1400	2496	4	-12	14						
				2496	3500	4	-10	12						
				3500	5000	6	-14	14						
H03-51	122-244	246	11350	0	100	0	0	0	EVY	3141 3145	10231	231	10271	
				100	500	4	-6	8						
				500	1400	4	-10	12						
				1400	2496	4	-14	14						
				2496	3500	4	-14	12						
				3500	5000	6	-14	14						
H03-51	242-364	246	11350	0	100	0	0	0	EVY	3161 3165	10261	261	10321	
				100	500	4	-6	6						
				500	1400	4	-12	12						
				1400	2496	4	-10	12						
				2496	3500	4	-12	12						
				3500	5000	6	-14	14						
H03-51	362-450	178	11350	0	100	0	0	0	EVY	3201 3205	10311	311	10351	
				100	500	4	-6	8						
				500	1400	4	-10	12						
				1400	2496	4	-12	12						
				2496	3500	4	-12	12						
				3500	5000	6	-14	14						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SWATH RATE	DIP		AZ EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HOLDER RECORDER GATHERS	REMARKS E.V.T.
H03-71	2-124	246	11200	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-6	6						
				500	1400	4	-6	7						
				1400	2496	4	-8	9						
				2496	3500	4	-8	10						
				3500	5000	6	-8	10						
H03-71	122-244	246	11200	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-8	8						
				2496	3500	4	-8	8						
				3500	5000	6	-8	8						
H03-71	242-364	246	11200	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-6	6						
				500	1400	4	-6	8						
				1400	2496	4	-10	8						
				2496	3500	4	-9	9						
				3500	5000	6	-9	8						
H03-71	362-484	246	11200	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	6						
				500	1400	4	-6	8						
				1400	2496	4	-9	10						
				2496	3500	4	-6	8						
				3500	5000	6	-7	9						
H03-71	482-544	122	11200	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	8						
				500	1400	4	-8	10						
				1400	2496	4	-8	12						
				2496	3500	4	-10	10						
				3500	5000	6	-8	10						

0811134

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL/EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-40	2-124	246	11350	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-8	5						
				500	1400	4	-9	7						
				1400	2496	4	-9	6						
				2496	3500	4	-10	10						
				3500	5000	6	-10	11						
H03-40	122-244	246	11350	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-5	5						
				500	1400	4	-6	7						
				1400	2496	4	-7	6						
				2496	3500	4	-12	10						
				3500	5000	6	-11	9						
H03-40	242-364	246	11350	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-4	5						
				500	1400	4	-6	7						
				1400	2496	4	-7	10						
				2496	3500	4	-8	11						
				3500	5000	6	-11	11						
H03-40	362-484	246	11350	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-4	5						
				500	1400	4	-5	6						
				1400	2496	4	-6	7						
				2496	3500	4	-9	9						
				3500	5000	6	-9	10						
H03-40	482-604	246	11350	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-4	4						
				500	1400	4	-7	6						
				1400	2496	4	-7	6						
				2496	3500	4	-7	8						
				3500	5000	6	-11	9						

081135

LINE	SP's	DP's	XREF	TILT GATE		SWITCH RATE	DIP		A/EVT	WORK FILES	SUMMARY FILES	CONTROL FILES	FOLDER RECORDS/ GATHERS	REMARKS EVT.
H03-40	602-724	246	11350	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-5	5						
				500	1400	4	-7	6						
				1400	2496	4	-8	8						
				2496	3500	4	-11	7						
				3500	5000	6	-10	11						
H03-40	722-844	246	11350	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-4	4						
				500	1400	4	-7	8						
				1400	2496	4	-8	8						
				2496	3500	4	-9	10						
				3500	5000	6	-11	10						
H03-40	842-964	246	11350	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-6	5						
				500	1400	4	-8	11						
				1400	2496	4	-9	9						
				2496	3500	4	-10	9						
				3500	5000	6	-10	9						
H03-40	962-1084	246	11350	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-4	4						
				500	1400	4	-6	8						
				1400	2496	4	-10	10						
				2496	3500	4	-9	11						
				3500	5000	6	-11	10						
H03-40	1082-1204	246	11350	0	100	0	0	0	EVY	3221 3225	10331	331	10371	
				100	500	4	-9	4						
				500	1400	4	-10	11						
				1400	2496	4	-11	10						
				2496	3500	4	-11	13						
				3500	5000	6	-11	12						

081136

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS: GATHERS	REMARKS EVT.
				0	100	0	0							
				100	500	4	-5	5						
				500	1400	4	-11	8		3241				
H03-40	1202-1324	246	11350	1400	2496	4	-7	10	EVY	3245	10361	361	10421	
				2496	3500	4	-10	12						
				3500	5000	6	-13	11						
				0	100	0	0	0						
				100	500	4	-6	6						
				500	1400	4	-9	7		3261				
H03-40	1322-1406	170	11350	1400	2496	4	-12	9	EVY	3265	10411	411	10451	
				2496	3500	4	-10	11						
				3500	5000	6	-13	13						

081137

LINE	SP's	DP's	XREF	TIME GATE		SWATH RATE	DIP		ALT EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-14	122-244	246	11350	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-6	6						
				500	1400	4	-9	8						
				1400	2496	4	-12	12						
				2496	3500	4	-12	12						
				3500	5000	6	-12	12						
H03-14	242-364	246	11350	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-12	10						
				2496	3500	4	-12	12						
				3500	5000	6	-12	12						
H03-14	362-484	246	11350	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-12	12						
				2496	3500	4	-14	12						
				3500	5000	6	-14	14						
H03-14	482-500	38	11350	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-12	12						
				2496	3500	4	-14	12						
				3500	5000	6	-14	14						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		AL EVT	WORK FILES	SUMMARY FILES	JOURNAL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-27	2-124	246	11350	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-5	8						
				500	1400	4	-7	9						
				1400	2496	4	-7	11						
				2496	3500	4	-8	11						
				3500	5000	6	-12	11						
H03-27	122-244	246	11350	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-5	5						
				500	1400	4	-6	9						
				1400	2496	4	-9	12						
				2496	3500	4	-10	13						
				3500	5000	6	-13	13						
H03-27	242-364	246	11350	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-7	5						
				500	1400	4	-7	8						
				1400	2496	4	-7	7						
				2496	3500	4	-11	13						
				3500	5000	6	-11	13						
H03-27	362-438	154	11350	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	7						
				500	1400	4	-8	10						
				1400	2496	4	-9	14						
				2496	3500	4	-12	14						
				3500	5000	6	-12	16						
H03-14	2-124	246	11350	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-8	6						
				500	1400	4	-10	11						
				1400	2496	4	-12	12						
				2496	3500	4	-10	10						
				3500	5000	6	-14	12						

0811139

LINE	SP's	DP's	XREF	TIME GATE		SMACH RATE	DIP		AL / EVY	WORK FILES	SUMMARY FILES	CONTROL FILES	HOLDER RECORDS GATHERS	REMARKS
H03-3	122-244	246	11350	0	100	0	0	0	EVY	3221 3225	10331	331	10371	
				100	500	4	-6	8						
				500	1400	4	-10	12						
				1400	2496	4	-10	12						
				2496	3500	4	-14	14						
				3500	5000	6	-10	12						
H03-3	242-290	94	11350	0	100	0	0	0	EVY	3241 3245	10361	361	10421	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-10	12						
				2496	3500	4	-10	12						
				3500	5000	6	-10	10						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	3								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	3								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	3								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-69	2-124	246	11360	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	8						
				500	1400	4	-8	12						
				1400	2496	4	-8	12						
				2496	3500	4	-9	12						
				3500	5000	6	-10	12						
H03-69	122-234	226	11360	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-8	12						
				1400	2496	4	-14	12						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-53	2-124	246	11350	0	100	0	0	0	EVY	3121 3125	10201	201	10231	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-12	10						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-53	122-244	246	11350	0	100	0	0	0	EVY	3141 3145	10 231	231	10261	
				100	500	4	-6	6						
				500	1400	4	-8	12						
				1400	2496	4	-12	8						
				2496	3500	4	-12	10						
				3500	5000	6	-12	10						
H03-3	2-124	246	11350	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-8	8						
				500	1400	4	-12	12						
				1400	2498	4	-11	13						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						

LINE	SP's	DP's	XREF	TIME GATE		SAMPLE RATE	DIP		ALT EVT	WAVE FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-44	2-124	246	11300	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-6	6						
				500	1400	4	-6	6						
				1400	2496	4	-10	10						
				2496	3500	4	-12	10						
				3500	5000	6	-12	10						
H03-44	122-244	246	11300	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-6	6						
				1400	2496	4	-12	10						
				2496	3500	4	-12	18						
				3500	5000	6	-10	12						
H03-44	242-364	246	11300	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-8	8						
				2496	3500	4	-8	10						
				3500	5000	6	-12	10						
H03-44	362-484	246	11300	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	6						
				500	1400	4	-6	8						
				1400	2496	4	-6	8						
				2496	3500	4	-8	6						
				3500	5000	6	-8	6						
H03-44	482-604	246	11300	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-8	10						
				2496	3500	4	-10	8						
				3500	5000	6	-10	12						

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALL EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-44	602-724	246	11300	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-6	6						
				500	1400	4	-10	10						
				1400	2496	4	-10	8						
				2496	3500	4	-12	8						
				3500	5000	6	-10	8						
H03-44	722-816	196	11300	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-8	8						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3600	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400									
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

081143

LINE	SP's	DP's	XREF	TIME GATE		SWATH RATE	DIP		AL EVT	WORK FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-42	2-124	246	11350	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-7	4						
				500	1400	4	-9	10						
				1400	2496	4	-9	9						
				2496	3500	4	-11	10						
				3500	5000	6	-10	12						
H03-42	122-244	246	11350	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	4						
				500	1400	4	-10	9						
				1400	2496	4	-11	9						
				2496	3500	4	-10	11						
				3500	5000	6	-11	12						
H03-42	242-364	246	11350	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-5	5						
				500	1400	4	-7	8						
				1400	2496	4	-7	8						
				2496	3500	4	-10	9						
				3500	5000	6	-12	11						
H03-42	362-486	246	11350	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-4	7						
				500	1400	4	-10	9						
				1400	2496	4	-9	9						
				2496	3500	4	-10	11						
				3500	5000	6	-12	11						
H03-42	484-606	246	11350	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-5	5						
				500	1400	4	-8	9						
				1400	2496	4	-8	10						
				2496	3500	4	-11	11						
				3500	5000	6	-11	10						

0811144

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		ALL EVT	WORK FILES	SUMMARY FILES	JOURNAL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-42	604-726	246	11350	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-4	5						
				500	1400	4	-6	7						
				1400	2496	4	-11	10						
				2496	3500	4	-10	10						
				3500	5000	6	-13	11						
H03-42	724-846	246	11350	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-4	4						
				500	1400	4	-6	7						
				1400	2496	4	-8	8						
				2496	3500	4	-9	11						
				3500	5000	6	-11	11						
H03-42	844-966	246	11350	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-5	5						
				500	1400	4	-8	7						
				1400	2496	4	-9	8						
				2496	3500	4	-10	9						
				3500	5000	6	-13	9						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

081145

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-33	157-280	186	11100	0	100	0	0	0	ALT	3501 3505	10501	501	10541	
				100	600	4	-7	11						
				600	1500	4	-4	8						
				1500	2496	4	-11	13						
				2496	3500	4	-11	15						
				3500	5000	6	-7	13						
H03-33	277-436	240	11100	0	400	0	0	0	ALT	3601 3605	10601	601	10641	
				400	1600	4	-1	12						
				1600	2200	4	-3	8						
				2200	2800	4	-5	9						
				2800	3500	4	-8	12						
				3500	5000	6	-11	15						
H03-33	433-520	132.	11100	0	1400	0	0	0	ALT	3701 3705	10701	701	10741	6 SECS.
				1400	2600	4	-1	11						
				2600	3200	4	-13	13						
				3200	3800	4	-13	17						
				3800	4500	4	-10	19						
				4500	6000	6	-10	19						
H03-18	1-160	240	11050	0	100	0	0	0	ALT	4001 4005	11001	1001	11041	
				100	500	4	-8	6						
				500	1400	4	-8	8						
				1400	2496	4	-10	18						
				2496	3500	4	-12	18						
				3500	5000	6	-14	12						
H03-18	157-316	240	11050	0	100	0	0	0	ALT	4101 4105	11101	1101	11141	
				100	500	4	-6	12						
				500	1400	4	-14	12						
				1400	2496	4	-12	12						
				2496	3500	4	-14	14						
				3500	5000	6	-12	14						

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CON 6970

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-18	313-427	173	11050	0	100	0	0	0	ALT	4201 4205	11201	1201	11241	
				100	500	4	-8	6						
				500	1400	4	-6	6						
				1400	2496	4	-10	12						
				2496	3500	4	-11	11						
				3500	5000	6	-10	15						
H03-36	1-160	240	11050	0	100	0	0	0	ALT	3701 3705	10701	701	10741	
				100	900	4	-14	16						
				900	1500	4	-6	14						
				1500	2496	4	-12	12						
				2496	3500	4	-12	16						
				3500	5000	6	-12	16						
H03-36	157-196	60	11050	0	700	0	0	0	ALT	4001 4005	11001	1001	11041	
				700	1200	4	-2	12						
				1200	1700	4	-14	18						
				1700	2700	4	-12	12						
				2700	3700	4	-10	14						
				3700	5000	6	-12	14						
H03-36	193-239	71	11050	0	1000	0	0	0	ALT	4101 4105	11101	1101	11141	
				1000	2000	4	8							
				2000	2500	4	10							
				2500	3000	4	1							
				3000	4000	4								
				4000	6000	6								

0811147

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-35	1-100	150	11100	0	300	0	0	0	ALT	3001 3005	10001	1	10041	
				300	1200	4	-8	12						
				1200	1400	4	-5	12						
				1400	2700	4	-10	15						
				2700	3500	4	-6	20						
				3500	5000	6	-8	14						
H03-35	97-240	216	11100	0	100	0	0	0	ALT	3101 3105	10101	101	10141	
				100	500	4	-2	4						
				500	1400	4	-7	5						
				1400	2496	4	-9	9						
				2496	3500	4	-9	7						
				3500	5000	6	-9	9						
H03-34	1-160	240	11100	0	100	0	0	0	ALT	3201 3205	10201	201	10241	
				100	500	4	-7	7						
				500	1400	4	-2	11						
				1400	2496	4	-7	10						
				2496	3500	4	-10	15						
				3500	5000	6	-8	12						
H03-34	157-244	132	11100	0	200	0	0	0	ALT	3301 3305	10301	301	10341	
				200	800	4	-7	9						
				800	1700	4	-1	10						
				1700	2600	4	-5	2						
				2600	3500	4	-9	11						
				3500	6000	6	-6	13						
H03-33	1-160	240	11100	0	100	0	0	0	ALT	3401 3405	10401	401	10441	
				100	500	4	-1	2						
				500	1400	4	-7	12						
				1400	2496	4	-12	8						
				2496	3500	4	-10	11						
				3500	5000	6	-12	11						

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LINE	SP's	DP's	XREF	TIME GATE		SAMPLE RATE	DIP		AUTO EVT	WORK FILES	SUMMARY FILES	CONTOUR FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-46	962-1084	246	11360	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-5	8						
				500	1400	4	-10	10						
				1400	2496	4	-7	9						
				2496	3500	4	-10	10						
				3500	5000	6	-11	11						
H03-46	1082-1204	246	11360	0	100	0	0	0	EVY	3221 3225	10331	331	10371	
				100	500	4	-8	6						
				500	1400	4	-10	10						
				1400	2496	4	-10	11						
				2496	3500	4	-10	11						
				3500	5000	6	-13	12						
H03-46	1202-1324	246	11360	0	100	0	0	0	EVY	3241 3245	10361	361	10421	
				100	500	4	-7	10						
				500	1400	4	-10	14						
				1400	2496	4	-8	10						
				2496	3500	4	-11	10						
				3500	5000	6	-11	13						
H03-46	1332-1444	246	11360	0	100	0	0	0	EVY	3261 3265	10411	411	10451	
				100	500	4	-7	9						
				500	1400	4	-11	9						
				1400	2496	4	-9	11						
				2496	3500	4	-10	11						
				3500	5000	6	-11	11						
H03-46	1442-1564	246	11360	0	100	0	0	0	EVY	3301 3305	10441	441	10501	
				100	500	4	-7	6						
				500	1400	4	-9	9						
				1400	2496	4	-9	9						
				2496	3500	4	-10	10						
				3500	5000	6	-13	12						

0811149

LINE	SP's	DP's	XREF	TIME GATE		SAMPLE RATE	DIP		AL EVT	WORK FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-46	1562-1684	246	11360	0	100	0	0	0	EVY	3321 3325	10531	471	10531	
				100	500	4	-6	6						
				500	1400	4	-13	10						
				1400	2496	4	-10	10						
				2496	3500	4	-10	11						
				3500	5000	6	-11	11						
H03-46	1682-1804	246	11360	0	100	0	0	0	EVY	3341 3345	10521	521	10561	
				100	500	4	-6	8						
				500	1400	4	-9	10						
				1400	2496	4	-9	10						
				2496	3500	4	-10	11						
				3500	5000	6	-14	13						
H03-46	1802-1904	206	11360	0	100	0	0	0	EVY	3361 3365	10551	551	10601	
				100	500	4	-6	7						
				500	1400	4	-9	10						
				1400	2496	4	-9	9						
				2496	3500	4	-10	8						
				3500	5000	6	-13	12						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

081150

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		ALT EVT	WORK FILES	SUMMARY FILES	JOINDEL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-60	2-124	246	11350	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-8	8						
				2496	3500	4	-8	8						
				3500	5000	6	-10	9						
H03-60	122-244	246	11350	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-8	8						
				2496	3500	4	-8	9						
				3500	5000	6	-10	10						
H03-60	242-364	246	11350	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-8	8						
				2496	3500	4	-10	12						
				3500	5000	6	-12	12						
H03-60	362-484	246	11350	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-10	8						
				2496	3500	4	-7	9						
				3500	5000	6	-10	10						
H03-60	482-604	246	11350	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-10	12						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						

081151

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-60	602-724	246	11350	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-6	6						
				500	1400	4	-9	10						
				1400	2496	4	-10	12						
				2496	3500	4	-10	12						
				3500	5000	6	-12	12						
H03-60	722-844	246	11350	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-10	12						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						
H03-60	842-964	246	11350	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-6	6						
				500	1400	4	-12	12						
				1400	2496	4	-12	14						
				2496	3500	4	-12	12						
				3500	5000	6	-12	12						
H03-60	962-1026	130	11350	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-6	6						
				500	1400	4	-10	8						
				1400	2496	4	-10	10						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-43	677-733	114	11300	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-5	5						
				500	1400	4	-10	8						
				1400	2496	4	-8	8						
				2496	3500	4	-10	9						
				3500	5000	6	-11	10						
H03-8	2-124	246	11200	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-5	5						
				500	1400	4	-8	10						
				1400	2496	4	-8	10						
				2496	3500	4	-10	10						
				3500	5000	6	-12	11						
H03-8	122-244	246	11200	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-5	5						
				500	1400	4	-10	12						
				1400	2198	4	-10	14						
				2496	3500	4	-12	14						
				3500	5000	6	-12	12						
H03-8	242-350	218	11200	0	100	0	0	0	EVY	3201 3205	10301	301	10331	
				100	500	4	-6	5						
				500	1400	4	-8	9						
				1400	2196	4	-10	12						
				2496	3500	4	-12	14						
				3500	5000	6	-12	12						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2498	4								
				2496	5500	4								
				5500	5000	6								

LINE	SP's	DP's	XREF	T... GATE		...SH RATE	DIP		ALT EVY	...ORK FILES	...MM... FILES	CO...OL FILES	...DE... RECORDS GATHERS	REMARKS E.V.T.
H03-43	77-199	246	11300	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-9	9						
				2496	3500	4	-9	9						
				3500	5000	6	-10	10						
H03-43	197-319	246	11300	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-10	10						
				2496	3500	4	-9	9						
				3500	5000	6	-10	10						
H03-43	317-439	246	11300	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-7	6						
				500	1400	4	-8	9						
				1400	2496	4	-9	10						
				2496	3500	4	-10	10						
				3500	5000	6	-11	11						
H03-43	437-559	246	11300	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	6						
				500	1400	4	-8	9						
				1400	2496	4	-9	10						
				2496	3500	4	-10	10						
				3500	5000	6	-11	10						
H03-43	557-679	246	11300	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-5	5						
				500	1400	4	-8	10						
				1400	2496	4	-7	10						
				2496	3500	4	-8	10						
				3500	5000	6	-10	10						

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LINE	SP's	DP's	XREF	TIME GATE		SAMPLE RATE	DIP		ALT/EVY	WORK FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS/GATHERS	REMARKS E.V.T.
H03-78	2-124	246	11360	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-9	8						
				500	1400	4	-12	10						
				1400	2496	4	-12	12						
				2496	3500	4	-10	10						
				3500	5000	6	-12	10						
H03-78	122-244	246	11360	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-8	8						
				500	1400	4	-10	12						
				1400	2496	4	-10	12						
				2496	3500	4	-12	12						
				3500	5000	6	-12	12						
H03-78	242-334	180	11360	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-9	8						
				500	1400	4	-12	12						
				1400	2496	4	-10	10						
				2496	3500	4	-10	12						
				3500	5000	6	-12	12						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HOLDER RECORDS GATHERS	REMARKS EVT.
H03-47	2-124	246	11350	0	400	0	0	0	EVY	3001 3005	10001	1	10041	
				400	1000	4	-10	15						
				1000	1600	4	-13	14						
				1600	2496	4	-11	15						
				2496	3500	4	-11	11						
				3500	5000	6	-12	11						
H03-47	122-244	246	11350	0	400	0	0	0	EVY	3021 3025	10031	31	10071	
				400	900	4	-6	5						
				900	1500	4	-10	7						
				1500	2496	4	-10	12						
				2496	3500	4	-14	14						
				3500	5000	6	-10	10						
H03-47	242-364	246	11350	0	300	0	0	0	EVY	3041 3045	10061	61	10121	
				300	800	4	-4	4						
				800	1500	4	-7	7						
				1500	2496	4	-7	7						
				2496	3500	4	-9	9						
				3500	5000	6	-11	11						
H03-47	362-484	246	11350	0	200	0	0	0	EVY	3061 3065	10111	111	10151	
				200	700	4	-5	8						
				700	1400	4	-11	10						
				1400	2496	4	-11	7						
				2496	3500	4	-12	11						
				3500	5000	6	-14	11						
H03-47	482-604	246	11350	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	7						
				500	1400	4	-8	11						
				1400	2496	4	-10	8						
				2496	3500	4	-11	9						
				3500	5000	6	-13	11						

081156

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AD EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-47	602-724	246	11350	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-4	6						
				500	1400	4	-8	8						
				1400	2496	4	-8	7						
				2496	3500	4	-8	8						
				3500	5000	6	-12	11						
H03-47	722-844	246	11350	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-6	7						
				500	1400	4	-9	7						
				1400	2496	4	-9	6						
				2496	3500	4	-11	8						
				3500	5000	6	-11	10						
H03-47	842-964	246	11350	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-5	4						
				500	1400	4	-9	7						
				1400	2496	4	-9	7						
				2496	3500	4	-10	9						
				3500	5000	6	-11	11						
H03-47	962-1084	246	11350	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-9	8						
				2496	3500	4	-11	10						
				3500	5000	6	-12	11						
H03-47	1082-1204	246	11350	0	100	0	0	0	EVY	3221 3225	10331	331	10371	
				100	500	4	-5	6						
				500	1400	4	-8	7						
				1400	2496	4	-9	8						
				2496	3500	4	-11	9						
				3500	5000	6	-11	9						

081157

LINE	SP's	DP's	XREF	TIME GATE		SAMPLE RATE	DIP		AL EVY	WORK FILES	SUMMARY FILES	CONTROL FILES	HOLDER RECORDS GATHERS	REMARKS EVT.
H03-47	1202-1310	218	11350	0	100	0	0	0	EVY	3241 3245	10361	361	10421	
				100	500	4	-8	6						
				500	1400	4	-8	11						
				1400	2496	4	-10	9						
				2496	3500	4	-11	11						
				3500	5000	6	-9	9						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALL / EVY	WORK FILES	COMMON FILES	CONTROL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-66	2-124	246	11200	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-12	10						
				2496	3500	4	-11	12						
				3500	5000	6	-10	12						
H03-66	122-244	246	11200	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-12	10						
				2496	3500	4	-10	10						
				3500	5000	6	-10	11						
H03-74	2-124	246	11200	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-5	5						
				500	1400	4	-10	10						
				1400	2496	4	-12	12						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-74	122-244	246	11200	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-5	5						
				500	1400	4	-8	10						
				1400	2496	4	-12	12						
				2496	3500	4	-10	11						
				3500	5000	6	-10	12						
H03-74	242-364	246	11200	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-10	12						
				2496	3500	4	-10	12						
				3500	5000	6	-12	12						

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	LOAD RECORDS GATHERS	REMARKS EVT.
H03-74	362-476	230	11200	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-8	10						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-5	2-124	246	11350	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-6	7						
				500	1400	4	-9	10						
				1400	2496	4	-9	10						
				2496	3500	4	-10	11						
				3500	5000	6	-10	12						
H03-5	122-206	122	11350	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-6	6						
				500	1400	4	-8	12						
				1400	2496	4	-8	14						
				2496	3500	4	-9	14						
				3500	5000	6	-10	14						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

081160

CON 7484

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-30	362-484	246	11350	0	100	0	0	0	EVY	3201 3205	10311	311	10351	
				100	500	4	-9	20						
				500	1400	4	-10	10						
				1400	2496	4	-10	10						
				2496	3500	4	-12	10						
				3500	5000	6	-12	10						
H03-30	484-604	246	11350	0	100	0	0	0	EVY	3221 3225	10341	341	10401	
				100	500	4	-6	6						
				500	1400	4	-9	10						
				1400	2496	4	-9	10						
				2496	3500	4	-9	10						
				3500	5000	6	-9	10						
H03-30	602-630	54	11350	0	100	0	0	0	EVY	3241 3245	10371	371	10431	
				100	500	4	-5	6						
				500	1400	4	-8	10						
				1400	2496	4	-8	10						
				2496	3500	4	-9	10						
				3500	5000	6	-9	10						

D 53.

19711801

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-72	2-124	246	11300	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-5	6						
				500	1400	4	-8	8						
				1400	2496	4	-9	11						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-72	122-244	246	11300	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-9	12						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-72	242-364	246	11300	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-10	10						
				2496	3500	4	-10	11						
				3500	5000	6	-10	12						
H03-72	362-484	246	11300	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-11	12						
				2496	3500	4	-11	12						
				2496	5000	6	-11	12						
H03-72	482-514	66	11300	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-11	12						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						

081162

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALL / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-7	242-364	246	11200	0	100	0	0	0	EVY	3241 3245	10361	361	10421	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-10	12						
				2496	3500	4	-11	13						
				3500	5000	6	-11	13						
H03-7	362-484	246	11200	0	100	0	0	0	EVY	3261 3265	10411	411	10451	
				100	500	4	-8	6						
				500	1400	4	-8	12						
				1400	2496	4	-10	12						
				2496	3500	4	-10	11						
				3500	5000	6	-10	11						
H03-7	482-542	118	11200	0	100	0	0	0	EVY	3301 3305	10441	441	10501	
				100	500	4	-7	7						
				500	1400	4	-8	10						
				1400	2496	4	-10	12						
				2496	3500	4	-10	11						
				3500	5000	6	-10	11						

081163

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		AL / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORD& GATHERS	REMARKS EVT.
H03-15	602-724	246	11200	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-6	6						
				500	1400	4	-9	10						
				1400	2496	4	-10	11						
				2496	3500	4	-10	12						
				3500	5000	6	-10	14						
H03-15	722-844	246	11200	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-10	12						
				2496	3500	4	-10	10						
				3500	5000	6	-10	12						
H03-15	842-866	48	11200	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-6	6						
				500	1400	4	-12	10						
				1400	2496	4	-12	11						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						
H03-7	2 - 124	246	11200	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-7	6						
				500	1400	4	-10	11						
				1400	2496	4	-10	11						
				2496	3500	4	-10	11						
				3500	5000	6	-10	11						
H03-7	122-244	246	11200	0	100	0	0	0	EVY	3221 3225	10331	331	10371	
				100	500	4	-7	6						
				500	1400	4	-9	12						
				1400	2496	4	-10	12						
				2496	3500	4	-10	12						
				3500	5000	6	-11	12						

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LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALI / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-15	2-124	246	11200	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-6	12						
				500	1400	4	-8	10						
				1400	2496	4	-11	11						
				2496	3500	4	-10	12						
				3500	5000	6	-12	14						
H03-15	122-244	246	11200	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-12	18						
				500	1400	4	-10	14						
				1400	2496	4	-11	12						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-15	242-364	246	11200	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-6	5						
				500	1400	4	-10	12						
				1400	2496	4	-10	10						
				2496	3500	4	-10	12						
				3500	5000	6	-10	10						
H03-15	362-484	246	11200	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	6						
				500	1400	4	-10	10						
				1400	2496	4	-12	10						
				2496	3500	4	-10	12						
				3500	5000	6	-10	10						
H03-15	482-604	246	11200	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-10	12						
				1400	2496	4	-10	10						
				2496	3500	4	-10	11						
				3500	500	6	10	10						

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LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORD& GATHERS	REMARKS EVT.
H03-1	1-160	240	11200	0	100	0	0	0	ALT	1 5	10001	1	10041	
				100	500	4	-3	3						
				500	1400	4	-5	6						
				1400	2496	4	-8	8						
				2496	3500	4	-8	10						
				3500	5000	6	-12	12						
H03-1	157-316	240	11200	0	100	0	0	0	ALT	21 25	10031	31	10071	
				100	500	4	-3	3						
				500	1400	4	-5	8						
				1400	2496	4	-8	8						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						
H03-1	313-455	214	11200	0	100	0	0	0	ALT	41 45	10061	61	10121	
				100	500	4	-3	3						
				500	1400	4	-5	15						
				1400	2496	4	-8	12						
				2496	3500	4	-10	12						
				3500	5000	6	-10	15						
H03-1	451-547	144	11200	0	1000	0	0	0	ALT	61 65	10111	111	10151	
				1000	2000	4	-3	10						
				2000	2500	4	-4	8						
				2500	3000	4	-6	10						
				3000	3500	4	-10	12						
				3500	6000	6	-10	18						
H03-6	1-160	240	11200	0	100	0	0	0	ALT	101 105	10141	141	10201	
				100	500	4	-3	10						
				500	1400	4	-6	7						
				1400	2496	4	-10	6						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						

081166

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-6	157-316	240	11200	0	100	0	0	0	ALT	121 125	10171	171	10231	
				100	500	4	-3	5						
				500	1400	4	-3	7						
				1400	2496	4	-5	7						
				2496	3500	4	-7	8						
				3500	5000	6	-8	10						
H03-6	313-336	186	11200	0	200	0	0	0	ALT	141 145	10221	221	10261	
				200	500	4	-3	10						
				500	1400	4	-3	10						
				1400	2496	4	-3	15						
				2496	3500	4	-4	15						
				3500	5000	6	-5	15						
H03-6	433-592	240	11200	0	1000	0	0	0	ALT	161 165	10251	251	10311	
				1000	2496	4	-5	10						
				2496	3500	4	-6	14						
				3500	4500	4	-10	15						
				4500	6000	6	-10	15						

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CON 7564

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-24	362-484	246	11200	0	100	0	0	0	EVY	3061 3065	10111	111	10201	
				100	500	4	-9	10						
				500	1400	4	-10	11						
				1400	2496	4	-10	11						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						
H03-24	482-604	246	11200	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-8	8						
				500	1400	4	-8	8						
				1400	2496	4	-10	10						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						
H03-24	602-724	246	11200	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-10	10						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						
H03-24	722-844	246	11200	0	100	0	0	0	EVY	3141 3145	10221	221	10261	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-10	10						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						

081168

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-2	1-160	240	11100	0	150	0	0	0	ALT	201 205	10301	301	10341	
				150	500	4	-3	3						
				500	1400	4	-9	6						
				1400	2496	4	-12	15						
				2496	3500	4	-17	16						
				3500	5000	6	-17	23						
H03-2	157-190	51	11100	0	150	0	0	0	ALT	221 225	10331	331	10371	
				150	500	4	-3	3						
				500	1400	4	-13	10						
				1400	2496	4	-13	13						
				2496	3500	4	-9	27						
				3500	5000	6	-13	25						
H03-9	1-111	166.	11150	0	1300	0	0	0	ALT	241 245	10361	361	10421	
				1300	1800	4	-10	8						
				1800	2496	4	-12	6						
				2496	3500	4	-20	8						
				3500	6000	6	-20	12						
H03-9	107-267	240	11150	0	200	0	0	0	ALT	261 265	10411	411	10451	
				200	500	4	-1	15						
				500	1400	4	-10	10						
				1400	2496	4	-10	10						
				2496	3500	4	-12	12						
				3500	5000	6	-12	12						
H03-9	263-423	240	11150	0	200	0	0	0	ALT	301 305	10441	441	10501	
				200	500	4	-4	4						
				500	1400	4	-10	10						
				1400	2496	4	-8	8						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						

081169

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-9	419-579	240	11150	0	200	0	0	0	ALT	321 325	10471	471	10531	
				200	500	4	-4	4						
				500	1400	4	-5	8						
				1400	2496	4	-8	8						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						
H03-9	575-684	164	11150	0	200	0	0	0	ALT	20341 20345	11521	1521	11561	
				200	500	4	-4	4						
				500	1400	4	-5	8						
				1400	2496	4	-8	8						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						

081170

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALL EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-79	2-122	246	11400	0	300	0	0	0	EVY	3001 3005	10001	1	10041	
				300	700	4	-6	9						
				700	1400	4	-12	10						
				1400	2496	4	-12	12						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-79	124-244	246	11400	0	200	0	0	0	EVY	3021 3025	10031	31	10071	
				200	700	4	-12	10						
				700	1400	4	-12	11						
				1400	2496	4	-11	11						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-79	413-535	246	11400	0	300	0	0	0	EVY	3041 3045	10061	61	10121	
				300	800	4	-10	12						
				800	1400	4	-11	13						
				1400	2500	4	-13	14						
				2500	3500	4	-13	14						
				3500	5000	6	-12	12						
H03-79	533-655	246	11400	0	300	0	0	0	EVY	3061 3065	10111	111	10151	
				300	900	4	-10	12						
				900	1500	4	-11	12						
				1500	2500	4	-11	13						
				2500	3500	4	-10	13						
				3500	5000	6	-12	13						
H03-79	653-775	246	11400	0	500	0	0	0	EVY	3101 3105	10141	141	10201	
				500	1800	4	-14	18						
				1800	2300	4	-11	13						
				2300	3000	4	-10	12						
				3000	4000	4	-10	13						
				4000	5000	6	-10	13						

0811171

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT/EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-79	733-895	246	11400	0	800	0	0	0	EVY	3121 3125	10171	171	10231	
				800	1200	4	-14	16						
				1200	1700	4	-14	16						
				1700	2500	4	-12	14						
				2500	3500	4	-12	12						
				3500	5000	6	-12	12						
H03-79	893-1015	246	11400	0	700	0	0	0	EVY	3141 3145	10221	221	10261	
				700	1200	4	-6	5						
				1200	1700	4	-8	8						
				1700	2500	4	-10	10						
				2500	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-79	1013-1135	246	11400	0	900	0	0	0	EVY	3161 3165	10251	251	10311	
				900	1800	4	-4	4						
				1800	2300	4	-8	6						
				2300	3000	4	-10	12						
				3000	4000	4	-12	12						
				4000	6000	6	-12	12						
H03-79	1133-1249	232	11400	0	800	0	0	0	EVY	3201 3205	10301	301	10341	
				800	2100	4	-18	18						
				2100	2600	4	-16	16						
				2600	3200	4	-14	12						
				3200	4000	4	-14	12						
				4000	6000	6	-14	14						

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LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-65	2-124	246	11200	0	100	0	0	0	EVY	3121 3125	10201	201	10241	
				100	500	4	-8	8						
				500	1400	4	-10	10						
				1400	2496	4	-12	12						
				2496	3500	4	-14	14						
				3500	5000	6								
H03-65	122-244	246	11200	0	100	0	0	0	EVY	3141 3145	10415	415	10455	
				100	500	4	-8	8						
				500	1400	4	-10	12						
				1400	2496	4	-12	10						
				2496	3500	4	-12	14						
				3500	5000	6	-12	12						
H03-65	242-262	42	11200	0	100	0	0	0	EVY	3161 3165	10261	261	10321	
				100	500	4	-8	8						
				500	1400	4	-10	12						
				1400	2496	4	-12	10						
				2496	3500	4	-12	14						
				3500	5000	6	-12	12						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

LINE	SP's	DP's	XREF	TIME GATE		SWATH RATE	DIP		ACQ EVY	WORK FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-73	2-124	246	11200	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-6	6						
				500	1400	4	-8	10						
				1400	2496	4	-12	10						
				2496	3500	4	-11	10						
				3500	5000	6	-11	12						
H03-73	122-244	246	11200	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	6						
				500	1400	4	-9	10						
				1400	2496	4	-12	12						
				2496	3500	4	-12	12						
				3500	5000	6	-10	12						
H03-73	242-364	246	11200	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-6	8						
				500	1400	4	-8	10						
				1400	2496	4	-12	10						
				2496	3500	4	-12	12						
				3500	5000	6	-12	12						
H03-73	362-484	246	11200	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	6						
				500	1400	4	-9	10						
				1400	2496	4	-10	9						
				2496	3500	4	-10	12						
				3500	5000	6	-10	12						
H03-73	482-514	64	11200	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-10	9						
				2496	3500	4	-12	10						
				3500	5000	6	-10	12						

081174

LINE	SP's	DP's	XREF	TIME GATE		SMEAR RATE	DIP		ALT/EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-11	1-160	240	11000	0	100	0	0	0	ALT	1 5	10001	1	10041	
				100	500	4	-3	3						
				500	1400	4	-9	5						
				1400	2496	4	-9	14						
				2496	3500	4	-17	12						
				3500	5000	6	-17	20						
H03-11	157-250	141	11000	0	100	0	0	0	ALT	21 25	10031	31	100701	
				100	500	4	-3	3						
				500	1400	4	-8	10						
				1400	2496	4	-14	11						
				2496	3500	4	-8	12						
				3500	5000	6	-13	15						
H03-11	633-792	240	11000	0	100	0	0	0	ALT	41 45	10061	61	10121	
				100	500	4	-3	3						
				500	1400	4	-6	8						
				1400	2496	4	-8	8						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						
H03-11	789-948	240	11000	0	100	0	0	0	ALT	61 65	10111	111	10151	
				100	500	4	-3	3						
				500	1400	4	-6	8						
				1400	2496	4	-8	8						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						
H03-11	945-1104	240	11000	0	100	0	0	0	ALT	101 105	10141	141	10201	
				100	500	4	-3	3						
				500	1400	4	-6	8						
				1400	2496	4	-8	8						
				2496	3500	4	-10	10						
				3500	5000	6	-12	12						

081125

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-11	1101-1260	240	11000	0	100	0	0	0	ALT	121 125	10171	171	10231	
				100	500	4	-3	10						
				500	1400	4	-6	12						
				1400	2496	4	-8	13						
				2496	3500	4	-10	14						
				3500	5000	6	-12	14						
H03-11	1257-1376	180	11000	0	1200	0	0	0	ALT	141 145	10221	221	10261	
				1200	1800	4	-4	4						
				1800	2500	4	-6	6						
				2500	3500	4	-8	10						
				3500	4500	4	-8	12						
				4500	6000	6	-8	15						
H03-76	1-160	240.	11000	0	100	0	0	0	ALT	1601 1605	11621	1621	11661	
				100	500	4	-3	20						
				500	1400	4	-4	10						
				1400	2496	4	-6	10						
				2496	3500	4	-12	10						
				3500	5000	6	-12	12						
H03-76	157-279	184	11000	0	100	0	0	0	ALT	1701 1705	11721	721	11761	
				100	500	4	-6	6						
				500	1400	4	-4	10						
				1400	2496	4	-6	10						
				2496	3500	4	-12	10						
				3500	5000	6	-12	10						

081176

CON 7629

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-10	1-159	240	10900	0	100	0	0	0	ALT	1 5	10021	21	10061	
				100	500	4	-2	2						
				500	1400	4	-5	3						
				1400	2496	4	-9	3						
				2496	3500	4	-9	15						
				3500	5000	6	-9	15						
H03-10	157-272	174	10900	0	100	0	0	0	ALT	101 105	10121	121	10161	
				100	500	4	-2	2						
				500	1400	4	-5	3						
				1400	2496	4	-9	3						
				2496	3500	4	-9	15						
				3500	5000	6	-9	15						
H03-4	141-300	240	11100	0	100	0	0	0	ALT	3301 3305	10321	321	10361	
				100	500	4	-3	10						
				500	1400	4	-10	8						
				1400	2496	4	-10	8						
				2496	3500	4	-10	10						
				3500	5000	6	-18	16						
H03-4	297-456	240	11100	0	100	0	0	0	ALT	3401 3405	10421	421	10461	
				100	500	4	-3	3						
				500	1400	4	-6	6						
				1400	2496	4	-8	8						
				2496	3500	4	-10	12						
				3500	5000	6	-12	12						

D69.

081177

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-4	453-589	205	11100	0	100	0	0	0	ALT	3501 3505	10521	521	10561	
				100	500	4	-3	3						
				500	1400	4	-6	6						
				1400	2496	4	-8	10						
				2496	3500	4	-10	12						
				3500	5000	6	-12	12						
H03-58	1-160	240	11000	0	100	0	0	0	ALT	1301 1305	11321	1321	11361	
				100	500	4	-4	3						
				500	1400	4	-12	11						
				1400	2496	4	-9	9						
				2496	3500	4	-17	11						
				3500	5000	6	-17	14						
H03-58	157-316	240	11000	0	100	0	0	0	ALT	1401 1405	11421	1421	11461	
				100	500	4	-7	6						
				500	1400	4	-5	7						
				1400	2496	4	-8	8						
				2496	3500	4	-12	10						
				3500	5000	6	-14	11						
H03-58	313-444	198	11000	0	100	0	0	0	ALT	1501 1505	11521	1521	11561	
				100	500	4	-7	7						
				500	1400	4	-11	9						
				1400	2496	4	-16	10						
				2496	3500	4	-11	9						
				3500	5000	6	-20	10						

081178

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS: GATHERS	REMARKS E.V.T.
H03-19	1-160	240	11000	0	100	0	0	0	ALT	1 5	10021	21	10061	
				100	500	4	-2	2						
				500	1400	4	-3	6						
				1400	2496	4	-8	10						
				2496	3500	4	-9	10						
				3500	5000	6	-8	10						
H03-19	157-316	240	11000	0	100	0	0	0	ALT	101 105	10121	121	10161	
				100	500	4	-2	1						
				500	1400	4	-7	6						
				1400	2496	4	-12	7						
				2496	3500	4	-10	8						
				3500	5000	6	-12	8						
H03-19	313-472	240	11000	0	100	0	0	0	ALT	201 205	10221	221	10261	
				100	500	4	-2	3						
				500	1400	4	-3	8						
				1400	2496	4	-8	10						
				2496	3500	4	-12	14						
				3500	5000	6	-12	15						
H03-19	469-628	240	11000	0	100	0	0	0	ALT	301 305	10321	321	10361	
				100	500	4	-1	8						
				500	1400	4	-5	7						
				1400	2496	4	-5	8						
				2496	3500	4	-8	12						
				3500	5000	6	-8	13						
H03-52	9-165	240	11000	0	100	0	0	0	ALT	401 405	10421	421	10461	
				100	500	4	-2	2						
				500	1400	4	-3	7						
				1400	2496	4	-10	7						
				2496	3500	4	-10	9						
				3500	5000	6	-10	10						

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-52	165-248	126	11000	0	100	0	0	0	ALT	501 505	10521	521	10561	
				100	500	4	-2	2						
				500	1400	4	-9	6						
				1400	2496	4	-10	6						
				2496	3500	4	-7	7						
				3500	5000	6	-8	8						
H03-77	1-159	240	11000	0	100	0	0	0	ALT	601 605	10621	621	10661	
				100	500	4	-3	5						
				500	1400	4	-7	8						
				1400	2496	4	-12	9						
				2496	3500	4	-7	9						
				3500	5000	6	-13	13						
H03-77	157-215	90	11000	0	200	0	0	0	ALT	701 705	10721	721	10761	
				200	500	4	-2	5						
				500	1400	4	-2	10						
				1400	2496	4	-4	10						
				2496	3500	4	-6	10						
				3500	5000	6	-10	12						
H03-77	213-331	180	11000	0	400	0	0	0	ALT	1001 1005	11021	1021	11061	
				400	1400	4	-1	8						
				1400	2496	4	-7	13						
				2496	3500	4	-4	14						
				3500	5000	6	-4	13						
H03-77	329-376	72	11000	0	700	0	0	0	ALT	1101 1105	11121	1121	11161	
				700	1500	4	-1	10						
				1500	2496	4	-4	11						
				2496	3500	4	-3	11						
				3500	5000	6	-8	11						

081180

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		ALT EVT	WORK FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-77	157-215	90	11000	0	00	0	0	0	ALT	1201 1205	11221	1221	12261	
				00	500	4	-2	5						
				500	1400	4	-2	10						
				1400	2496	4	-4	10						
				2496	3500	4	-6	10						
				3500	5000	6	-10	12						
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

081181

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-31	1-160	240	11000	0	100	0	0	0	ALT	1201 1205	11221	1221	11261	
				100	500	4	-2	2						
				500	1400	4	-2	6						
				1400	2496	4	-5	7						
				2496	3500	4	-10	10						
				3500	5000	6	-10	10						
H03-31	157-316	240	11000	0	100	0	0	0	ALT	1301 1305	11321	1321	11361	
				100	500	4	-2	3						
				500	1400	4	-5	8						
				1400	2496	4	-8	5						
				2496	3500	4	-10	4						
				3500	5000	6	-12	6						
H03-31	313-472	240	11000	0	100	0	0	0	ALT	1401 1405	11421	1421	11461	
				100	500	4	-3	4						
				500	1400	4	-7	13						
				1400	2496	4	-8	12						
				2496	3500	4	-8	14						
				3500	5000	6	-9	14						
H03-31	469-532	96	11000	0	200	0	0	0	ALT	1501 1505	11521	1521	11561	
				200	1000	4	-4	12						
				1000	2200	4	-3	12						
				2200	3500	4	-4	12						
				3500	5000	6	-8	12						
H03-31	529-592	96	11000	0	800	0	0	0	ALT	1601 1605	11621	1621	11661	
				800	2000	4	-12	14						
				2000	2900	4	-10	10						
				2900	3800	4	-6	10						
				3800	4600	4	-5	10						
				4600	6000	6	-6	12						

081182

LINE	SP's	DP's	XREF	TIME GATE		SMAGH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS & GATHERS	REMARKS EVT.
H03-31	589-748	240	11000	0	1700	0	0	0	ALT	1701 1705	11721	1721	11761	
				1700	2500	4	-1	7						
				2500	3500	4	-9	8						
				3500	4500	4	-10	16						
				4500	6000	6	-9	12						
H03-31	745-768	36	11000	0	2200	0	0	0	ALT	2001 2005	12021	2021	12061	
				2200	2700	4	-1	6						
				2700	3600	4	-7	7						
				3600	4500	4	-6	16						
				4500	5500	4	-5	9						
				5500	7000	6	-6	6						

081183

CON 7646

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS: GATHERS	REMARKS EVT.
H03-37	1-148	222	11150	0	200	0	0	0	ALT	3501 3505	10501	501	10541	
				200	1400	4	-6	15						
				1400	2400	4	-8	14						
				2400	2800	4	-13	11						
				2800	3500	4	-13	12						
				3500	5000	6	-10	10						
H03-37	145-236	138	11150	0	1300	0	0	0	ALT	3601 3605	10601	601	10641	
				1300	2600	4	-4	13						
				2600	3200	4	-12	12						
				3200	3800	4	-10	18						
				3800	4500	4	-12	18						
				4500	6000	6	-16	18						

D 76.

