OUTLINE OF INCIDENT

The Panamanian registered bulk carrier ALEXANDRE-P, a ship of 94532 tonnes deadweight and some 250 metres in length, loaded a cargo of iron ore at the Western Australian port of Dampier on 12 March 1990.

On completion of loading the ship proceeded to the outer anchorage in order to close and secure hatches, departing from the anchorage at 1610 hours Western Australian Standard Time on 13 March 1990, bound for Capetown and Gijon, Spain.

At 1400 Hours WAST on 14 March 1990 the ship made a daily routine position report to the Federal Sea Safety Centre, Canberra under the Australian Ship Reporting System. The ship failed to keep its next scheduled broadcast at 1400 Hours WAST on 15 March 1990 and 'ship overdue' procedures were put into motion at the FSSC.

Air searches commenced when the ship became 24 hours overdue on the afternoon of 16 March, flotsam eventually being located on 18 March in an area centred on position 20s 112E. The ship ENERGY SEARCHER arrived on the scene on 20 March and retrieved a liferaft which was identified by the owners as belonging to the ALEXANDRE-P. No survivors were found.

TERMS OF REFERENCE

On 23 March 1990 John Keith Leverton, Executive Officer Ship Operations Section, Maritime Operations Division, and Philip Wilkinson, Marine Surveyor, were appointed to make a preliminary investigation under the provisions of sub-section 377A(l) of the Navigation Act 1912, into the loading of the Panamanian registered bulk carrier ALEXANDRE-P prior to its loss off the west coast of Australia on 14/15 March 1990 and in particular

whether the cargo shipped at Dampier between 9 and 12 March 1990 was loaded in an appropriate manner

the general condition of the vessel and any other relevant information that may be pertinent to the loss.

PERSONS INTERVIEWED

Fremantle 27 March 1990

Andrew Allin	Agent. Wilhelmsen Lynn Elder P.L, as Sub-Agent to Barwil, Sydney.

Karratha 28-30 March 1990

Alan J Bradley	Quarantine Officer
Colin Browning	Agent. Westcoast Shipping, for Showa Shipping Line Tokyo
Nicholas A Cramond	Shipping Officer, Westcoast Shipping
Geoffrey W Dornan	Shipping Officer, Hamersley Iron P L
Mervyn E Edwards	Plant Operator
John Gartner	Plant Operator
Brian W Green	Customs Officer
Michael R Hansen	Plant Operator
Paul J Henry	Supervisor
Terrence B Powell	Plant Operator
James F Richmond	Ship's Providore
Capt. M J H Williams	Harbour Pilot, Surveyor
Ian Wilson	Supervisor

Perth 31 March 1990

Capt. O E Roberts	Draught Surveyor, Pilot

Karratha 24 May 1990

Frederick C Awty	Supervisor

CONCLUSIONS

1 The cargo of iron ore, lumps and fines, was presented for loading in a proper manner.

2 The cargo was loaded in accordance with the Master's/Chief Officer's requirements.

3 The loading sequence, which was modified as a result of No.3 hatch jamming, although perhaps not the most preferable, is not considered unreasonable or to have placed undue stress upon the ship.

4 From the observations of witnesses it is considered that the ALEXANDRE-P had not been well maintained, that there was heavy corrosion and wastage around the main deck and cargo hatches and also in the upper sections of the transverse bulkhead between holds 2 and 3.

5 From the position of the flotsam it is considered that the ALEXANDRE-P foundered sometime around 1800/1900 hours ship's time on 14 March 1990 in approximate position 2020s 11200E.

6 Due to the fact that no distress,message was heard by either coast radio stations or other shipping and due to the lack of survivors or further bodies, it is concluded that the foundering was both sudden and rapid.

7 The wind and sea conditions, being light, are not considered to be causal factors to the loss.

8 A 2-3 metre swell from the southwest would have caused the ALEXANDRE-P to pitch moderately and also to roll slightly.

9 Although the cause of the foundering cannot be determined with any certainty and although beyond the scope of this investigation, it is considered that either a sudden, massive structural failure occurred, with the ship breaking into two sections or, there was some form of explosion in the engineroom, of sufficient magnitude to rupture the ship's hull and cause rapid flooding and sinking.

10 Professional opinion is that the two recovered corpses bore evidence of flash burns and blast injuries, indicating that some form of explosion did occur.

11 If the foundering was in fact due to a major structural failure, it is considered that inspection at Dampier under the port state control provisions of the International Conventions would have been unlikely to prevent the foundering.