0811184

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-38	1-135	203	11150	0	100	0	0	0	ALT	3001 3005	10001	1	10041	
				100	900	4	-6	14						
				900	1500	4	-8	10						
				1500	2496	4	-8	10						
				2496	3500	4	-10	12						
				3500	6000	6	-10	12						
H03-38	166-286	182	11150	0	500	0	0	0	ALT	3021 3025	10101	101	10141	
				500	1700	4	-10	12						
				1700	2200	4	-10	10						
				2200	2700	4	-14	10						
				2700	3500	4	-14	10						
				3500	6000	6	-12	12						
H03-39	1-37	58	11200	0	600	0	0	0	ALT	3201 3205	10201	201	1041	
				600	1200	4	-1	8						
				1200	2300	4	-10	14						
				2300	3400	4	-12	9						
				3400	4500	4	-8	10						
				4500	6000	6	-8	9						
H03-39	37-145	168	11200	0	200	0	0	0	ALT	3301 3305	10301	301	10341	
				200	800	4	-1	7						
				800	1600	4	-1	8						
				1600	2600	4	-3	10						
				2600	3500	4	-3	10						
				3500	5000	6	-4	13						
H03-39	145-252	162	11200	0	100	0	0	0	ALT	3401 3405	10401	401	10441	
				100	500	4	-1	7						
				500	1400	4	-6	8						
				1400	2496	4	-6	6						
				2496	3500	4	-5	6						
				3500	5000	6	-6	7						

0811183

LINE	SP's	DP's	XREF	TIME GATE		SAMPLE RATE	DIP		ALT/EVT	MUCK FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-20	1-160	240	11000	0	100	0	0	0	ALT	4001 4005	11001	1001	11041	
				100	500	4	-6	8						
				500	1400	4	-8	10						
				1400	2496	4	-12	10						
				2496	3500	4	-11	13						
				3500	5000	6	-13	12						
H03-20	157-269	170	11000	0	100	0	0	0	ALT	4021 4025	11101	1101	11141	
				100	500	4	-8	8						
				500	1400	4	-8	11						
				1400	2496	4	-10	11						
				2496	3500	4	-11	12						
				3500	5000	6	-14	11						
H03-20	341-500	240	11000	0	100	0	0	0	ALT	4041 4045	11201	1201	11241	
				100	500	4	-7	7						
				500	1400	4	-7	10						
				1400	2496	4	-11	12						
				2496	3500	4	-10	11						
				3500	5000	6	-10	12						
H03-20	497-656	240	11000	0	100	0	0	0	ALT	4061 4065	11301	1301	11341	
				100	500	4	-7	8						
				500	1400	4	-8	9						
				1400	2496	4	-11	13						
				2496	3500	4	-12	10						
				3500	5000	6	-14	14						
H03-20	653-716	96	11000	0	100	0	0	0	ALT	4101 4105	11401	1401	11441	
				100	500	4	-5	25						
				500	1400	4	-8	10						
				1400	2496	4	-7	11						
				2496	3500	4	-9	14						
				3500	5000	6	-10	18						

081186

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVT	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-20	713-859	221	11000	0	100	0	0	0	ALT	4121 4125	11501	1501	11541	
				100	500	4	-6	22						
				500	1400	4	-6	7						
				1400	2496	4	-11	16						
				2496	3500	4	-11	11						
				3500	5000	6	-10	14						
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	ALT					
				100	500	4								
				500	1400	4								
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

081181

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALL EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-49	122-244	246	11300	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-6	4						
				500	1400	4	-8	8						
				1400	2496	4	-7	8						
				2496	3500	4	-11	11						
				3500	5000	6	-11	13						
H03-49	242-364	246	11300	0	100	0	0	0	EVY	3041 3045	10361	61	10121	
				100	500	4	-6	5						
				500	1400	4	-10	6						
				1400	2496	4	-10	10						
				2496	3500	4	-12	10						
				3500	5000	6	-13	12						
H03-49	362-484	246	11300	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	5						
				500	1400	4	-7	8						
				1400	2496	4	-9	10						
				2496	3500	4	-12	11						
				3500	5000	6	-12	12						
H03-49	482-604	246	11300	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-6	6						
				500	1400	4	-7	7						
				1400	2496	4	-10	9						
				2496	3500	4	-9	11						
				3500	5000	6	-15	20						
H03-49	602-678	154	11300	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-5	5						
				500	1400	4	-8	8						
				1400	2496	4	-6	7						
				2496	3500	4	-10	12						
				3500	5000	6	-9	12						

081188

D80.

LINE	SP's	DP's	XREF	TIME GATE	SMASH RATE	DIP	ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-48	2-124	246	11300	0 100	0	0	EVY	3061 3065	10111	111	10151	
				100 500	4	-4 2						
				500 1400	4	-6 3						
				1400 2496	4	-10 10						
				2496 3500	4	-10 10						
				3500 5000	6	-10 10						
H03-48	119-241	246	11300	0 100	0	0 0	EVY	3101 3105	10141	141	10201	
				100 500	4	-3 3						
				500 1400	4	-5 4						
				1400 2496	4	-6 5						
				2496 3500	4	-10 10						
				3500 5000	6	-10 10						
H03-48	236-358	246	11300	0 100	0	0 0	EVY	3121 3125	10171	171	10231	
				100 500	4	-3 3						
				500 1400	4	-5 4						
				1400 2496	4	-7 10						
				2496 3500	4	-10 10						
				3500 5000	6	-10 10						
H03-48	353-432	160	11300	0 100	0	0 0	EVY	3141 3145	10221	221	10261	
				100 500	4	-3 3						
				500 1400	4	-5 4						
				1400 2496	4	-7 10						
				2496 3500	4	-10 10						
				3500 5000	6	-10 10						
H03-50	2-124	246	11300	0 100	0	0 0	EVY	3001 3005	10001	1	10041	
				100 500	4	-3 3						
				500 1400	4	-4 4						
				1400 2496	4	-6 5						
				2496 3500	4	-6 6						
				3500 5000	6	-7 6						

0811189

CON 8123

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-50	119-241	246	11300	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-4	3						
				500	1400	4	-4	4						
				1400	2496	4	-5	5						
				2496	3500	4	-6	7						
				3500	5000	6	-6	7						
H03-50	236-258	46	11300	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-5	4						
				500	1400	4	-4	5						
				1400	2496	4	-4	7						
				2496	3500	4	-5	7						
				3500	5000	6	-6	7						
H03-62	119-241	246	11350	0	100	0	0	0	EVY	3221 3225	10331	331	10371	
				100	500	4	-5	5						
				500	1400	4	-8	7						
				1400	2496	4	-12	9						
				2496	3500	4	-11	10						
				3500	5000	6	-13	15						
H03-62	236-282	94	11350	0	100	0	0	0	EVY	3241 3245	10361	361	10421	
				100	500	4	-5	4						
				500	1400	4	-6	7						
				1400	2496	4	-6	6						
				2496	3500	4	-13	11						
				3500	5000	6	-15	14						

081180

CON

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS E.V.T.
H03-49	2-124	246	11300	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-5	4						
				500	1400	4	-7	8						
				1400	2496	4	-7	11						
				2496	3500	4	-11	11						
				3500	5000	6	-13	11						
H03-63	2-127	252	11350	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-5	5						
				500	1400	4	-6	8						
				1400	2496	4	-7	9						
				2496	3500	4	-9	10						
				3500	5000	6	-13	12						
H03-63	122-246	250	11350	0	100	0	0	0	EVY	3221 3225	10331	331	10371	
				100	500	4	-6	4						
				500	1400	4	-8	6						
				1400	2496	4	-7	8						
				2496	3500	4	-11	10						
				3500	5000	6	-11	11						
H03-21	2-124	246	11300	0	100	0	0	0	EVY	3301 3305	10401	401	10421	
				100	500	4	-3	3						
				500	1400	4	-6	8						
				1400	2496	4	-8	7						
				2496	3500	4	-9	10						
				3500	5000	6	-8	7						
H03-21	122-228	210	11300	0	100	0	0	0	EVY	3321 3325	10431	431	10451	
				100	500	4	-4	4						
				500	1400	4	-4	6						
				1400	2496	4	-7	7						
				2496	3500	4	-8	10						
				3500	5000	6	-8	6						

081191

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		ACQ EVT	WORK FILES	SUMMARY FILES	CONTOUR FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-57	2-124	246	11350	0	100	0	0	0	EVY	3201 3205	10221	221	10261	
				100	500	4	-4	4						
				500	1400	4	-10	8						
				1400	2496	4	-7	8						
				2496	3500	4	-10	9						
				3500	5000	6	-13	11						
H03-57	122-239	236	11350	0	100	0	0	0	EVY	3221 3225	10251	251	10311	
				100	500	4	-5	5						
				500	1400	4	-6	8						
				1400	2496	4	-9	7						
				2496	3500	4	-9	11						
				3500	5000	6	-10	13						
H03-56	122-244	246	11350	0	100	0	0	0	EVY	3301 3305	10301	301	10341	
				100	500	4	-6	6						
				500	1400	4	-8	9						
				1400	2496	4	-10	8						
				2496	3500	4	-10	10						
				3500	5000	6	-12	11						
H03-56	242-262	42	11350	0	100	0	0	0	EVY	3321 3325	10331	331	10371	
				100	500	4	-5	8						
				500	1400	4	-7	8						
				1400	2496	4	-11	9						
				2496	3500	4	-12	10						
				3500	5000	6	-13	10						
H03-56	2-124	246	11350	0	100	0	0	0	EVY	3341 3345	10361	361	10421	
				100	500	4	-5	5						
				500	1400	4	-8	7						
				1400	2496	4	-9	9						
				2496	3500	4	-10	10						
				3500	5000	6	-12	9						

0811692

LINE	SP's	DP's	XREF	TIME GATE		SLOPE RATE	DIP		AVA EVA	WORK FILES	SUMMARY FILES	CONTOUR FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-62	2-124	246	11350	0	100	0	0	0	EVY	3361 3365	10411	411	10451	
				100	500	4	-4	4						
				500	1400	4	-8	9						
				1400	2496	4	-11	11						
				2496	3500	4	-13	12						
				3500	5000	6	-17	13						
H03-41	722-844	246	11400	0	100	0	0	0	EVY	3141 3145	12221	2221	12261	
				100	500	4	-5	5						
				500	1400	4	-6	5						
				1400	2496	4	-9	9						
				2496	3500	4	-9	10						
				3500	5000	6	-11	13						
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400									
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400									
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								
H03-				0	100	0	0	0	EVY					
				100	500	4								
				500	1400									
				1400	2496	4								
				2496	3500	4								
				3500	5000	6								

0811193

LINE	SP's	DP's	XREF	TIME GATE		SMOOTH RATE	DIP		AL / EVY	WORK FILES	SUMMARY FILES	CONSOLE FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-41	2-124	246	11400	0	100	0	0	0	EVY	3001 3005	10001	1	10041	
				100	500	4	-5	7						
				500	1400	4	-7	8						
				1400	2496	4	-7	10						
				2496	3500	4	-7	11						
				3500	5000	6	-11	14						
H03-41	122-244	246	11400	0	100	0	0	0	EVY	3021 3025	10031	31	10071	
				100	500	4	-4	5						
				500	1400	4	-8	8						
				1400	2496	4	-9	8						
				2496	3500	4	-9	8						
				3500	5000	6	-10	10						
H03-41	242-364	246	11400	0	100	0	0	0	EVY	3041 3045	10061	61	10121	
				100	500	4	-5	5						
				500	1400	4	-10	7						
				1400	2496	4	-9	9						
				2496	3500	4	-8	10						
				3500	5000	6	-9	12						
H03-41	362-484	246	11400	0	100	0	0	0	EVY	3061 3065	10111	111	10151	
				100	500	4	-6	6						
				500	1400	4	-8	8						
				1400	2496	4	-8	13						
				2496	3500	4	-8	9						
				3500	5000	6	-12	11						
H03-41	482-604	246	11400	0	100	0	0	0	EVY	3101 3105	10141	141	10201	
				100	500	4	-5	5						
				500	1400	4	-6	6						
				1400	2496	4	-7	12						
				2496	3500	4	-8	10						
				3500	5000	6	-10	13						

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		A/EVY	WORK FILES	SUMMARY FILES	CONTROL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-41	602-724	246	11400	0	100	0	0	0	EVY	3121 3125	10171	171	10231	
				100	500	4	-4	5						
				500	1400	4	-6	6						
				1400	2496	4	-6	11						
				2496	3500	4	-7	8						
				3500	5000	6	-8	10						
H03-41	842-964	246	11400	0	100	0	0	0	EVY	3161 3165	10251	251	10311	
				100	500	4	-5	5						
				500	1400	4	-7	7						
				1400	2496	4	-6	6						
				2496	3500	4	-9	10						
				3500	5000	6	-10	11						
H03-41	962-1084	246	11400	0	100	0	0	0	EVY	3201 3205	10301	301	10341	
				100	500	4	-5	6						
				500	1400	4	-6	7						
				1400	2496	4	-8	6						
				2496	3500	4	-8	9						
				3500	5000	6	-8	11						
H03-41	1082-1204	246	11400	0	100	0	0	0	EVY	3231 3235	10331	331	10371	
				100	500	4	-6	6						
				500	1400	4	-6	6						
				1400	2196	4	-10	11						
				2196	3500	4	-8	11						
				3500	5000	6	-12	13						
H03-41	1202-1324	246	11400	0	100	0	0	0	EVY	3241 3245	10361	361	10421	
				100	500	4	-5	4						
				500	1400	4	-7	7						
				1400	2496	4	-11	9						
				2496	3500	4	-12	11						
				3500	5000	6	-11	14						

081195

CON 8129

LINE	SP's	DP's	XREF	TIME GATE		SMASH RATE	DIP		ALT / EVY	WORK FILES	SUMMARY FILES	CONSOL FILES	HEADER RECORDS GATHERS	REMARKS EVT.
H03-41	1322-1444	246	11400	0	100	0	0	0	EVY	3261 3265	10411	411	10451	
				100	500	4	-6	5						
				500	1400	4	-9	7						
				1400	2496	4	-8	9						
				2496	3500	4	-10	12						
				3500	5000	6	-11	11						
H03-41	1442-1530	178	11400	0	100	0	0	0	EVY	3301 3305	10441	441	10501	
				100	500	4	-7	5						
				500	1400	4	-10	6						
				1400	2496	4	-8	7						
				2496	3500	4	-9	8						
				3500	5000	6	-10	11						

081196

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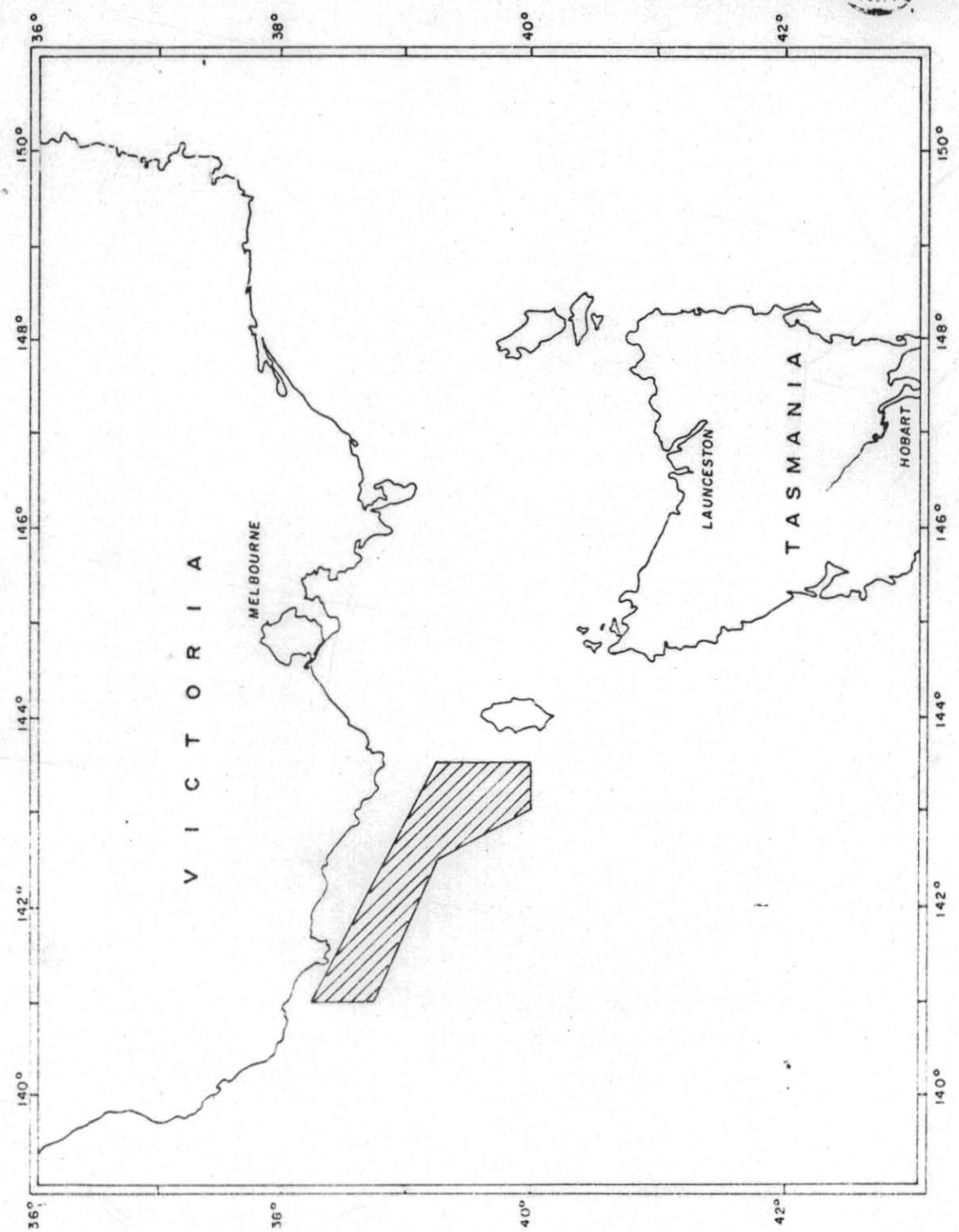
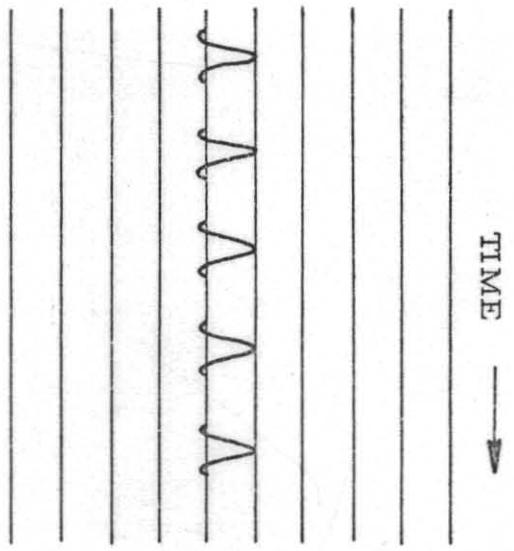
081197

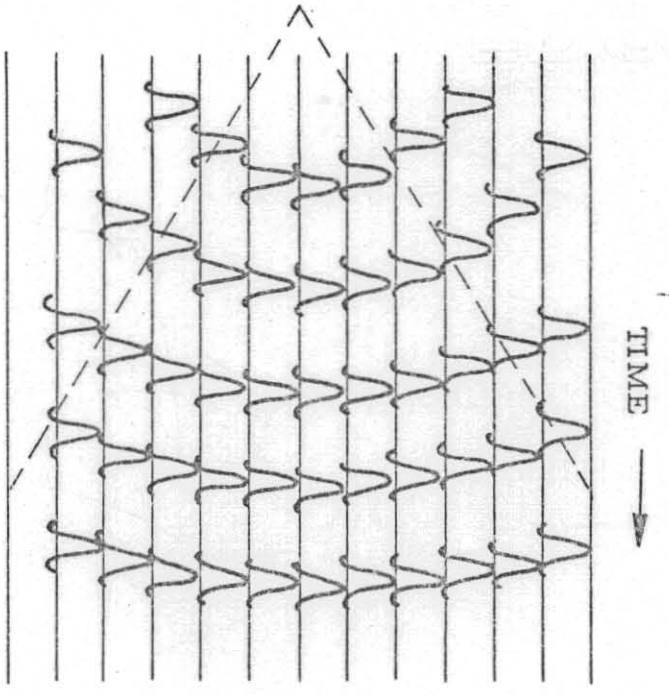


HEMATITE PETROLEUM PTY. LTD.
LOCATION OF PROSPECT
GEOPHYSICAL SERVICE INTERNATIONAL PARTY 931

PLATE 1



(a) INPUT



(b) OUTPUT

Figure I. Migration Stack Impulse Response Analogy to Two-Dimensional Convolution with a Wavefront Chart

081199

OTWAY/KING PART-VIII*

APPENDIX 3

NAVIGATION REPORT

081200

FINAL REPORT

OFFSHORE NAVIGATION, INC.

PROJECT 659

GEOPHYSICAL SERVICE INTERNATIONAL

PARTY 931

FOR

HEMATITE PETROLEUM PTY. LTD.

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

VICTORIA, AUSTRALIA

SEPTEMBER - OCTOBER 1973

OFFSHORE NAVIGATION, INC.

A B S T R A C T

Project 659 was a Shoran positioned and controlled marine seismic survey for potential petroleum deposits in the Bass Strait off the coast of Victoria, Australia.

The principal was Hematite Petroleum Pty. Ltd. (HEMATITE).

Geophysical Service International (GSI) was the prime contractor and operator.

Offshore Navigation, Inc. (ONI) employed a Shoran radiolocation system to provide horizontal control for the survey.

OFFSHORE NAVIGATION, INC.

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OFFSHORE NAVIGATION, INC.

FIGURES

1. Simplified Block Diagram of Basic Radio Equipment of a Shoran System

2. Area of uncertainty of position due to error in range measurement

3. Position ambiguity in circular range system.

4. Offshore – XR Shoran Accuracy Test

5. Relative area of coverage circular ranging system

I. THE SHORAN RADIOPOSITIONING SYSTEM

The Shoran system is a radar transponder type of radio-positioning system. The Shoran mobile station equipment measures the distance from its location to those of two fixed ground beacon stations. The position of the mobile unit is thus fixed at the intersection of the two circular distance or range arcs so determined. The position of the ground beacon stations or base stations is normally accurately known, so that the corresponding position of the mobile station can be accurately computed or determined by graphical methods. Should the position coordinates of the base stations not be accurately known, the mobile station may still be positioned relative to the baseline determined by the base station locations.

The Shoran mobile unit measures the distance of the two base stations by measuring the time required for pulses of radio signals to travel from the mobile station to each base station and return. The time intervals so measured are related to the corresponding distances by using the highly constant velocity characteristic of radio waves in air through the simple relationship:

Total distance covered = Elapsed time x velocity.

I. THE SHORAN RADIOPOSITIONING SYSTEM (continued)

Because of this relationship, it is possible to graduate the indicating dials in the mobile unit in terms of distance rather than elapsed time. For example, using radio waves which have a velocity of approximately 186,000 miles per second, the scale of the time-interval measuring system is graduated so that when the time interval required for a round trip of the signal is 1/1000 second, the scale reads 93 miles. (The total distance traveled by the radio signals in 1/1000 second is 186 miles. Since this is round trip distance, it must be halved to obtain the distance between mobile and base stations.) The Shoran dials are graduated in terms of statute miles rather than nautical miles.

The basic equipment units used to create the round trip signals paths originating and terminating at the mobile station are shown in Figure 1. This equipment consists of a signal source (labled pulse generator in Figure 1), a transmitter, receiver and indicator unit comprising the mobile station, and a receiver coupled to a transmitter at each base station.

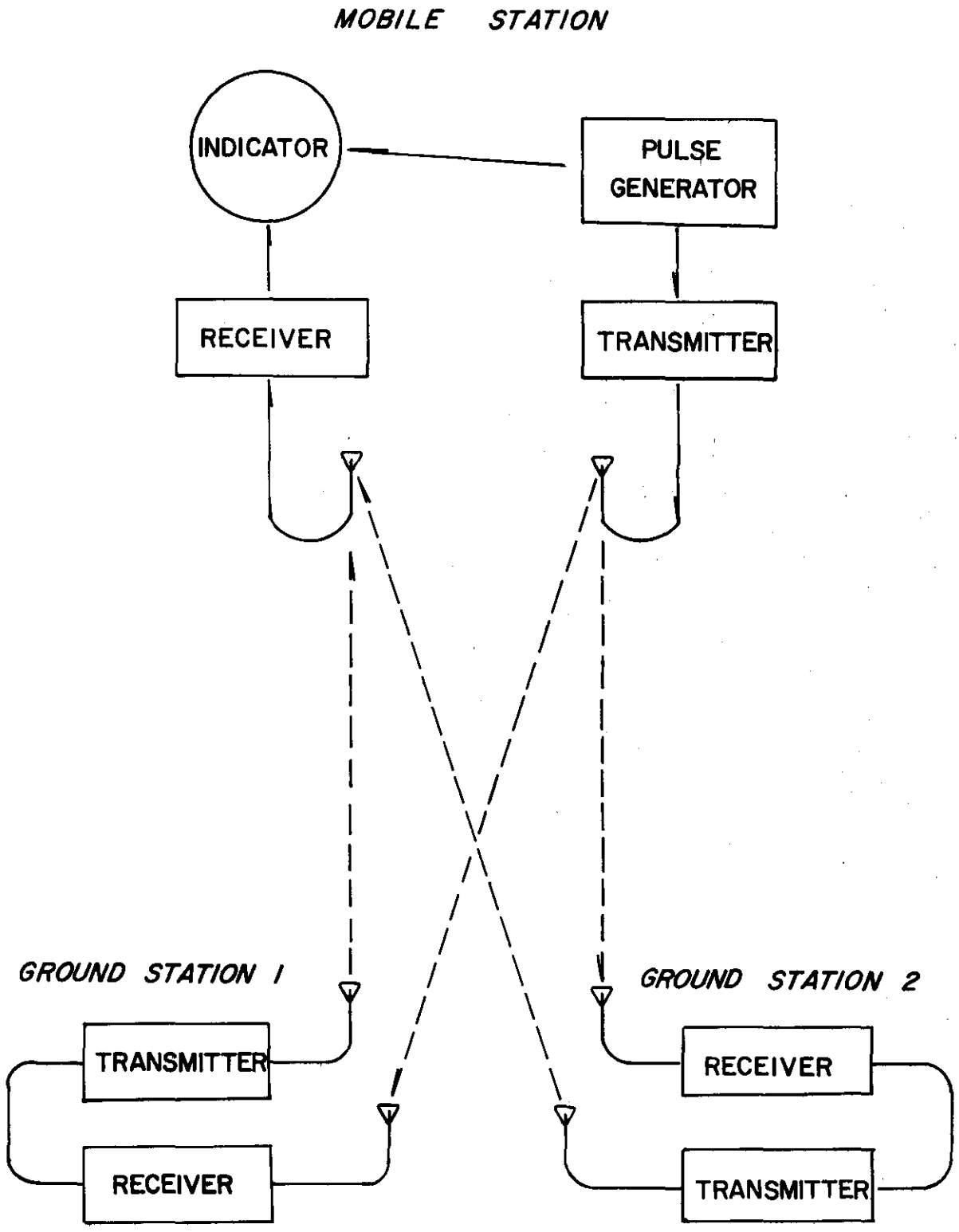


FIGURE 1

SIMPLIFIED BLOCK DIAGRAM OF BASIC RADIO EQUIPMENT OF A SHORAN SYSTEM

I. THE SHORAN RADIOPOSITIONING SYSTEM (continued)

Pulse signals originating at the mobile station are radiated from the mobile transmitter and received by one of the base stations. At this base station, the pulse is sent from the output of the receiver to the input of the transmitter, and is then retransmitted back to the mobile station. After passing through the mobile receiver, the pulse is routed to an indicating circuit where its time lag, or lapse, with respect to the original outgoing pulse is determined, and indicated in terms of distance rather than units of time.

Other pulses are transmitted to the second base station, using a different radio frequency to permit their discrimination from those intended for the first base station. These pulses are received and retransmitted by the second base station, and on their return to the mobile station are similarly sent through the indicating circuits for measurement of the time required for their round trip and the indication of corresponding distance. Thus, the equipment provides continuous, essentially simultaneous, indications of the distances to both base stations.

The Shoran system operates in the VHF/UHF portion of the

I. THE SHORAN RADIOPOSITIONING SYSTEM (continued)

radio spectrum. Normally, three separate frequencies are used. Two of these are transmitted alternately by the mobile station to interrogate each base station in turn, as previously described. The third frequency is utilized by the base stations to retransmit the received pulses back to the mobile station. Both base stations transmit on the single frequency in order to utilize a single receiver at the mobile station.

The propagation characteristics of VHF/UHF radio signals is such that they tend to travel in straight lines. While they are refracted in the atmosphere to some small extent, they do not tend to follow the earth's curvature as do radio signals of considerable lower frequency. They lack the ability to "see" beyond the radio horizon. Thus the Shoran system is essentially a "line of sight" system, with the maximum range being limited, to a large extent, by the heights of the mobile and base station antennas.

The range of the system under particular conditions may be estimated from the relationship

$$d = k\ (\sqrt{h_1} + \sqrt{h_2}$$

I. THE SHORAN RADIOPOSITIONING SYSTEM (continued)

where,

d = estimated maximum range, in miles
h_1 = height of mobile station antenna, in feet, above sea level
h_2 = height of base station antenna, in feet, above sea level
k = empirical range factor

The factor, k, depends upon several factors among which are included antenna gain, receiver sensitivity, transmitter power and atmospheric refractive index. It will vary in value from 1.5 to 2.5, under normally encountered conditions.

The range formula presumes no obstructions between mobile and base stations. The presence of intervening hills or other obstructions can reduce the otherwise obtainable range.

Under certain conditions, abnormally long Shoran ranges can be obtained by exploiting the existence of an atmospheric phenomenon known as a temperature inversion layer. This is a layer of high refractive index occurring with the first few thousand feet of the atmosphere. It has the effect of confining the radio waves near the earth's

I. THE SHORAN RADIOPOSITIONING SYSTEM (continued)

surface, and acts as a duct to bend radio waves around the curvature of the earth. Under these conditions the factor, k, may be several times greater than normal. In some marine areas of the world, this phenomenon occurs quite regularly during certain seasons.

The instrumental accuracy of the Shoran equipment, when properly calibrated, is 50-75 feet on a single range. The overall position accuracy is related to the range accuracy by the angle of intersection, at the mobile station, between the two Shoran range circles. This is illustrated in Figure 2. In normal geophysical operations, this angle of intersection is held between 30 and 150 degrees. Refer to Appendix A for examples of areas of coverage for different angles of intersection of the Shoran range circles.

The range accuracy of the Shoran system can be improved, possibly by a factor of 2, by correcting the propagation velocity slightly under varying meteorological conditions, and by the application of more rigid calibration and operating specifications. For most operations, this

I. THE SHORAN RADIOPOSITIONING SYSTEM (continued)

additional accuracy cannot be economically justified.

In computing (or determining graphically) the position from a pair of Shoran ranges, cognizance must be maintained that a position ambiguity may exist. Each pair of ranges (one to each base station) actually determines two independent positions, one on each side of the Shoran baseline, as illustrated in Figure 3. One position is the "mirror image," so to speak, of the other. Further, the Shoran mileage dials repeat every 100 miles of range. To eliminate this ambiguity one must know, from other means, the correct side of the baseline and the distance to each base station within the proper multiple of 100 miles.

II. EXTENDED RANGE (XR) SHORAN

In 1968, certain experiments with the Shoran System resulted in the acquisition of hardware components to improve the overall signal to noise ratio of the System and to appreciably extend the range over which the Shoran

II. EXTENDED RANGE (XR) SHORAN (continued)

System can be effectively used. Briefly, the system additions consist of a new receiver, preamplifier, pulse modulation and demodulation circuitry, receiver modifications and improved antenna hardware and transmission lines.

In most cases, these additions and modifications can be added to existing systems in the field. However, experience has indicated that the best results are obtained when the complete system with XR hardware is mobilized as a unit.

Field tests conducted in the Gulf of Mexico indicated that ranges of 150 miles or more could be reasonably expected 24 hours per day. At night, ranges in excess of 200 miles were obtained. Where accuracy checks could be made, no appreciable decrease in system accuracy was observed. The Gulf of Mexico tests were conducted with base station antenna heights of 50 to 100 feet and with the vessel antenna height of 50 to 60 feet above the water. No experimental tests have been conducted from elevated base station sites.

II. EXTENDED RANGE (XR) SHORAN (continued)

Reports from field operations tend to bear out the results of the Gulf of Mexico tests; that is, ranges of 150 miles reasonably available, with 200 - 250 mile ranges obtainable under certain conditions. Tropical areas are more favorable for Shoran propagation and ranges in northern latitudes are limited to 100 - 150 miles.

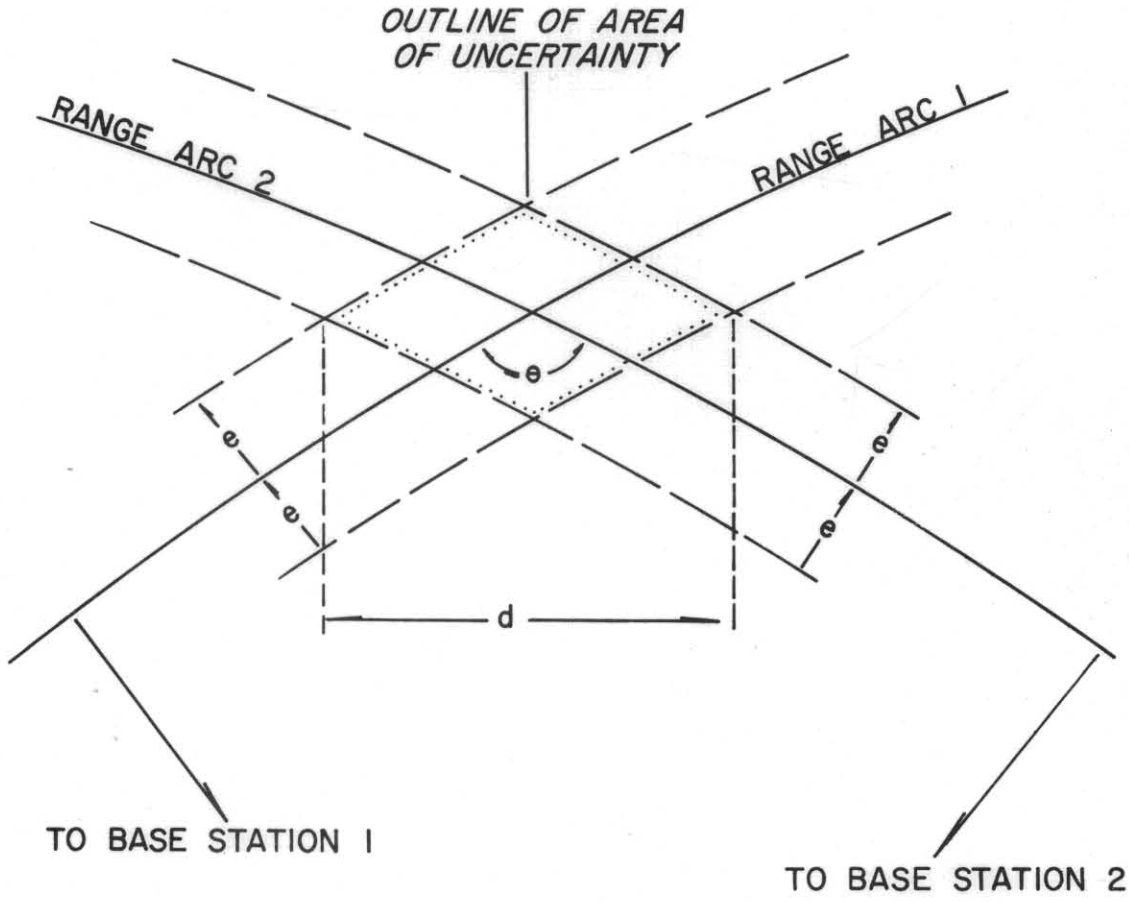
III. RESULTS OF RANGE ACCURACY TESTS

During the month of April 1969, measurements were taken along the coast of the Gulf of Mexico to further define the accuracy with which extended ranges could be measured with the Shoran equipment. The results of those measurements are shown in Figure 4. Measurements were taken between a mobile station located at points along the Mississippi, Alabama, and Florida coasts and three base stations positions located on the coast of Louisiana and Mississippi. All points occupied were either geodetic positions or were tied by land survey to nearby geodetic positions.

III. RESULTS OF RANGE ACCURACY TESTS (continued)

Each vertical bar on the graph represents a particular range that was read. The length of the bar indicates the range of errors determined (that is, measured distance minus the computed distance) for a series of measurements taken with different equipments under varying weather conditions.

Prior to the start of these tests and subsequent to their termination, the calibration of the Shoran equipment was checked at a range of approximately 28 miles. The measurements made over the calibration range are not included in the test data.



$$d = \frac{2e}{\text{SIN}\frac{e}{2}} \text{ where}$$

e = RANGE ERROR

e = INTERSECTION ANGLE OF RANGE CIRCLES

5 cm

FIGURE 2

AREA OF UNCERTAINTY OF POSITION
DUE TO ERROR IN RANGE MEASUREMENT

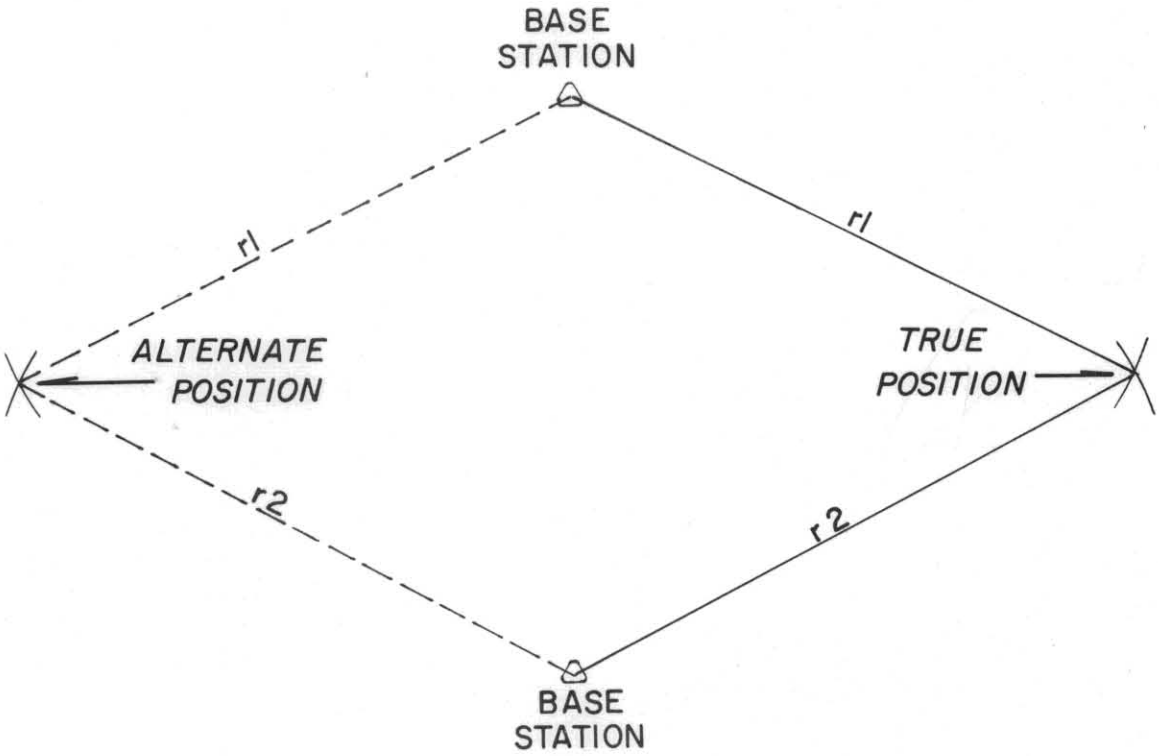


FIGURE 3

POSITION AMBIGUITY IN CIRCULAR RANGE SYSTEM

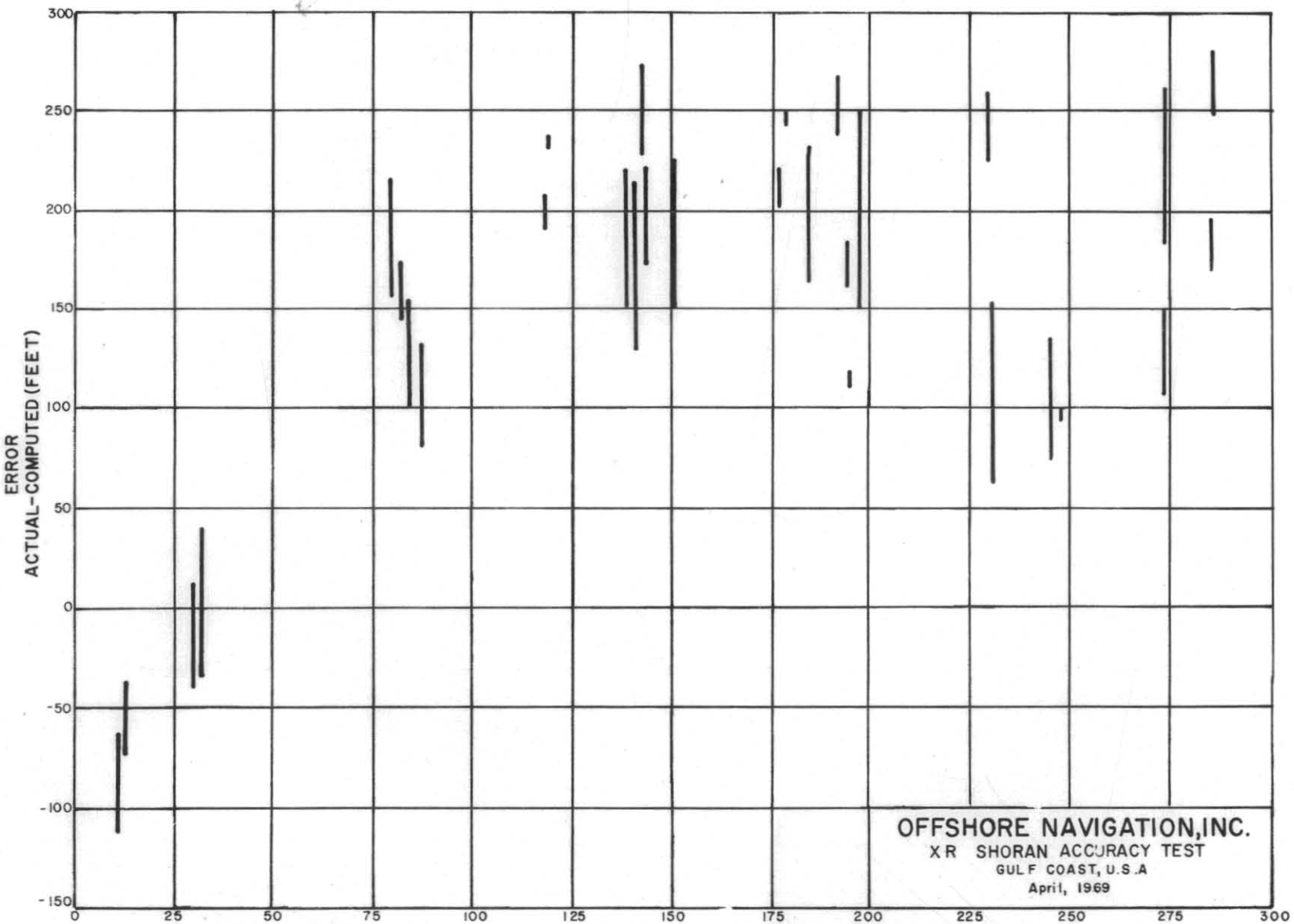


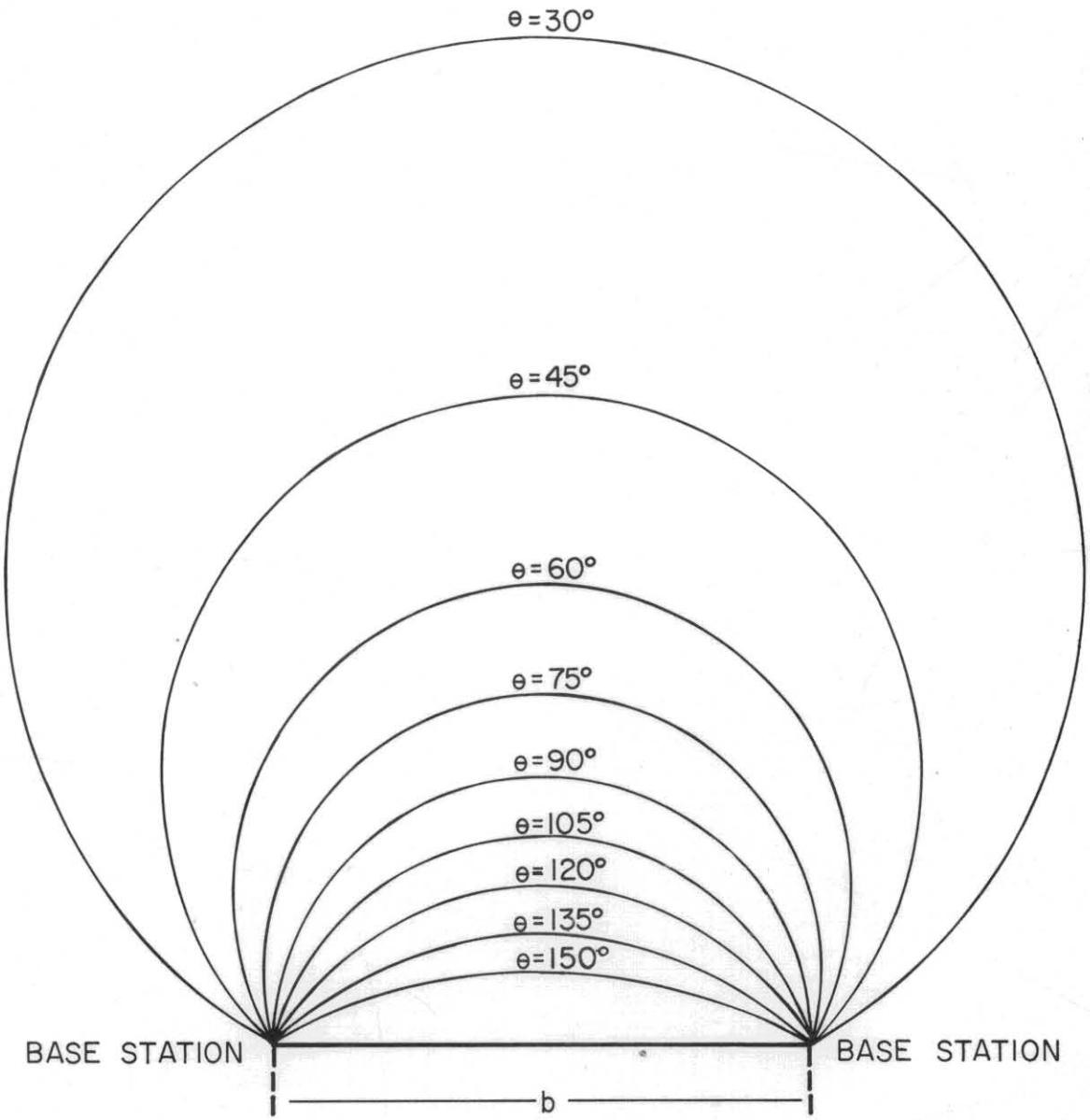
FIGURE 4

OFFSHORE NAVIGATION, INC.

081211

5 cm

081218



ALL ARCS ARE PORTIONS OF CIRCLES THROUGH BASE STATION POSITIONS OF RADIUS GIVEN BY

$$r = \frac{b}{2 \sin \theta}$$

WHERE θ IS ANGLE OF INTERSECTION BETWEEN RANGE CIRCLES

FIGURE 5

RELATIVE AREA OF COVERAGE
CIRCULAR RANGING SYSTEM

OFFSHORE NAVIGATION, INC.

IV. AREA OF OPERATIONS

Operations were conducted off the coast of Victoria, Australia in the Great Australian Bight. The work area extended along the coast from Cape Nelson to Cape Otway and up to 80 miles offshore. The operations conducted during the period covered by this report were designated by HEMATITE as:

Cape Nelson to Cape Otway Seismic Survey

The ONI base of operation for this survey was established in Portland, Victoria 8 September 1973. From this base, radiotelephone communications were maintained with all Shoran installations.

V. FIELD OPERATIONS RECAP

Advance ONI personnel were in Portland, Victoria 2 September 1973 for the purpose of removing the Shoran mobile indicating equipment from the recording vessel, M/V EUGENE MCDERMOTT II. During the period 3 - 4 September 1973, the Shoran mobile indicating and base station equipment was transported from Melbourne to

V. FIELD OPERATIONS RECAP (continued)

Warrnambool for the purpose of Shoran calibration.

The following is a Daily Summary of Operations for the period 5 September 1973 to 13 September 1973.

5 September 1973 -

Shoran base station equipment to be used during this survey at Station Mt. Warrnambool. Shoran tower erected at this site. Base operator D. Sudderth. Also present were Mr. A. MacLean and Mr. P. Murray.

6 September 1973 -

Shoran mobile indicating equipment and Shoran tower erected at Station Mt. Richmond. Calibration of the Shoran base station equipment was accomplished between 1500 and 1800 hours. Average Shoran reading observed was 79.904 miles.

7 September 1973 -

Station Crowes installed. Base operator A. MacLean.

8 September 1973 -

Station Mount Richmond installed. Base Operator C. Debakker.

9 - 11 September 1973 -

ONI personnel standing by for the M/V EUGENE MCDERMOTT II to return to Portland to install the Shoran mobile indicating equipment.

V. FIELD OPERATIONS RECAP (continued)

12 September 1973 -

The M/V EUGENE MCDERMOTT II arrived at Portland. The Shoran mobile indicating equipment was placed on board the vessel and installed. Shoran Three-Way Fixes were observed at the wharf.

13 September 1973 -

The M/V EUGENE MCDERMOTT II departed Portland this date to observe Shoran baseline measurements.

Geophysical operations began at 0836 hours 15 September 1973 and were completed 22 October 1973. A final Shoran Three-Way Fix was observed on completion of the survey. The M/V EUGENE MCDERMOTT II returned to Portland on completion of the survey.

The Shoran mobile indicating equipment was removed from the M/V EUGENE MCDERMOTT II 23 October 1973 for the next operation.

VI. GENERAL INFORMATION

A. Shoran frequencies used were:

Mobile Transmitter	230/250 MHz.
Base Transmitter	300 MHz.

B. Satisfactory radiotelephone communications between all Shoran installations were maintained on the frequency of 4637.5 kilocycles.

C. The Shoran field data was turned over to the GSI representative at the conclusion of the survey.

D. Three Shoran base station installations were provided by ONI for this survey.

E. Three Shoran base station sites were occupied during this operation. They were:

STATION CROWES
STATION MT. RICHMOND
STATION MT. WARRNAMBOOL

F. Maximum Shoran range observed during the survey was 180 miles.

OFFSHORE NAVIGATION INC

VI. GENERAL INFORMATION (continued)

G. Shoran Range Extension (XR) equipment was provided by ONI for this survey.

H. The Shoran base station equipment was checked for proper calibration prior to the commencement of the survey by use of a range calibration between the Base Stations Mount Richmond (Mobile Station) and Mount Warrnambool (Base Station). The Shoran base station equipment was adjusted to read the computed range of 71.902 miles, as instructed by GSI.