PARTICULARS OF SHIP

Name:	ALEXANDRE-P	Flag:	Panamanian
Previous Name:	ACACIA	Flag:	South Korean
Former Name:	TSURUSAKI MARU	Flag:	Japanese

Type: Ore/Oil - converted to ore only.

Year Built: 1967

Classification Society: Korean Register of Shipping.

Owners: Acacia Maritime Corporation, Monrovia, Liberia.

Disponent (Time Charterer) Owners:, Allied Bulk Navigation Ltd, Jersey, Channel Is.

Head Charterers: Hamersley Iron P/L

Voyage Charterers: Showa Line, Tokyo.

Total Number of Crew: 24 - 22 Korean plus 2 Greek.

GRT	54566
NRT	14204
Deadweight	94532 tonnes
Length overall	249.99 metres
Beam	38.56 metres
Moulded Depth	20.58 metres
Summer Draught	14.483 metres
Number of Holds	4
Number of Hatches	8
Ore Capacity	49050 cu. metres

Main Engine: 9 cylinder Motor of 1588 kW (Mitsubishi H I)

INTERNATIONAL SAFETY CERTIFICATE EXPIRY DATES

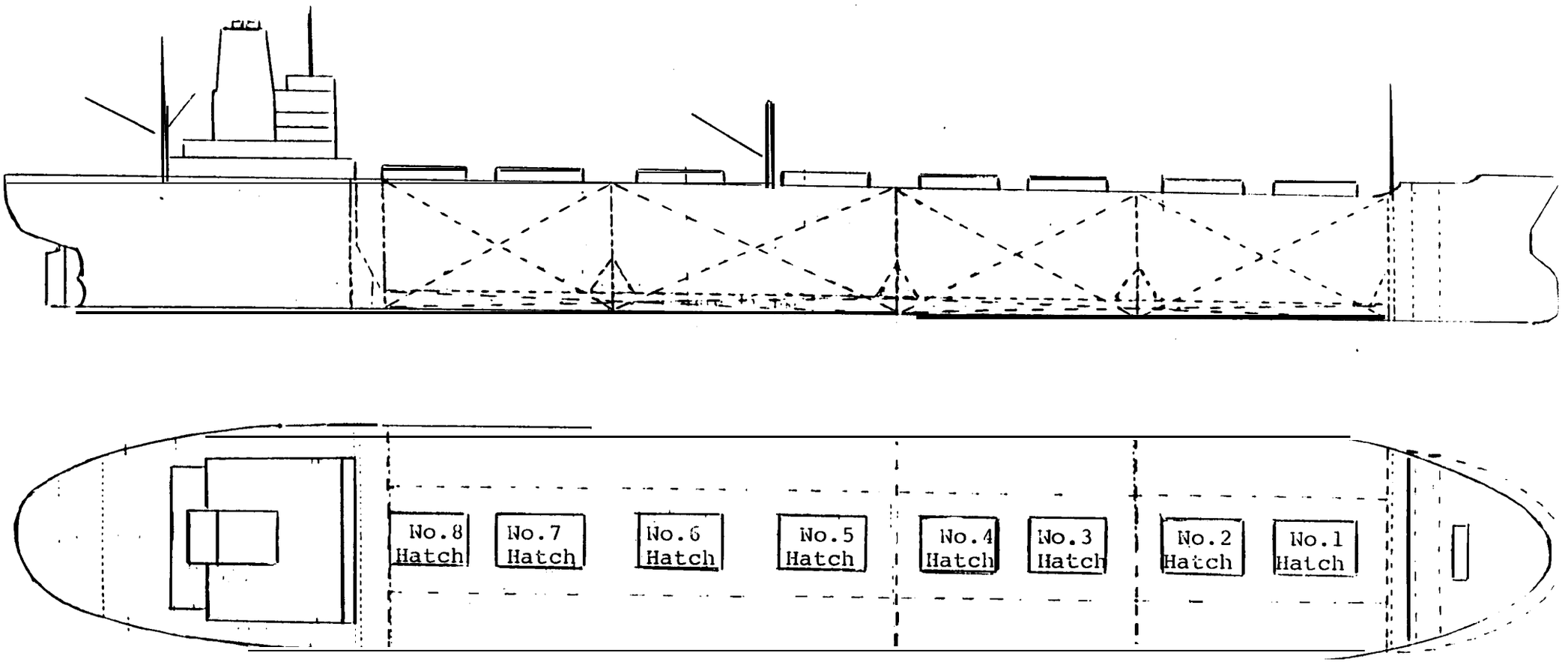
(From Boarding Officers' Records)