I. The Shoran mobile indicating unit was checked on every seismic line during the operation for proper zero set. Zero check set was accomplished at 99.808 (short path) miles.

J. ONI provided the following peripheral equipment for this survey:

Pulse Follower
Digital Printer
Digital Track Plotter
Dual Antenna System

VI. GENERAL INFORMATION (continued)

K. No down time was lost during this operation due to Shoran equipment malfunction.

VII. MAPPING

Prior to the commencement of this survey, machine computed preplots and track plot sheets, indicating the Shoran and grid coordinates of each shotpoint location to be occupied during this survey period, were provided to the field by GSI and ONI. The preplots were processed by Engineering Computer Services of Sydney, N.S.W., Australia, and the trackplots were processed by Offshore Navigation, Inc. of New Orleans, Louisiana, U.S.A.

No final mapping of this survey was accomplished by ONI.

All Shoran field data was turned over to the GSI representative at the conclusion of the survey.

For the purpose of preplotting of the survey program, the Universal Transverse Mercator Projection, Australian National Spheroid of Reference, Zone 54, Central Meridian 141° East, AUSTRALIAN GEODETIC DATUM was used.

VIII. SHORAN BASELINE MEASUREMENTS

The following Shoran Baseline Measurements were observed during the course of this operation.

Stations Mt. Richmond/Warrnambool Baseline:

Observed Range	71.905 miles
Computed Range	71.904 miles

Stations Mt. Richmond/Crowes Baseline:

Observed Range:	
First Range	109.146 miles
Second Range	109.147 miles
Computed Range	109.125 miles

IX. SHORAN THREE-WAY FIXES

The following Shoran Three-Way Fixes were observed during the survey period. Most fixes observed were "Running Three-Way Fixes", where the third range was interpolated using time as argument. The interpolated range is indicated by a check mark.

Scale factor correction was applied to the computation of the following fixes.

*SCALE FACTORED

081228

STATIONS	RANGES	POSITION	TIE
	22/10-1040		
MT.RICHMOND OFF	87.036	X= 630595.	24.
MT. WARRNAMBOOL	62.343	Y= 5660626.	
CROWES	56.787		
	12/9 -1518		
MT.RICHMOND OFF	12.440	X= 554003.	8.
MT. WARRNAMBOOL	60.950	Y= 5754663.	
CROWES	97.202		
	16/9 -1212		
MT.RICHMOND OFF	51.564	X= 597564.	8.
MT. WARRNAMBOOL	46.237	Y= 5707930.	
CROWES	66.694		
	16/9 -1213		
MT.RICHMOND OFF	51.680	X= 597506.	12.
MT. WARRNAMBOOL	46.301	Y= 5707835.	
CROWES	66.736		
	16/9 -1214		
MT.RICHMOND OFF	51.690	X= 597443.	9.
MT. WARRNAMBOOL	46.373	Y= 5707738.	
CROWES	66.777		

(Shoran fix observed at Portland Dock - 1518 hours 12 September 1973)

081229

SCALE FACTORED

STATIONS	RANGES	POSITION	TIE
	16/9 -1215		
MT. RICHMOND OFF.	51.701	X= 597381.	8.
MT. WARRNAMBOOL	46.441	Y= 5707644.	
CROWES	66.818		
	16/9 -1216		
MT. RICHMOND OFF	51.711	X= 597319.	6.
MT. WARRNAMBOOL	46.510	Y= 5707551.	
CROWES	66.859		
	16/9 -1217		
MT. RICHMOND OFF	51.725	X= 597257.	6.
MT. WARRNAMBOOL	46.580	Y= 5707452.	
CROWES	66.901		
	16/9 -1218		
MT. RICHMOND OFF	51.739	X= 597186.	7.
MT. WARRNAMBOOL	46.675	Y= 5707324.	
CROWES	66.942		
	16/9 -2140		
MT. RICHMOND OFF	47.392	X= 589637.	33.
MT. WARRNAMBOOL	49.254	Y= 5709669.	
CROWES	71.580		

081230

SCALE FACTORED

STATIONS	RANGES	POSITION	TIE
	16/9 -2141		
MT.RICHMOND OFF	47'.404	X= 589556'.	33'.
MT. WARRNAMBOOL	49'.344	Y= 5709563'.	
CROWES	71'.633		
	16/9 -2142		
MT.RICHMOND OFF	47'.426	X= 589441'.	4'.
MT. WARRNAMBOOL	49'.524	Y= 5709353'.	
CROWES	71'.686		
	16/9 -2143		
MT.RICHMOND OFF	47'.446	X= 589364'.	1'.
MT. WARRNAMBOOL	49'.584	Y= 5709237'.	
CROWES	71'.739		
	16/9 -2144		
MT.RICHMOND OFF	47'.467	X= 589221'.	9'.
MT. WARRNAMBOOL	49'.734	Y= 5709042'.	
CROWES	71'.828		
	16/9 -2145		
MT.RICHMOND OFF	47'.478	X= 589101'.	11'.
MT. WARRNAMBOOL	49'.823	Y= 5708931'.	
CROWES	71'.918		

081231

SCALE FACTORED

STATIONS	RANGES	POSITION	TIE
	16/9 =2146		
MT. RICHMOND OFF	47,489	X= 588949.	7.
MT. WARRNAMBOOL	49,983	Y= 5708737.	
CROWES	72,027		

SCALE FACTORED

081232

STATIONS	RANGES	POSITION	TIE
	29/9-0830		
MT.RICHMOND OFF	109,304	X= 679840.	6.
MT. WARRNAMBOOL	62,251	Y= 5662419.	
CROWES	36,607		
	29/9-0831		
MT.RICHMOND OFF	109,329	X= 679784.	6.
MT. WARRNAMBOOL	62,339	Y= 5662271.	
CROWES	36,705		
	29/9-0832		
MT.RICHMOND OFF	109,353	X= 679716.	40.
MT. WARRNAMBOOL	62,349	Y= 5662187.	
CROWES	36,799		
	29/9-0835		
MT.RICHMOND OFF	109,428	X= 679574.	4.
MT. WARRNAMBOOL	62,640	Y= 5661706.	
CROWES	36,879		
	22/10-1035		
MT.RICHMOND OFF	56,995	X= 630532.	8.
MT. WARRNAMBOOL	62,354	Y= 5662638.	
CROWES	56,805		

X. SHORAN CALIBRATION

Calibration of the Shoran base stations was accomplished between 1500 and 1800 hours 5 September 1973. The following pages contain pertinent information concerning this calibration.

OFFSHORE NAVIGATION, INC.

SHORAN CALIBRATION REPORT

DATE: 5 Sept. 1973, 1600 hours

Mobile Location	Base Location	Computed Slant Range
Mt. Richmond	Mt. Warrnambool	71.902 miles

MOBILE STATION			BASE STATION		
Operator J. Mahlum			Operator P. Murray		
UNIT	MODEL	SERIAL	UNIT	MODEL	SERIAL
Transmitter	APN-84	ST-110	Transmitter	AVQ-5	030
Indicator	APN-84	SM-066	Indicator	AVQ-5	214
Receiver	APN-84	SR-015	Receiver	AVQ-5	057
Pre Amp.			Pre Amp.		
COAX	Type	Length	COAX	Type	Length
Input voltage	115 AC		Input voltage	115 AC	
Transmitter Frequency	230/250 MHz.		Transmitter Frequency	300 MHz.	
RECEIVER			RECEIVER		
Frequency	300 MHz.		Frequency	230/250 MHz.	
Gain Set	9		Gain Set	1.5	
OBSERVED RANGE (RATE)	HF 71.902/901 miles			LF 71.906/907 miles	
ZERO SET	99.808 miles				
REMARKS	Overcast 100% (raining)		REMARKS	Overcast 100% (raining)	
				Variable delay set = 9	

OFFSHORE NAVIGATION, INC.

SHORAN CALIBRATION REPORT

DATE: 5 Sept. 1973, 1620 hours.

Mobile Location	Base Location	Computed Slant Range
Mt. Richmond	Mt. Warrnambool	71.902 miles

MOBILE STATION			BASE STATION		
Operator J. Mahlum			Operator P. Murray		
UNIT	MODEL	SERIAL	UNIT	MODEL	SERIAL
Transmitter	APN-84	ST-110	Transmitter	AVQ-5	ST-209
Indicator	APN-84	SM-066	Indicator	AVQ-5	SM-001
Receiver	APM-84	SR-015	Receiver	AVQ-5	SR-444
Pre Amp.			Pre Amp.		
COAX	Type	Length	COAX	Type	Length
Input voltage	115 AC		Input voltage	115 AC	
Transmitter Frequency	230/250 MHz.		Transmitter Frequency	300 MHz.	
RECEIVER			RECEIVER		
Frequency	300 MHz.		Frequency	230/350 MHz.	
Gain Set	9		Gain Set	1 (.02)	
OBSERVED RANGE (RATE)	HF 71.906 miles			LF 71.906 mi. (71.908)	
ZERO SET	99.808 miles				
REMARKS Overcast 100% (raining)			REMARKS Overcast 100% (raining)		
			Variable delay set = 9		

OFFSHORE NAVIGATION, INC.

SHORAN CALIBRATION REPORT

DATE: 5 Sept. 1973, 1700 hours

Mobile Location	Base Location	Computed Slant Range
Mt. Richmond	Mt. Warrnambool	71.902 miles

MOBILE STATION			BASE STATION		
Operator J. Mahlum			Operator P. Murray		
UNIT	MODEL	SERIAL	UNIT	MODEL	SERIAL
Transmitter		ST-054	Transmitter	AVQ-5	ST-209
Indicator		SM-066	Indicator	AVQ-5	SM-001
Receiver		SR-015	Receiver	AVQ-5	SR-444
Pre Amp.			Pre Amp.		
COAX	Type	Length	COAX	Type	Length
Input voltage		115 AC	Input voltage		115 AC.
Transmitter Frequency		200/250 MHz.	Transmitter Frequency		300 MHz.
RECEIVER			RECEIVER		
Frequency		300 MHz.	Frequency		230/250 MHz.
Gain Set		9	Gain Set		1
OBSERVED RANGE (RATE)	HF	71.906 miles	LF		71.908/909 miles
ZERO SET		99.808 miles			
REMARKS	Overcast 100% (raining)		REMARKS	Overcast 100% (raining)	
				Variable delay set = 9	

OFFSHORE NAVIGATION, INC.

SHORAN CALIBRATION REPORT

DATE: 5 Sept. 1973, 1730 hours.

Mobile Location	Base Location	Computed Slant Range
Mt.Richmond	Mt. Warrnambool	71.902 miles

MOBILE STATION			BASE STATION		
Operator J. Mahlum			Operator P. Murray		
UNIT	MODEL	SERIAL	UNIT	MODEL	SERIAL
Transmitter		ST-067	Transmitter	CPN-2	ST-188
Indicator		SM-040	Indicator	CPN-2	SR-253
Receiver			Receiver		
Pre Amp.			Pre Amp.		
COAX	Type	Length	COAX	Type	Length
Input voltage		115 AC	Input voltage		115 AC
Transmitter Frequency		230/250 MHz.	Transmitter Frequency		300 MHz.
RECEIVER			RECEIVER		
Frequency		300 MHz.	Frequency		230/250 MHz.
Gain Set		9	Gain Set		6
OBSERVED RANGE (RATE)	HF	71.907 miles	LF		71.906 miles
ZERO SET		99.808 miles			
REMARKS 100% overcast (raining)			REMARKS 100% overcast (raining)		
			Variable delay set = 13.5		

OFFSHORE NAVIGATION, INC.

SHORAN CALIBRATION REPORT

DATE: 5 Sept. 1973

Mobile Location	Base Location	Computed Slant Range
Mt. Richmond	Mt. Warrnambool	71.902 miles

MOBILE STATION			BASE STATION		
Operator J. Mahlum			Operator P. Murray		
UNIT	MODEL	SERIAL	UNIT	MODEL	SERIAL
Transmitter	APN-84	ST-067	Transmitter	CPN-2A	ST-188
Indicator	APN-84	SM-066	Indicator	CPN-2A	SM-253
Receiver	APN-84	SM-015	Receiver		
Pre Amp.			Pre Amp.		
COAX	Type	Length	COAX	Type	Length
Input voltage		115 AC	Input voltage		115 AC
Transmitter Frequency		230/250 MHz.	Transmitter Frequency		300 MHz.
RECEIVER			RECEIVER		
Frequency		300 MHz.	Frequency		230/250 MHz.
Gain Set		9	Gain Set		6
OBSERVED RANGE (RATE)	HF	71.903 miles	LF		71.909 miles
ZERO SET		99.808 miles			
REMARKS			REMARKS		
100% overcast (raining)			100% overcast (raining)		
			Variable delay setting = 13.5		

OFFSHORE NAVIGATION, INC.

SHORAN CALIBRATION REPORT

DATE: 5 Sept. 1973

Mobile Location	Base Location	Computed Slant Range
Mt. Richmond	Mt. Warrnambool	71.902 miles

MOBILE STATION			BASE STATION		
Operator J. Mahlum			Operator P. Murray		
UNIT	MODEL	SERIAL	UNIT	MODEL	SERIAL
Transmitter		ST-110	Transmitter	AVQ-5	ST-106
Indicator		SM-066	Indicator	AVQ-5	SM-217
Receiver		SR-015	Receiver	AVQ-5	SRV-447
Pre Amp.			Pre Amp.		
COAX	Type	Length	COAX	Type	Length
Input voltage	115 AC		Input voltage	115 AC	
Transmitter Frequency	230/250 MHz.		Transmitter Frequency	300 MHz.	
RECEIVER			RECEIVER		
Frequency	300 MHz.		Frequency	230 MHz.	
Gain Set	9		Gain Set	1	
OBSERVED RANGE (RATE)	HF 71.904/903 miles			LF 71.903/902 miles	
ZERO SET	99.808 miles				
REMARKS	Overcast 100%		REMARKS	Overcast 100%	
				Variable delay set = 9	

OFFSHORE NAVIGATION, INC.

SHORAN CALIBRATION REPORT

DATE: 5 Sept. 1973

Mobile Location	Base Location	Computed Slant Range
Mt. Richmond	Mt. Warrnambool	71.902 miles

MOBILE STATION			BASE STATION		
Operator J. Mahlum			Operator P. Murray		
UNIT	MODEL	SERIAL	UNIT	MODEL	SERIAL
Transmitter		ST-110	Transmitter		CRV-203
Indicator		SM-066	Indicator		CRV-064
Receiver		SR-015	Receiver		CRV-161
Pre Amp.			Pre Amp.		
COAX	Type	Length	COAX	Type	Length
Input voltage		115 AC	Input voltage		115 AC
Transmitter Frequency		230/250 MHz.	Transmitter Frequency		300 MHz.
RECEIVER			RECEIVER		
Frequency		300 MHz.	Frequency		230/250 MHz.
Gain Set		9	Gain Set		5
OBSERVED RANGE (RATE)	HF	71.903/902 miles	LF		71.905/904 miles
ZERO SET		99.808 miles			
REMARKS	100% overcast		REMARKS	100% overcast	
				Variable delay set = 13.5	

OFFSHORE NAVIGATION, INC.

SHORAN CALIBRATION REPORT

DATE: 5 Sept. 1973

Mobile Location	Base Location	Computed Slant Range
Mt. Richmond	Mt. Warrnambool	71.902 miles

MOBILE STATION			BASE STATION		
Operator J. Mahlum			Operator P. Murray		
UNIT	MODEL	SERIAL	UNIT	MODEL	SERIAL
Transmitter	APN-84	ST-110	Transmitter	CPN-2	CRV254
Indicator			Indicator	CPN-2	CRV15
Receiver			Receiver		
Pre Amp.			Pre Amp.		
COAX	Type	Length	COAX	Type	Length
Input voltage	115 AC		Input voltage	115 AC	
Transmitter Frequency	230/250 MHz.		Transmitter Frequency	300 MHz.	
RECEIVER			RECEIVER		
Frequency	300 MHz.		Frequency	230/250 MHz.	
Gain Set	9		Gain Set	7.5	
OBSERVED RANGE (RATE)	HF 71.903/902 miles			LF 71.903/901 miles	
ZERO SET	99.808 miles				
REMARKS	Overcast 100%		REMARKS	Overcast 100%	
				Variable delay set =13.5	

OFFSHORE NAVIGATION, INC.

SHORAN CALIBRATION REPORT

DATE: 5 Sept. 1973

Mobile Location	Base Location	Computed Slant Range
Mt. Richmond	Mt. Warrnambool	71.902 miles

MOBILE STATION			BASE STATION		
Operator J. Mahlum			Operator P. Murray		
UNIT	MODEL	SERIAL	UNIT	MODEL	SERIAL
Transmitter	APN-84	ST-110	Transmitter	CPN-2	188
Indicator	APN-84	SM-066	Indicator	CPN-2	253
Receiver	APN-84	SR-015	Receiver		66
Pre Amp.			Pre Amp.		
COAX	Type	Length	COAX	Type	Length
Input voltage	115 AC		Input voltage	115 AC	
Transmitter Frequency	230/250 MHz.		Transmitter Frequency	300 MHz.	
RECEIVER			RECEIVER		
Frequency	300 MHz.		Frequency	230/250 MHz.	
Gain Set	9		Gain Set	6	
OBSERVED RANGE (RATE)	HF 71.901 miles			LF 71.905/903 miles	
ZERO SET					
REMARKS	Overcast 100% (raining)		REMARKS	Overcast 100% (raining)	
				Variable delay set = 13.5	

OFFSHORE NAVIGATION, INC.

XI. BASIC CONTROL

The following Shoran base stations, along with their coordinates, were occupied to control this survey.

Universal Transverse Mercator Projection
Australian National Spheroid
Zone 54
Central Meridian 141° East
AUSTRALIAN GEODETIC DATUM

STATION CROWES:

Latitude	38°41'53".91 S	N = 5,714,057 meters
Longitude	143°21'13".98 E	E = 704,703 meters
Elevation	424 meters	

STATION MT. RICHMOND:

Latitude	38°16'08".42 S	N = 5,764,241 meters
Longitude	141°24'59".89 E	E = 536,446 meters
Elevation	225 meters	

NOTE: The above coordinates reflects the trig. station. The Shoran tower was located 15.5 feet at 303° from the trig. station.

STATION MT. WARRNAMBOOL:

Latitude	38°18'25".83 S	N = 5,758,658 meters
Longitude	142°44'18".21 E	E = 651,993 meters
Elevation	219 meters	

OFFSHORE NAVIGATION, INC.

XII. PERSONNEL

NAME	POSITION
Murray, P.	Party Chief
Cartner, I.	Mobile Operator
Loose, T.	Mobile Operator
Mahlum J.	Mobile Operator
Rowley, L.	Mobile Operator Trainee
Debakker, C.	Base Operator
MacLean, A.	Base Operator
Sudderth, D.	Base Operator
Patro, T.	Technician

OFFSHORE NAVIGATION, INC.

STATION: CROWES

LOCATED: Station Crowes is located on the south central coast of Victoria, Australia.

ACCESS: There are two access routes to this site.

1. From the town of Colac, proceed south on the Beech Forest Road through Kawarren and Gellibrand to the junction of Great Ocean Road, a distance of approximately 29 miles. Turn right on Great Ocean Road. Continue on this road through Mt. Chappel and Lavers Hill. The trig. point is located approximately 1 1/2 miles south of Lavers Hill on the left side of the road. A fire tower is located on the righthand side of the road at this point. The trig. point marker is located in the center of a small sealed roundabout across the road from the fire tower and approximately 50 meters off the highway.

2. From the town of Warrnambool, proceed east along the Princess Highway through Allansford. Princess Highway intersects with the Great Ocean Highway at the eastern edge of Allanford. Take the Great Ocean Highway towards Peterborough and Port Campbell. Proceed through these towns and stay on the Great Ocean Highway towards Lavers Hill. From Princeton, the road climbs the mountain. Approximately 6 miles after passing a microwave relay tower on the right, you will come to a fire tower on the left. The station site is located on the righthand side of the road at this point.

MARKER: The trig. point is marked with a standard steel quadripod, approximately 15 feet high with a circular target on the top. A bronze plaque with a warning not to remove, is located below the steel frame.

OFFSHORE NAVIGATION, INC.

STATION: CROWES (continued)

GENERAL: Water is available at the dairy located at the station site. This dairy and house to the south of the site belong to: I. Hider, Telephone 052-373242. Stores, petrol supplies, etc., should be brought in from either Warrnambool or Colac.

ELEVATION: 424 meters

SKETCH: See next page.

AUSTRALIAN GEODETIC DATUM

GEOGRAPHICAL COORDINATES		UTM PROJ., AUST. NAT. SPHEROID ZONE 54, C.M. 141° EAST	
Latitude	Longitude	North	East
38°41'53".91 S	143°21'13".98 E	5,714,057 meters	704,703 meters

OFFSHORE NAVIGATION, INC.

081247

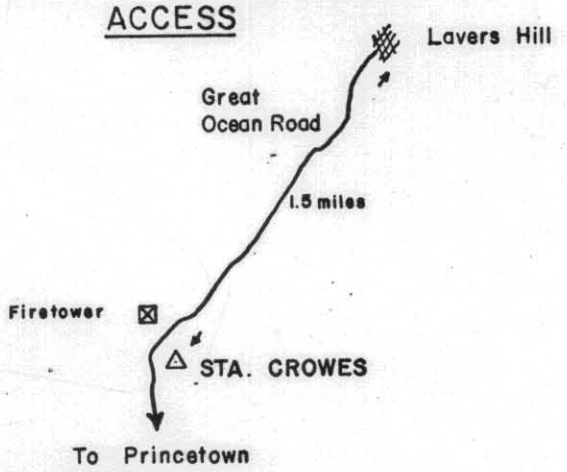
STATION CROWES——————AUSTRALIA

LAT. 38°41'53".91 S
LONG. 143°21'13".98 E
ELEV. 424 meters

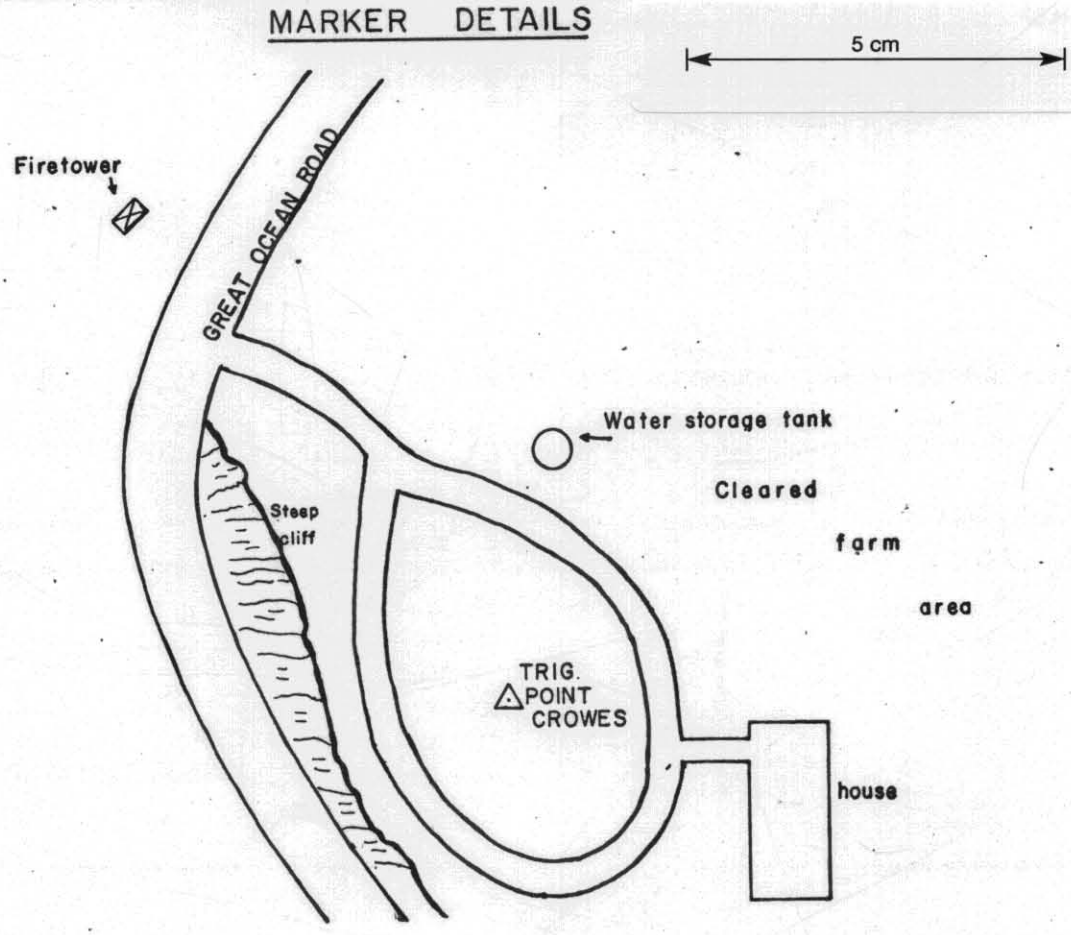
N 5,714,057 meters
E 704,703 meters

UTM PROJECTION, AUST. NATIONAL SPHEROID
ZONE 54 C.M. 141° E.
AUSTRALIAN GEODETIC DATUM

ACCESS



MARKER DETAILS



OFFSHORE NAVIGATION, INC.

081248

STATION: MT. RICHMOND

LOCATED: Station Mt. Richmond is located on the west coast of Victoria, Australia.

ACCESS: From the post office in Portland, proceed north along the road to Heywood. After 2 miles turn left to the west onto the road to Nelson. At the "T" junction, Cashmore, Nelson, turn right and follow this bitumen road for another 9 1/2 miles, past the Gorae West School, to the turn-off to Mt. Richmond National Park. (This is signposted). Turn left towards the south and follow this gravel road for approximately 2 miles towards the W.S.W. At this point the road branches, one part continuing over a bridge while the other turns to the south and continues for another mile to the crossroads and the beginning of the access road into the National Park. Continue on up this road a further 1 1/2 miles to its termination. Here the trig. marker will be found.

MARKER: The trig. marker is marked by a normal steel quadripod and circular vanes. There is a bronze plaque at ground level stamped "GEODETIC SURVEY VICTORIA". There is an observation platform located at a bearing of 206° Magnetic from the trig. marker which gives an excellent view back over Portland and into Discovery Bay.

GENERAL: The station site is a picnic area of the National Park. Water and toilet facilities are available. Fuel and supplies should be brought in from Portland. There are probably telephone facilities at Gorae West. Medical facilities are available in Portland.

OFFSHORE NAVIGATION, INC.

STATION: MT. RICHMOND (continued)

The National Park Service is to be notified and permission obtained in advance of occupying this station site.

Tree height on the station site is approximately 30 - 40 feet.

ELEVATION: 225 meters

SKETCH: See next page.

AUSTRALIAN GEODETIC DATUM

GEOGRAPHICAL COORDINATES		UTM PROJ., AUST. NAT. SPHEROID ZONE 54, C.M. 141° EAST	
Latitude	Longitude	North	East
38°16'08".42 S	141°24'59".89 E	5,764,241 meters	536,446 meters

OFFSHORE NAVIGATION, INC.

081250

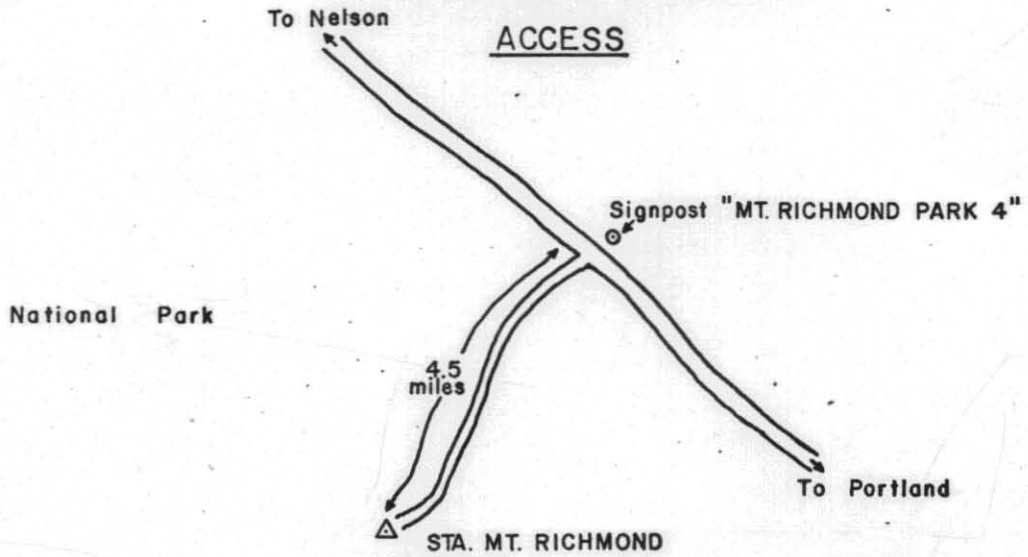
STATION MT. RICHMOND——————AUSTRALIA

LAT. 38°16'08".42 S
LONG. 141°24'59".89 E
ELEV. 225 meters

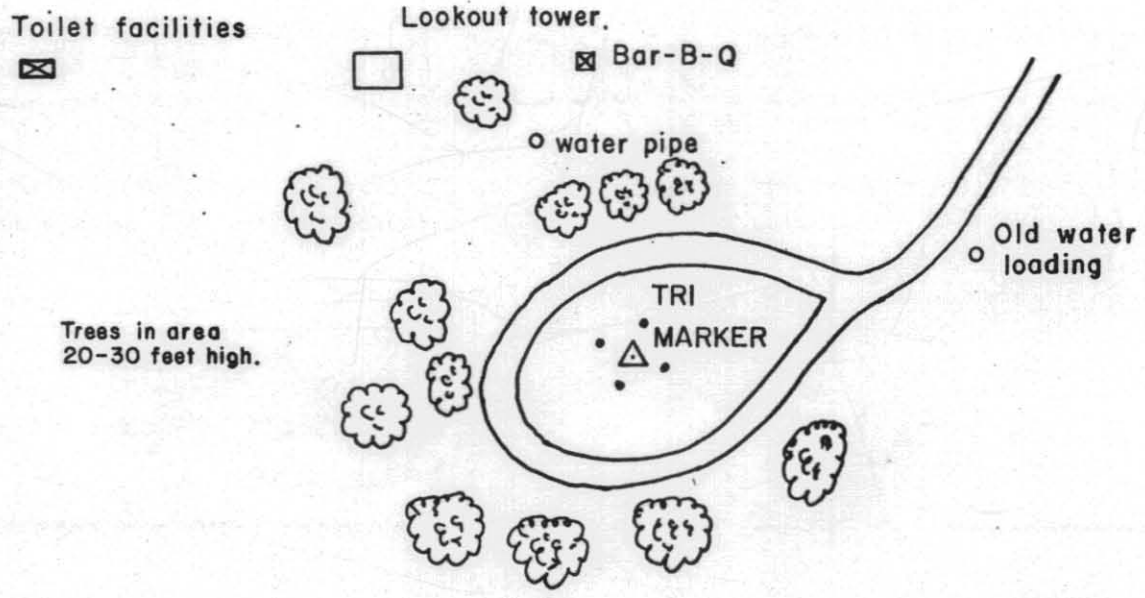
N 5,764,241 meters
E 536,446 meters

UTM PROJECTION, AUST. NATIONAL SPHEROID
ZONE 54 C.M. 141° E.
AUSTRALIAN GEODETIC DATUM

ACCESS



MARKER DETAILS



5 cm

OFFSHORE NAVIGATION, INC.

STATION: MT. WARRNAMBOOL

LOCATED: Station Mt. Warrnambool is located on the west coast of Victoria, Australia.

ACCESS: From the city of Warrnambool, proceed east along the Princess Highway through Allansford (approximately 7 miles) and Panmure (approximately 16 miles). Continue for a further one mile to the entrance of J. O'Donaghue's property which lies at the foot of Mt. Warrnambool. There is a gravel quarry on the eastern righthand side of the entrance. The trig. beacon can be seen on the hilltop from the road. The actual ascent road begins through O'Donaghue's dairy on the west side of the house and follow up around the feature running towards the west. This road is slippery during rain. The land on which the point lies, however, belongs to W. Bourke, whose main property lies on the south side of the highway, across from O'Donaghues.

MARKER: The station is marked by a normal steel quadripod with circular vanes. There is a forestry hut on the west side of the beacon.

GENERAL: Water can be obtained from O'Donaghues. Fuel and supplies should be brought in from somewhere else. The nearest re-supply point would be Panmure where there is also a post office. Medical care is available in Warrnambool.

It is suggested to check at the Shire Council in Warrnambool prior to departure. At times, strong winds are experienced on this mountain making access to the forestry hut difficult.

There is a telephone located at the farmhouse of Mr. Jerry Divall located at the bottom of the hill.

OFFSHORE NAVIGATION, INC.

STATION: MT. WARRNAMBOOL (continued)

His number is 72-1197, Panmure, Victoria. A telephone can be installed at the station site.

ELEVATION: 219 meters

SKETCH: See next page.

GEOGRAPHICAL COORDINATES		UTM PROJ., AUST. NAT. SPHEROID ZONE 54, C.M. 141° EAST	
Latitude	Longitude	North	East
38°18'25"83 S	142°44"18"21 E	5,758,658 meters	651,993 meters

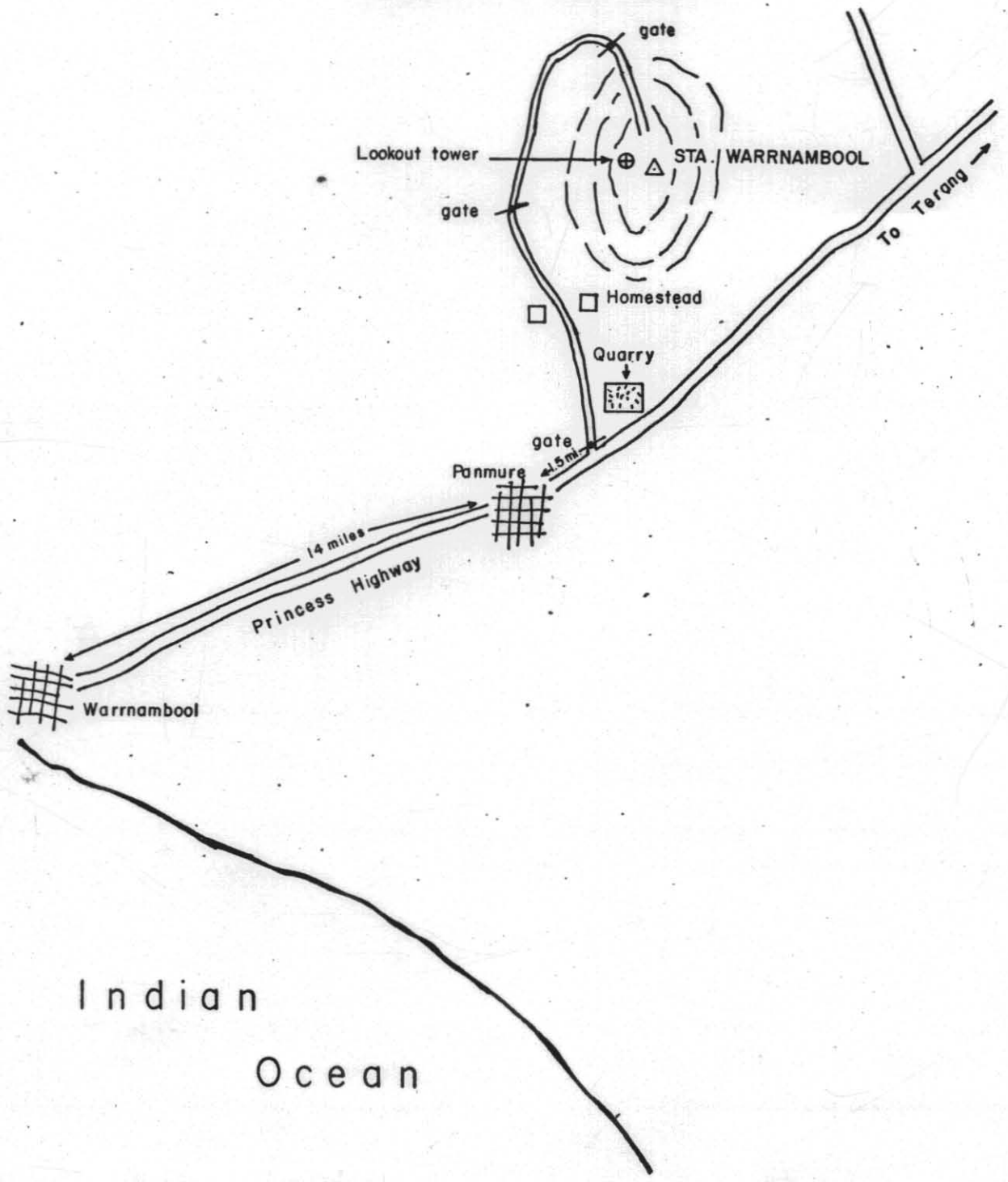
OFFSHORE NAVIGATION, INC.

STA. WARRNAMBOOL——————AUSTRALIA

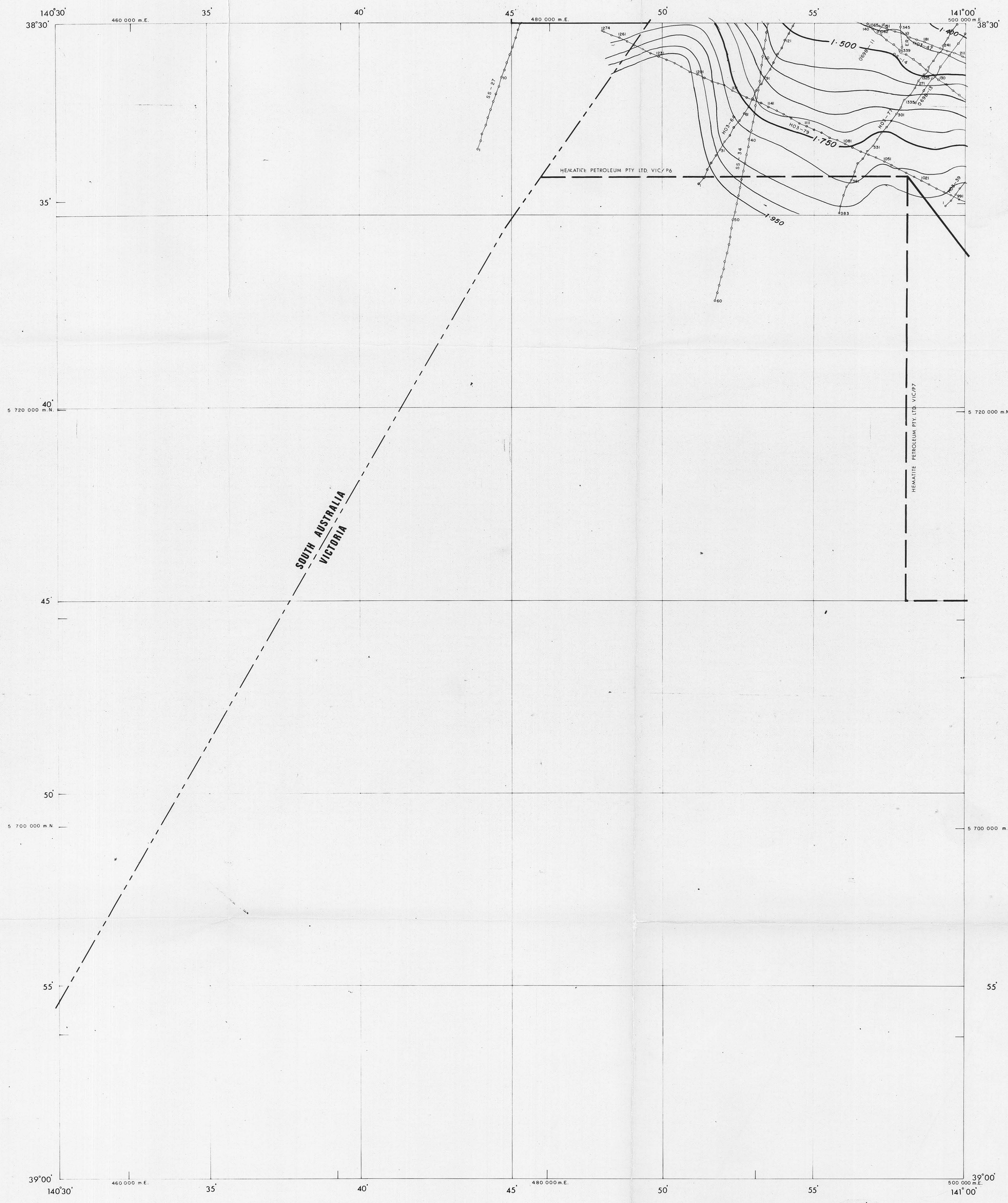
LAT. 38°18'25".83 S
LONG. 142°44'18".21 E
ELEV. 219 meters

N 5,758,658 meters
E 651,993 meters

UTM PROJECTION, AUST. NATIONAL SPHEROID
ZONE 54 C.M. 141° E.
AUSTRALIAN GEODETIC DATUM



OFFSHORE NAVIGATION, INC.



Scale 1 : 100,000

MILES

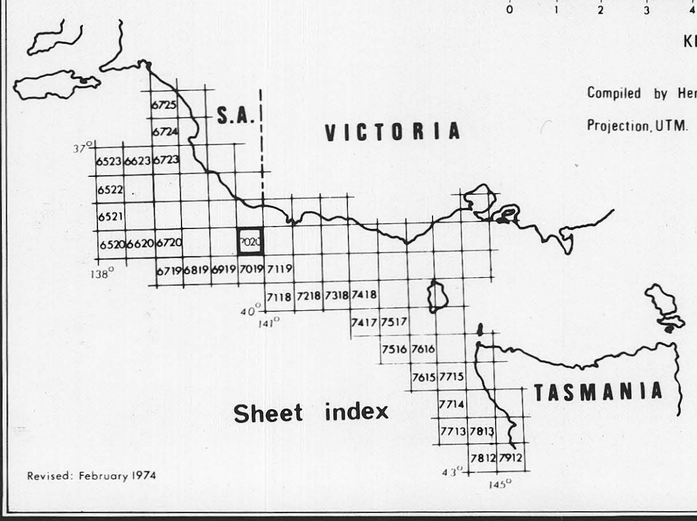
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

5 cm

081254

Contour interval : 0·050 seconds
Author : J. Denham
Date : April, 1974

Datum : Sea level
Drawn by : E.Celisse
Checked by : G. Hosking

SHEET 7020 PLATE I

OTWAY/KING PART-VIII*

OR-067

140°30' 35' 40' 45' 50' 55' 151°00'

460,000 m.E. 480,000 m.E 500,000 m.E

38°00' 38° 00'

05' 05'

10' 10'

15' 15'

20' 20'

25' 25'

38°30' 38° 30'

5,790,000 m.N. 5,780,000 m.N.

5,760,000 m.N. 5,760,000 m.N.

5,740,000 m.N. 5,740,000 m.N.

SOUTH AUSTRALIA

VICTORIA

Oil wells

SA 8

SA 2

SA 8 GENERAL EXPL CO

SA 2 HEMATITE PETROLEUM PTY. LTD

VIC/P 10 INTERSTATE OIL LTD

VIC/P10

VIC/P 6

HEMATITE PETROLEUM PTY LTD

SA 8 HEMATITE PETROLEUM PTY LTD

SA 2 HEMATITE PETROLEUM PTY. LTD.

Line SS-25

ER-11

EP-17

SA-16

EP-25

EP-2

SA-14

EP-19

EP-21

SS-31

SS-33

ER-40

SS-26

ER-30

ER-32

SA-17

SA-9

ER-34

EP-23

SS-27

ER-13

ER-21

ER-23

ER-36

HO3-78

ER-15

ER-38

ER-17

HO3-64

SS-34

SS-14

HO3-77

Line 10

Line 7

Line 6

0066-208

0066-8

0066-9

0698-8

0698-9

0698-11

0.850

1.000

1.250

1.500

1.750

Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty Ltd.

Projection, UTM. Zone 54 C.M. 141°E

S.A. VICTORIA TASMANIA

Sheet index

6725 6724 6623 6627 6723 6522 6521 6520 6620 6720 6719 6819 6919 7019 7119 7021 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

37° 138° 40° 141° 43° 145°

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

5 cm

081255

Contour interval 0·050 seconds

Author J. Denham.

Date April, 1974.

Datum Sea level

Drawn by E. Celisse

Checked by G. Hosking

SHEET 7021 PLATE I

OR-CEY (2)

OTWAY/KING PART-VIII*

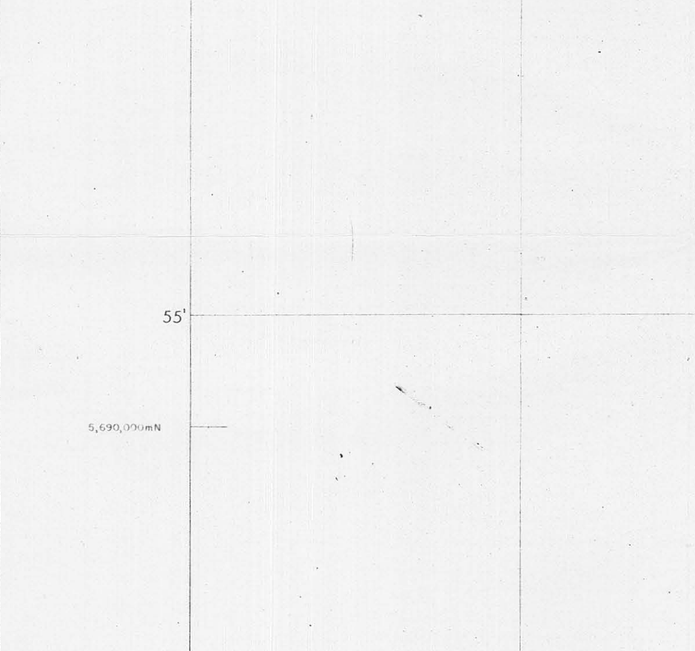
Scale 1 : 100,000

MILES

KILOMETRES

Compiled by Hematite Petroleum Pty Ltd.

Projection U.T.M. Zone 54 C.M. 141°E.



LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

5 cm

081256

Contour interval : 0·050 seconds
Author : J. Denham
Date : April, 1974

Datum : Sea level
Drawn by : J. Bloye
Checked by : G. Hosking

SHEET 7120 PLATE I

OR-067 (3)

OTWAY/KING PART-VIII*



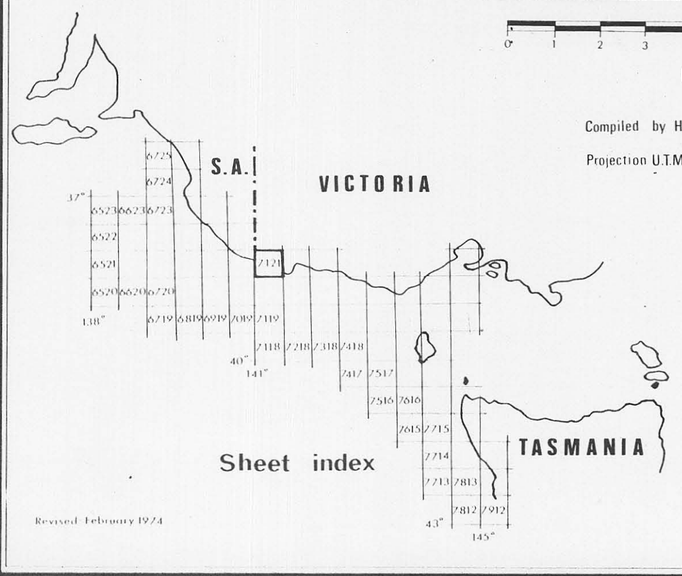
Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 CM 141 E.



LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

5 cm

081[illegible]

Contour interval : 0·050 seconds
Author : J. Denham
Date : April, 1974

Datum : Sea level
Drawn by : J. Bloye
Checked by : G. Hosking

SHEET 7121 PLATE I

OR-067

OTWAY/KING PART-VIII*

(4)

141° 30' 35' 40' 560 000 m.E. 45' 50' 55' 580 000 m.E. 142° 00'

39° 00'

05'

10'

5 660 000 m.N.

15'

20'

5 660 000 m.N.

25'

39° 30'

141° 30' 35' 40' 560 000 m.E. 45' 50' 55' 580 000 m.E. 142° 00'

39° 00'

05'

10'

5 660 000 m.N.

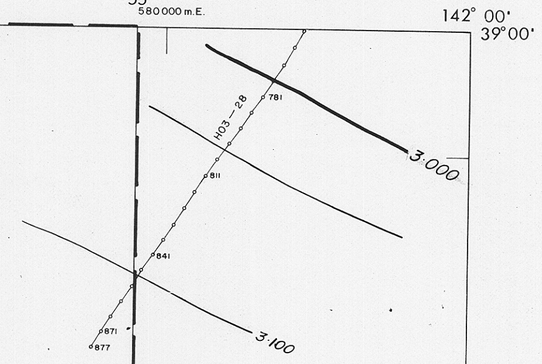
15'

20'

5 640 000 m.N.

25'

39° 30'



Vic/P7 HEMATITE PETROLEUM PTY LTD VIC/P7

Scale 1 : 100,000

MILES

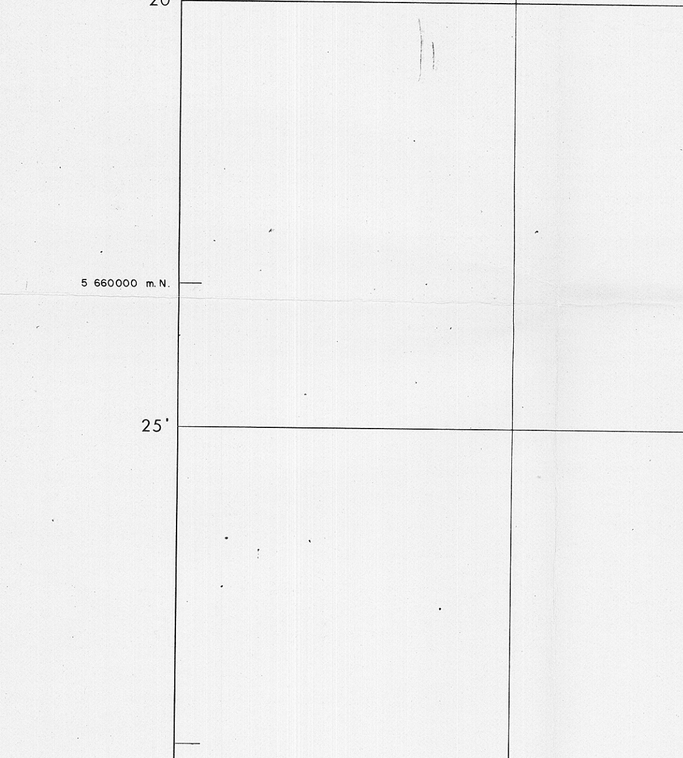
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty Ltd.

Projection. UTM. Zone 54 C.M. 141° E.



Revised : February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

5 cm

081258

Contour interval : 0 050 seconds
Author : M. McNicol
Date : April, 1971

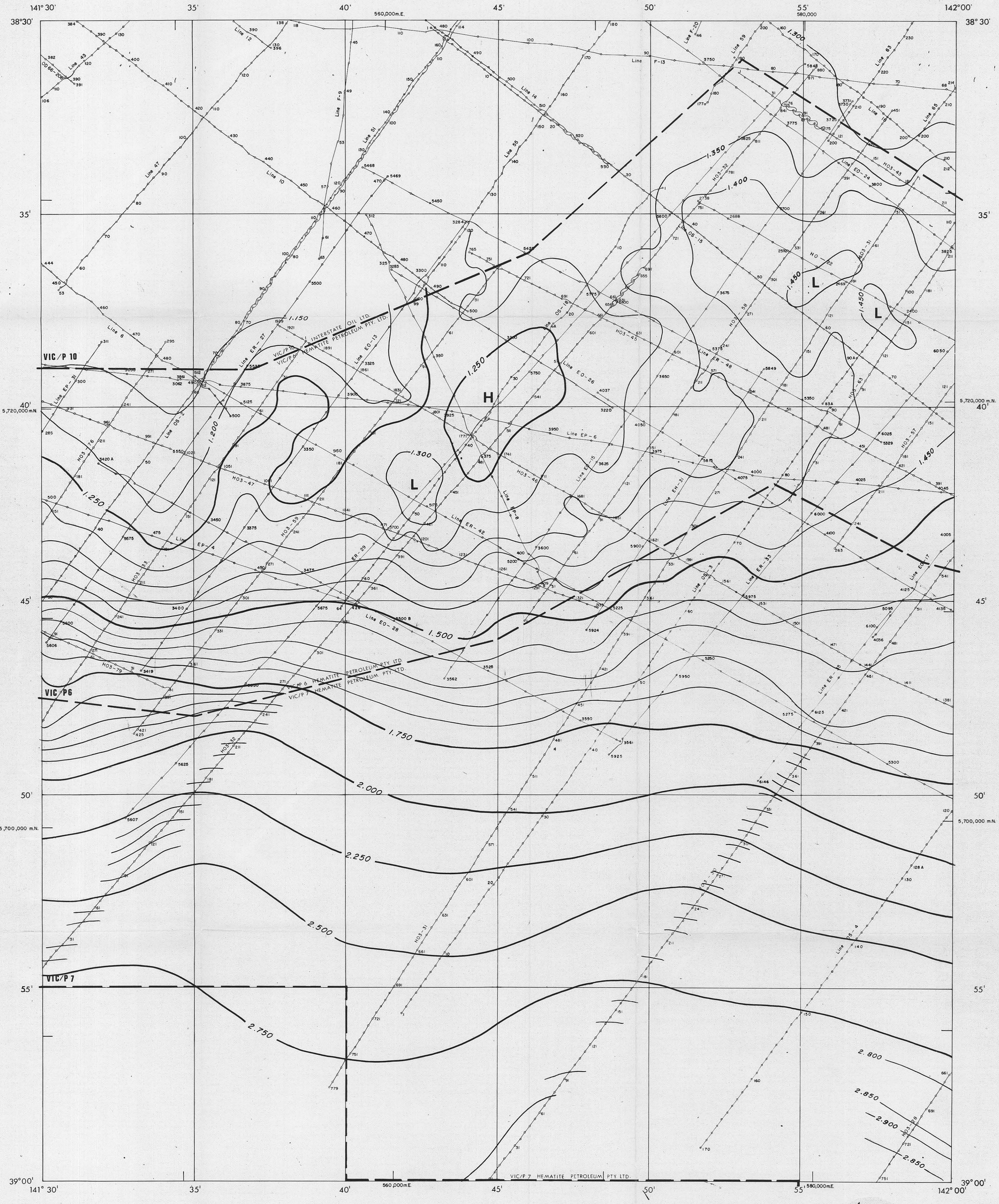
Datum : Sea level
Drawn by : 3. Hale
Checked by : G. Hosking

SHEET 7219 PLATE I

OR-067

OTWAY/KING PART-VIII*

(5)


141° 30'
35'
40'
560,000m.E.
45'
50'
55'
580,000
142°00'
38°30'
35'
40'
5,720,000 m.N.
45'
50'
5,700,000 m.N.
55'
39°00'
1.150
1.200
1.250
1.300
1.350
1.400
1.450
1.500
1.750
2.000
2.250
2.500
2.750
2.800
2.850
2.900
H
L
VIC/P 10
VIC/P 6
VIC/P 7
INTERSTATE OIL LTD.
HEMATITE PETROLEUM PTY. LTD.
VIC/P 7 HEMATITE PETROLEUM PTY. LTD.
Line 47
Line 10
Line 12
Line 43
Line F-9
Line 51
Line 14
Line 55
Line F-13
Line F-20
Line 59
Line 63
Line 65
Line 67
Line 6
Line ER-27
Line EO-13
Line EP-31
Line OS-2
Line EP-4
Line EO-28
Line EO-26
Line EP-6
Line EO-15
Line EH-31
Line ER-42
Line ER-29
Line ER-33
Line EO-17
Line OS-4
Line OS-15
Line OS-16
Line ER-48
Line EO-24
Line EP-8
HO3-32
HO3-43
HO3-31
HO3-22
HO3-58
HO3-63
HO3-57
HO3-45
HO3-46
HO3-47
HO3-59
HO3-76
HO3-79
OD 66-206
Scale 1 : 100,000
MILES
0 1 2 3 4 5 6 7
0 1 2 3 4 5 6 7 8 9 10
KILOMETRES
Compiled by Hematite Petroleum Pty. Ltd.
Projection U.T.M. Zone 54 C.M. 141°E.
LEGEND
Oil Well
Gas Well
Oil & Gas Well
Oil show
Gas show
Oil & Gas shows
Drilling
Dry hole (Abandoned)
S.A.
VICTORIA
TASMANIA
Sheet index
6725 6728
6523 6623 6723
6522
6521
6520 6620 6720
6719 6819 6919 7019 7119
7118 7218 7318 7418
7417 7517
7516 7616
7615 7715
7714
7713 7813
7812 7912
7220
37°
138°
40°
141°
43°
145°
Revised : February 1974
THE BROKEN HILL PROPRIETARY CO. LTD.
OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)
CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY
BLUE HORIZON
REFLECTION TIME
5 cm
081251
Contour interval : 0.050 seconds
Author : M. Mc Nicol
Date : April, 1974
Datum : Sea level
Drawn by : R. Mc Auliffe
Checked by : G. Hosking
SHEET 7220 PLATE I
OR-067

142°00' 05' 10' 15' 20' 25' 142°30'

590 000 mE 600 000 mE 620 000 mE

39°00' 10' 20' 30' 39°30'

5 680 000 mN 5 660 000 mN 5 640 000 mN

VIC/P7 VIC/P7

HEMATITE PETROLEUM PTY LTD VIC/P7

VICTORIA / TASMANIA

2·750 3·000 2·500 2·250 2·000 1·750 2·060

05-5 H03-24 05-50 H03-20 05-8 EO-27 EO-26 EP-51

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty Ltd.

Projection, UTM. Zone 54 C.M. 141° E

Sheet index

S.A. VICTORIA TASMANIA

6725 6724 6523 6623 6723 6522 6521 6520 6620 6720 6719 6819 6919 7019 7119 7319 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

37° 138° 40° 141° 43° 145°

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

081260

5 cm

Contour interval : 0·050 seconds

Author : E. Urschel

Date : April, 1974

Datum : Sea level

Drawn by : E. Celisse

Checked by : G. Hosking

SHEET 7319 OR-067 PLATE I

OTWAY/KING PART-VIII*

(7)

VIC/P 10

VIC/P 6

VIC/P7

1·250

1·200

1·500

1·750

2·000

2·250

2·500

2·750

L

H

INTERSTATE OIL LTD. VIC/P 10

HEMATITE PETROLEUM PTY. LTD VIC/P 6

HEMATITE PETROLEUM PTY. LTD VIC/P 7

142°00' 590 000 m.E. 05' 10' 15' 610 000 m.E. 20' 25' 630 000 m.E. 142°30'

38°30' 35' 40' 45' 50' 55' 39°00'

5 720 000 m. N.

5 700 000 m. N.

Scale 1 : 100,000

MILES

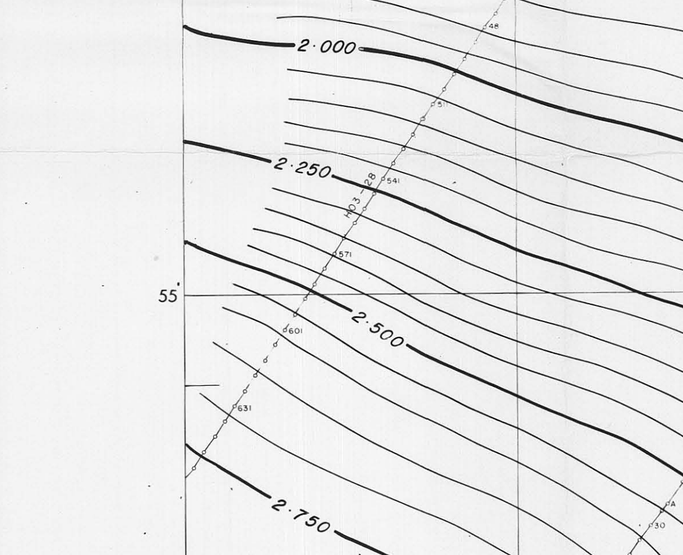
0 1 2 3 4 5 6

KILOMETERS

0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty Ltd

Projection, UTM Zone 55 CM 147° E



Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

5 cm

081261

Contour interval : 0·050 seconds

Author : E Urschel

Date : April, 1974

Datum : Sea level

Drawn by : E.Cetisse

Checked by : G. Hosking

SHEET 7320 OR-067 PLATE I

OTWAY/KING PART-VIII*

8

142°30' 35' 640 000 m.E. 40' 45' 50' 660 000 m.E. 55' 143°00'

39°30' — 5 620 000 m.N.

35'

40'

5 600 000 m.N.

45'

50'

5 580 000 m.N.

55'

5 800 000 m.N.

40°00'

142°30' 35' 640 000 m.E. 40' 45' 50' 660 000 m.E. 55' 143°00'

T/3 P

OS-10

226

HO3 - 9

121 151 181 200

91

61 31

210

1750

220

OS-11

2000

230

240

2250

247

391

421

HO3 - 6

451

481

511

541

571

601

T/3P HEMATITE PETROLEUM PTY. LTD

OS-12

12 10

131 130 127

T3P

Scale 1 : 100,000

MILES

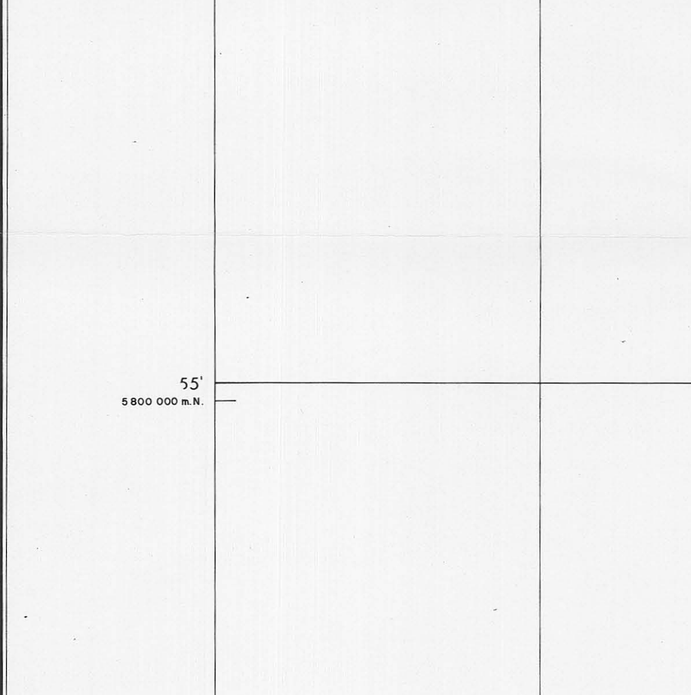
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.



Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

081262

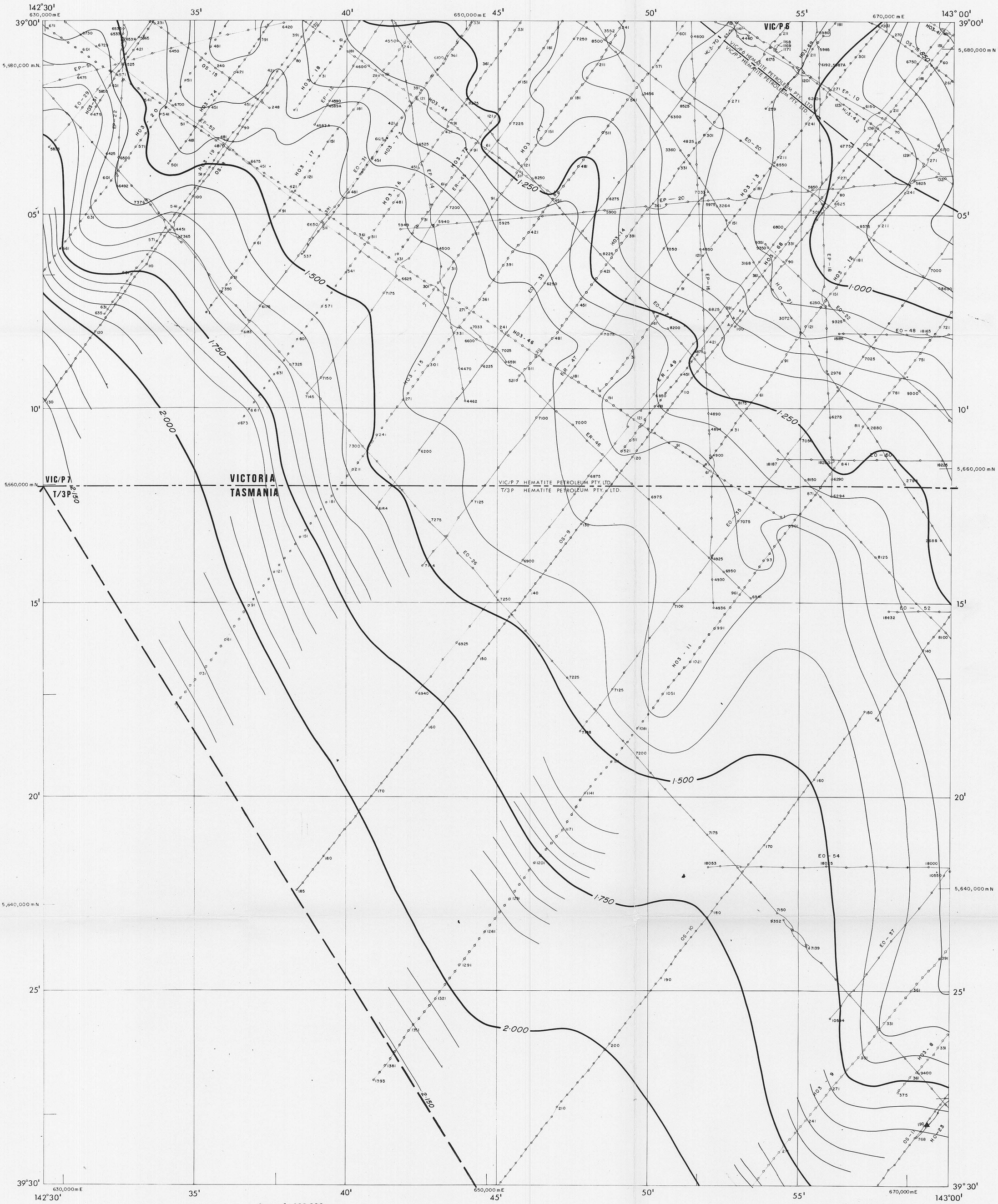
5 cm

Contour interval : ·050 seconds
Author : E. G. Urschel
Date : April 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7418 PLATE I

OR-067
OTWAY/KING PART-VIII*
(9)



THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

5 cm

081263

Contour interval : 0·050 seconds
Author : J. Denham
Date : April, 1974

Datum : Sea level
Drawn by : J. Bloye
Checked by : G. Hosking

SHEET 7419 PLATE I

OR-067

OTWAY/KING PART-VIII*

(10)

142°30' 35' 640000m.E 40' 45' 50' 660000 m.E 55' 143°00'

38°30' 38°30'

5 720 000 m.N 5 720 000 m N

40° 40°

45° 45°

50° 50'

5 700 000 m. N 5 700 000 m. N

55° 55°

39°00' 39°00'

142°30' 35' 640000m.E 40' 45' 50' 660000 m.E 55' 143°00'

Pecten I

Mussel I

Nautilus I

Vic/P6

Vic/P7

Vic/P10

VIC/P10

VIC/P9

VIC/P6

VIC/P7

HEMATITE PETROLEUM PTY. LTD.

INTERSTATE OIL NL

HEMATITE PETROLEUM PTY. LTD.

1·200

1·050

1·100

1·250

1·250

1·500

1·350

1·000

0·700

0·750

1·000

0·950

0·850

Line 85 Line 30 Line 93 Line F — 17 Line 34 Line 97 Line F — 26 Line F — 27 Line F — 18 Line 101 Line 105 Line 109 Line A Line 26 Line 30 Line F — 15 Line FS — 31 Line FS — 32 Line 26 Line 28 Line 20 Line 24 Line 22 Line 26

OD 66 — 93 OD 66 — 95 OD 66 — 36 OD 66 — 297 OD 66 — 230 OD 66 — 288 OD 66 — C OD 66 — B

FS — 30 FS — 35 FS — 26 FS — 1 FS — 7 FS — 31 FS — 32

ER — 41 ER — 44 ER — 45 ER — 44

EO — 21 EO — 15 EO — 25 EO — 10 EO — 20 EO — 29 EO — 31 EO — 33 EO — 22 EO — 27

EP — 50 EP — 14 EP — 16 EP — 10 EP — 12

OS — 16 OS — 4 OS — 5 OS — 19 OS — 8

HO — 5 HO — 24 HO — 21

HO3 — 24 HO3 — 54 HO3 — 23 HO3 — 53 HO3 — 40 HO3 — 41 HO3 — 42 HO3 — 44 HO3 — 20 HO3 — 32 HO3 — 75 HO3 — 20 HO3 — 74 HO3 — 19 HO3 — 17 HO3 — 73 HO3 — 72 HO3 — 14 HO3 — 40 HO3 — 60 HO3 — 69 HO3 — 41 HO3 — 13

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

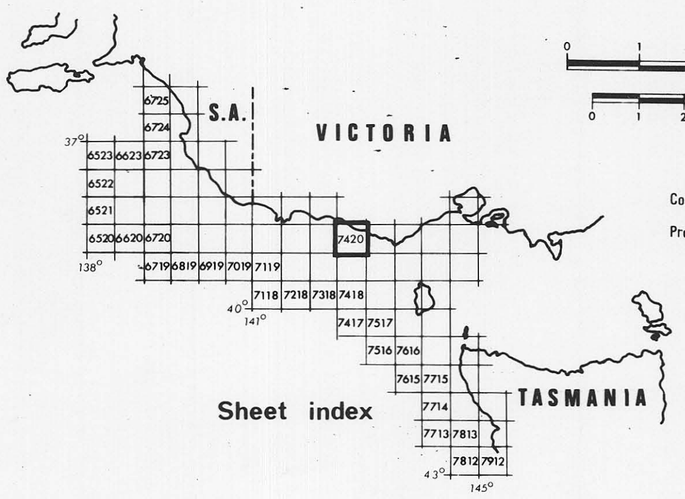
KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)



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Revised: February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

5 cm

081264

Contour interval : 0·050 seconds

Author : J. Denham

Date : April, 1974.

Datum : Sea level

Drawn by : E. Celisse

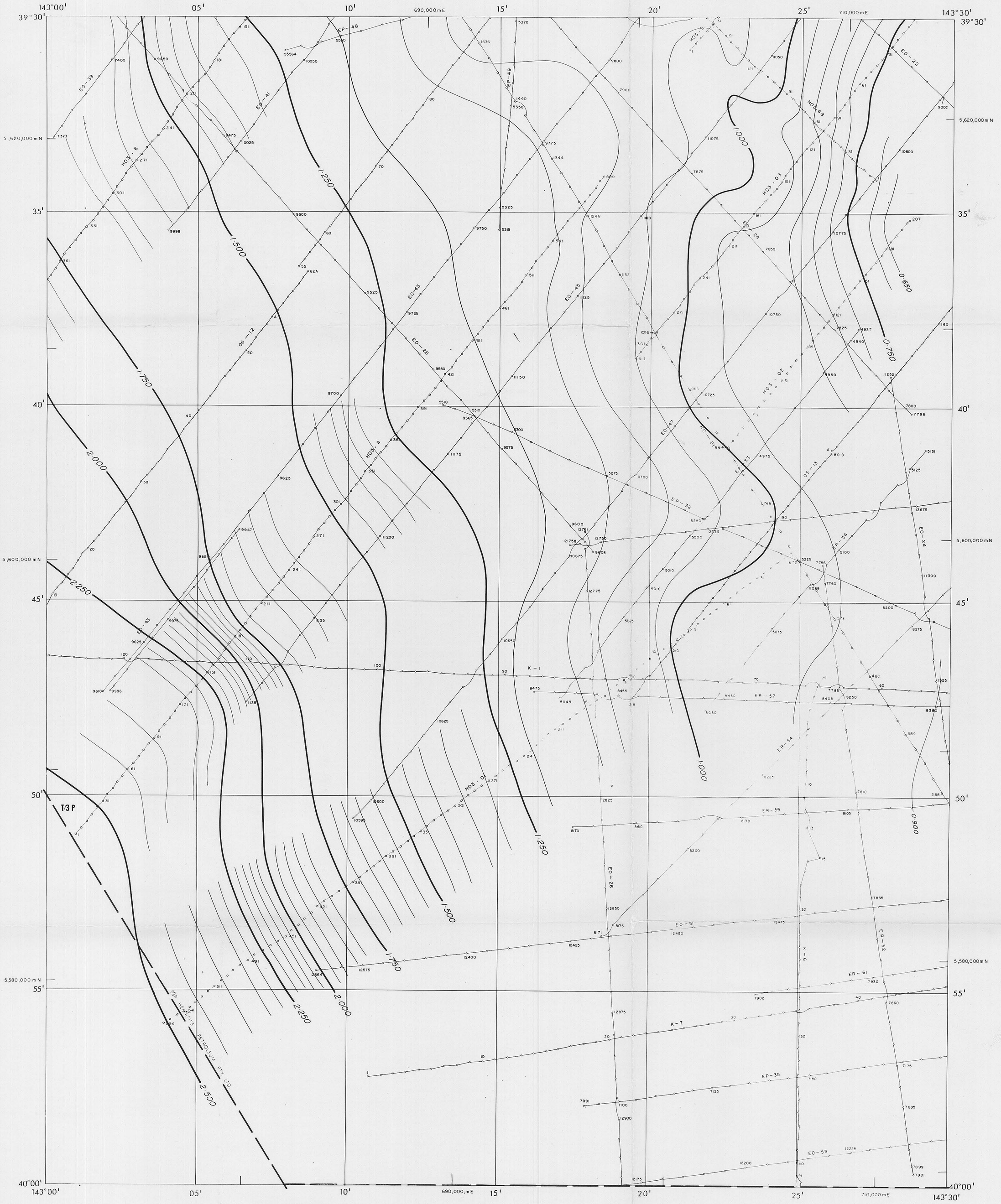
Checked by : G. Hosking

SHEET 7420 PLATE I

02-007

OTWAY/BIND PART-VIII*

(11)



Scale 1 : 100,000

MILES

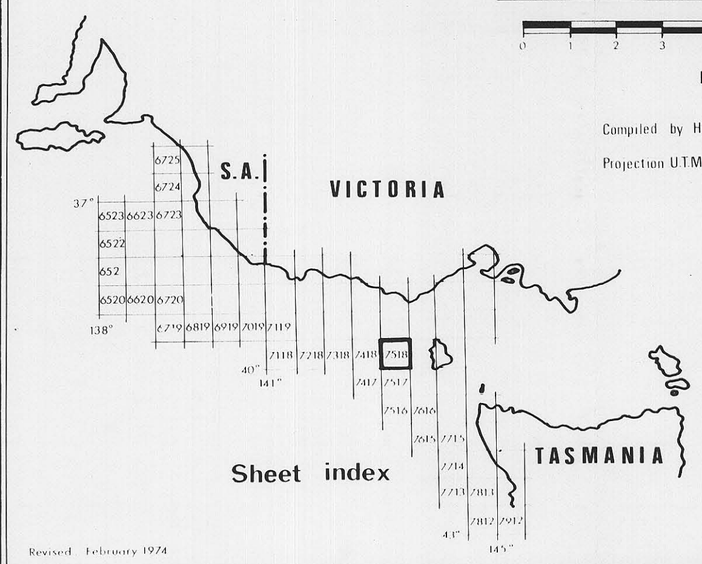
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141°E



Revised February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

C31265

5 cm

Contour interval : 0·050 seconds
Author : E.G.Urschel
Date : April, 1974

Datum : Sea level
Drawn by : J. Bloye
Checked by : G. Hosking

SHEET 7518 PLATE I

OR-067

OTWAY/KING PART-VIII*

12

143°00' 05' 10' 15' 20' 25' 143°00'
680 000 m.E. 700 000 m.E.
39°00' 5 680 000 m.N.

VIC/P6 VIC/P7 VIC/P10 T/3P

INTERSTATE OIL LTD.
HEMATITE PETROLEUM PTY LTD VIC/P10 VIC/P6
HEMATITE PETROLEUM PTY LTD VIC/P6 VIC/P7
HEMATITE PETROLEUM PTY LTD VIC/P7 T/3P

Line 34

EP — 20 EP — 10 EP — 24 EP — 49 EP — 48
EO — 67 EO — 71 EO — 48 EO — 50 EO — 52 EO — 54 EO — 26
EO — 37 EO — 16 EO — 18 EO — 39 EO — 41 EO — 22 EO — 24 EO — 43
HO3 — 12 HO3 — 11 HO3 — 10 HO3 — 41 HO3 — 60 HO3 — 40 HO3 — 66 HO3 — 65 HO3 — 42 HO3 — 9 HO3 — 7 HO3 — 8 HO3 — 23 HO3 — 50 HO3 — 6 HO3 — 48 HO3 — 49 HO3 — 5
OS — 10 OS — 16 OS — 11 OS — 12 OS — 16 OS — 45
H10 — 23

0·550 0·750 1·000 1·250 0·950 1·150 1·500 1·600 0·800

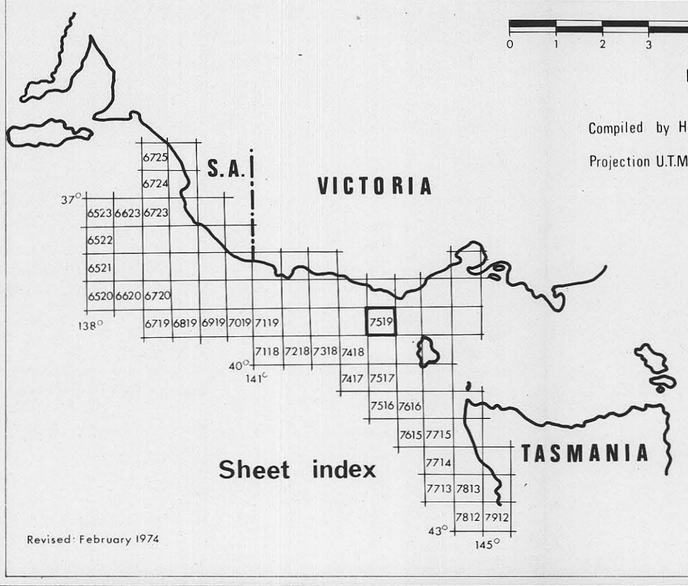
H H L L

Prawn A1

05' 10' 15' 20' 25'
10' 15' 20' 25'
5 660 000 m.N. 5 640 000 m.N. 39°30'

Scale 1 : 100,000
MILES
0 1 2 3 4 5 6 7
0 1 2 3 4 5 6 7 8 9 10
KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.
Projection U.T.M. Zone 54 C M 141° E.



Revised: February 1974

LEGEND
- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.
OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

081266

Contour interval : 0·050 seconds
Author : E. Urschel
Date : April, 1974
Datum : Sea level
Drawn by : E.Celisse
Checked by : G. Hosking

5 cm

SHEET 7519 PLATE I

OR-067

T. 3P

OTWAY/KING PART-VIII*

Fergusons Hill-1

Sherbrook-1

Latrobe-1

PRINCETOWN

ROTTEN POINT

VIC/P10

VIC/P6

VIC/P10 INTERSTATE OIL LTD.

VIC/P.6 HEMATITE PETROLEUM PTY LTD.

0·850

0·750

0·350

0·600

Scale 1 : 100,000

MILES

KILOMETERS

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E.

S.A.

VICTORIA

TASMANIA

Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

REFLECTION TIME

5 cm

081267

Contour interval : 0·050 seconds
Author : E. G. Urschel
Date : April 1974

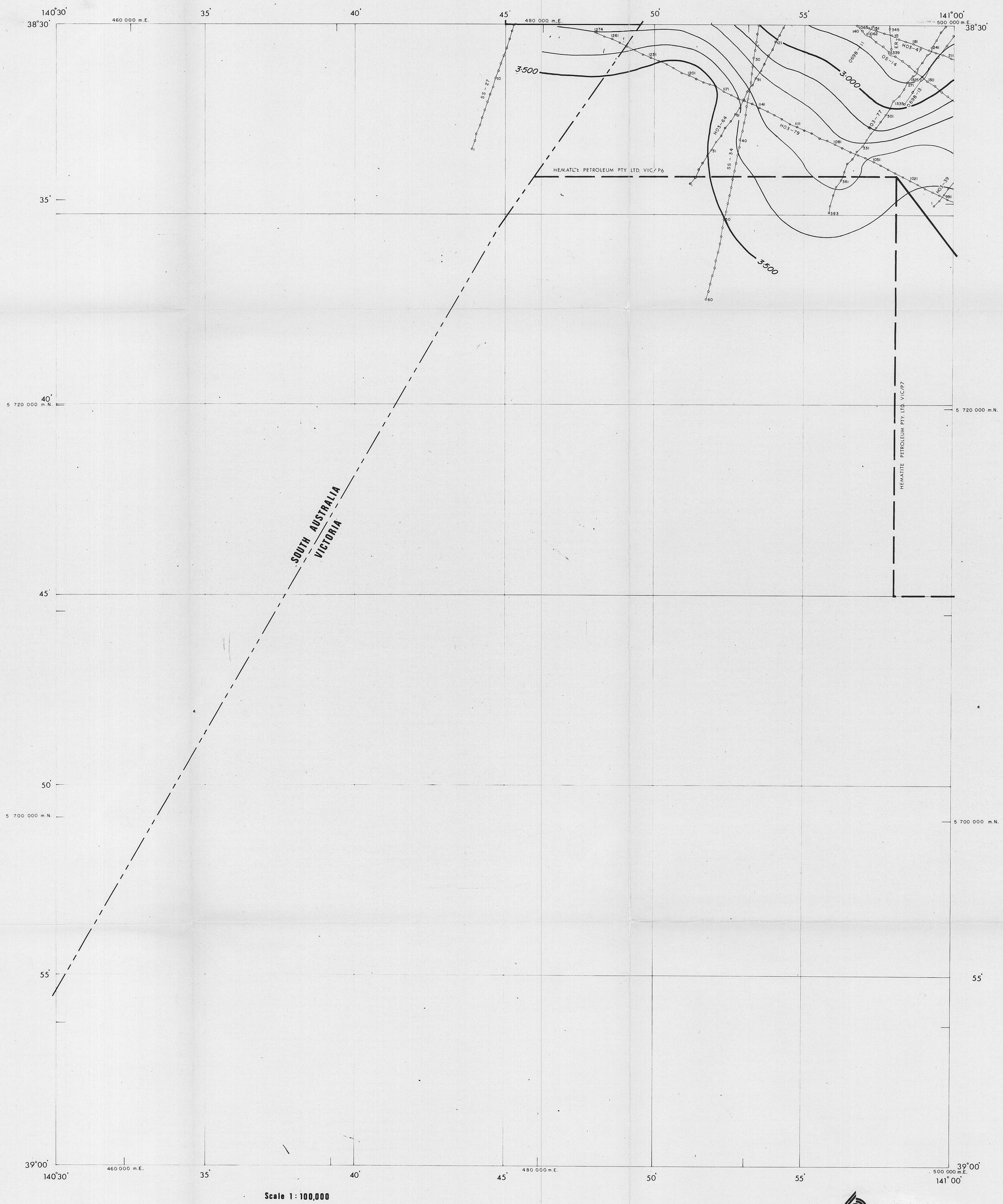
Datum : Sea level
Drawn by : B Hale
Checked by : G. Hosking

SHEET 7520 PLATE I

OR-067

OTWAY/KING PART-VIII*

14



Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

081268

5 cm

Contour interval : 0·100 seconds
Author : E.G.Urschel
Date : April, 1974

Datum : Sea level
Drawn by : L.Stowe
Checked by : G. Hosking

SHEET 7020 PLATE II

OR-067

OTWAY/[illegible]ING PART-VIII*

140°30' 35' 40' 45' 50' 55' 151°00'

460,000 m.E. 480,000 m.E. 500,000 m.E.

38°00' 38° 00'

05' 05'

10' 10'

15' 15'

20' 20'

25' 25'

38°30' 38° 30'

5,790,000 m.N. 5,780,000 m.N. 5,760,000 m.N. 5,740,000 m.N.

SOUTH AUSTRALIA

VICTORIA

Oil wells 1 2 3 4

SA 8

SA 2

SA 8 GENERAL EXPL. CO

SA 2 HEMATITE PETROLEUM PTY. LTD.

VIC/P 10 INTERSTATE OIL LTD.

HEMATITE PETROLEUM PTY. LTD.

SA 8 HEMATITE PETROLEUM PTY. LTD.

SA 2 VIC/P 6

VIC/P10

VIC/P 6

SA 2 HEMATITE PETROLEUM PTY LTD

Line SS-25 · EP-11 · EP-17 · SA-16 · EP-25 · EP-2 · SA-14 · EP-19 · EP-21 · SS-31 · SS-25 · ER-40 · SS-33 · ER-30 · ER-32 · SA-17 · EP-23 · SS-27 · ER-13 · ER-21 · SA-9 · ER-34 · ER-23 · ER-36 · ER-38 · ER-15 · ER-17 · Line 10 · Line 7 · Line 6 · OD66-208 · OD-66-5 · OD66-8 · OD 66-206 · 0698-8 · 0698-9 · 0698-6 · 0698-11 · HO3-78 · HO3-64 · HO3-47 · HO3-77 · SS-34 · SS-14

2.500 3.000

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty Ltd

Projection UTM Zone 54 CM 141°E

Sheet index

S.A. VICTORIA TASMANIA

6725 6724 6623 6627 6723 6522 6521 6520 6620 6720 6719 6819 6919 7019 7119 7021 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

37° 138° 40° 141° 43° 145°

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

Revised: February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

081269

5 cm

Contour interval : 0·100 seconds
Author : E.G.Urschel
Date : April, 1974

Datum : Sea level
Drawn by : G.Hosking
Checked by : G. Hosking

SHEET 7021 PLATE II

OR-067

OTWAY/KING PART-VIII*

OTWAY/KING PART-VIII*

16

141° 00' 500,000 mE | 05' | 510,000 mE | 10' | 520,000 mE | 15' | 20' 530,000 mE | 25' | 540,000 mE | 141° 30'

38° 30' | 35' | 40' | 45' | 50' | 55' | 39° 00'

5,730,000 mN | 5,720,000 mN | 5,710,000 mN | 5,700,000 mN | 5,690,000 mN

VIC/P 10

VIC/P 6

VIC/P 7

3.500

3.000

2.500

4.000

INTERSTATE OIL LTD.
HEMATITE PETROLEUM PTY. LTD.

VIC/P6 HEMATITE PETROLEUM PTY. LTD.
VIC/P7 HEMATITE PETROLEUM PTY. LTD.

VIC/P7 HEMATITE PETROLEUM PTY LTD

Line 35 | Line 39 | Line 43 | Line E

EP-4 | EP-6 | EP-25 | EP-27 | EP-29 | EP-31

OS-1 | OS-2 | OS-5 | OS-7 | OS-14 | OS-17 | OS-20

HO3-33 | HO3-34 | HO3-35 | HO3-36 | HO3-38 | HO3-39 | HO3-47 | HO3-51 | HO3-53 | HO3-76 | HO3-79

Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141° E.

Sheet index

S.A. | VICTORIA | TASMANIA

6725 | 6724 | 6523 6623 6723 | 6522 | 6521 | 6520 6620 6720 | 6719 6819 6919 7019 7119 | 7120 | 7118 7218 7318 7418 | 7417 7517 | 7516 7616 | 7615 7715 | 7714 | 7713 7813 | 7812 7912

37° | 138° | 40° | 141° | 43° | 145°

Revised February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

081270

5 cm

Contour interval : 0·100 seconds
Author : E.G.Urschel
Date : April, 1974

Datum : Sea level
Drawn by : G.Hosking
Checked by : G. Hosking

SHEET 7120 PLATE II

OR-067

OTWAY/KING PART-VIII*

17

141°00' 500 000m.E. 05' 10' 520 000m.E. 15' 20' 25' 540 000m.E. 141° 30'

38°00' 05' 10' 15' 20' 25' 38° 30'

5 780 000m.N. 5 760 000m.N. 5 740 000m.N.

VIC/P 10

VIC/P 6

Line 7 Line 10 Line 11 Line 13 Line 15 Line 19 Line 21 Line 23 Line 27 Line 31 Line 33 Line 35 Line 39 Line 10 Line 12

OD66-5 OD66-9 OD66-8 OD66-21 OD66-25 OD66-29 OD66-208 OD66-206 OD66-37

F-12 F-10 F-13

ER-17 ER-25 ER-38 ER-19

HO3-64 HO3-78 HO3-77 HO3-39

0698-11 0698-13 0698-6

VIC/P 10

INTERSTATE OIL LTD.
HEMATITE PETROLEUM PTY. LTD.

2·300

2·500

Voluta-1

S.A. VICTORIA TASMANIA

Sheet index

Revised: February 1974

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 3 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 CM 141 E.

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

081271

Contour interval : 0·100 seconds
Author : E.G.Urschel
Date : April, 1974

Datum : Sea level
Drawn by : L.Stowe
Checked by : G. Hosking

5 cm

SHEET 7121 PLATE II

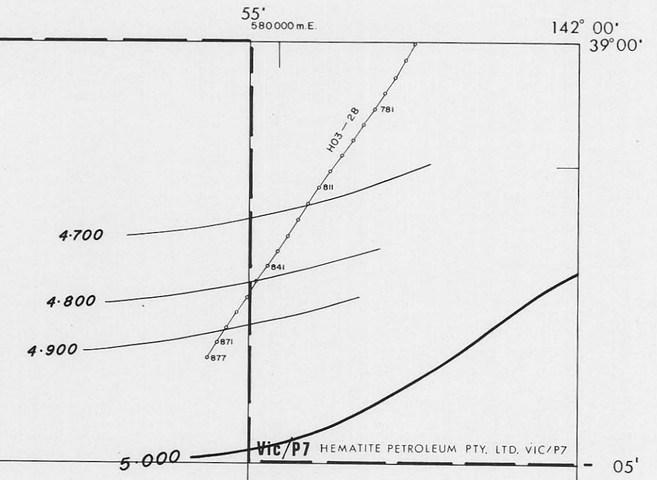
OR-1065

OTWAY/KING PART-VIII *

18

141° 30' 35' 40' 560 000 m.E. 45' 50' 55' 580 000 m.E. 142° 00'

39° 00'



Vic/P7 HEMATITE PETROLEUM PTY. LTD. VIC/P7

05'

10'

5 660 000 m.N.

15'

20'

5 660 000 m.N.

25'

39° 30'

141° 30' 35' 40' 560 000 m.E. 45' 50' 55' 580 000 m.E. 142° 00'

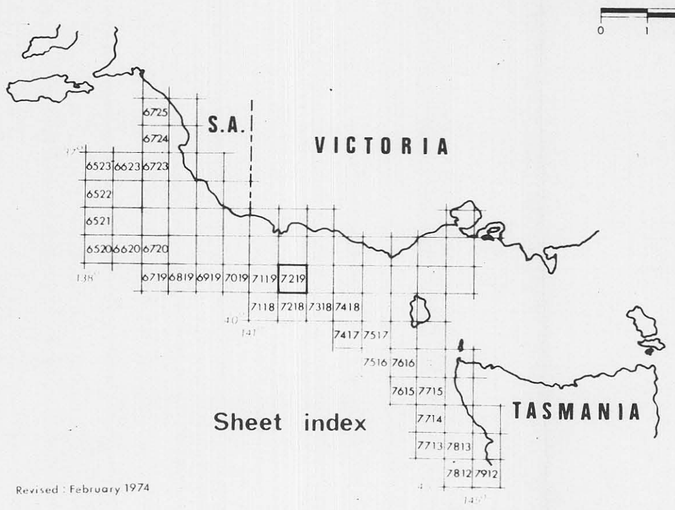
Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty Ltd

Projection, UTM Zone 54 C.M. 141° E.



Revised : February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

081272

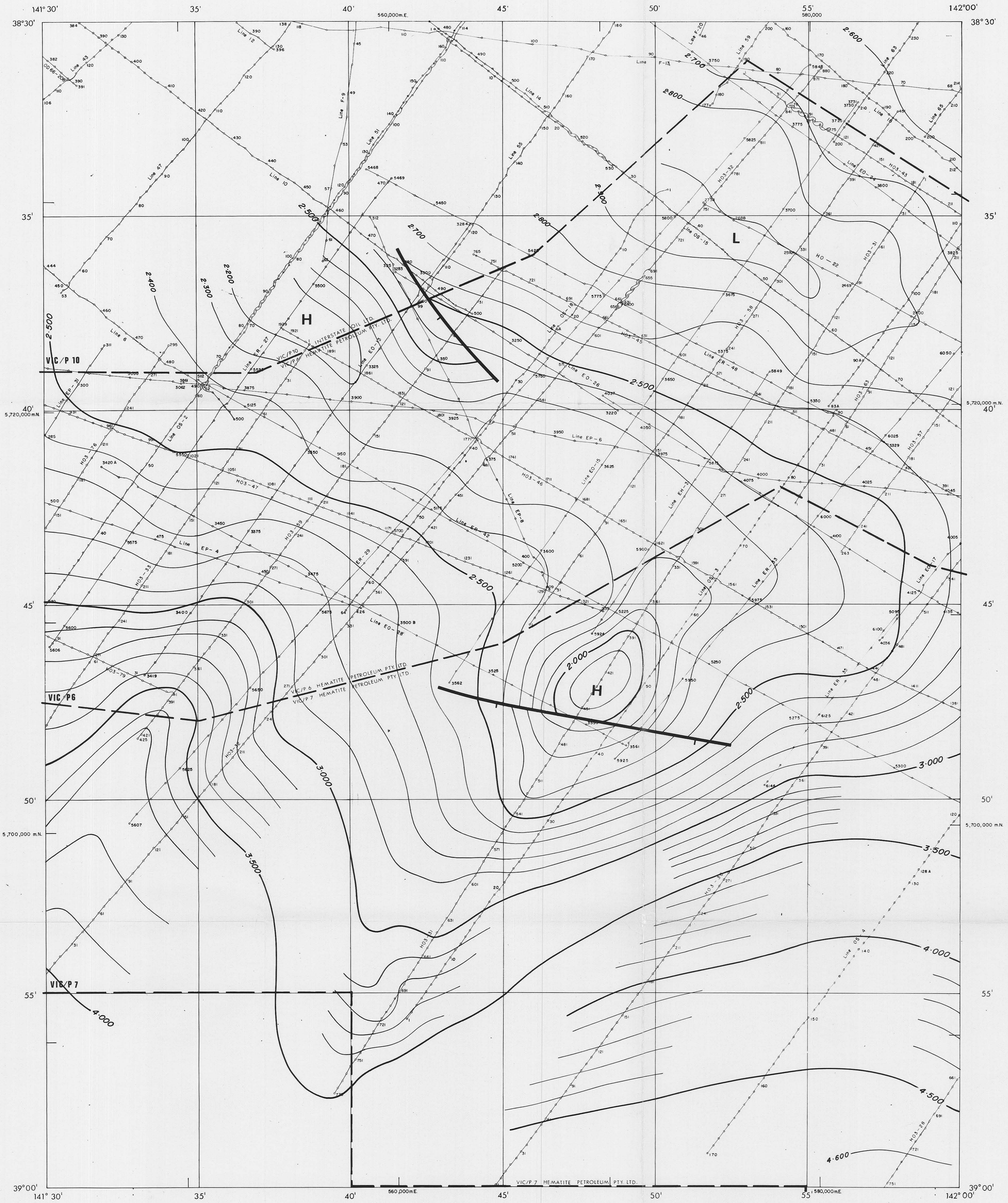
Contour interval : 0·100 seconds
Author : E.G.Urschel
Date : April, 1974

Datum : Sea level
Drawn by : A.Baycan
Checked by : G. Hosking

5 cm

SHEET 7219 PLATE II

OTWAY/KING PART-VIII*
OR-067
19



Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Revised : February 1974

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141°E.

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

081273

Contour interval : 0·100 seconds
Author : E.G. Urschel
Date : April, 1974

Datum : Sea level
Drawn by : A.Baycan
Checked by : G. Hosking

5 cm

SHEET 7220 PLATE II

OR-067

OTWAY/KING PART-VIII*

20

142°00' 590 000 mE 05' 600 000 mE 10' 15' 20' 620 000 mE 25' 142°30'

39°00' — 5 680 000 mN — 05' — 10' — 5 660 000 mN — 15' — 20' — 5 640 000 mN — 25' — 39°30'

VIC/P7

HEMATITE PETROLEUM PTY. LTD. VIC/P7

VIC/P 7

VICTORIA / TASMANIA

5·500 5·000 4·500 4·000 2·600 2·500 2·200 2·100

HO3-24 HO3-20 HO3-22 HO3-346 EO-27 EP-51 05-5 05-6 05-8

Scale 1 : 100,000

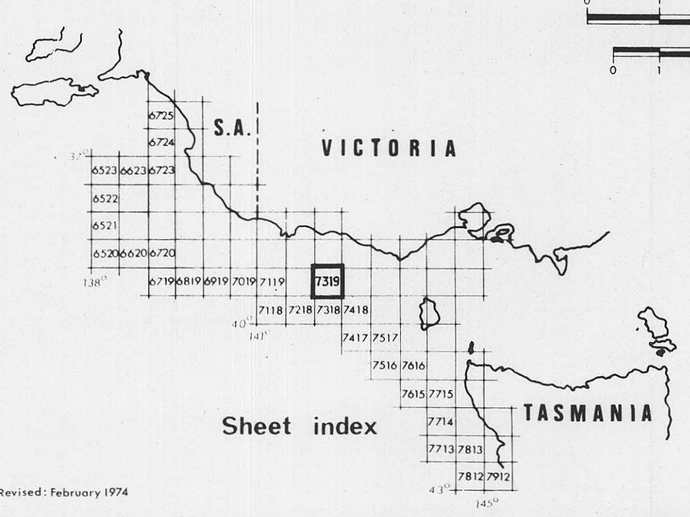
MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E

Sheet index



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

081274

5 cm

Contour interval : 0·100 seconds
Author : E.G.Urschel
Date : April, 1974

Datum : Sea level
Drawn by : A.Baycan
Checked by : G. Hosking

SHEET 7319 PLATE II

OTWAY/KING PART-VIII*
OR-067
(21)

142°00' 590 000 m.E. 05' 10' 15' 610 000 m.E. 20' 25' 630 000 m.E. 142°30'

38°30' 35' 40' 45' 50' 55' 39°00'

5 720 000 m.N. 5 700 000 m.N.