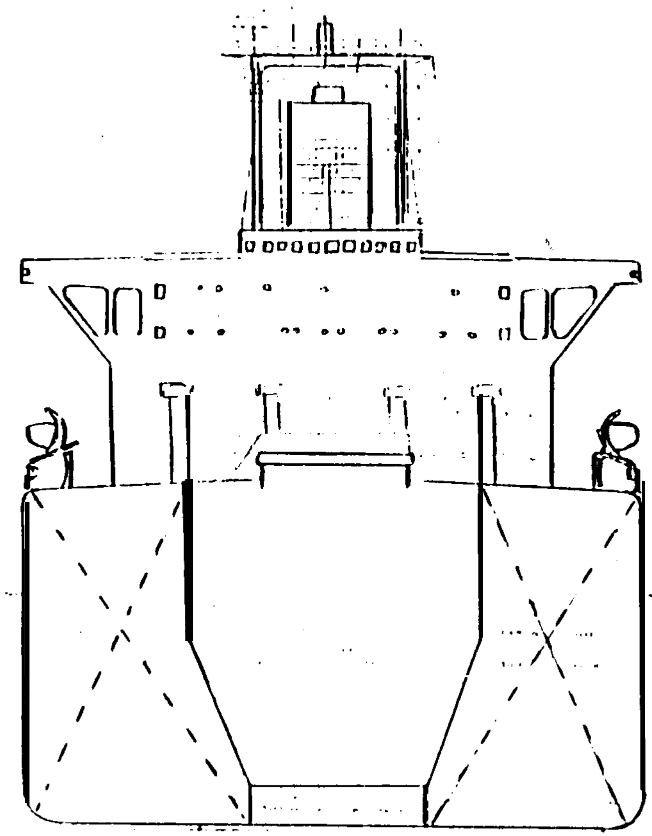
International Loadline	2.01.93
Safety Radio Telegraphy	2.08.90
Safety Equipment	2.08.90
Safety Construction	2.08.92

The ship underwent a Special Survey in 1987

ALEXANDRE - P

GENERAL ARRANGEMENT





CARGO OIL TANK:- API 40. 60°F. S.G.=0.8251 . WITHOUT HATCH & HEAT. [illegible] (100 % FULL .

ITEM	POSITION	M³	BBL	TON	⊠G(M)	KG(M)
NO. 1 HOLD OR C.O.T. (C)	83 − 92	11,711.0	73,659	9662.7	− 75.35	12.86
NO. 3 (C)	64 − 74	13,039.6	82,010	10,758	7.90	12.85
NO. 4 (C)	55 − 64	11,712.9	73,671	9664.3	50.66	12.86
NO. 1 CARGO OIL SIDE T. (P+S)	83 − 92	18,288.0	115,028	15,089.4	− 74.82	9.85
NO. 2 (P+S)	74 − 83	19,199.2	120,758	15,841.2	− 34.84	9.79
NO. 3 (P+S)	64 − 74	21,331.8	134,173	17,601.0	7.90	9.79
NO. 4 (P+S)	56 − 64	16,321.6	102,[illegible]	13,467.0	47.97	10.08
SLOP TANK (P+S)	55 − 56	1,177.4	7.4041	971.4	68.54	13.47
SUM		112,780.5	709,382	93,055		

ORE HOLD:- S.F. = 14 CF/LT S.G. = 2.4826 INCLUDING HATCH (100 % FULL

ITEM	POSITION	M³	FT³	TCH	⊠G(M)	KG(M)
NO. 1 HOLD OR C.O.T. (C)	83 − 92	11,930.1	421,311	29,617.7	− 75.35	13.02
NO. 2 W.B.T. (C)	74 − 83	11,930.1	421,311	29,617.7	− 34.84	13.02
NO. 3 C.O.T. (C)	64 − 74	13,257.7	468,196	32,912.8	7.90	13.00
no.4 (C)	55 − 64	11,932.0	421,379	29,622.4	50.66	13.02
SUM		49,048.9	1,732,197	121,771.4		

WATER BALLAST TANK:- S.G. = 1.025 (100 % FULL).