VIC/P 10 VIC/P 6 VIC/P 7

INTERSTATE OIL LTD. HEMATITE PETROLEUM PTY. LTD. VIC/P 10 VIC/P 6

HEMATITE PETROLEUM PTY. LTD. VIC/P 6 HEMATITE PETROLEUM PTY. LTD. VIC/P 7

2·500 2·600 2·700 2·800 2·900 2·000 1·800 1·900 2·000 2·000 2·500 2·600 2·700 2·800 2·900 4·900 4·500 4·000 3·500 3·000 2·500 2·000 1·800 1·700 1·800 2·000 2·200 2·100 1·800 2·000 2·500

H L L H L H

Line 65 Line 67 Line 71 Line 18 Line 22 Line 27 Line 81 Line 30 Line 26 Line 85

OS-20 OS-3 OS-4 OS-15 OS-5 OS-10 OS-12 OS-15 OS-6

OD66-69 OD66-222 OD66-75 OD66-179 OD66-28 OD66-19 OD66-17 OD66-10

F-8 F-13 F-20 F-15

HO3-63 HO3-51 HO3-43 HO3-42 HO3-40 HO3-45 HO3-56 HO3-30 HO3-29 HO3-46 HO3-28 HO3-27 HO3-26 HO3-24 HO3-54 HO3-23 HO3-53 HO3-4 HO3-5

HO-22 HO-25

ER-43 ER-17 ER-39 ER-42 ER-41

EO-17 EP-6 EO-24 EO-26 EO-23 EO-20 EO-27 EP-5 EP-50

590000 m.E. 610000 m.E.

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETERS 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM Zone 55 C.M. 147° E

S.A. VICTORIA TASMANIA

Sheet index

6725 6724 6523 6623 6723 6522 6521 6520 6620 6720 7320 6719 6819 6919 7019 7119 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

C81275 5 cm

Contour interval : 0·100 seconds
Author : E.G.Urschel
Date : April, 1974

Datum : Sea level
Drawn by : A.Baycan
Checked by : G. Hosking

SHEET 7320 PLATE II

OR-067

OTWAY/KING PART-VIII*

22

142°30' 35' 640 000 m.E. 40' 45' 50' 660 000 m.E. 55' 143°00'

39°30' — 5 620 000 m.N. — 35' — 40' — 5 600 000 m.N. — 45' — 50' — 5 580 000 m.N. — 55' — 5 800 000 m.N. — 40°00'

T/3 P

OS-10

3·300

2·200

2·500

3·500

3·000

HO3 - 9

HO3 - 6

OS-11

OS-12

K-1

T/3P HEMATITE PETROLEUM PTY. LTD.

Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.

S.A. VICTORIA TASMANIA

Sheet index

6725 6724 6523 6623 6723 6522 6521 6520 6620 6720 6719 6819 6919 7019 7119 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912 7820

37° 138° 40° 141° 43° 145°

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

C81276

5 cm

Contour interval : 0·100 seconds
Author : J.I.Denham
Date : April, 1974

Datum : Sea level
Drawn by : A.Baycan
Checked by : G. Hosking

SHEET 7418 PLATE II

OTWAY/KING PART-VIII* OR-067 (23)

142°30'
630,000mE
35'
40'
650,000mE
45'
50'
55'
670,000mE
143°00'
39°00'
5,680,000mN
10'
15'
20'
25'
39°30'
5,660,000mN
5,640,000mN

VIC/P 6
VIC/P 6 HEMATITE PETROLEUM PTY LTD

VIC/P 7 HEMATITE PETROLEUM PTY LTD
T/3P HEMATITE PETROLEUM PTY LTD

VIC/P 7
T/3P

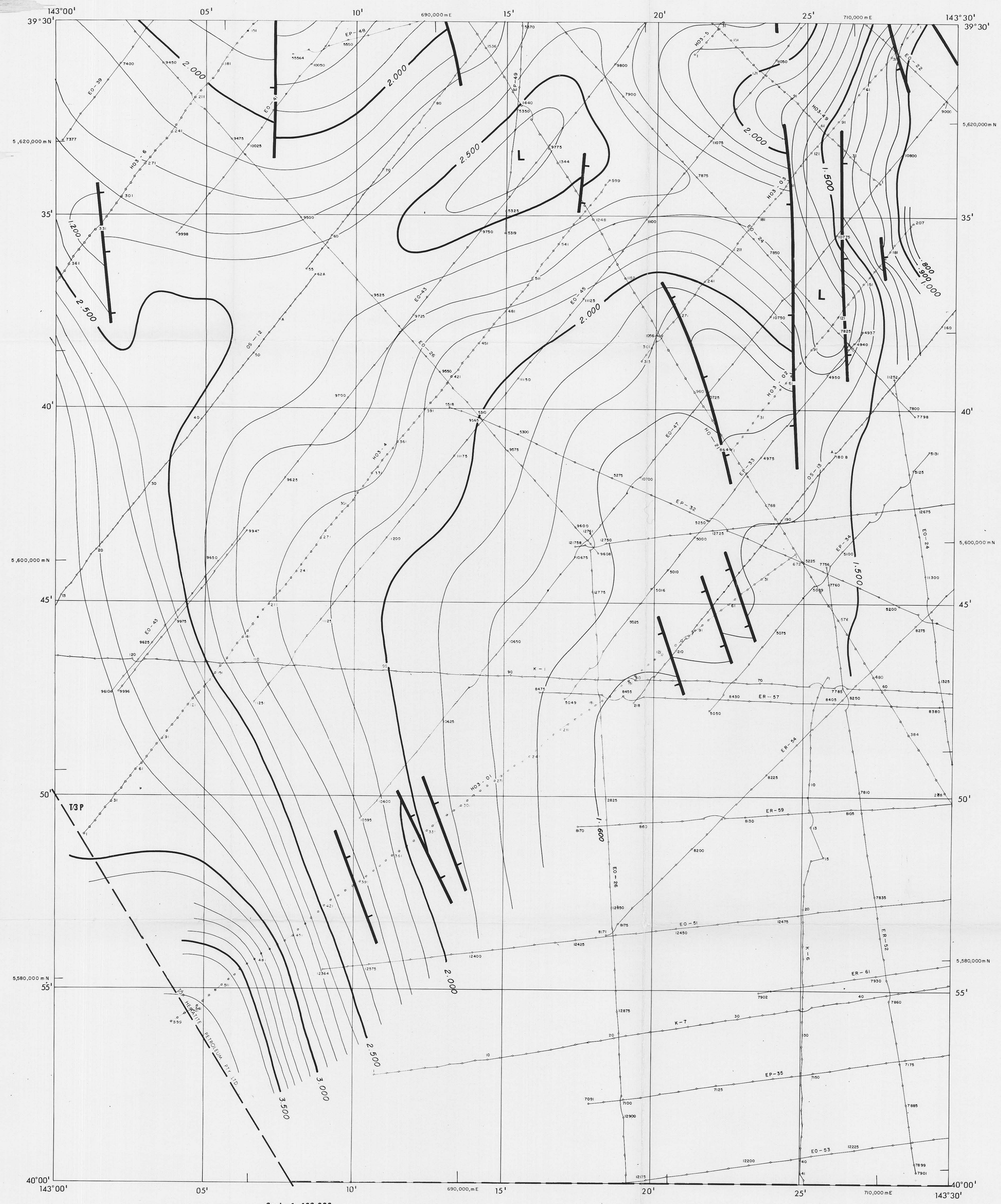
VICTORIA
TASMANIA

2.100
2.000
1.500
1.400
1.700
1.800
2.500
3.000
3.500
2.300

H
L

EP-51 EO-1 HO3-1 HO3-2 HO3-3 HO3-4 HO3-5 HO3-6 HO3-7 HO3-8 HO3-9 HO3-10 HO3-11 HO3-12 HO3-13 HO3-14 HO3-15 HO3-16 HO3-17 HO3-18 HO3-19 HO3-20 HO3-21 HO3-22 HO3-23 HO3-24 HO3-25 HO3-26 HO3-27 HO3-28 HO3-29 HO3-30 HO3-31 HO3-32 HO3-33 HO3-34 HO3-35 HO3-36 HO3-37 HO3-38 HO3-39 HO3-40


142° 30'
35'
640000 m.E.
40'
45'
50'
660000 m.E.
55'
143° 00'
38° 30'
39° 00'
5 720 000 m. N.
5 700 000 m. N.
Line 85
Line 30
Line 93
Line 34
Line F — 17
Line 97
Line F — 18
Line 101
Line 105
Line 109
Line 26
Line A
Line 30
Line F — 7
Line FS — 30
Line FS — 31
Line FS — 32
Line F — 26
Line F — 27
Line F — 15
Line EO — 20
Line EO — 24
Line EO — 29
Line EO — 31
Line EO — 33
Line EP — 22
Line EP — 14
Line EP — 12
Line ER — 1
Line ER — 43
Line ER — 44
Line ER — 45
Line OS — 7
Line OS — 8
Line OS — 19
Line HO3 — 22
Line HO3 — 25
Line HO3 — 34
Line HO3 — 41
Line HO3 — 54
Line HO3 — 60
Line HO3 — 75
Line HO3 — 74
Line HO3 — 73
Line HO3 — 72
Line HO3 — 51
Line HO3 — 42
Line HO3 — 44
Line HO3 — 40
Line HO3 — 17
Line HO3 — 18
Line HO3 — 20
Line HO3 — 7
Line HO3 — 14
Line HO3 — 16
Line HO3 — 12
Line HO3 — 10
Line HO3 — 24
Line HO3 — 60
Line HO3 — 69
Line HO3 — 71
Line HO3 — 63
Line HO3 — 65
Line HO3 — 66
Line HO3 — 67
Line HO3 — 68
Line HO3 — 69
Line HO3 — 70
Line HO3 — 71
Line HO3 — 72
Line HO3 — 73
Line HO3 — 74
Line HO3 —



Scale 1 : 100,000

MILES

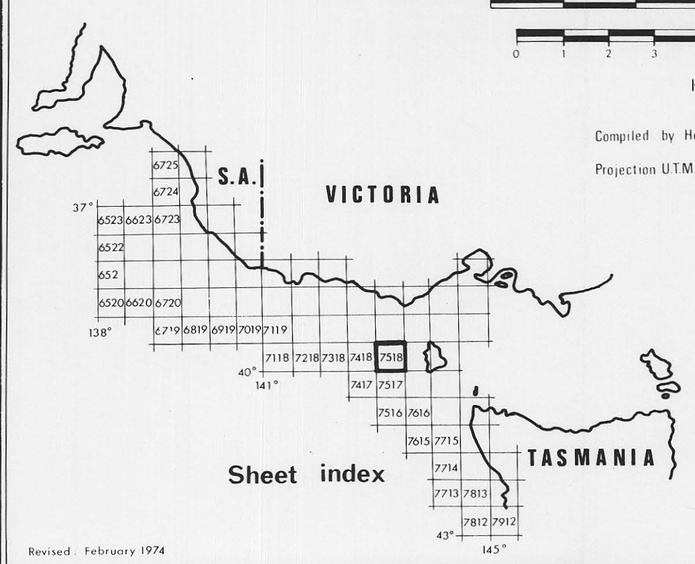
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty Ltd

Projection U.T.M. Zone 54 C.M. 141°E



Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

CS1279

5 cm

Contour interval : 0·100 seconds

Author : J. I. Denham

Date : April, 1974

Datum : Sea level

Drawn by : G. Hosking

Checked by : G. Hosking

SHEET 7518 PLATE II

OTWAY/MING PART-VIII* — OR-067 (26)



Scale 1 : 100,000

MILES

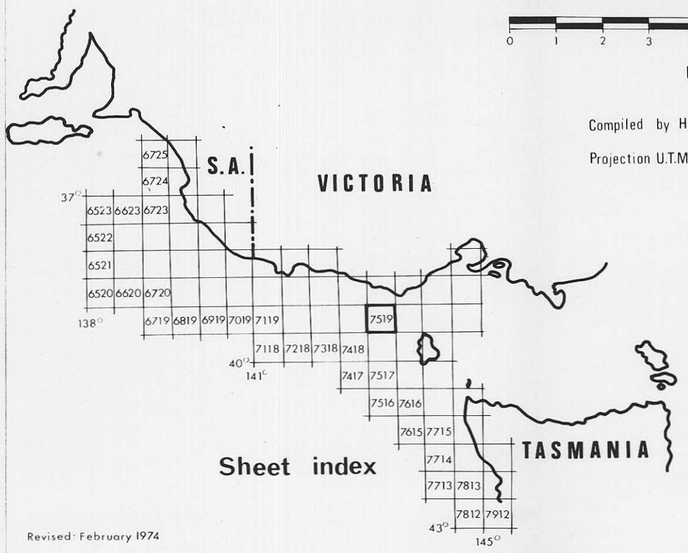
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 CM 141°E.



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

C81280

5 cm

Contour interval : 0·100 seconds
Author : J.I.Denham
Date : April, 1974

Datum : Sea level
Drawn by : L.Stowe
Checked by : G. Hosking

SHEET 7519 PLATE II

OTWAY/KING PART-VIII*
-OR-067
27

143°00' 680000 m.E. 05' 10' 15' 700000 m.E. 20' 25' 143°30'

38°30' 35' 40' 45' 50' 55' 39°00'

5 720 000 m.N. 5 700 000 m.N.

Fergusons Hill-1

Sherbrook-1

Latrobe-1

PRINCETOWN

ROTTEN POINT

Line – 109 F – 23 F – 19 F – 17 Line – 115 F – 3 F – 18 OS – 9 Line – 34 OS – 10 F – 15 OS – 10 OS – 11

VIC/P10

VIC/P6

VIC/P10 INTERSTATE

HEMATITE PETROLEUM PTY. LTD.

OIL LTD.

1.200 1.300 1.100 1.000 0.900

H

Scale 1:100,000

MILES 0 1 2 3 4 5 6 7

KILOMETERS 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty Ltd

Projection, UTM. Zone 54 C.M. 141°E

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

Sheet index

S.A. VICTORIA TASMANIA

37° 138° 40° 141° 43° 145°

6725 6724 6523 6623 6723 6522 6521 6520 6620 6720 6719 6819 6919 7019 7119 7520 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

Revised: February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

REFLECTION TIME

081281

5 cm

Contour interval : 0·100 seconds
Author : J.I.Denham
Date : April, 1974

Datum : Sea level
Drawn by : L.Stowe
Checked by : G. Hosking

SHEET 7520 PLATE II

OTWAY/KING PART-VIII*

OR-067

(28)

081282 OR-067 (29)

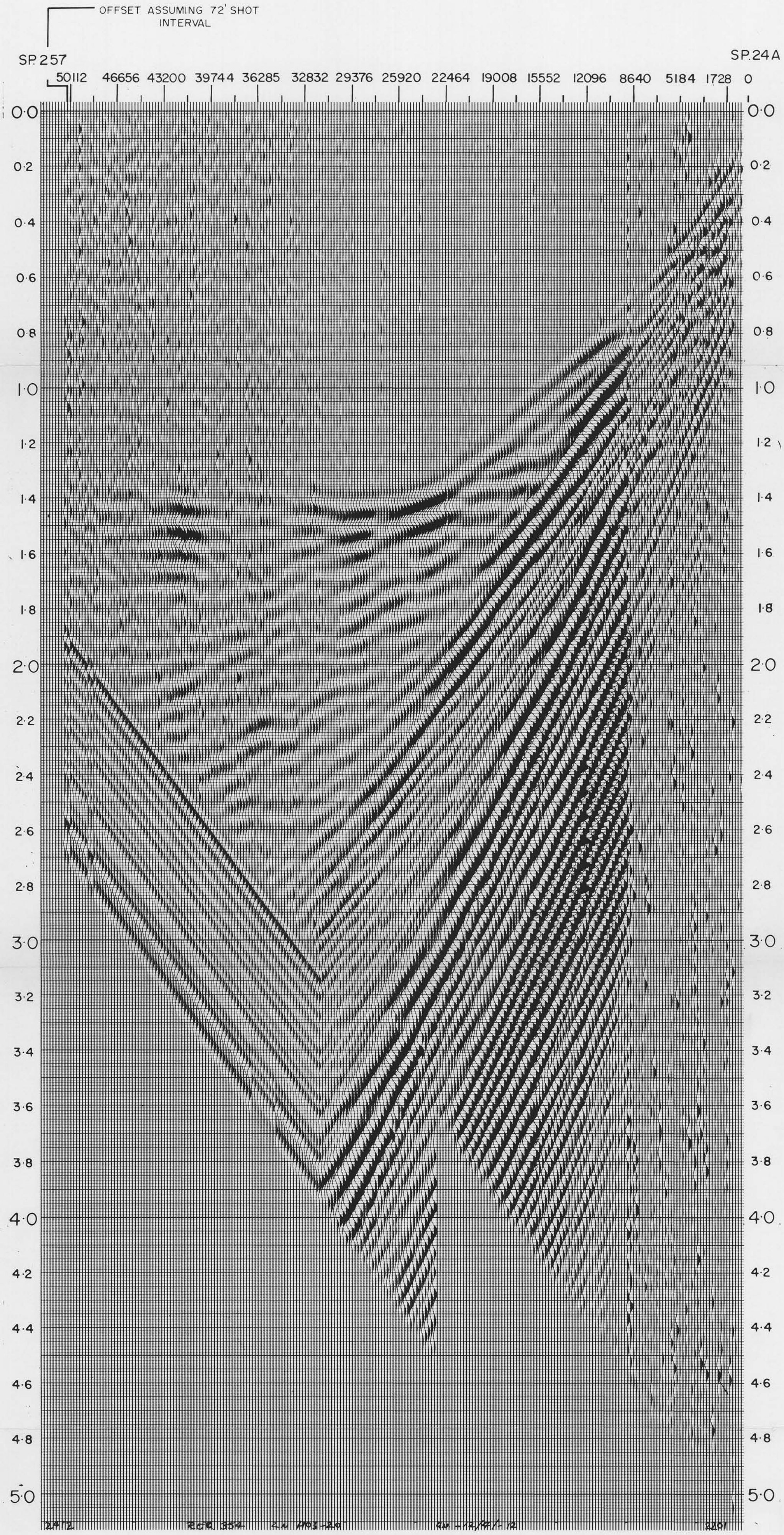
HEMATITE PETROLEUM PTY LTD

LINE H03-20
15000ft/sec DELAY TIME
PROFILE WITH 3-ON-1
TRACE MIX
5-20hz DGF APPLIED AFTER MIX

5 cm

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

PLATE III



140°30' 35' 40' 45' 50' 55' 141°00'

460 000 m.E. 480 000 m.E. 500 000 m.E.

38°30' 35' 40' 45' 50' 55'

5 720 000 m.N. 5 700 000 m.N.

39°00'

SOUTH AUSTRALIA / VICTORIA

HEMATITE PETROLEUM PTY. LTD. VIC/P6

HEMATITE PETROLEUM PTY. LTD. VIC/P7

5000 4500 4300 5000 5500 5700

SS-27 SS-34 H03-64 H03-79 H03-77 H03-47 H03-39 OS-14 0658-11 0658-13

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.

Sheet index

S.A. VICTORIA TASMANIA

6725 6724 6523 6623 6723 6522 6521 6520 6620 6720 7020 6719 6819 6919 7019 7119 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

37° 138° 40° 141° 43° 145°

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

081283

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

5 cm

Contour interval : 100 feet
Author : E. G. Urschel
Date : July 1974

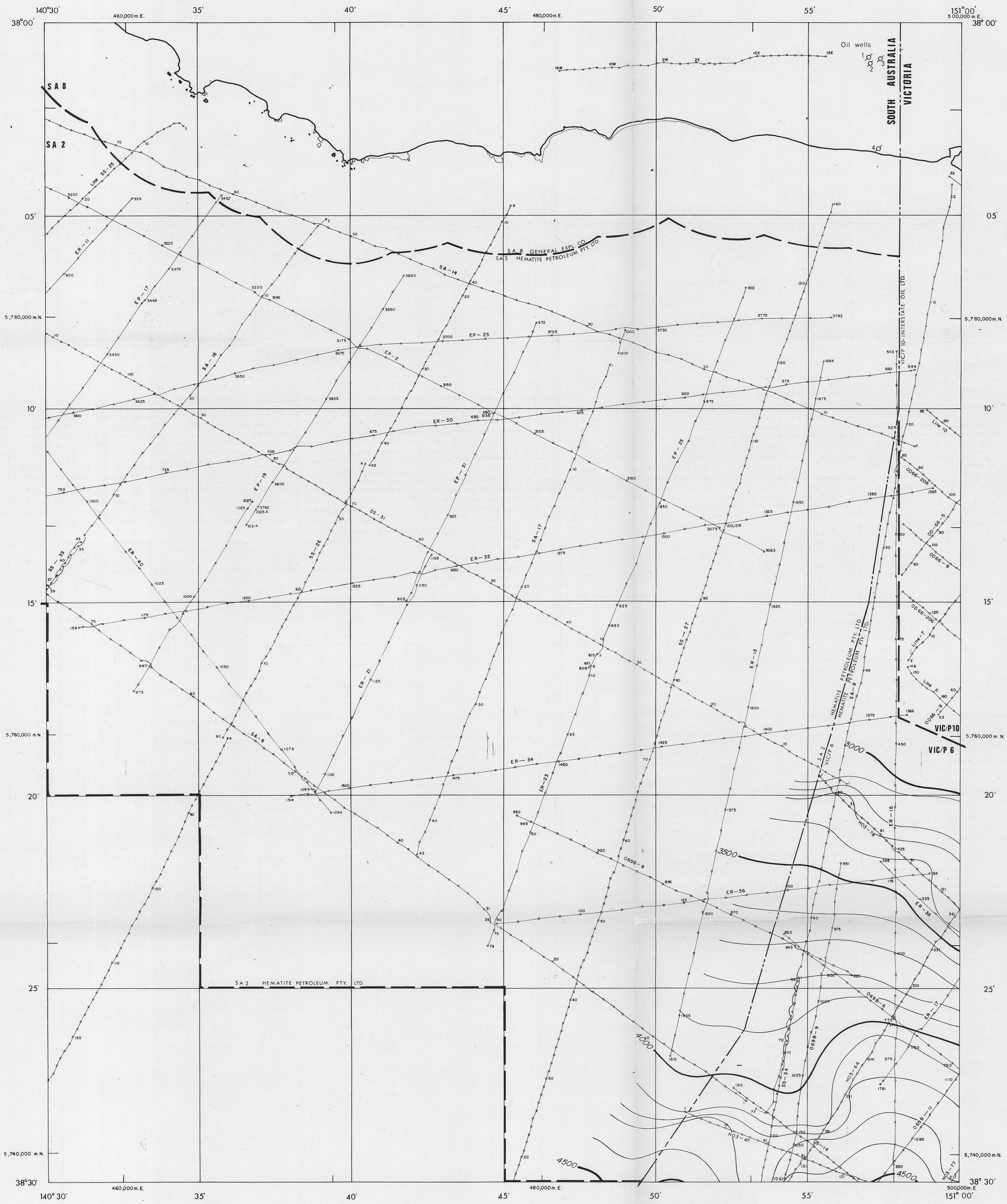
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7020

OR-067

OTWAY/KING PART-XI* ~~OFFSHORE 41~~

30



Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

081284

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

5 cm

Contour interval : 100 feet
Author : E.G. Urschel
Date : July 1974

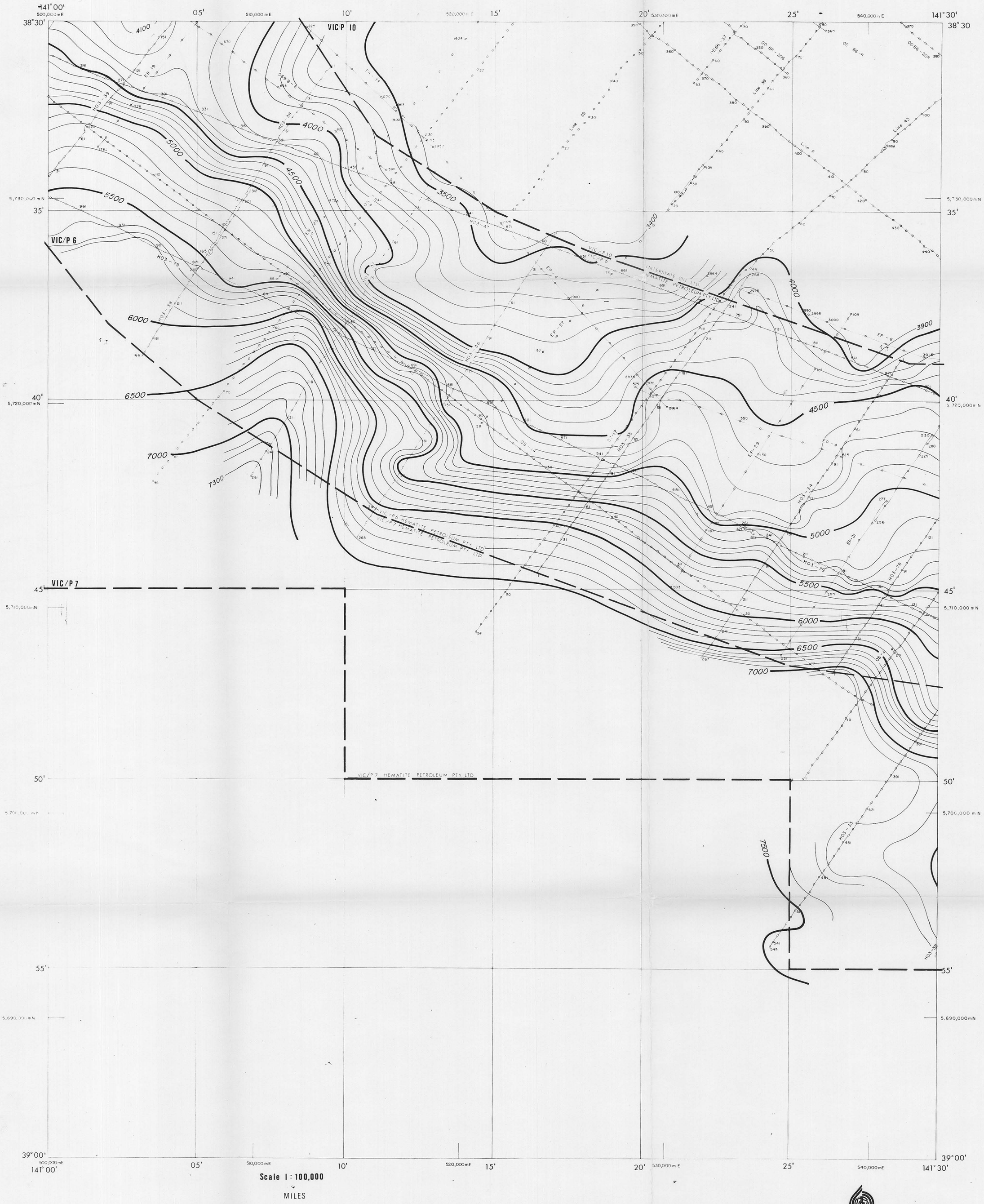
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7021

OR-067

OTWAY/KING PART-XI*

(31)


141° 00'
500,000 mE
05'
510,000 mE
10'
520,000 mE
15'
20'
530,000 mE
25'
540,000 mE
141° 30'
38° 30'
40'
35'
45'
50'
55'
5,730,000 mN
5,720,000 mN
5,710,000 mN
5,700,000 mN
5,690,000 mN
39° 00'
VIC/P 10
VIC/P 6
VIC/P 7
VIC/P 5 HEMATITE PETROLEUM PTY. LTD.
VIC/P 7 HEMATITE PETROLEUM PTY. LTD.
INTERSTATE OIL LTD
HEMATITE PETROLEUM PTY. LTD.
4100
4000
4500
5000
5500
6000
6500
7000
7300
3500
3400
3900
4000
4500
5000
5500
6000
6500
7000
7600
Line 35
Line 39
Line E
Line 43
EP-27
EP-29
EP-31
EP-6
EP-4
OS-17
OS-19
OS-21
OS-23
OS-25
OS-27
OS-29
OS-31
OS-33
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OS-37
OS-39
OS-41
OS-43
OS-45
OS-47
OS-49
OS-51
OS-53
OS-55
OS-57
OS-59
OS-61
OS-63
OS-65
OS-67
OS-69
OS-71
OS-73
OS-75
OS-77
OS-79
OS-81
OS-83
OS-85
OS-87
OS-89
OS-91
OS-93
OS-95



Scale 1 : 100,000

MILES

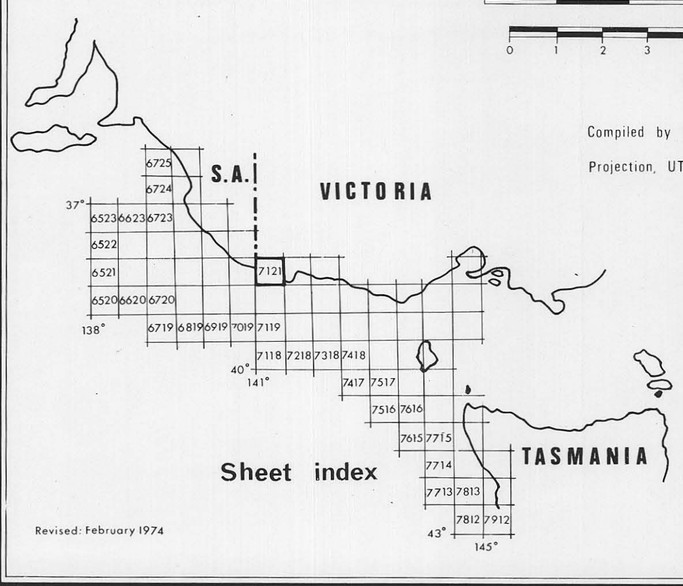
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. ZONE 54. C.M. 141°E



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

5 cm

081286

Contour interval : 100 feet
Author : E. G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7121

OR-067

OTWAY/KING PART-XI*

141° 30' 35' 40' 560 000 m.E. 45' 50' 55' 580 000 m.E. 142° 00'

39° 00'

8500

8400

8500

HO3 — 28

781

811

841

871

877

8800

Vic/P7 HEMATITE PETROLEUM PTY LTD VIC/P7

05'

10'

5 660 000 m.N.

15'

20'

5 660 000 m.N.

25'

39° 30'

141° 30' 35' 40' 560 000 m.E. 45' 50' 55' 580 000 m.E. 142° 00'

39° 30'

5 640 000 m.N.

Scale 1 : 100,000

MILES

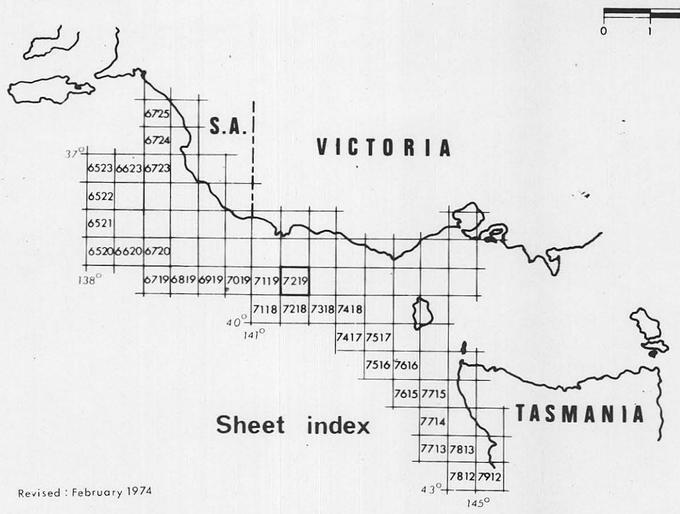
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.



Sheet index

Revised : February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081287

BLUE HORIZON

5 cm

Contour interval : 100 feet
Author : E.G. Urschel
Date : July 1974

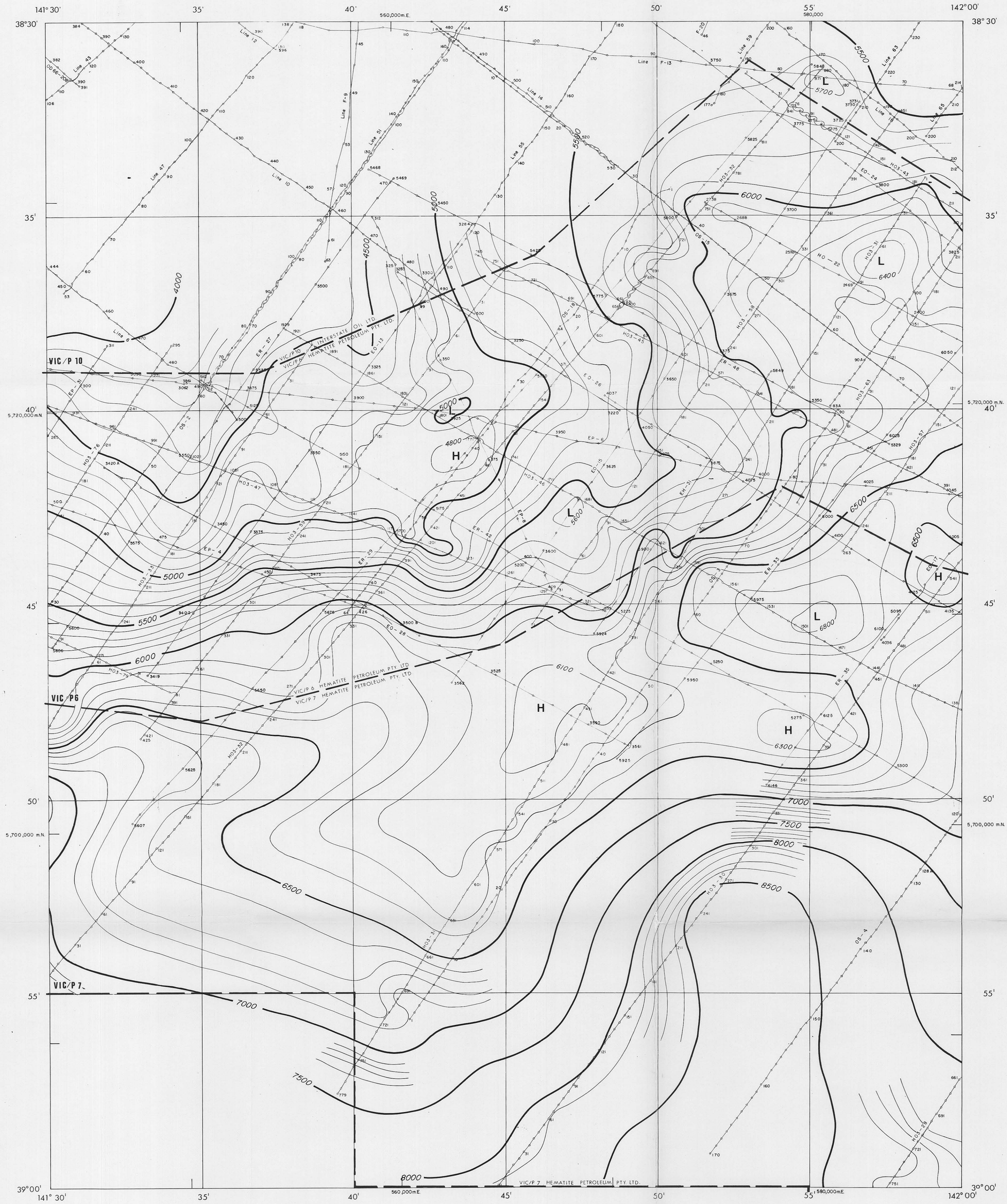
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7219

OR-067

OTWAY/KING PART-XI*

(34)



Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141°E.

Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081288

BLUE HORIZON

5 cm

Contour interval : 100 feet
Author : E. G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7220

OR-067

OTWAY/KING PART-XI*

35

142°00' 590 000 mE 05' 600 000 mE 10' 15' 20' 620 000 mE 25' 142°30'

39°00' — 5 680 000 mN

05'

10'

15'

20'

25'

39°30' — 5 640 000 mN

VIC/P7

HEMATITE PETROLEUM PTY. LTD. VIC/P7

VIC/P 7

VICTORIA / TASMANIA

7900 7500 8000 8500 8200 7500 7000 6600 7100 7400 7300 6500 7000 7500 8000

05-5 05-6 05-8 H03-24 H03-20 H03-26 EP-51 EP-27 EP-26

H L L

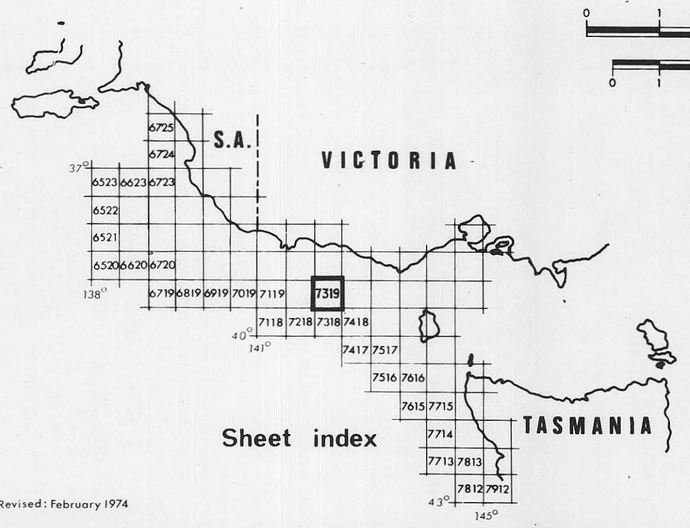
Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E



Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081289

BLUE HORIZON

5 cm

Contour interval : 100 feet
Author : E.G. Urschel
Date : July 1974

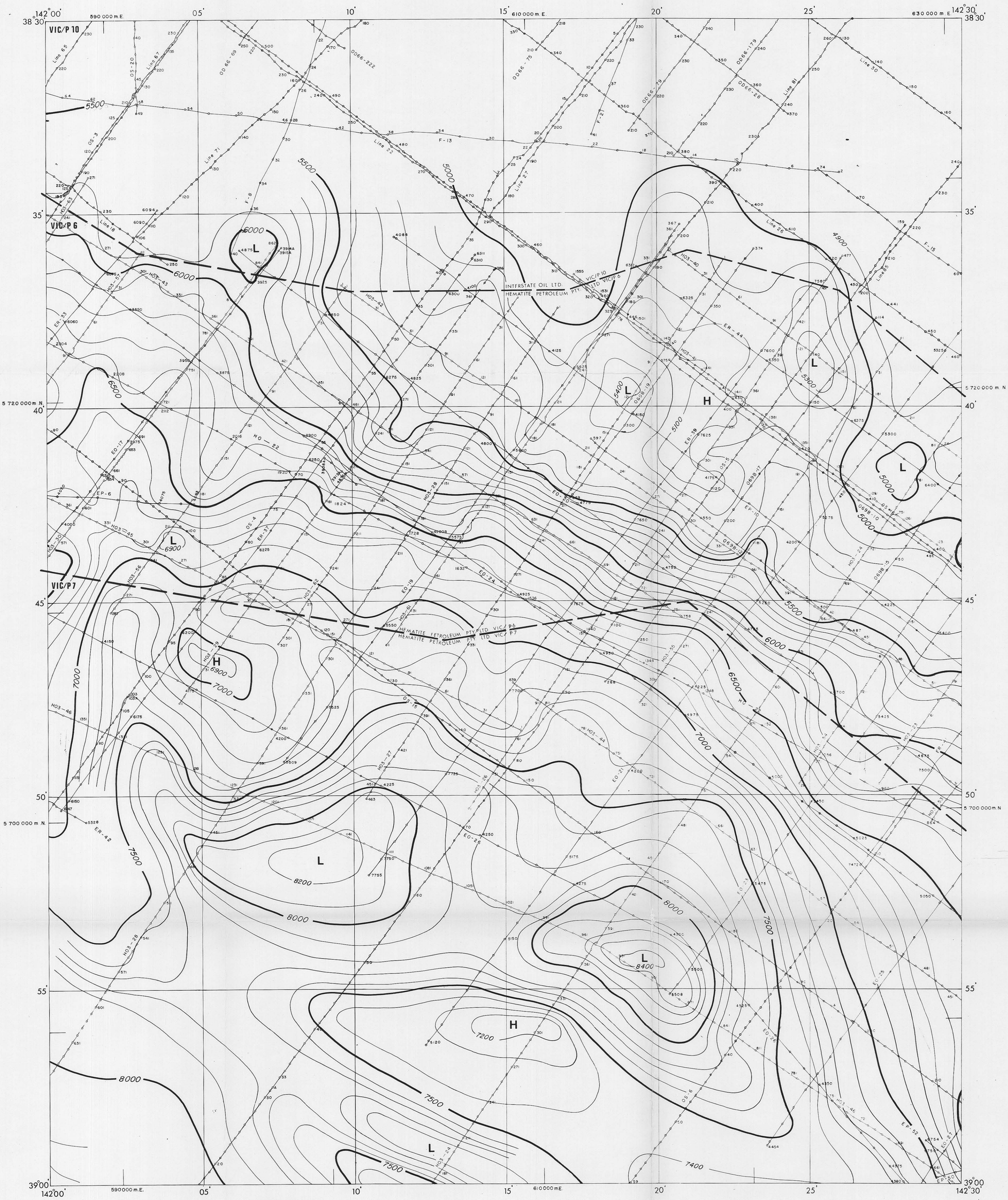
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7319

OR-067

OTWAY/KING PART-XI*

36



Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

KILOMETERS

0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM Zone 55 C.M 147°E

Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

5 cm

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

081290

Contour interval : 100 feet
Author : E. G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7320

OR-067

OTWAY/KING PART-XI*

142°30' 35' 640000m.E. 40' 55' 50' 660000 m.E. 55' 143°00'

39°30' 39° 30'

5 620 000 m.N. 5 620 000 m.N.

35' 35'

40' 40'

5 600 000 m.N. 5 600 000 m.N.

45' 45'

50' 50'

55' 5 580 000 m.N. 55'

5 800 000 m.N.

40°00' 40°00'

142°30' 35' 640000 m.E. 40' 45' 50' 660000 m.E. 55' 143°00'

T/3P

05-10

226

H03 - 9

H

91

121

151

181

200

210

220

61

31

5300

5500

6000

6500

05-11

230

240

247

H03 - 6

421

451

481

511

541

571

601

T/3P HEMATITE PETROLEUM PTY. LTD.

05-12

12

0

131

130

127

K-1

6000

T3P

7000

Scale 1: 100,000

MILES

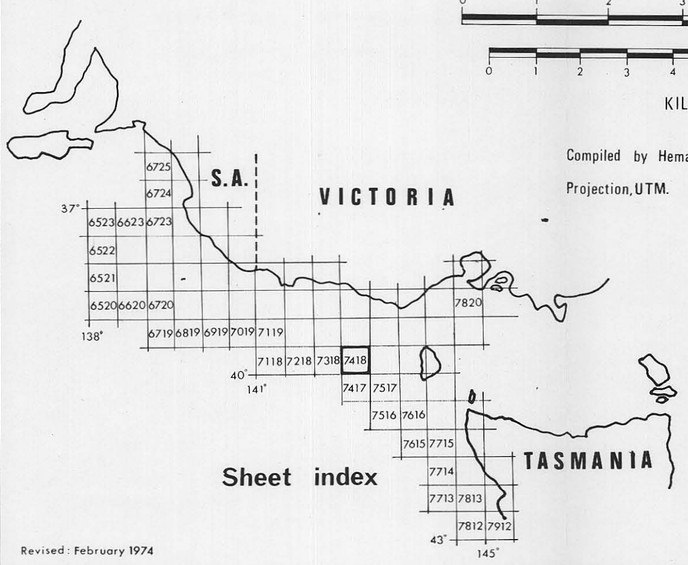
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E.



Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081291.

BLUE HORIZON

5 cm

Contour interval: 100 feet
Author: E.G. Urschel
Date: July 1974

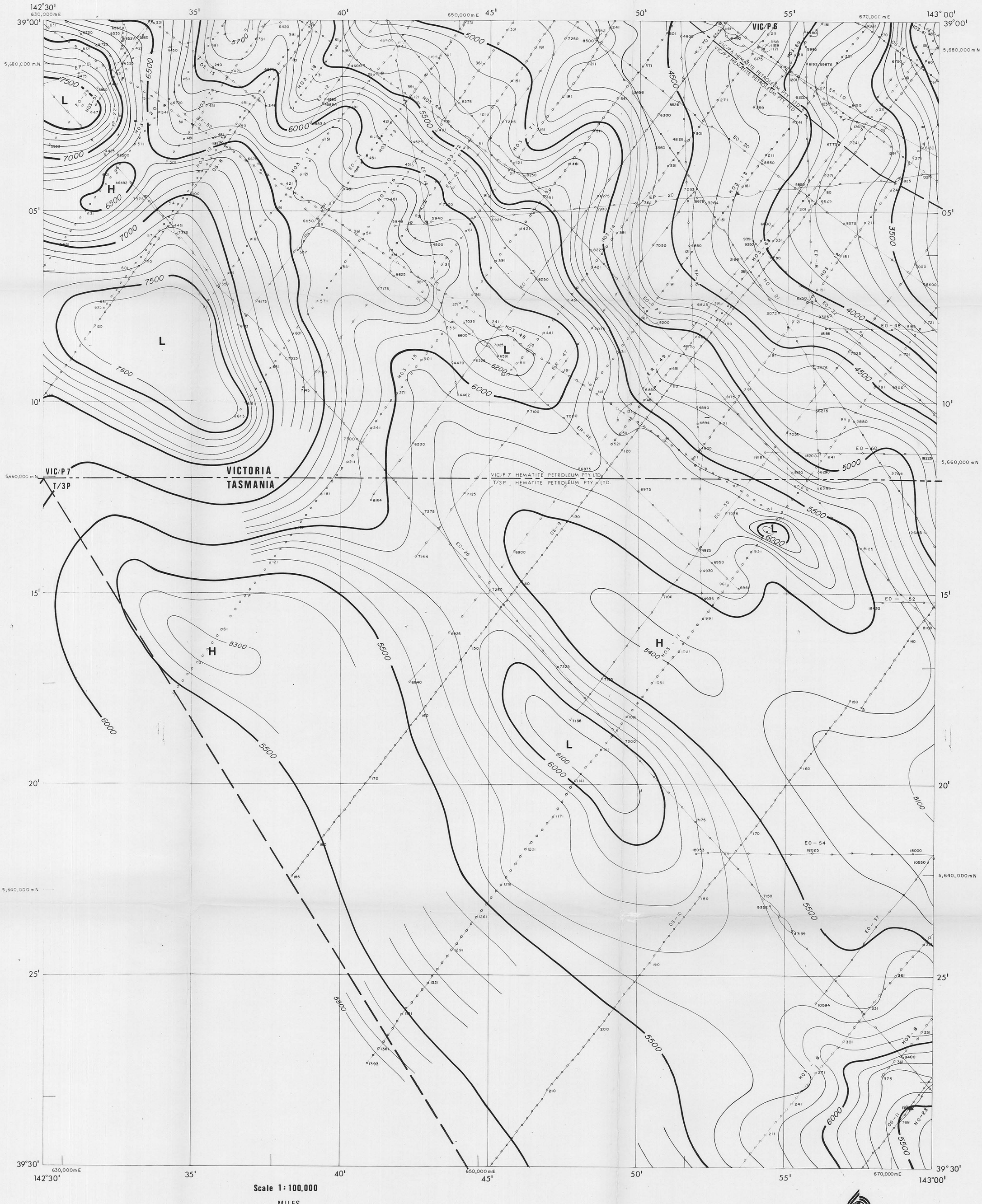
Datum: Sea level
Drawn by: B. Hale
Checked by: G. Hosking

SHEET 7418

OR-067

OTWAY/KING PART-M*

38



THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081292

BLUE HORIZON

5 cm

Contour interval : 100 feet
Author : E. G. Urschel
Date : July 1974

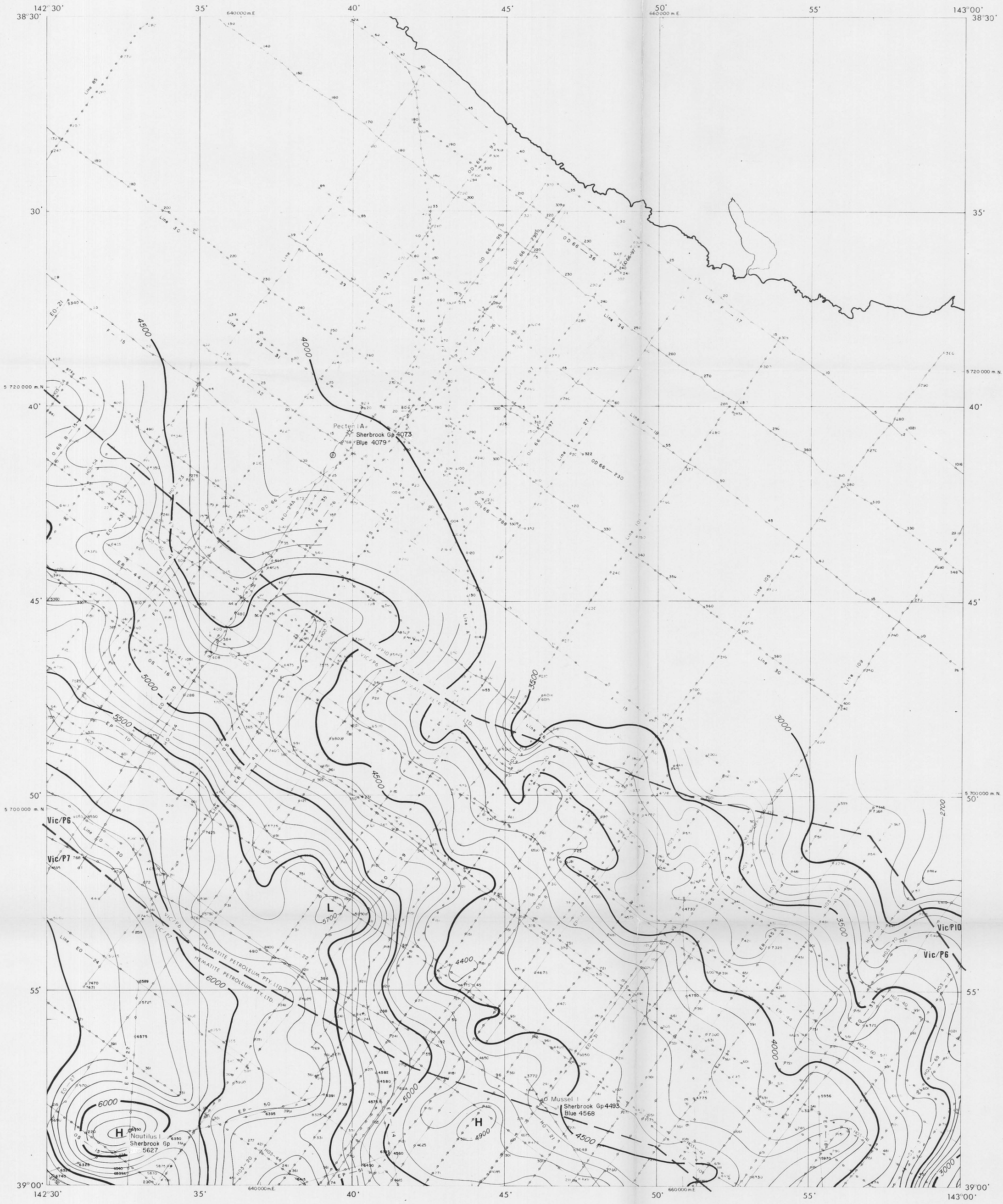
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7419

OR-067

OTWAY/KING PART-XI*

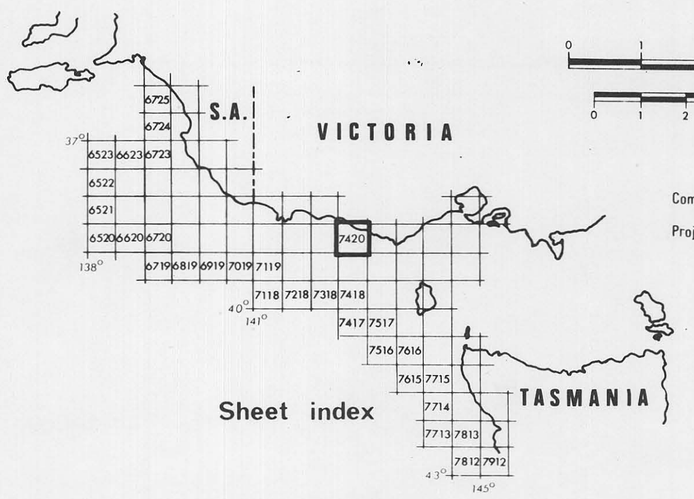
(39)



Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10



Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

Revised: February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081293

BLUE HORIZON

Contour interval : 100 feet
Author : E. G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

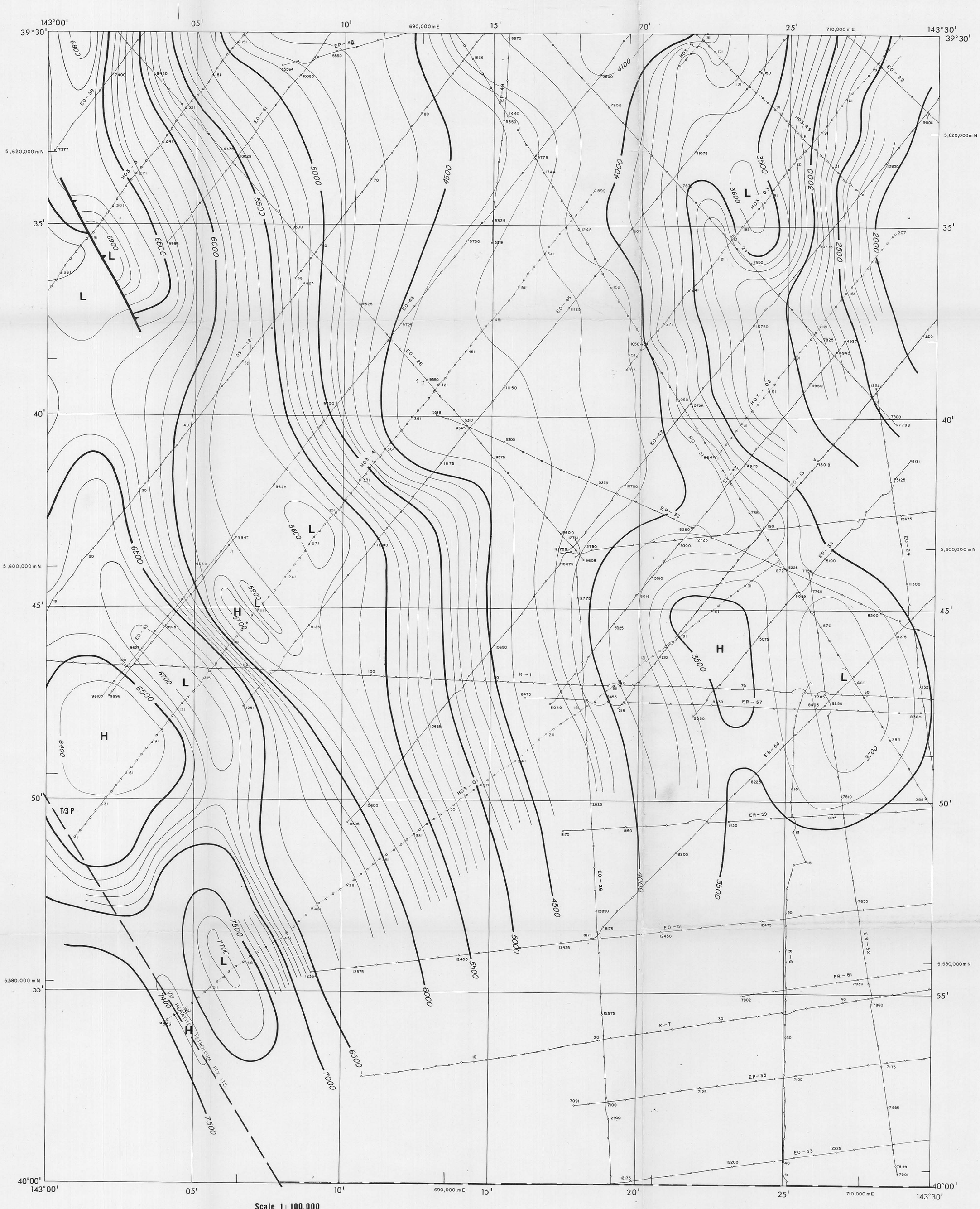
5 cm

SHEET 7420

OR-067

OTWAY/KING PART-XI*

(40)



Scale 1 : 100,000

MILES

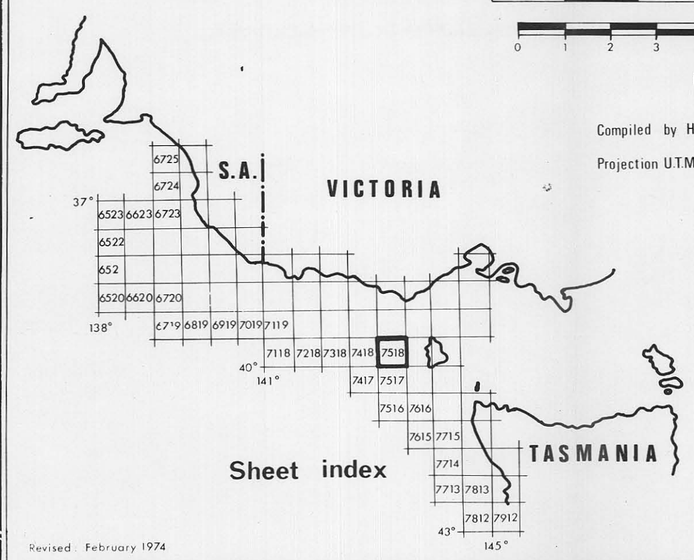
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141°E



Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081204

BLUE HORIZON

5 cm

Contour interval : 100 feet
Author : E.G. Urschel
Date : July 1974

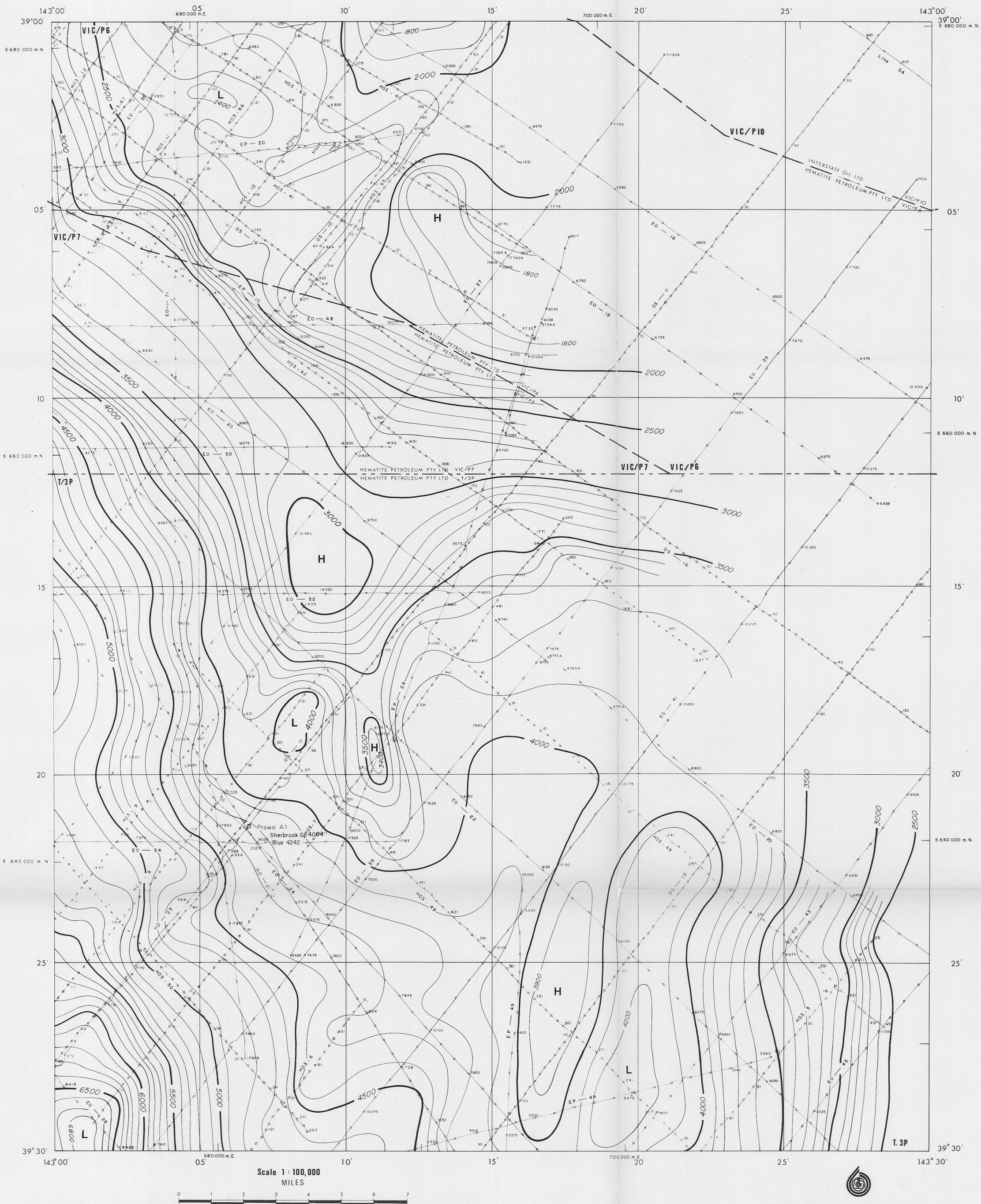
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7518

CR-067

OTWAY/KING PART-XI*

41



Scale 1 : 100,000

MILES

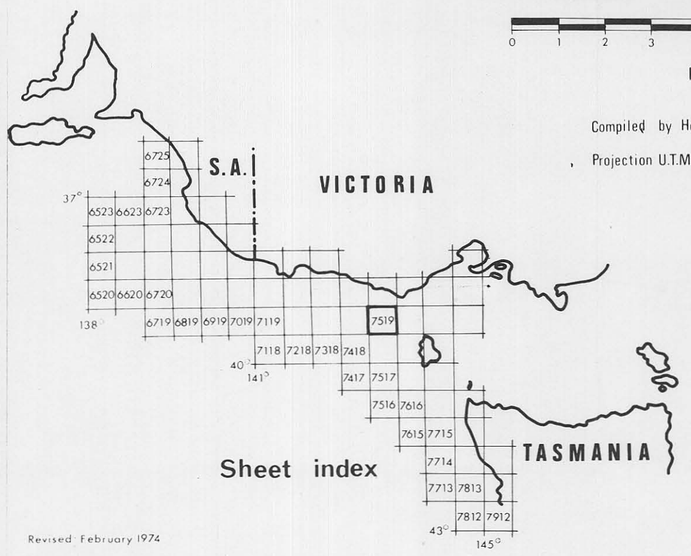
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141° E.



Revised February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081295

BLUE HORIZON

5 cm

Contour interval : 100 feet
Author : E.G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7519

OR-067

OTWAY/KING PART-XI*

42

143°00' 680000 m.E. 05' 10' 15' 700000 m.E. 20' 25' 143°30'

38°30' 35' 40' 45' 50' 55' 39°00'

5°720 000 m.N. 5 700 000 m.N.

Fergusons Hill-1

Sherbrook-1

Latrobe-1

PRINCETOWN

ROTTEN POINT

Line – 109 F – 23 F – 19 F – 17 Line – 115 F – 3 F – 18 OS – 9 Line – 34 OS – 10 F – 19 OS – 10 OS – 11

3000 2500 2000 1800 1700 2000 2200

VIC/P10 VIC/P6

VIC/P10 INTERSTATE OIL LTD.
VIC/P6 HEMATITE PETROLEUM PTY. LTD.

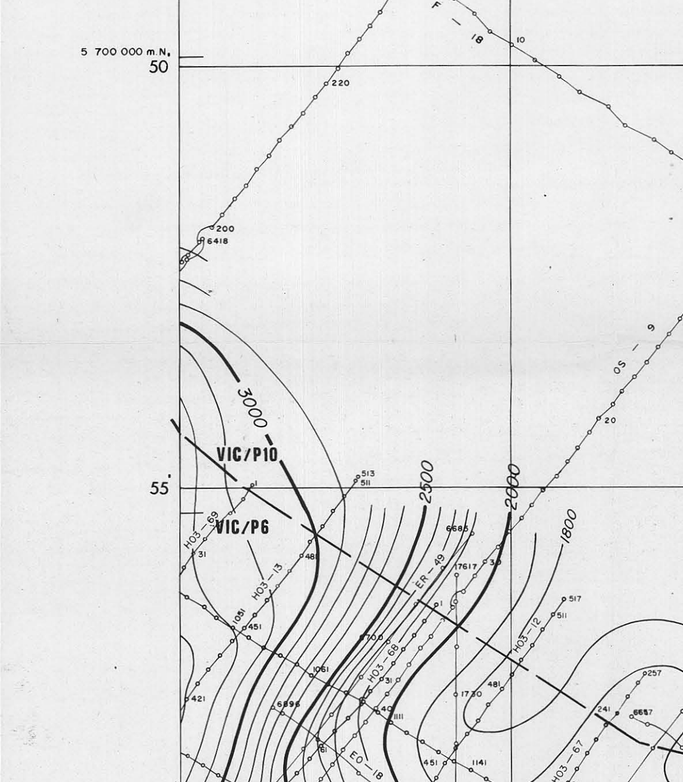
Scale 1:100,000

MILES 0 1 2 3 4 5 6 7

KILOMETERS 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E.



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081296

BLUE HORIZON

5 cm

Contour interval: 100 feet
Author: E.G. Ursches
Date: July 1974

Datum: Sea level
Drawn by: B. Hale
Checked by: G. Hosking

SHEET 7520

OR-067

OTWAY/KING PART-XI*

140°30' 35' 40' 45' 50' 55' 141°00'

460 000 m.E. 480 000 m.E. 500 000 m.E.

38°30' 35' 40' 45' 50' 55' 39°00'

5 720 000 m.N. 5 700 000 m.N.

SS-27 SS-34 HO3-64 HO3-77 HO3-79 HO3-47 HO3-58 HO3-36 HO3-38

H 11 000 12 000 12 600 L 12 000 H 13 000 13 800 13 200 L

HEMATITE PETROLEUM PTY. LTD. VIC/P6

HEMATITE PETROLEUM PTY. LTD. VIC/P7

SOUTH AUSTRALIA / VICTORIA

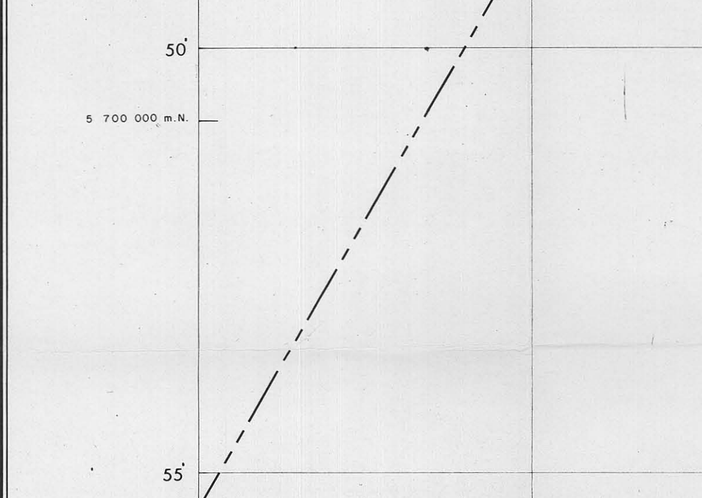
Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.



Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081297

RED HORIZON

5 cm

Contour interval : 200 feet
Author : J. Denham
Date : July, 1974

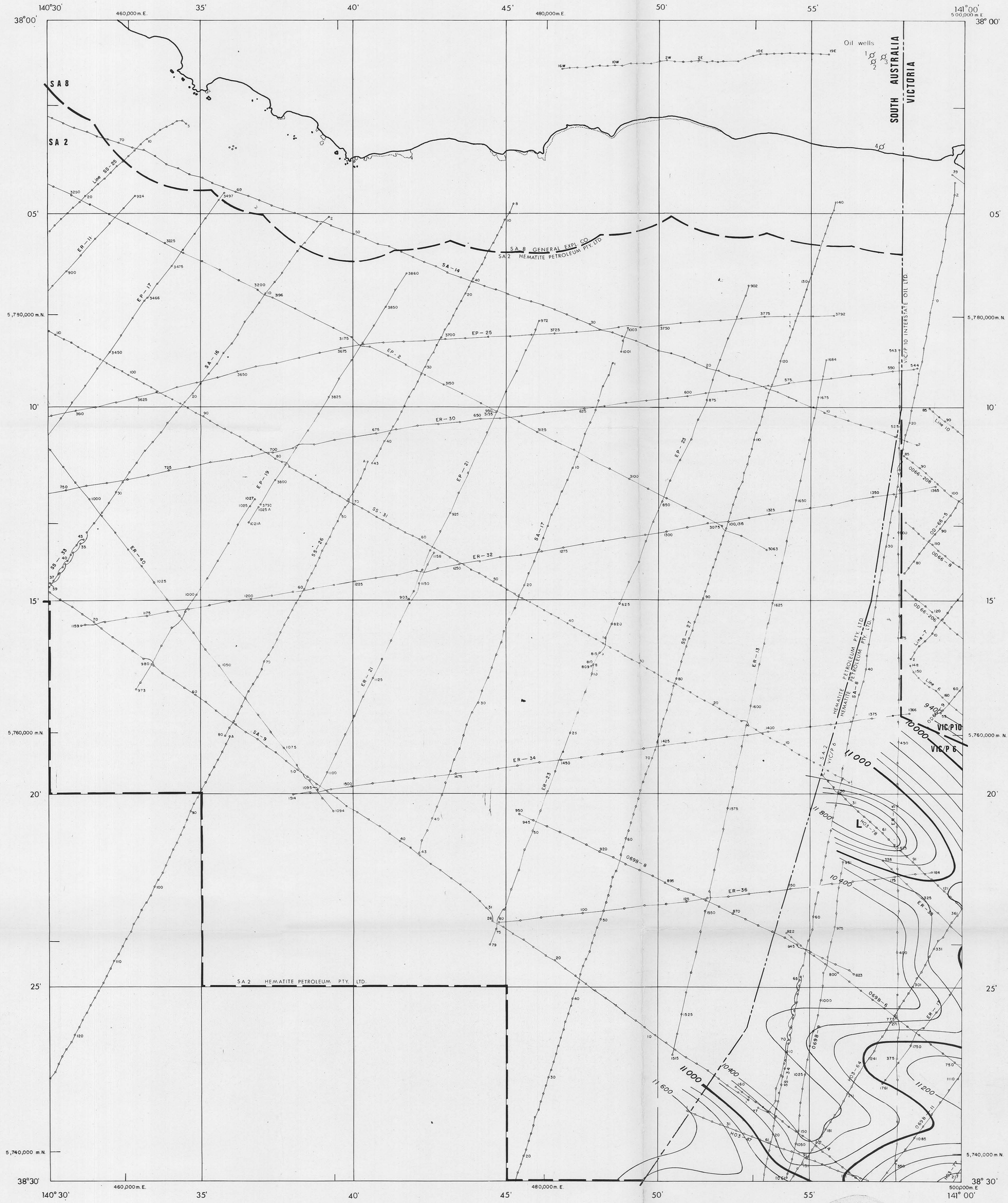
Datum : Sea level
Drawn by : A. Baycan
Checked by : G. Hosking

OTWAY/KING PART-XI*

SHEET 7020

OR-067

~~OFFSHORE 41~~



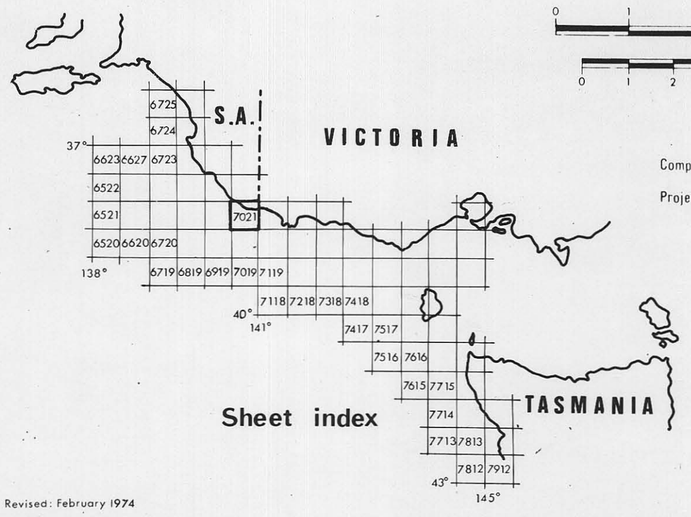
Scale 1 : 100,000

MILES

KILOMETRES

Compiled by Hematite Petroleum Pty Ltd.

Projection, UTM. Zone 54 C.M. 141°E



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081298

RED HORIZON

5 cm

Contour interval : 200 feet
Author : J. Denham
Date : July, 1974

Datum : Sea level
Drawn by : A. Baycan
Checked by : G. Hosking

SHEET 7021

OR-067

OTWAY/KING PART-XI*

(45)



Scale 1 : 100,000

MILES

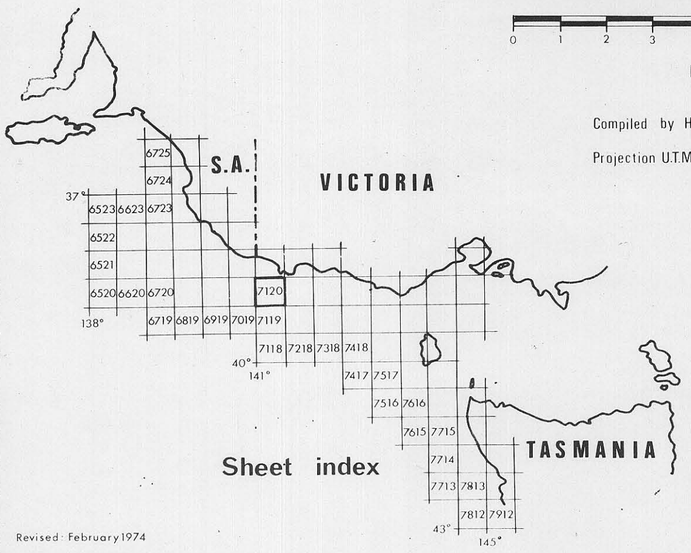
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141°E.



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081299

RED HORIZON

Contour interval : 200 feet

Author : J. Denham

Date : July, 1974

Datum : Sea level

Drawn by : A. Baycan

Checked by : G. Hosking

5 cm

SHEET 7120

OR-067

(46)

141°00' 500 000m.E. | 05' | 10' | 520 000m.E. | 15' | 20' | 25' | 540 000m.E. | 141° 30'

38°00' | 05' | 10' | 15' | 20' | 25' | 38° 30'

5 780 000m.N. | 5 760 000m.N. | 5 740 000m.N.

VIC/P 10 | VIC/P 6

Line 7 | Line 14 | Line 11 | Line 10 | Line 15 | Line 19 | Line 23 | Line 6 | Line 27 | Line 31 | Line 33 | Line 35 | Line 39 | Line 12

F-12 | F-11 | F-10 | F-13

ER-7 | ER-25 | ER-38 | ER-19

HO3-64 | HO3-78 | HO3-77 | HO3-

0066-5 | 0066-9 | 0066-208 | 0066-13 | 0066-8 | 0066-206 | 0066-18A | 0066-17 | 0066-21 | 0066-25 | 0066-29 | 0066-37 | 0066-6 | 0066-208 | 0066-206 | 0066-6 | 0066-208

0658-13 | 0658-6 | 0658-

9400 | 10000 | 11 200 | 11 000 | 11 400

INTERSTATE OIL LTD.
HEMATITE PETROLEUM PTY. LTD.

Voluta-1

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10 KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 CM 141 E.

Sheet index

S.A. | VICTORIA | TASMANIA

6725 | 6724 | 6523 6623 6723 | 6522 | 6521 | 6520 6620 6720 | 6719 6819 6919 7019 7119 | 7118 7218 7318 7418 | 7417 7517 | 7516 7616 | 7615 7715 | 7714 | 7713 7813 | 7812 7912 | 7121

37° | 138° | 40° | 141° | 43° | 145°

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081300

RED HORIZON

5 cm

Contour interval : 200 feet
Author : J. Denham
Date : July, 1974

Datum : Sea level
Drawn by : A. Baycan
Checked by : G. Hosking

SHEET 7121

OR-067

OTWAY/KING PART-XI*

141° 30' 35' 40' 560 000 m.E. 45' 50' 55' 580 000 m.E. 142° 00'

39° 00'

05'

10'

5 660 000 m. N.

15'

20'

5 660000 m. N.

25'

39° 30'

141° 30' 35' 40' 560 000 m. E. 45' 50' 55' 580 000 m. E. 142° 00'

39° 00'

05'

10'

5 660 000 m.N.

15'

20'

5 640 000 m.N.

25'

39° 30

17000

16000

15000

14 000

13 000

12 000

11000

103 - 28

781

811

841

871

877

Vic/P7 HEMATITE PETROLEUM PTY LTD VIC/P7

Scale 1 : 100,000

MILES

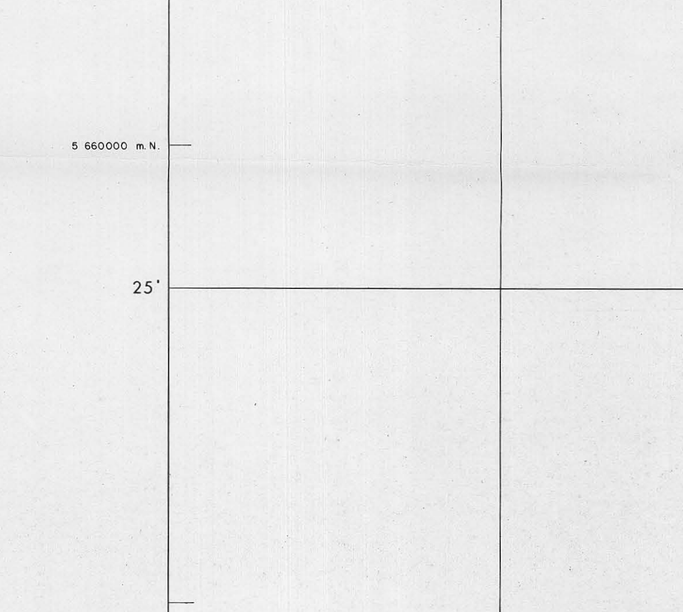
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.



Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081301

RED HORIZON

5 cm

Contour interval : 200 feet

Author : J. Denham

Date : July, 1974

Datum : Sea level

Drawn by : A. Baycan

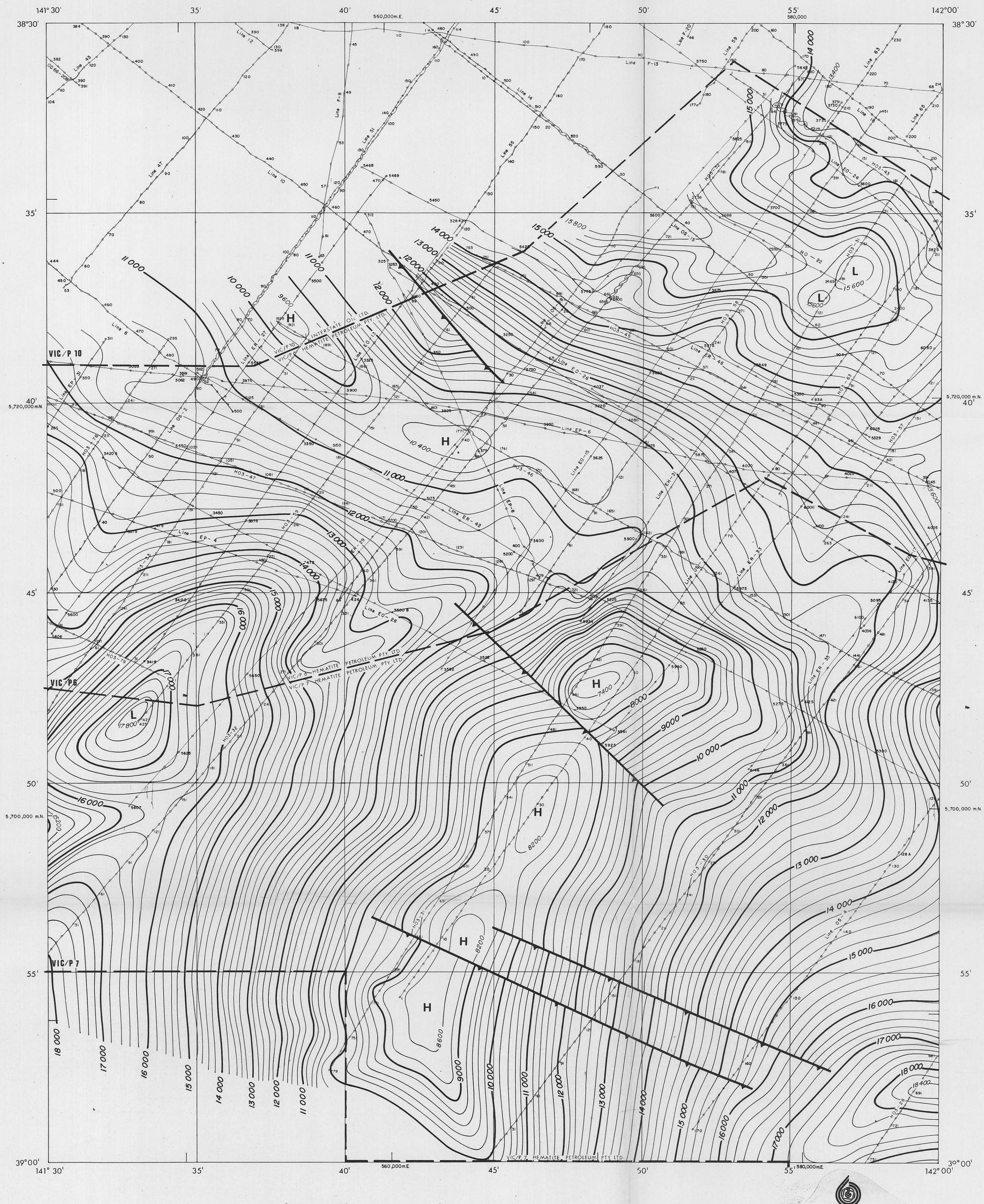
Checked by : G. Hosking

SHEET 7219

OR-067

OTWAY/KING PART-XI*

(48)



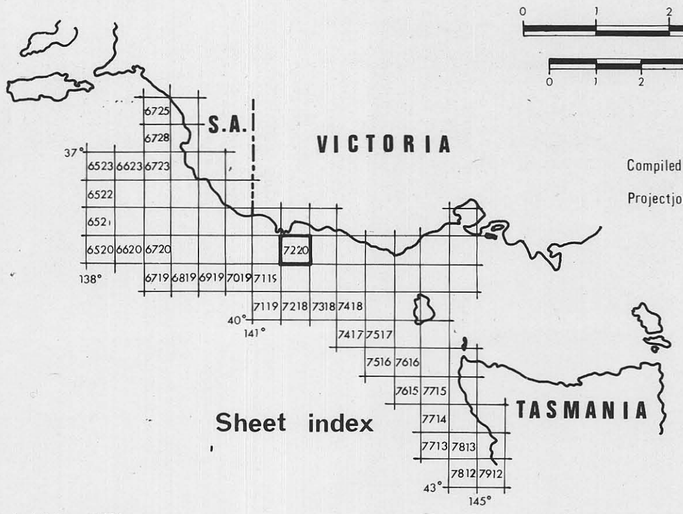
Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projectjon U.T.M. Zone 54 C.M. 141°E.



Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081302

RED HORIZON

5 cm

Contour interval : 200 feet
Author : J. Denham
Date : July, 1974

Datum : Sea level
Drawn by : A. Baycan
Checked by : G. Hosking

SHEET 7220

OR-067

OTWAY/KING PART-XI*

142°00' 05' 10' 15' 20' 25' 142°30'

590 000 m E 600 000 m E 620 000 m E

39°00' 39°30'

5 680 000 m N 5 660 000 m N 5 640 000 m N

17000 16000 15000 14000 13000 12000 11000 10000 9000

05' VIC/P7

HEMATITE PETROLEUM PTY. LTD. VIC/P7

VIC/P 7

VICTORIA / TASMANIA

H03 — 20

05 — 6

05 — 8

EP — 2

EP — 5

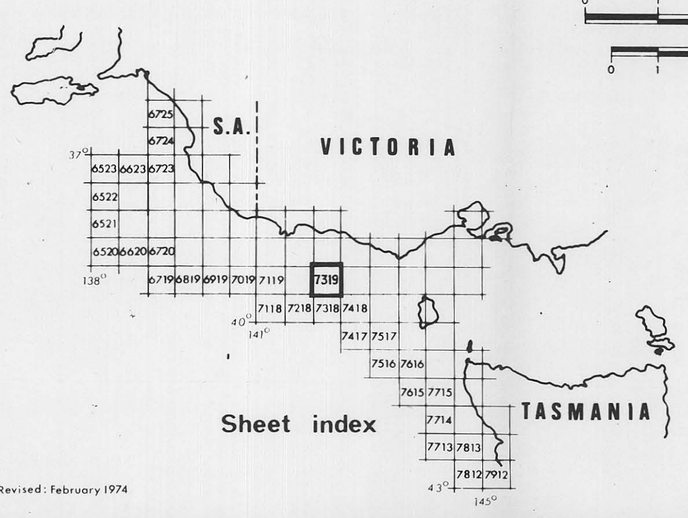
Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)
OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081303

RED HORIZON

5 cm

Contour interval : 200 feet
Author : J. Denham
Date : July, 1974

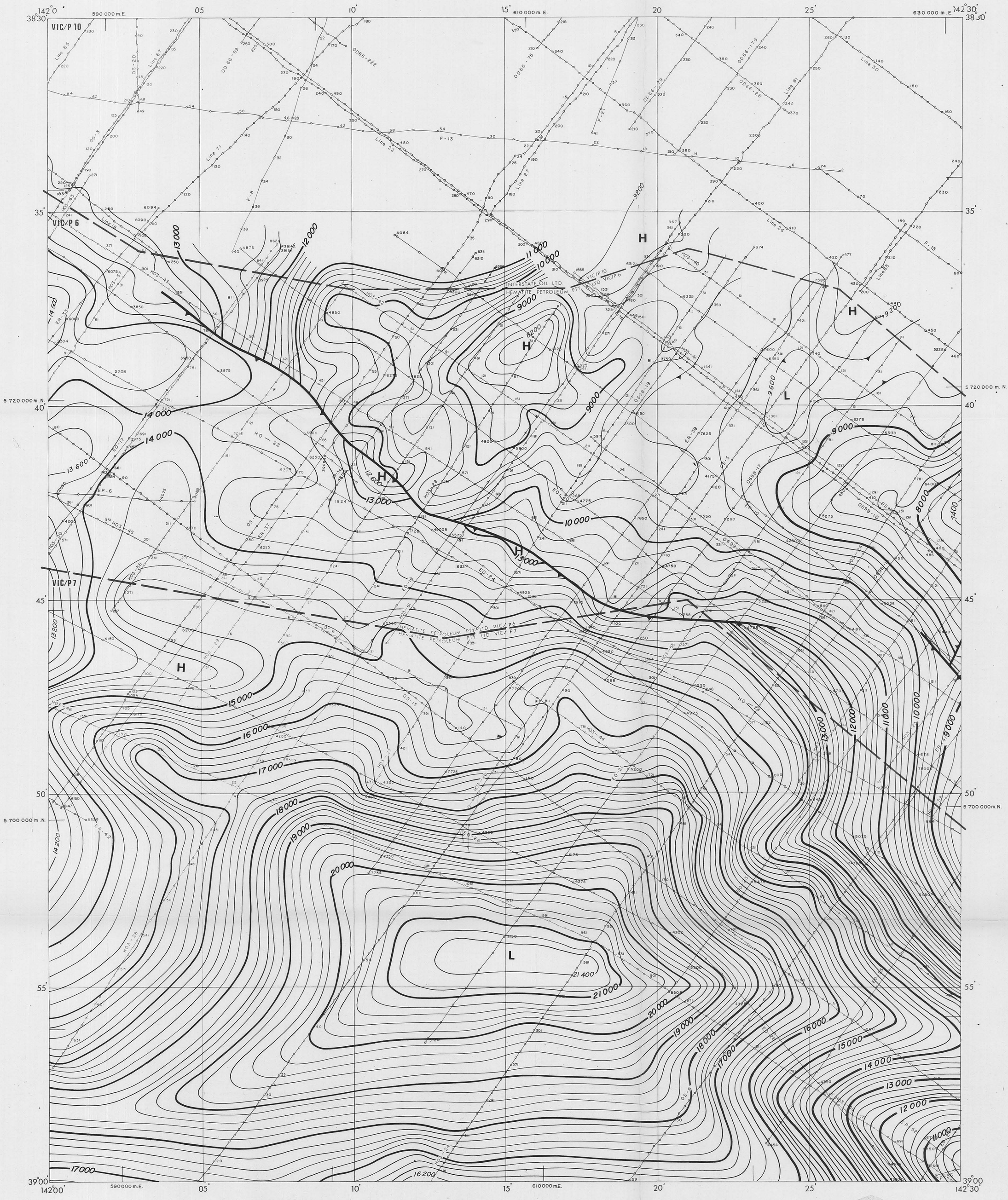
Datum : Sea level
Drawn by : A. Baycan
Checked by : G. Hosking

SHEET 7319

OR-067

OTWAY/MINS PART-XI*

50



Scale 1 : 100,000

MILES

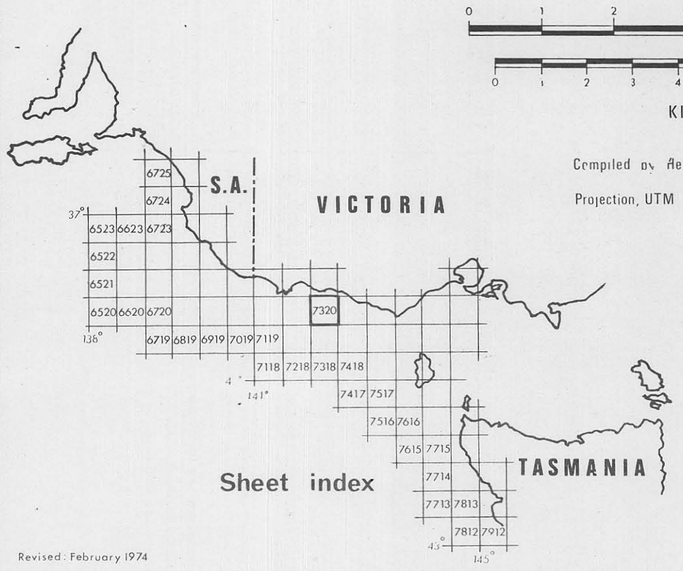
0 1 2 3 4 5 6 7

KILOMETERS

0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM Zone 55 C.M 147° E



Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081304

RED HORIZON

5 cm

Contour interval : 200 feet

Author : J. Denham

Date : July, 1974

Datum : Sea level

Drawn by : A. Baycan

Checked by : G. Hosking

SHEET 7320

OR-067

OTWAY/KING PART-XI*

(51)

142°30' 35' 640 000 m.E. 40' 45' 50' 660 000 m.E. 55' 143°00'

39°30' — 5 620 000 m.N. — 35' — 40' — 5 600 000 m.N. — 45' — 50' — 5 580 000 m.N. — 55' — 5 800 000 m.N. — 40°00'

T/3 P

10 000

11 000

12 000

13 000

13600

9200

9600

9200

HOS - 9

HOS - 11

HOS - 5

T/3P HEMATITE PETROLEUM PTY. LTD.

05-10

05-12

9

61

121

151

181

200

210

220

230

240

247

31

91

391

42

451

481

511

541

571

601

127

130

131

12

Scale 1: 100,000

MILES

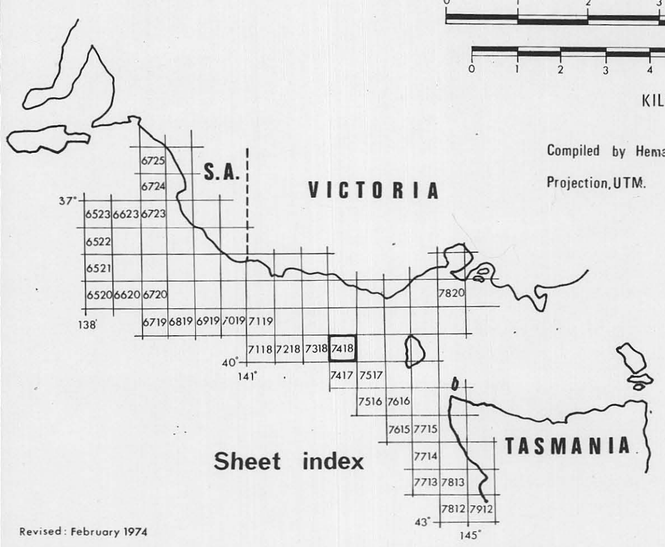
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E.



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081305

RED HORIZON

5 cm

Contour interval: 200 feet
Author: E. G. Urschel
Date: July, 1974

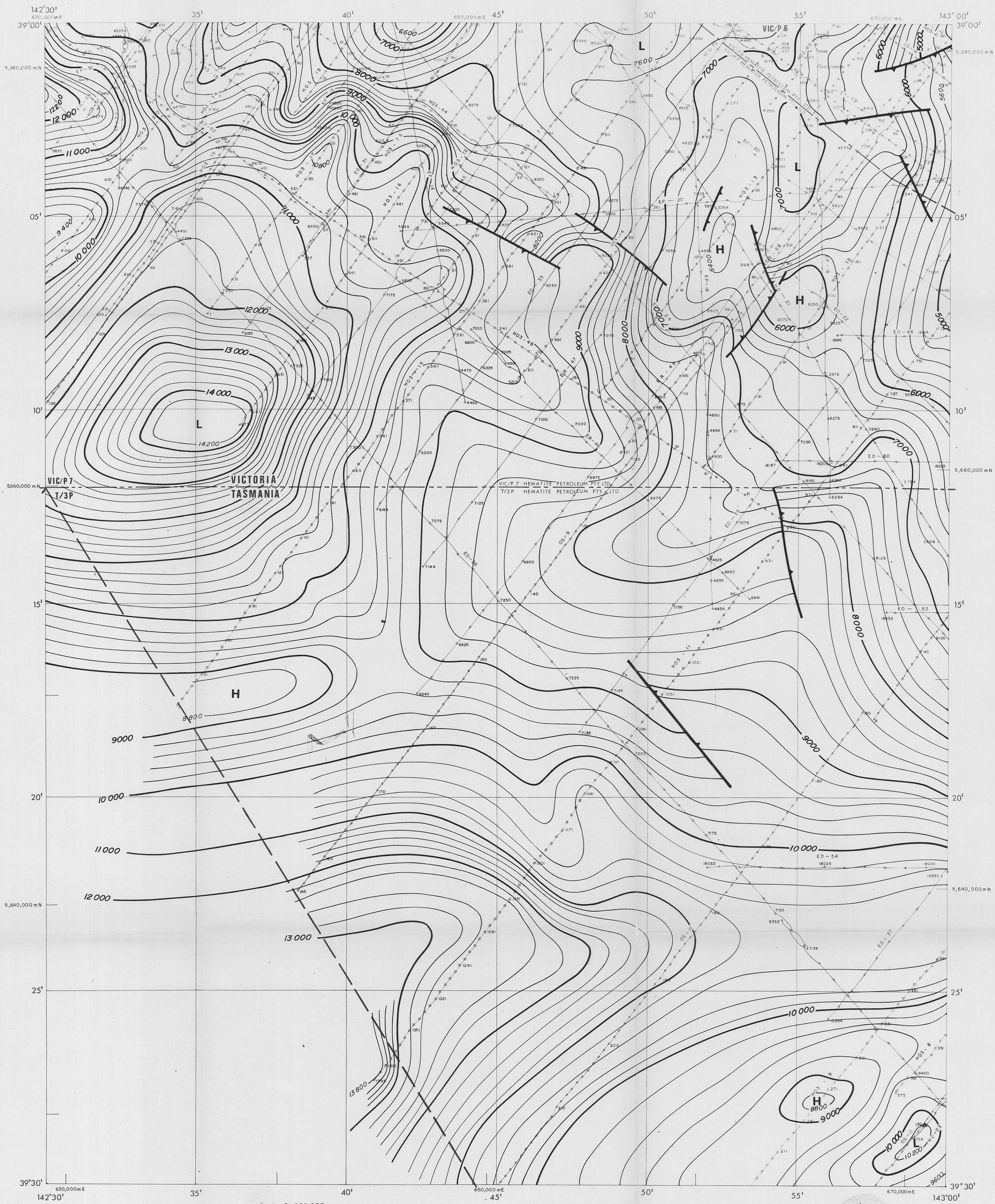
Datum: Sea level
Drawn by: A. Raycan
Checked by: G. Hosking

SHEET 7418

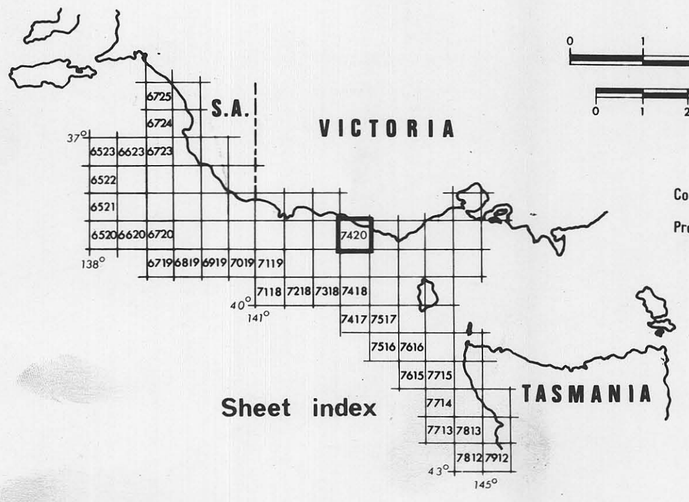
OR-067

OTWAY/KING PART-XI*

(52)


142°30'
630,000mE
35'
40'
650,000mE
45'
50'
55'
670,000mE
143°00'
39°00'
39°30'
5,680,000 mN
5,660,000 mN
5,640,000 mN
5,560,000 mN
05'
10'
15'
20'
25'
VIC/P 6
VIC/P 6 HEMATITE PETROLEUM PTY. LTD.
VIC/P 7 HEMATITE PETROLEUM PTY. LTD.
VIC/P 7
T/3P
VICTORIA
TASMANIA
VIC/P 7 HEMATITE PETROLEUM PTY. LTD.
T/3P HEMATITE PETROLEUM PTY. LTD.
L
H
11 000
12 000
13 000
14 000
14200
10 000
9000
8000
7000
6000
5000
9400
8800
10800
13800
11000
12200
EO – 48
EO – 50
EO – 52
EO – 54
EO – 37
HO3 – 11
HO3 – 8
OS – 11
OS – 10
OS – 9
ER – 46
ER – 47
EP – 16
EP – 18
EP – 20
EO – 21
EO – 22
EO – 33
EO – 45
HO3 – 46
HO3 – 15
HO3 – 16
HO3 – 44
HO3 – 73
HO3 – 74
HO3 – 75
HO3 – 12
HO3 – 13
HO3 – 14
HO3 – 18
HO3 – 19
HO3 – 23
EO – 16
EO – 20
EO – 51
EO – 53
EO – 55
EO – 56
EO – 57
EO – 58
EO – 59
EO – 60
EO – 61
EO – 62
EO – 63
EO – 64
EO – 65
EO – 66
EO – 67
EO –





Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

Revised: February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

081307

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

5 cm

Contour interval : 200 feet

Author : E. G. Urschel

Date : July, 1974

Datum : Sea level

Drawn by : A. Baycan

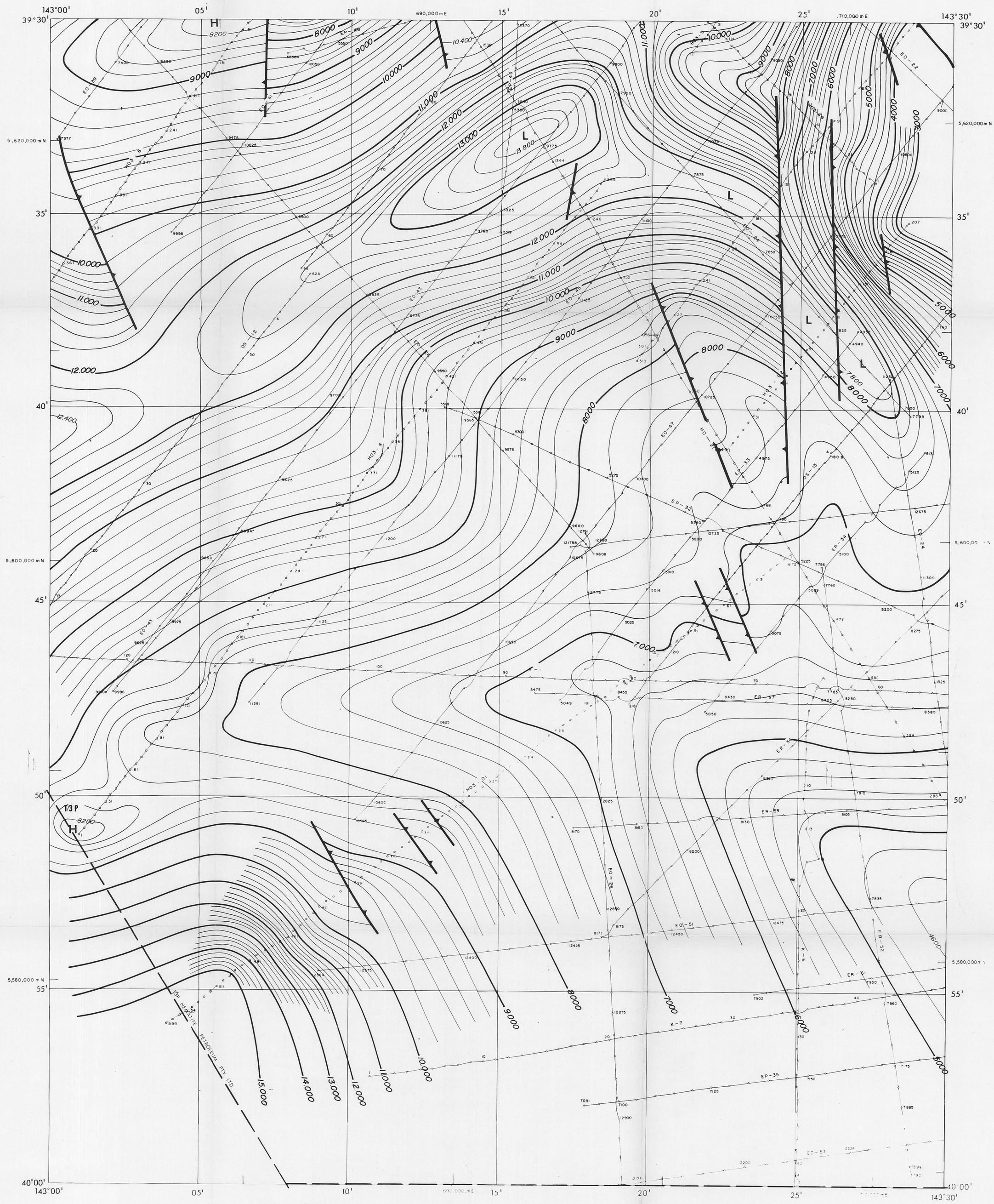
Checked by : G. Hosking

SHEET 7420

OR-067

OTWAY/KING PART-XI*

54



Scale .1 : 100,000

MILES

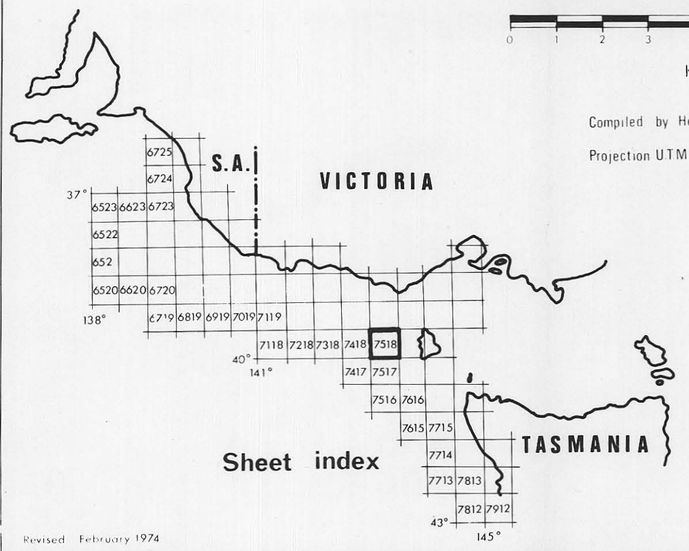
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty Ltd

Projection UTM Zone 54 C.M 141°E



Revised February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081308

RED HORIZON

5 cm

Contour interval : 200 feet
Author : E.G.Urschel
Date : July, 1974

Datum : Sea level
Drawn by : A. Baycan
Checked by : G. Hosking

SHEET 7518

OR-067

OTWAY/KING PART-XI*

55

143°00' 05' 10' 15' 20' 25' 143°00'

39°00'

680 000 m.E. 700 000 m.E.

5 680 000 m.N. 5 680 000 m.N

05' 05'

10' 10'

5 660 000 m.N. 5 660 000 m.N

15' 15'

20' 20'

5 640 000 m.N. 5 640 000 m.N

25' 25'

39° 30' 39° 30'

680 000 m.E. 700 000 m.E.

143°00' 05' 10' 15' 20' 25' 143° 30'

VIC/P6

VIC/P7

VIC/P10

T/3P

HEMATITE PETROLEUM PTY LTD

INTERSTATE OIL LTD

Prawn A1
Waare Fm. 9283+
Otway Gp. 9503?
Red 7715

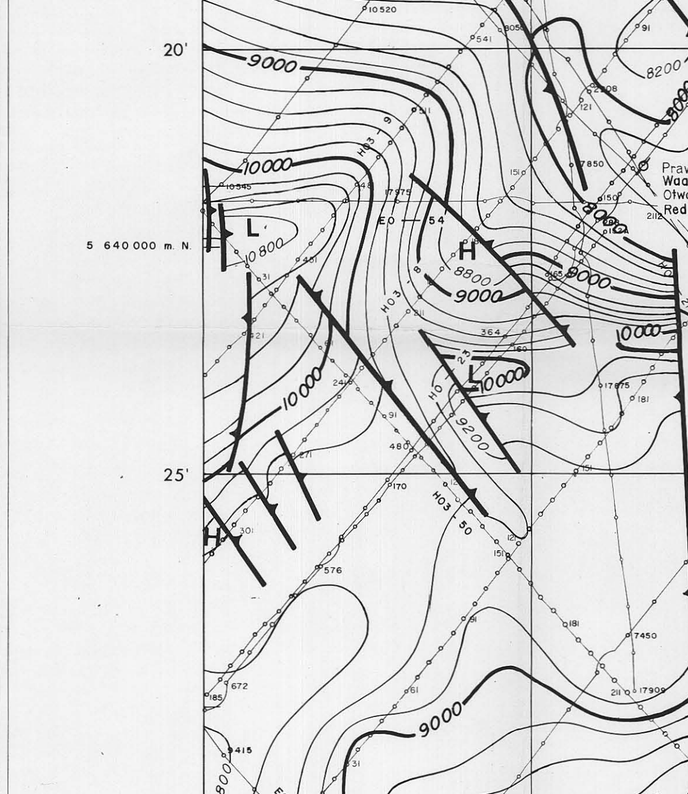
Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141° E.



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081309

RED HORIZON

5 cm

Contour interval : 200 feet
Author : E.G. Urschel
Date : July, 1974

Datum : Sea level
Drawn by : A. Baycan
Checked by : G. Hosking

SHEET 7519

OR-067

OTWAY/KING PART-XI*

56

143°00' 680 000 m.E. 05 10 15 700 000 m.E. 20 25 143°30'

38°30'

35'

Ferguson's Hill-1

Sherbrook-1

5 720 000 m.N.

40'

Latrobe-1

PRINCETOWN

ROTTEN POINT

45'

5 700 000 m.N.

50'

VIC/P10

VIC/P6

VIC/P 10 INTERSTATE OIL LTD.

VIC/P 6 HEMATITE PETROLEUM PTY. LTD.

55'

39°00'

Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETERS

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E.

S.A.

VICTORIA

TASMANIA

Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)
OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081310

RED HORIZON

5 cm

Contour interval : 200 feet
Author : E G Urschel
Date : July, 1974

Datum : Sea level
Drawn by : A. Baycan
Checked by : G. Hosking

SHEET 7520

OR-067

OTWAY/KING PART-XI*

57

140°30' 35' 40' 45' 50' 55' 141°00'

460 000 m.E. 480 000 m.E. 500 000 m.E.

38°30' 35' 40' 45' 50' 55'

5 720 000 m.N. 5 700 000 m.N.

39°00'

SS - 27 SS - 34 SS - 64 HO3 - 64 HO3 - 59 HO3 - 77 HO3 - 43 HO3 - 39 0698 - 11 05 - 14 0698 - 13

6000 5500 5000

HEMATITE PETROLEUM PTY LTD. VIC/P6

HEMATITE PETROLEUM PTY. LTD. VIC/P7

SOUTH AUSTRALIA / VICTORIA

Scale 1 : 100,000

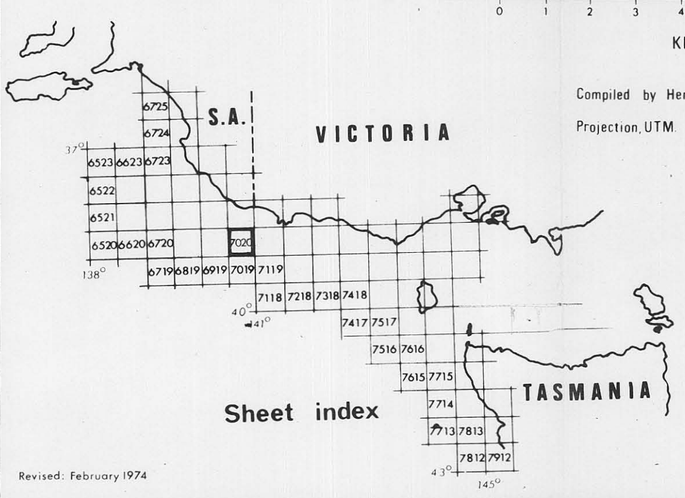
MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty Ltd.

Projection, UTM. Zone 54 C.M. 141° E.



Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081311

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec
Author : E. G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

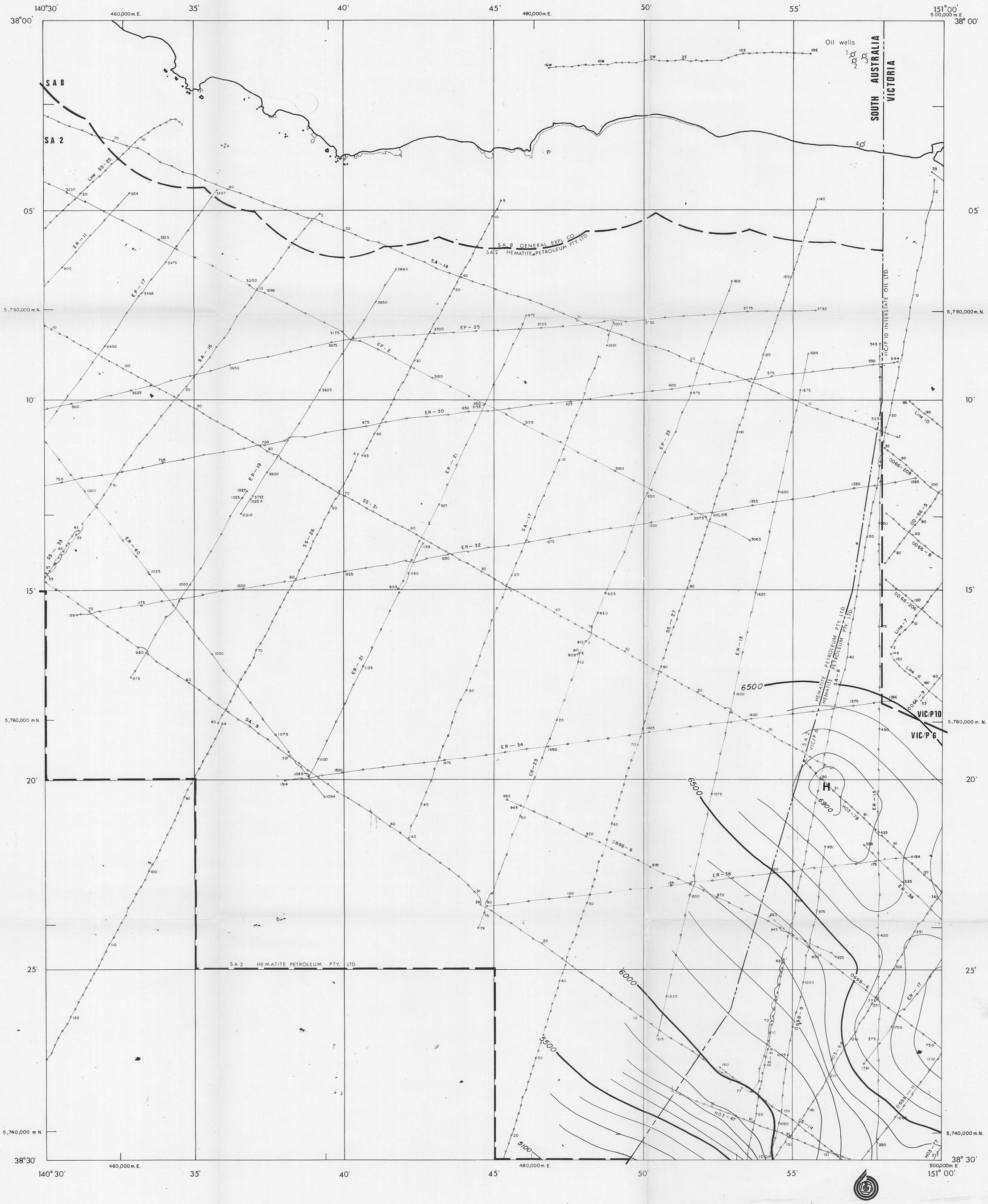
OTWAY/KING PART-XI*

SHEET 7020

OR-067

OFFSHORE 41

58



Scale 1 : 100,000

MILES

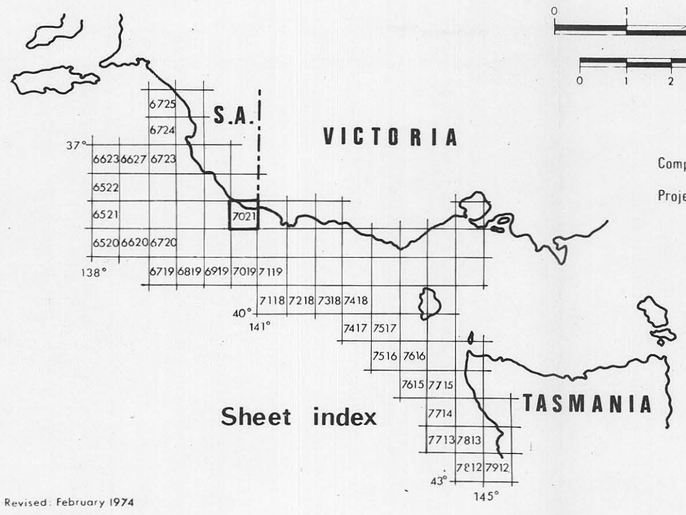
0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty Ltd.

Projection UTM Zone 54 C.M. 141°E



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081312

BLUE HORIZON

AVERAGE VELOCITY

5 cm

Contour interval : 100 ft. per sec.
Author E. G. Urschel
Date : July 1974

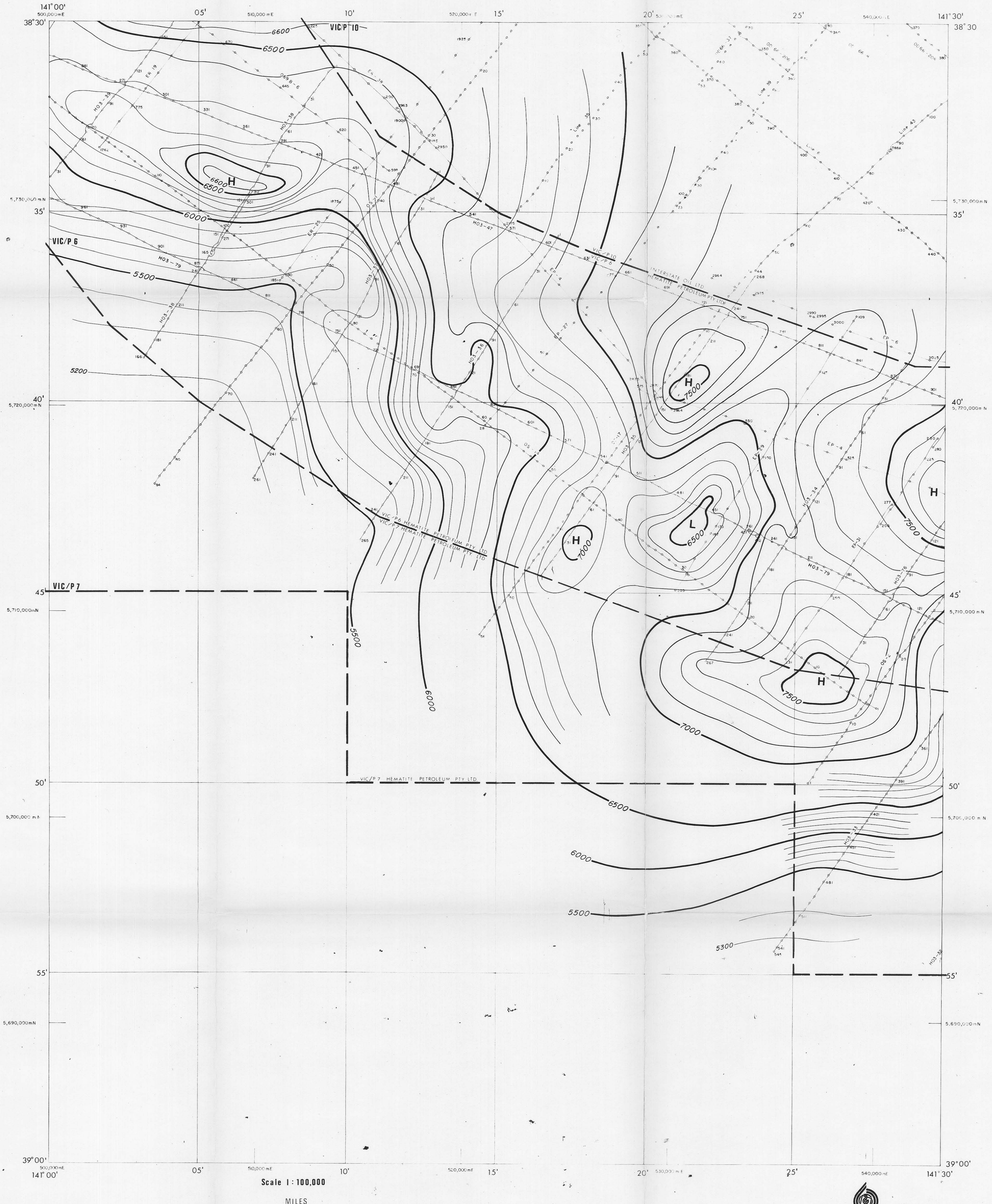
Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7021

OR-OEY

OTWAY/KING PART-XI*

(59)



THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081313

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E. G. Urschel.
Date : July 1974

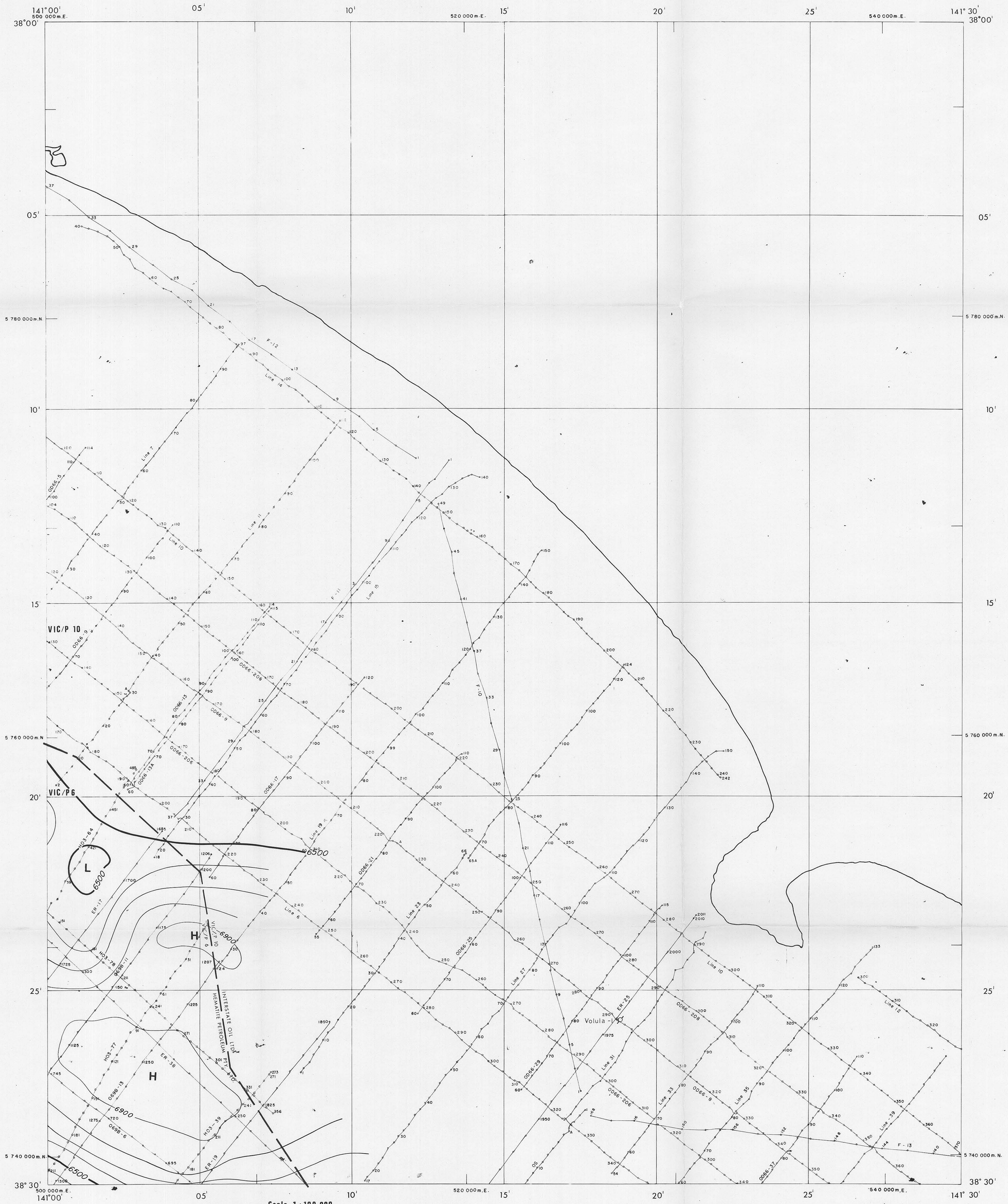
Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7120

OR-067

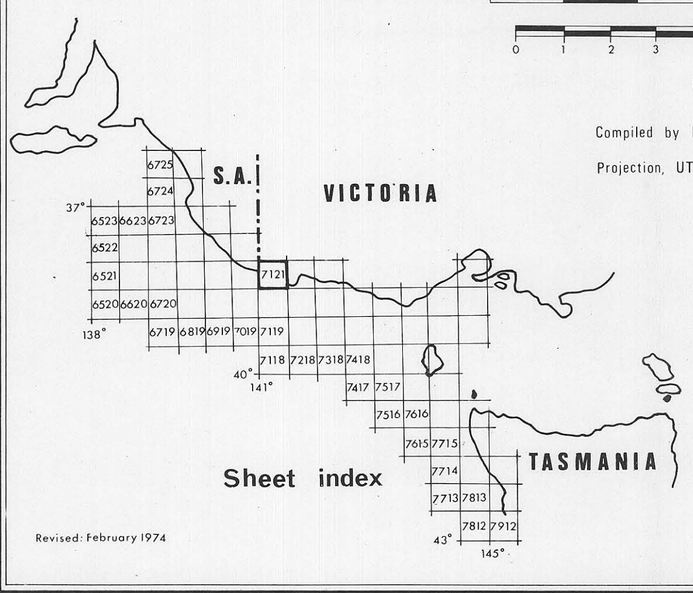
OTWAY/KING PART-XI*

(60)



Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. ZONE 54. C.M. 141°E



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081314

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E.G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7121

OR-067

OTWAY/KING PART-XI*

141° 30 | 35' | 40' | 560 000 m.E. | 45' | 50' | 55' | 580 000 m.E. | 142° 00'

39° 00'

05'

10'

5 660 000 m. N.

15'

20'

5 660 000 m. N.

25'

39° 30'

5600

5500

H03 — 28

781

811

841

871

877

Vic/P7 HEMATITE PETROLEUM PTY LTD VIC/P7

5 660 000 m.N.

5 640 000 m.N.

Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

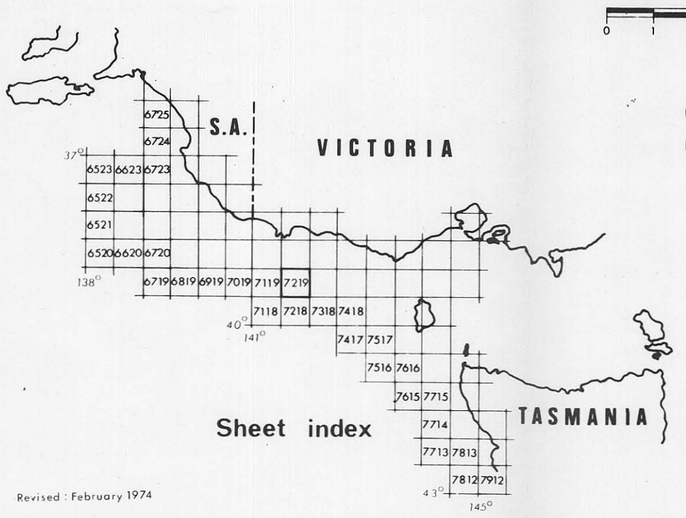
5 cm

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.



Sheet index

Revised : February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081315

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E. G. Urschel
Date : July 1974

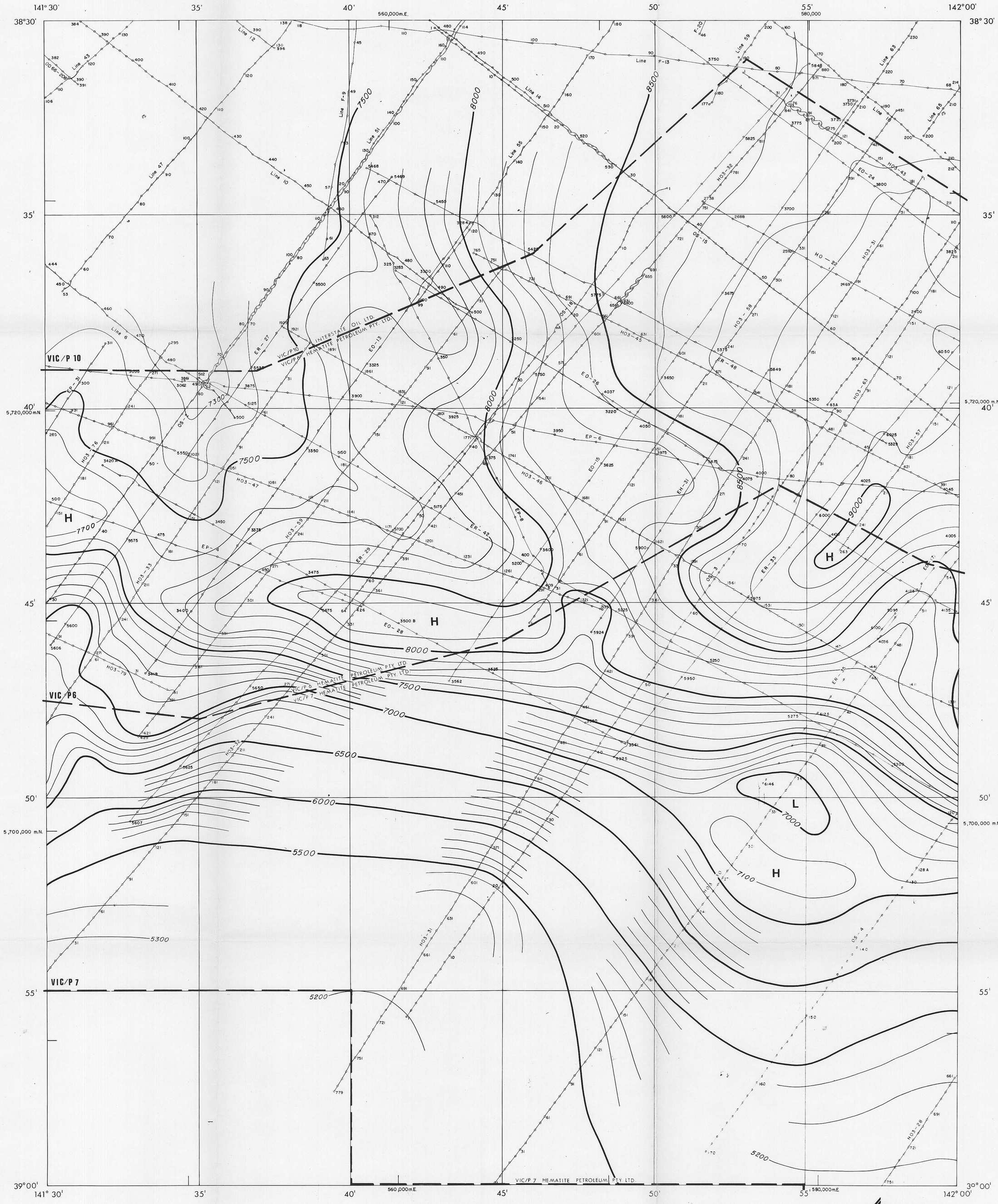
Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7219

OR-067

OTWAY/KING PART-XI*

62



Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141° E.

Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081816

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E G Urschel
Date : July 1974

Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7220

CR-067

OTWAY/KING PART-XI*

142°00' 590 000 mE 05' 600 000 mE 10' 15' 20' 620 000 mE 25' 142°30'

39°00' 5 680 000 mN 05' 10' 15' 20' 25' 5 660 000 mN 5 640 000 mN 39°30'

VIC/P7

HEMATITE PETROLEUM PTY. LTD. VIC/P7

VIC/P 7

VICTORIA / TASMANIA

05-5 · 15 · 10

HO3-24 · 151 · 121 · 91 · 61 · 31 · 1

05-6 · 160 · 70 · 80 · 90 · 96

HO3-46 · 5663 · E0-26 · 4400 · EP-51 · 6489 · 8500 · 8000 · 7500 · 7000 · 6500 · 6000 · 5500

681 · 721 · 751 · 781 · 811 · 127 · 05-8 · 139 · HO3-20 · 841 · 871 · 885 · 5700

Scale 1 : 100,000

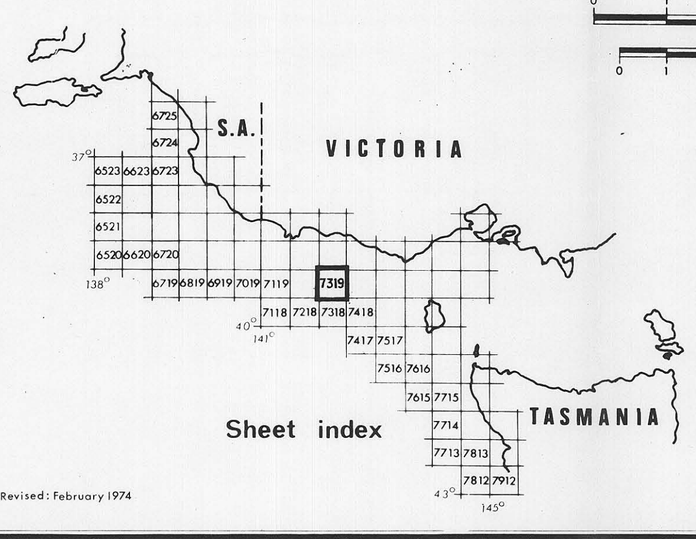
MILES 0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10 KILOMETRES

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E



Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081317

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E.G. Urschel
Date : July 1974

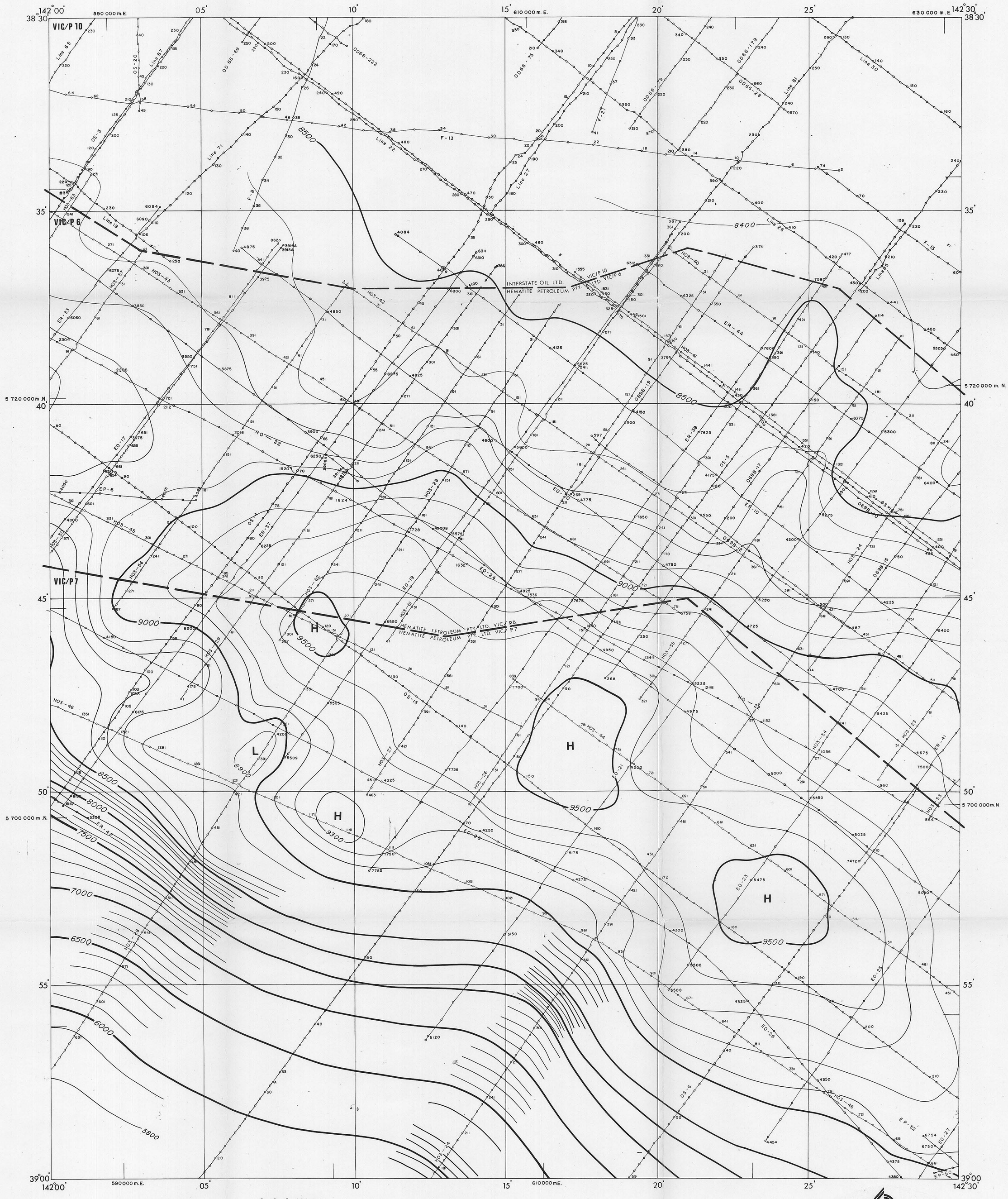
Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7319

OR-067

OTWAY/KING PART-XI*

64



Scale 1 : 100,000

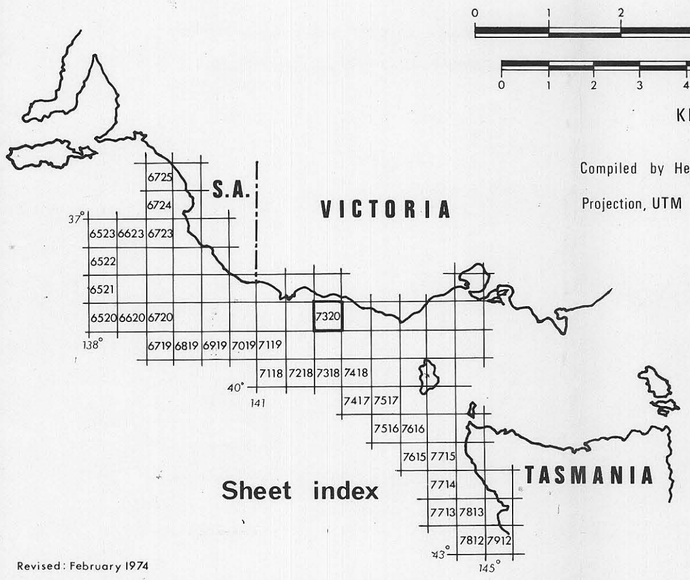
MILES 0 1 2 3 4 5 6 7

KILOMETERS 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM Zone 55 C.M 147°E



Revised : February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

08131S

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E. G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7320

OR-067

OTWAY/KING PART-XI*

(65)

142°30' 35' 640000m.E. 40' 55' 50' 660000 m.E. 55' 143°00'

39°30' / 5 620 000 m.N. / 35' / 40' / 5 600 000 m.N. / 45' / 50' / 55' / 5 800 000 m.N. / 40°00'

T/3 P

05-10

226

HO3 9 61 91 121 151 181 210 200

05-11

31 220 230 240 247

6100 6000 6500 7000 7500 8000 5500

HO3 6 451 481 511 541 571 601

T/3P HEMATITE PETROLEUM PTY. LTD.

H

5600

05-12

12 10 K-1 127 130 131

T/3 P

5 620 000 m.N. / 5 600 000 m N / 5 580 000 m.N.

142°30' 35' 640000 m.E. 40' 45' 50' 660000 m.E. 55' 143°00'

40°00'

Scale 1 : 100,000

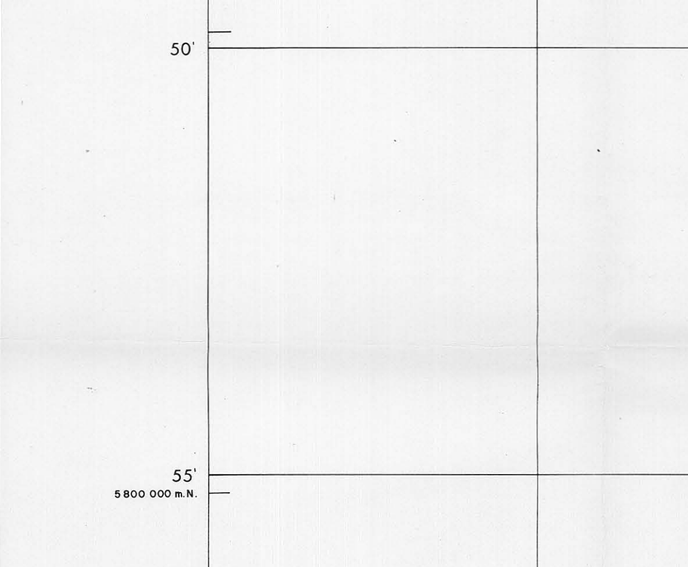
MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.



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Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081319

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E. G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7418

OR-067

OTWAY/KING PART-XI*

66

142°30'
630,000mE
35'
40'
650,000mE
45'
50'
55'
670,000mE
143°00'
39°00'
39°30'
10'
15'
20'
25'
05'
5,580,000 m.N.
5,660,000 m.N.
5,640,000 m N
5,680,000 m N

VIC/P 6
VIC/P 6 HEMATITE PETROLEUM PTY. LTD.
VIC/P 7 HEMATITE PETROLEUM PTY. LTD.
VIC/P 7
T/3P
VICTORIA
TASMANIA
VIC/P 7 HEMATITE PETROLEUM PTY. LTD.
T/3P HEMATITE PETROLEUM PTY. LTD.

Scale 1 : 100,000

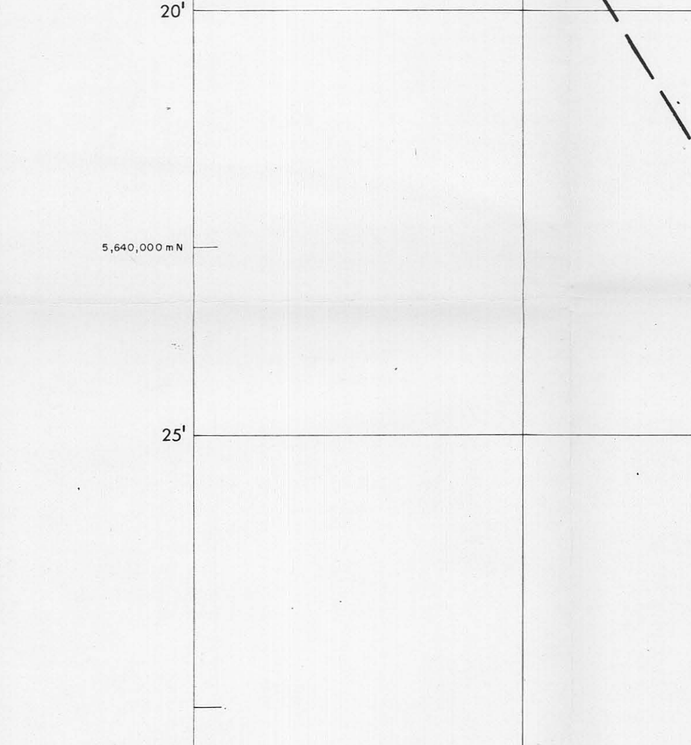
MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C M 141 E.



Revised February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

081320

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E.G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7419

OR-067

OTWAY/KING PART-XI*

142°30' 35' 640000 m.E 40' 45' 50' 660000 m.E. 55' 143°00'

38°30' 30' 35' 40' 45' 50' 55' 38°30'

5 720 000 m.N. 40' 45' 50' 55' 5 700 000 m.N.

39°00' 142°30' 35' 640000 m.E. 40' 45' 50' 660000 m.E 55' 143°00' 39°00'

Line 85 Line 30 Line 93 Line F — 7 Line FS — 39 Line FS — 31 Line FS — 32 Line 26 Line 34 Line F — 17 Line 97 Line F — 27 Line F — 16 Line 101 Line 105 Line 103 Line 109

EO-21 F — 15 OD 66 — B OD 66 — 93 OD 66 — 95 OD 66 — 36 OD 66 — 97 OD 66 — 230 OD 66 — 288 OD 66 — C OD 66 — 237 O 69 B — 15 HO3-54 HO3-23 HO3-53 HO3-40 HO3-41 HO3-60 HO3-42 HO3-44 HO3-20 HO3-51 HO3-75 HO3-74 HO3-19 HO3-18 HO3-17 HO3-73 HO3-16 HO3-72 HO3-15 HO3-14 HO3-10 HO3-69 HO3-13 HO3-12 HO3-22 HO3-24 HO3-1 HO3-4 HO3-52 HO3-41 HO3-42 HO3-20 HO3-40 HO3-60 HO3-69 HO3-13 HO3-41 HO3-42 HO3-44 HO3-20 HO3-51 HO3-75 HO3-74 HO3-19 HO3-18 HO3-17 HO3-73 HO3-16 HO3-72 HO3-15 HO3-14 HO3-10 HO3-69 HO3-13

FS — 35 FS — 26 FS — 22 FS — 1 FS — 34 ER — 41 ER — 44 HO-24A HO-22 HO-24 HO-20 HO-2 EO — 25 EO — 16 EO — 43 EO — 20 EO — 24 EO — 29 EO — 27 EO — 12 EO — 31 EO — 33 EO — 16 EO — 19 EP — 10 EP — 22 EP — 50 EP — 51 EP — 44 EP — 45 EP — 41 EP — 42 EP — 43

143°00' 05' 10' 690,000 m E 15' 20' 25' 710,000 m E 143°30'

39°30' 35' 40' 45' 50' 55' 40°00'

5,620,000 m N 5,600,000 m N 5,580,000 m N

8500 8000 7700 7500 7400 7100 7000 6500 6000 5500 5200

H H H H L

EO-39 EO-41 EO-43 EO-45 EO-47 EO-26 EO-24 EO-51 EO-53

EP-48 EP-49 EP-32 EP-33 EP-34 EP-35

HO3-6 HO3-4 HO3-1 HO3-5 HO3-49 HO3-03 HO3-02 HO-2

OS-12 OS-13 OS-24

K-1 K-6 K-7

ER-57 ER-54 ER-59 ER-61 ER-52

T/3P

T/3P HEMATITE PETROLEUM PTY. LTD.

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10 KILOMETRES

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141°E

Sheet index

S.A. VICTORIA TASMANIA

37° 138° 40° 141° 43° 145°

6725 6724 6523 6623 6723 6522 652 6520 6620 6720 6719 6819 6919 7019 7119 7118 7218 7318 7418 7518 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081322

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E. G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7518

OR-067

OTWAY/KING PART-XI*

69

143°00' 05' 10' 15' 20' 25' 143°00'

39°00'

680 000 m.E. 700 000 m.E.

5 680 000 m.N.

VIC/P6 VIC/P10 VIC/P7 T/3P

INTERSTATE OIL LTD.
HEMATITE PETROLEUM PTY LTD VIC/P10 VIC/P6

HEMATITE PETROLEUM PTY LTD
HEMATITE PETROLEUM PTY LTD VIC/P6 VIC/P7

HEMATITE PETROLEUM PTY LTD VIC/P7 VIC/P6
HEMATITE PETROLEUM PTY LTD T/3P

Line 34

Prawn A1

5 660 000 m.N.

5 640 000 m.N.

39°30'

T. 3P

Scale 1 : 100,000

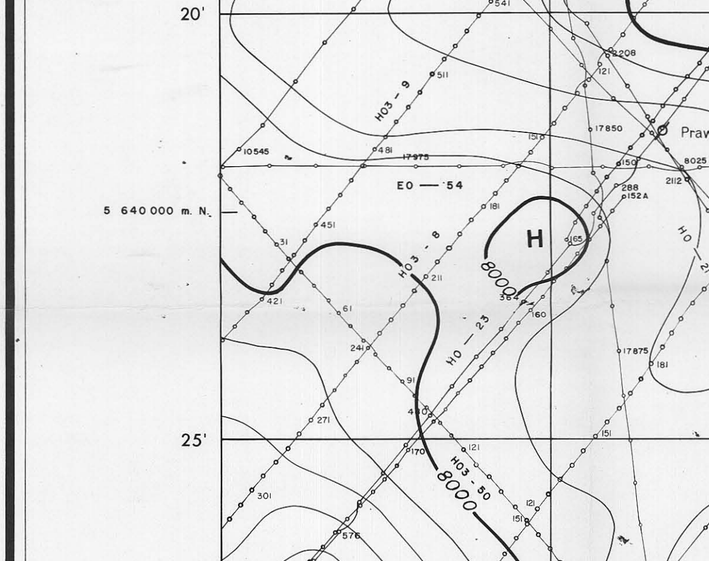
MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141° E.



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081323

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E.G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7519

OR-067

OTWAY/KING PART-XI*

143°00' 680 000 m.E. 05 10 15 700 000 m.E. 20 25 143°30'

38°30'

35'

Fergusons Hill-1

Sherbrook-1

5 720 000 m N

40'

Latrobe-1

PRINCETOWN

ROTTEN POINT

5 720 000 m.N.

45'

5 700 000 m.N.

50'

5 700 000 m.N.

55'

VIC/P10

VIC/P6

7000

6600

6400

6200

6800

H

VIC/P 10 INTERSTATE OIL LTD.

VIC/P 6 HEMATITE PETROLEUM PTY. LTD.

39°00'

143°00' 680 000 m.E. 05 10 15 700 000 m.E. 20 25 143°30'

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETERS 0 1 2 3 4 5 6 7 8 9 10

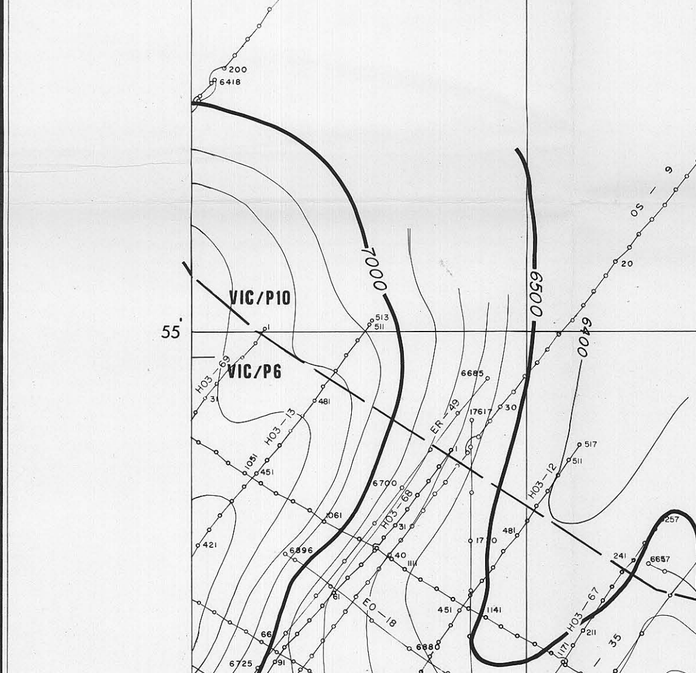
5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E.

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)



Revised : February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

081324

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

BLUE HORIZON

AVERAGE VELOCITY

Contour interval : 100 ft. per sec.
Author : E. G. Urschel
Date : July 1974

Datum : Sea level
Drawn by : J. Cattach
Checked by : G. Hosking

SHEET 7520

OR-067

OTWAY/KING PART-XI*



Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

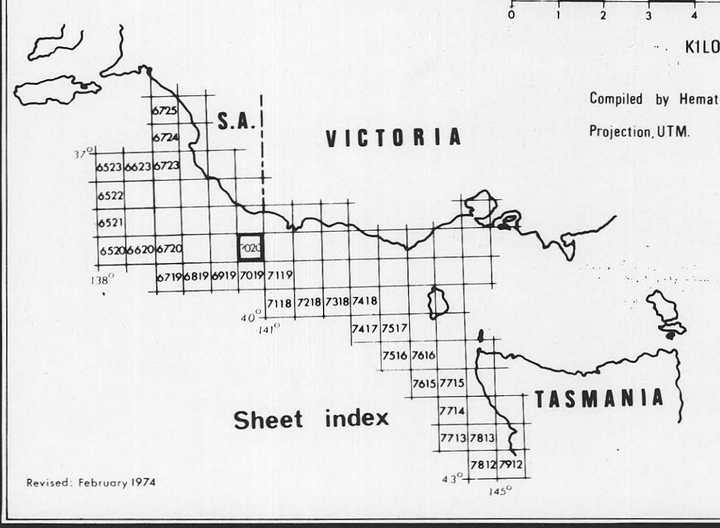
0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.



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Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

AVERAGE VELOCITY

081325

Contour interval : 200 ft. per sec.
Author : E. G. Urschel
Date : August 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

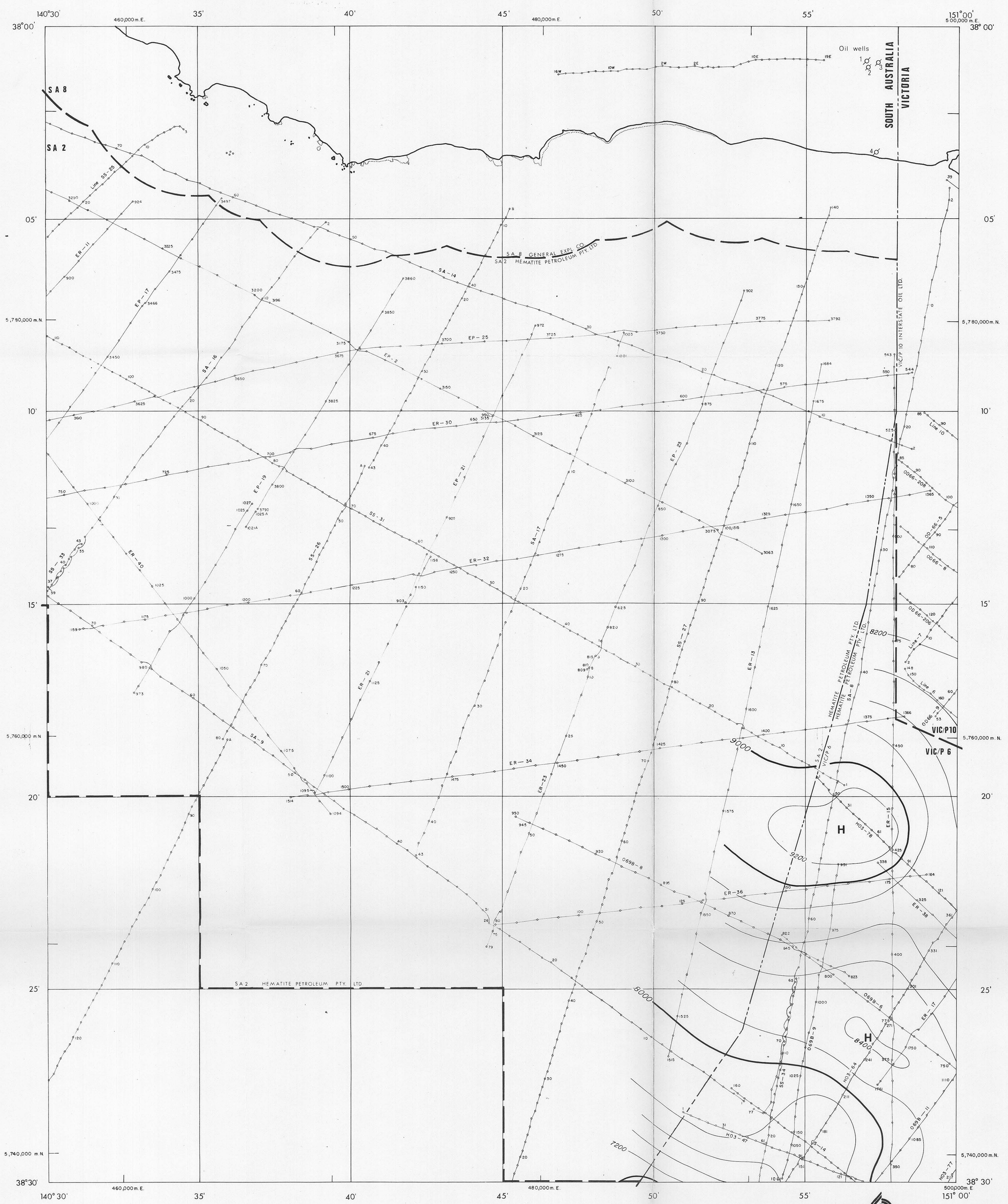
OTWAY/KING PART-XI*

SHEET 7020

OR-067

OFFSHORE 41

72



Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

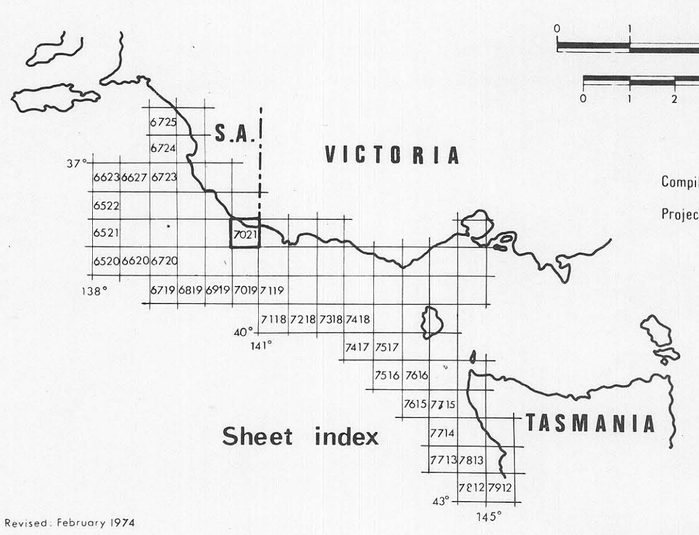
0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E



Revised: February 1974

LEGEND

- Oil Well
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- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

AVERAGE VELOCITY

081326

Contour interval : 200 ft. per sec.
Author : E. G. Urschel
Date : August 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7021

OR-067

OTWAY/KING PART-XI*

141°00' 500,000mE | 05' | 510,000 mE | 10' | 520,000m E | 15' | 20' 530,000mE | 25' | 540,000m E | 141°30'

38°30' | 38°30'

VIC/P 10

VIC/P 6

VIC/P 7

VIC/P5 HEMATITE PETROLEUM PTY LTD

VIC/P7 HEMATITE PETROLEUM PTY LTD

VIC/P10 VIC/P 6 INTERSTATE OIL LTD. HEMATITE PETROLEUM PTY LTD

VIC/P 7 HEMATITE PETROLEUM PTY LTD.

8400 H

9000

8000

7000

6000

5800

9600 H

9800 H

10000 H

9000

8000

7000

6200

ER 19 · ER 38 · ER 25 · ER 27 · EP-4 · EP-27 · EP-6 · EP-29 · EP-4 · EP-31 · EP-6

Line 35 · Line 39 · Line E · Line 43

OD 66-37 · OD 66-20B · OD 66-A · OD 66-20A

OS-1 · OS-14 · OS-17 · OS-2

H03-39 · H03-38 · H03-47 · H03-79 · H03-38 · H03-36 · H03-35 · H03-34 · H03-79 · H03-76 · H03-33 · H03-38

5,730,000 m N | 35' | 5,720,000 m N | 40' | 5,710,000 mN | 45' | 5,700,000 m N | 50' | 5,690,000 mN | 55' | 39°00'

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty Ltd.

Projection U.T.M. Zone 54 C.M. 141°E.

Revised February 1974

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S.A. VICTORIA TASMANIA

6725 6724 6523 6623 6723 6522 6521 6520 6620 6720 7120 6719 6819 6919 7019 7119 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

37° 138° 40° 141° 43° 145°

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

AVERAGE VELOCITY

081327

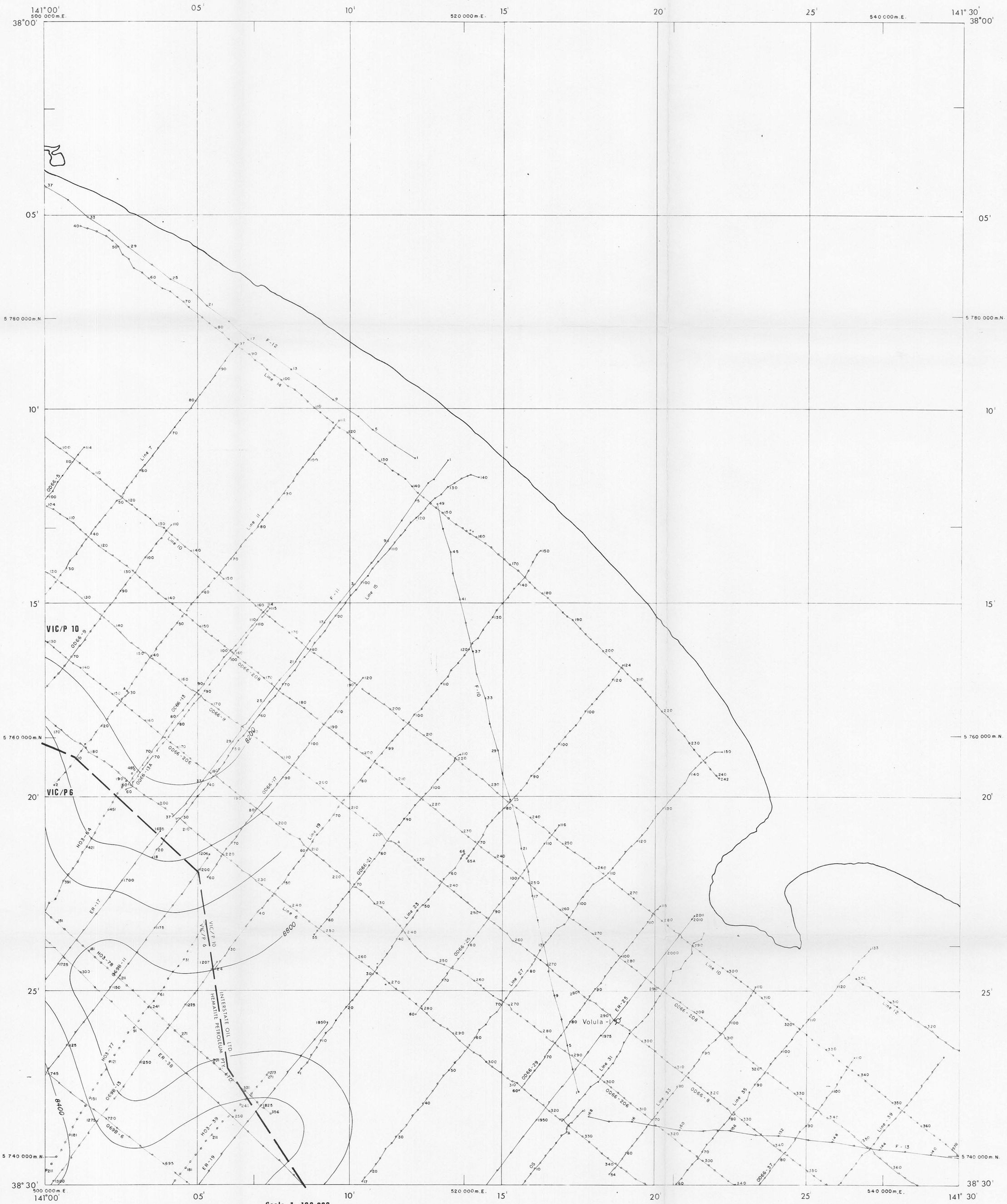
Contour interval : 200 ft. per sec.
Author : E. G. Urschel
Date : August 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7120

OR-067

OTWAY/KING PART-XI*



Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. ZONE 54. C.M. 141°E

Sheet index

Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081328

RED HORIZON

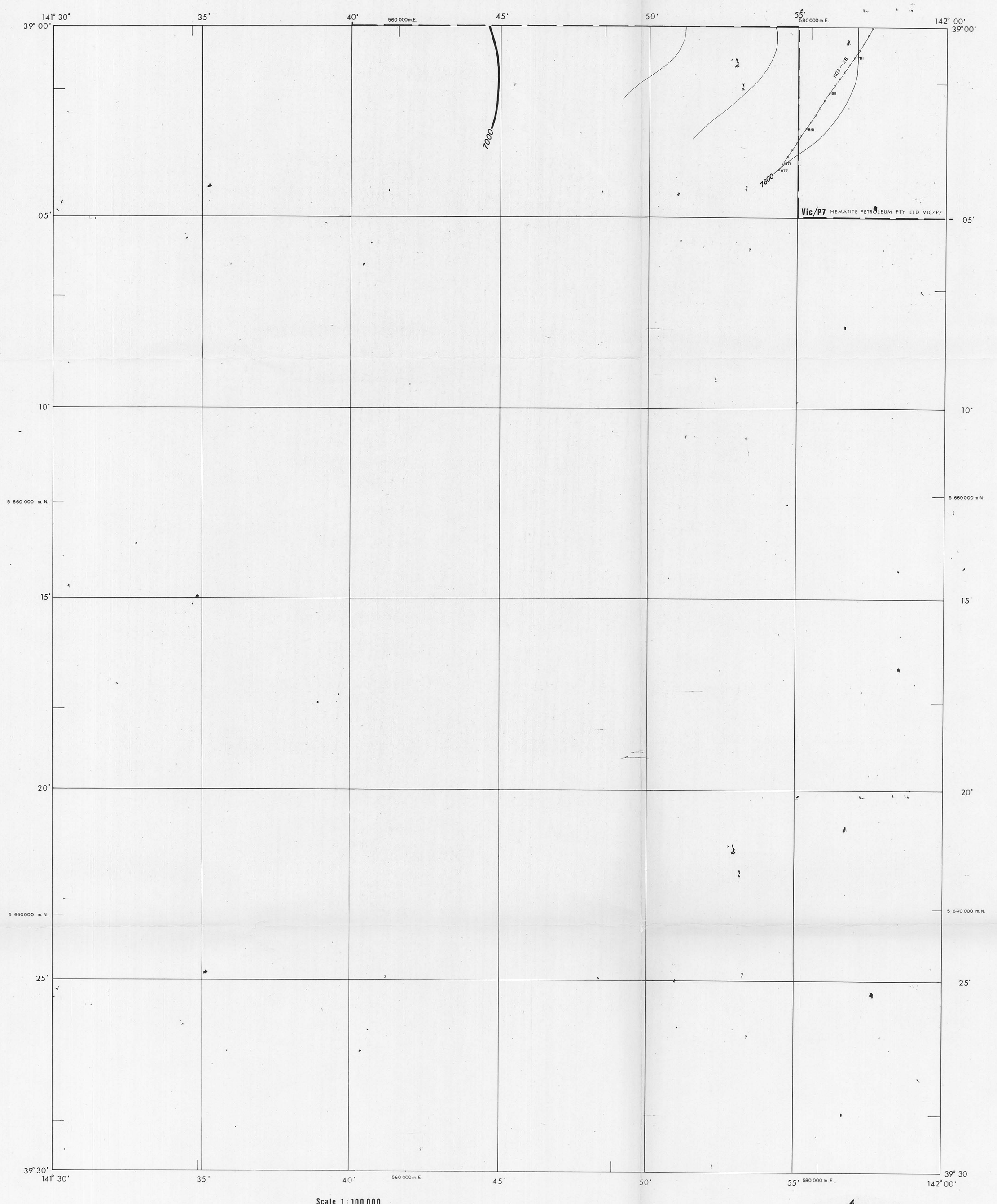
AVERAGE VELOCITY

Contour interval : 200 ft per sec.
Author : E. G. Urschel
Date : August 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7121

OTWAY/KING PART-XI* OR-067



Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

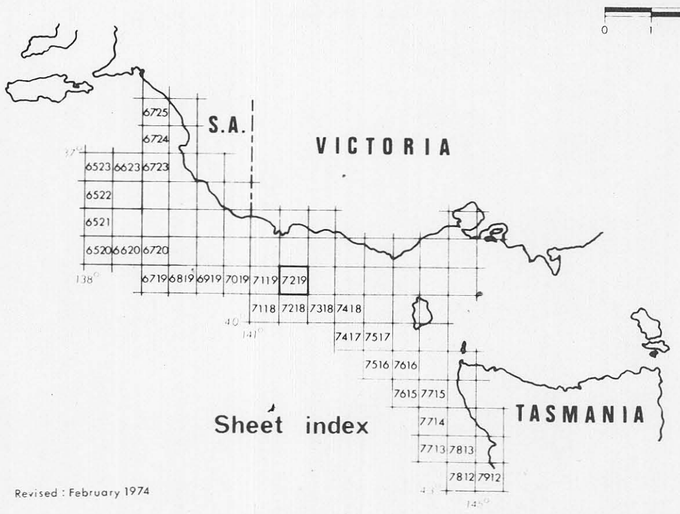
0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

5 cm

Compiled by Hematite Petroleum Pty Ltd

Projection UTM Zone 54 CM 141° E.



Revised : February 1974

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081329

RED HORIZON

AVERAGE VELOCITY

Contour interval : 200 ft. per sec.
Author : E. G. Urschel
Date : August 1974

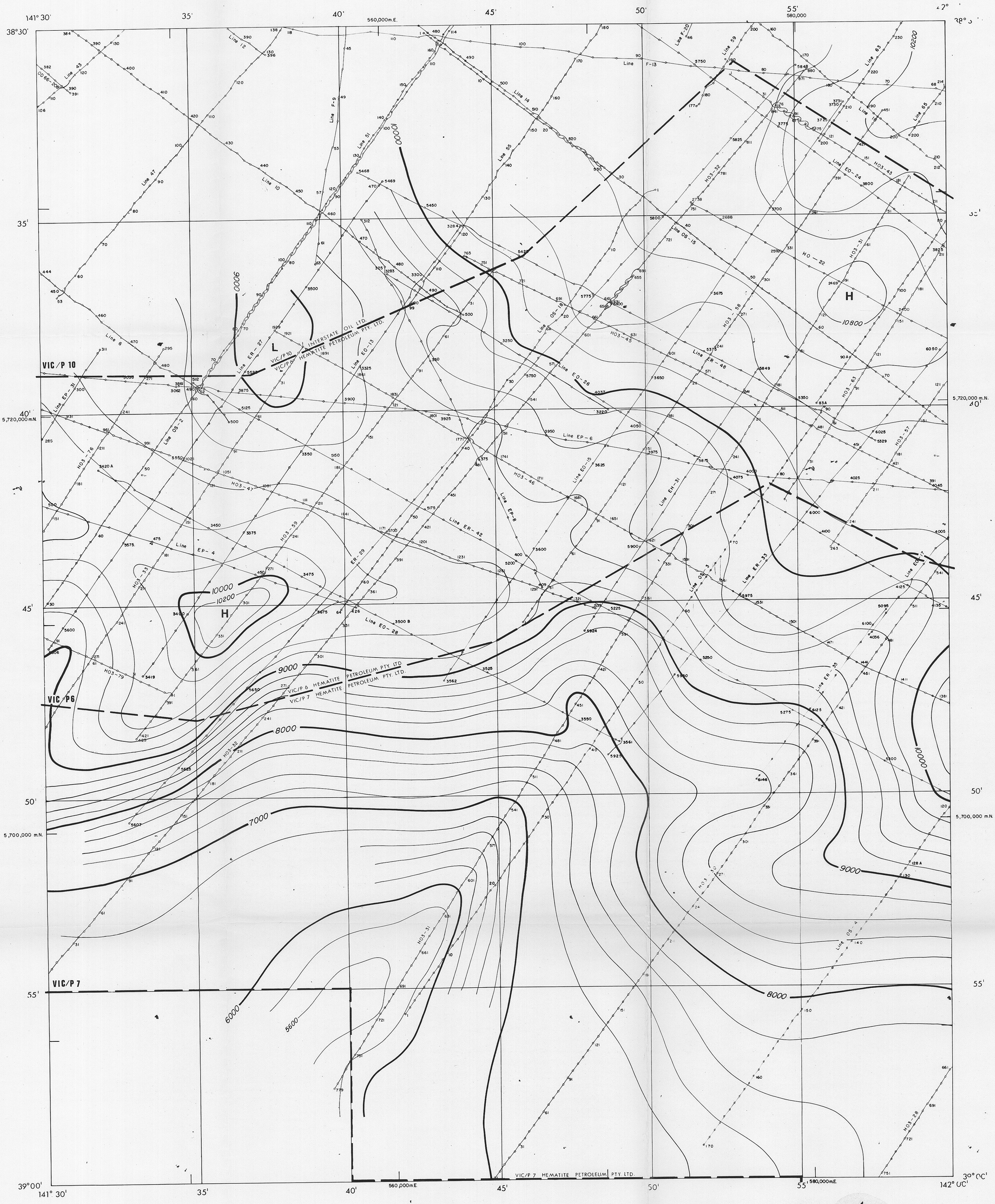
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7219

OR-067

OTWAY/WINJ PART-XI*

76



Scale 1 : 100,000

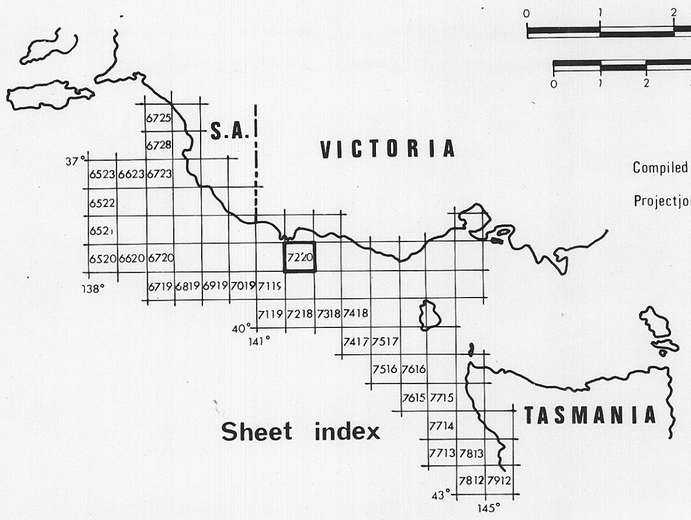
MILES

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

5 cm



Revised : February 1974

Compiled by Hematite Petroleum Pty. Ltd.

Projectjon U.T.M. Zone 54 C.M. 141°E.

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

AVERAGE VELOCITY

081330

Contour interval : 200 ft. per sec.
Author : E. G. Urschel
Date : August 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7220

OR-067

OTWAY/KING PART-VI*

142°00' 590 000 mE 05' 600 000 mE 10' 15' 20' 620 000 mE 25' 142°30'

39°00' — 5 680 000 mN

10000 9000 8000 7000 6000 7800

05-5 05-6 05-8 H03-24 H03-20 H03-346 EO-27 EO-26 EP-51

5663 4400 6489 691 721 751 781 811 841 871 885 127 139

05' VIC/P7 — 05'

HEMATITE PETROLEUM PTY. LTD. VIC/P7

10' — 10'

VIC/P 7 — 5 660 000 mN

5 660 000 mN

15' — 15'

20' — 20'

VICTORIA / TASMANIA

5 640 000 mN

25' — 25'

39°30' 142°00' 590 000 mE 05' 600 000 mE 10' 15' 20' 620 000 mE 25' 142°30' 39°30'

Scale 1 : 100,000

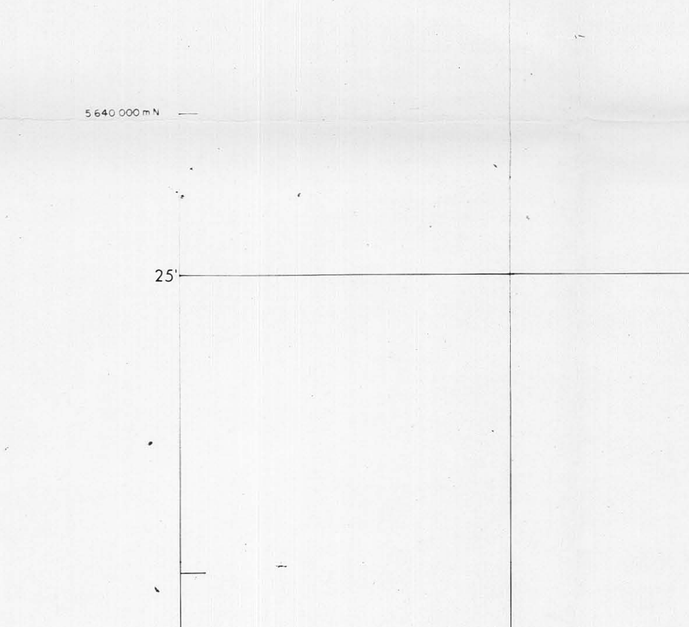
MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E



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Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081331

RED HORIZON

AVERAGE VELOCITY

Contour interval : 200 ft. per sec
Author : E. G. Urschel
Date : August 1974

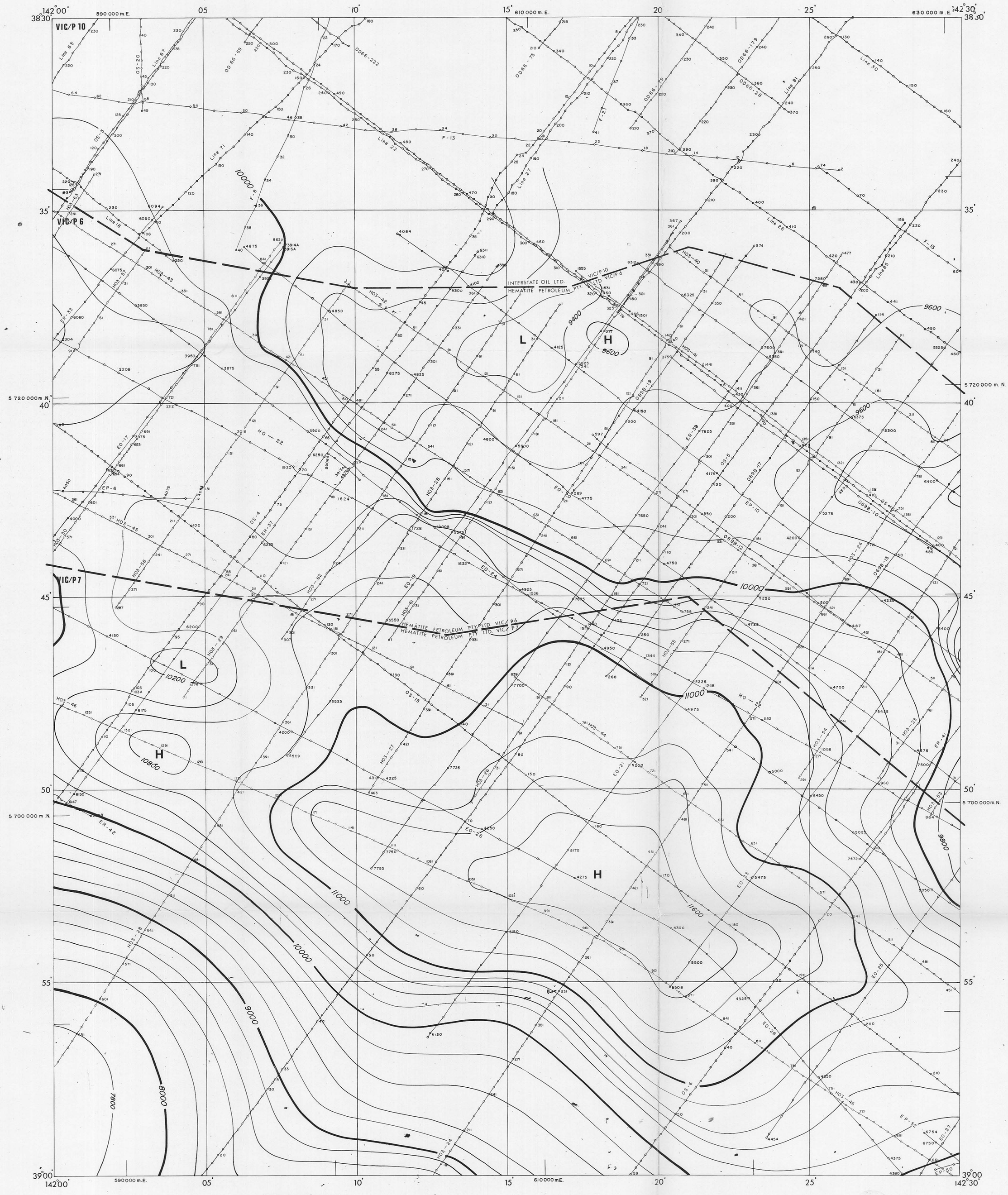
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7319

OR-067

OTWAY/KING PART-XI*

78



Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

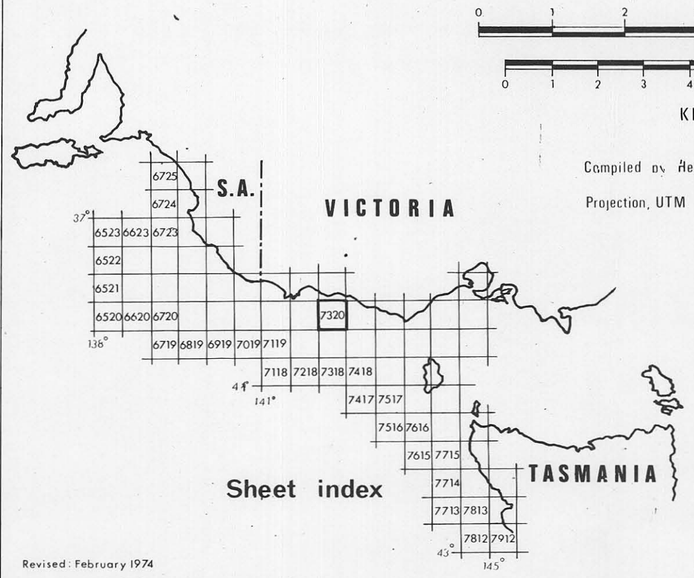
0 1 2 3 4 5 6 7 8 9 10

KILOMETERS

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM Zone 55 C.M. 147°E



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

AVERAGE VELOCITY

081332

Contour interval : 200 ft. per sec.
Author : E. G. Urschel
Date : August 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7320

OR-067

OTWAY/KING PART-XI*

142°30' 35' 640000 m.E. 40' 45' 50' 660000 m.E. 55' 143°00'

39°30' — 5 620 000 m.N.

35'

40'

5 600 000 m.N.

45'

50'

55'

5 800 000 m.N.

40°00'

T/3P

05-10

HO3 - 9

05-11

6400

7000

9000

8000

T/3P HEMATITE PETROLEUM PTY. LTD.

7000

6000

5600

T3P

HO3 - 8

05-12

K-1

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

KILOMETRES 0 1 2 3 4 5 6 7 8 9 10

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141° E.

S.A. VICTORIA TASMANIA

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6725 6724 6623 6623 6723 6522 6521 6520 6620 6720 6719 6819 6919 7019 7119 7820 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

37° 138° 40° 141° 43° 145°

Revised : February 1974

LEGEND

- Oil Well
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- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

AVERAGE VELOCITY

081333

Contour interval : 200 ft per sec
Author : J. Denham
Date : August 1974

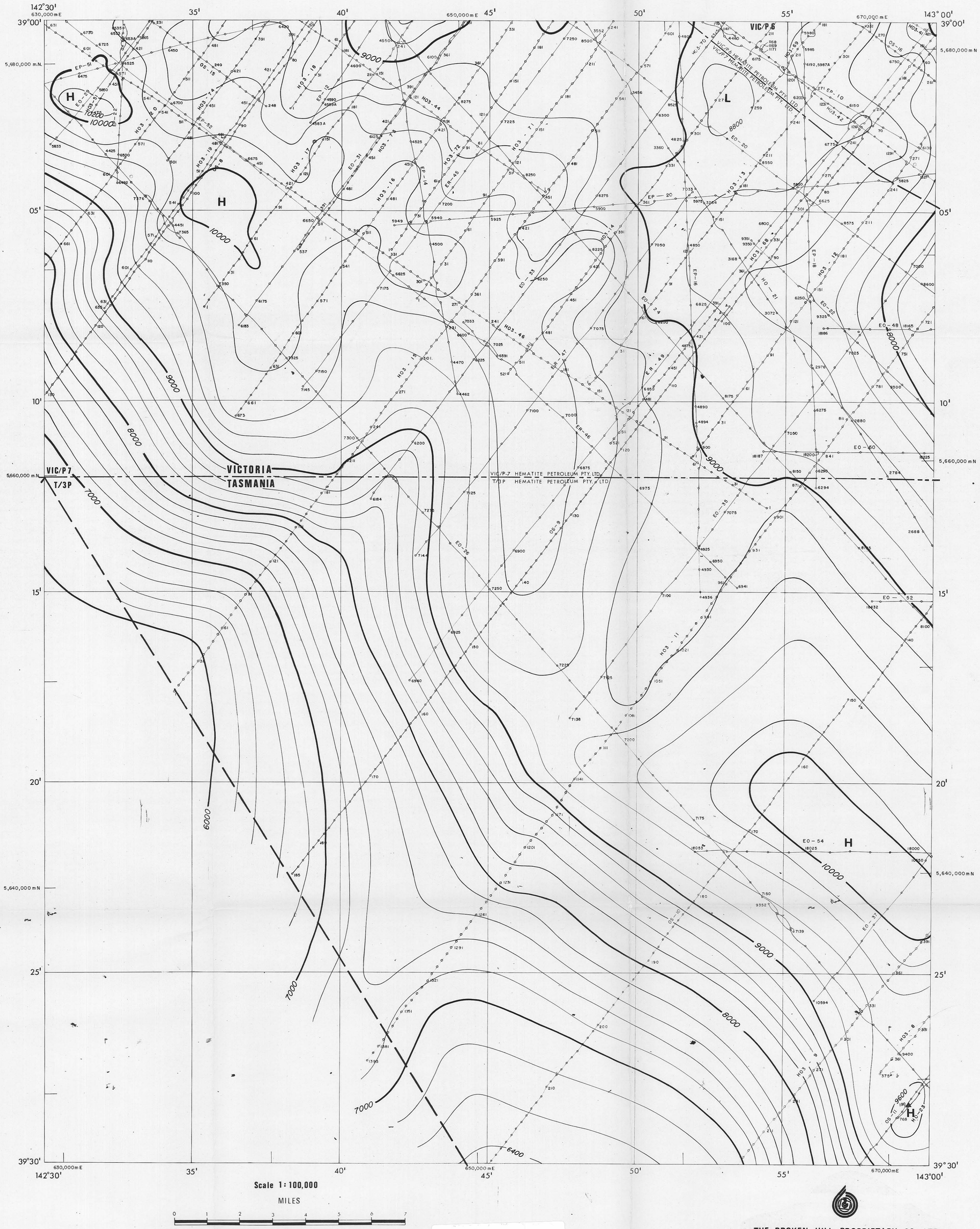
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7418

OTWAY/KINS PART - XI *

OR-067

(80)



Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

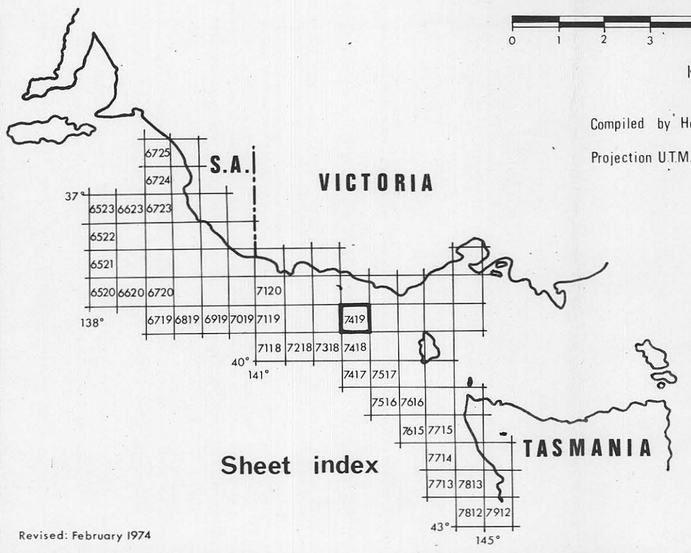
0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M 141 E.



Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

AVERAGE VELOCITY

081334

Contour interval : 200 ft per sec
Author : J. Denham
Date : August 1974

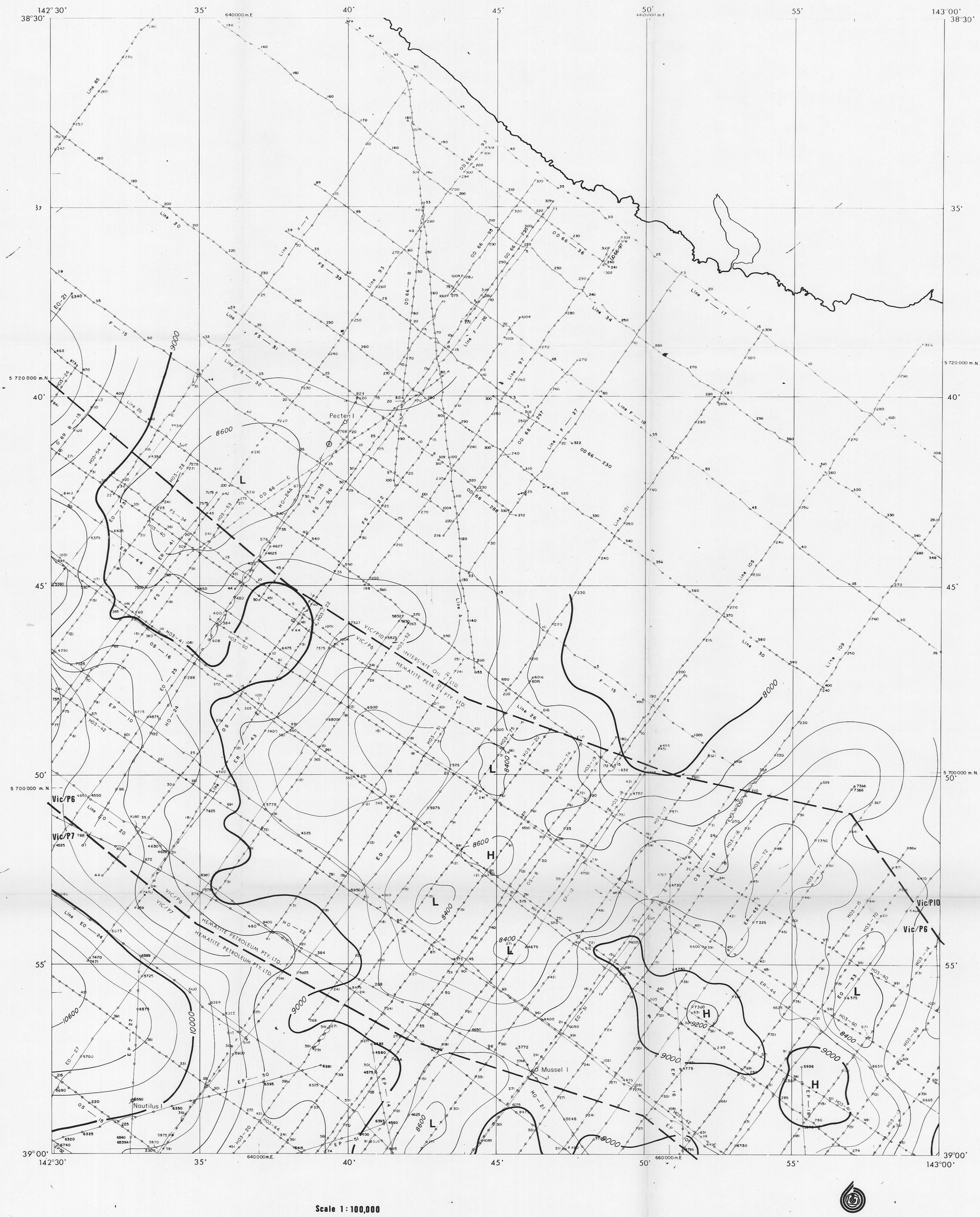
Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

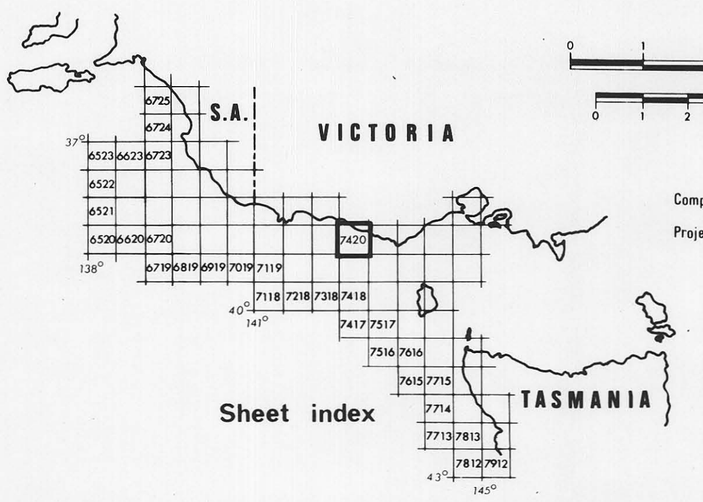
SHEET 7419

OR-067

OTWAY/KING PART-XI*

(81)





Revised: February 1974

Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10

KILOMETRES

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

AVERAGE VELOCITY

081335

Contour interval : 200 ft. per sec.
Author : E. G. Urschel
Date : August 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7420

OR-067

OTWAY/KING PART-XI*

143°00' 05' 10' 690,000 mE 15' 20' 25' 710,000 mE 143°30'

39°30' 5,620,000 mN 35' 40' 45' 50' 55' 5,580,000 mN 40°00'

9000 10400 10000 9000 8000 7000 9400 9000 8400 9200 9000 7000 6000 5600

EO-39 EO-41 EP-48 EP-49 HO3-5 EO-22 HO3-49 HO3-6 HO3-03 EO-24 EO-43 EO-45 EO-12 EO-26 HO3-4 EO-47 HO-2 EP-33 OS-13 HO3-02 EP-32 EO-24 EP-34 EO-43 K-1 ER-57 ER-54 HO3-01 ER-59 EO-26 EO-51 ER-52 K-6 ER-61 K-7 EP-35 EO-53

H H H H

T/3 P

TBP HEMATITE PETROLEUM PTY. LTD.

Scale 1: 100,000

MILES 0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10 KILOMETRES

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141°E

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6725 6724 6523 6623 6723 6522 652 6520 6620 6720 6719 6819 6919 7019 7119 7118 7218 7318 7418 7518 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

37° 138° 40° 141° 43° 145°

Revised: February 1974

LEGEND

- Oil Well
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THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION

(HEMATITE PETROLEUM PTY. LTD.)

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

OTWAY BASIN

RED HORIZON

AVERAGE VELOCITY

081336

Contour interval: 200 ft. per sec.

Author: J. Denham

Date: August 1974

Datum: Sea level

Drawn by: B. Hale

Checked by: G. Hosking

SHEET 7518

OR-067

OTWAY/KINS PART-XI*

143°00' 05' 10' 15' 20' 25' 143°00'
39°00'
680 000 m.E. 700 000 m.E.
5 680 000 m.N.

VIC/P6 VIC/P7 VIC/P10 T/3P

INTERSTATE OIL LTD.
HEMATITE PETROLEUM PTY LTD VIC/P10 VIC/P4
HEMATITE PETROLEUM PTY LTD VIC/P5 VIC/P7
HEMATITE PETROLEUM PTY LTD VIC/P7 T/3P
HEMATITE PETROLEUM PTY LTD

Line 34

8000 8200 7600 7800 9000 9600 8600

H L

HO3-12 HO3-61 HO3-66 HO3-60 HO3-40 HO3-11 HO3-10 HO3-41 HO3-65 HO3-42 HO3-9 HO3-8 HO-23 HO-24 HO-21 HO3-7 HO3-50 HO3-6 HO3-49 HO3-5

EP-20 EP-10 EP-24 EP-49 EP-48

OS-10 OS-16 OS-11 OS-16 OS-12

EO-71 EO-48 EO-37 EO-16 EO-18 EO-39 EO-20 EO-50 EO-52 EO-41 EO-54 EO-22 EO-26 EO-43 EO-45

Prawn A1

Scale 1 : 100,000

MILES 0 1 2 3 4 5 6 7

0 1 2 3 4 5 6 7 8 9 10 KILOMETRES

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection U.T.M. Zone 54 C.M. 141° E.

S.A. VICTORIA TASMANIA

Sheet index

6725 6724 6523 6623 6723 6522 6521 6520 6620 6720 6719 6819 6919 7019 7119 7519 7118 7218 7318 7418 7417 7517 7516 7616 7615 7715 7714 7713 7813 7812 7912

37° 138° 40° 141° 43° 145°

Revised: February 1974

LEGEND

- Oil Well
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- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

RED HORIZON

AVERAGE VELOCITY

081337

Contour interval : 200 ft. per sec.
Author : J. Denham
Date : August 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7519

OR-067

OTWAY BASIN PART-XI*

143°00' 680 000 m.E. 05' 10' 15' 700 000 m.E. 20' 25' 143°30'

38°30'

35'

Fergusons Hill-1

Sherbrook-1

5 720 000 m.N.

40'

Latrobe-1

PRINCETOWN

ROTTEN POINT

45'

5 700 000 m.N.

50'

VIC/P10

VIC/P6

VIC/P10 INTERSTATE OIL LTD.
VIC/P 6 HEMATITE PETROLEUM PTY. LTD.

55'

39°00'

143°00' 680 000 m.E. 05' 10' 15' 700 000 m.E. 20' 25' 143°30'

Scale 1 : 100,000

MILES

0 1 2 3 4 5 6 7

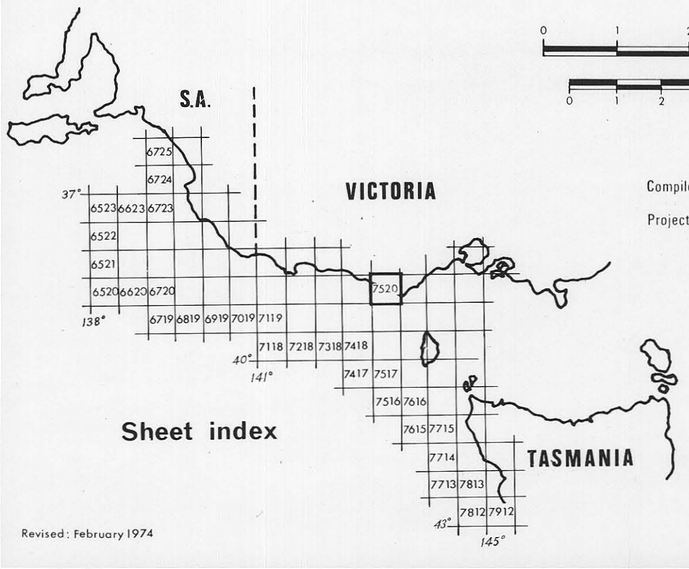
0 1 2 3 4 5 6 7 8 9 10

KILOMETERS

5 cm

Compiled by Hematite Petroleum Pty. Ltd.

Projection, UTM. Zone 54 C.M. 141°E.



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Revised: February 1974

LEGEND

- Oil Well
- Gas Well
- Oil & Gas Well
- Oil show
- Gas show
- Oil & Gas shows
- Drilling
- Dry hole (Abandoned)

THE BROKEN HILL PROPRIETARY CO. LTD.

OIL AND GAS DIVISION
(HEMATITE PETROLEUM PTY. LTD.)

OTWAY BASIN

CAPE NELSON TO CAPE OTWAY SEISMIC SURVEY

081338

RED HORIZON

AVERAGE VELOCITY

Contour interval : 200 ft. per sec.
Author : E. G. Urschel
Date : August 1974

Datum : Sea level
Drawn by : B. Hale
Checked by : G. Hosking

SHEET 7520

OR-067

OTWAY/KING PART-XI*