ITEM	POSITION	M³	TON	⊠G(M)	KG(M)
FORE PEAK TANK	94 − F.E.	5 4at.5	5,588.8	− 110.25	11.30
NO. 1 P. BOTTOM W.B.T.	74 − 92	2,459.8	2,521.3	− 64.71	1.44
NO. 2	55½ − [illegible]	2,501.71	2,564.2	27.17	1.43
AFT PEAK TANK	A.E. − [illegible]	371.5	9ao.d	115.18	13.17
110.2 HOLD OR W.B.T.	74 − 83	11,711.0	12,003.8	− 34.84	12.86
SUM		22,496.5	23,058.9		

DEADWEIGHT

ITEM		FREEBOARD	DRAFT	D W (t)	DISPT. (t)
TROPICAL F.W.	TF	5.541 m	15.117 m	97 016	114 830
FRESH WATER	F	5.842 m	14.816 m	94 531	112 345
TROPICAL	T	5.874 m	14.784 m	97.070	114.884
SUMMER	S	6 175 m	14.483 m	94 532	112.346
WINTER	W	6 476 m	14.182 m	92.004	109.818

CAPACITY TABLES

LOADING OF THE IRON ORE CARGO

(All times are Western Australian Standard Time)

The ALEXANDRE-P anchored off Dampier, Western Australia at 2140 hours on 9 March 1990, having arrived from Pohang, Korea to load a cargo of 90,000 tonnes +/- 10% iron ore in two grades for Gijon, Spain. Due to draught limitations at Gijon the Master had determined that the quantity of cargo to be loaded was 86872 tonnes - 25401 tonnes ore lumps in hold No.3 and 61471 tonnes ore fines in holds 1, 2 and 4.

On 28 February 1990 the Master had cabled Hamersley Iron detailing the loading sequence required by the ship, based on pour quantities of 3000 tonnes. Hamersley Iron requested (9 March) that the ship review the sequence in an effort to reduce the number of product changes to assist loading. The Master accordingly proposed (9 March) a new loading sequence

First Run		Second Run	
Hatch	Tonnes	Hatch	Tonnes
6 -	6000 Lump	6 -	6700 Lump
3 -	5000 Fines	3 -	5262 Fines
7 -	5000 Fines	7 -	5000 Fines
4 -	4000 Fines	4 -	4738 Fines
8 -	5000 Fines	8	4736 Fines
1 -	5000 Fines	1	4735 Fines
5 -	6000 Lumps	5 -	6701 Lumps
2 -	5000 Fines	2 -	5000 Fines

Trimming - 3000 Fines

The Pilot boarded at 1735 11 March 1990 and the ship berthed at the Parker Point ore jetty at 2040 hours 11 March 1990. The Chief Officer, when discussing the loading with the loading supervisor, requested a slightly modified sequence from that advised by the Master on 9 March, interchanging hatches 5 and 6. Accordingly loading commenced at hatch 5.

Hamersley Iron, as Shippers, provided the Master with a declaration (Attachment 1) which advised that the cargo to be loaded was non-hazardous, that the average moisture content was between 2% and 6%, angle of repose 37 degrees, stowage factor 2.35 tonnes/cu. metre for Lumps and 2.50 tonnes/cu. metre for Fines and that the cargo was not considered to be a cargo which may liquefy during the voyage. The moisture content was well below the maximum of 16% indicated in the International Maritime Organization's Bulk Cargoes Code.

Ballast on board on berthing was declared to be 20,992 tonnes. "Practice of the Port" at Dampier is for the Draught Surveyors to accept the ship's figures for quantities of bunkers, fresh water and ballast; soundings are not witnessed nor quantities calculated by the surveyors. From the ship's capacity tables (see page 9) the capacities of the permanent ballast tanks, fore and aft peak tanks and 1 and 2 bottom ballast tanks, total 11055 tonnes. Assuming these tanks to have been full, there were a further 9937 tonnes of ballast on board, the distribution of which is not known.

Loading commenced, at No.5 hatch, at 2102 hours 11 March, the first pour of the.first run proceeding normally. However, the crew experienced difficulty in opening 'No.3 hatch, so that when the pour at No.5 completed, loading was halted briefly, until the Chief Officer directed that loading should continue at No.4 hatch. The shift supervisor and loader operator both stated during interview that after some time No.3 hatch cover started to move, but that the wire being used to pull the hatch open then parted. Loading continued to a sequence determined by the Chief Officer, until the end of the first run, by which time No.3 hatch had been opened. There were no further delays in loading, other than for draught checks during the latter stages.

Sequence as loaded was

First Run		Second Run	
Hatch	Tonnes	Hatch	Tonnes
5 -	6378 Lumps	3 -	5878 Fines
4 -	4257 Fines	5 -	7103 Lumps
7 -	5317 Fines	7 -	5031 Fines
2 -	5324 Fines	4 -	4770 Fines
8 -	5315 Fines	8 -	4756 Fines
1 -	5314 Fines	1 -	4762 Fines
6 -	6399 Lumps	6 -	5809 Lumps)
3 -	5000 Fines	5 -	913 Lumps)
		2 -	5036 Fines

Trimming	
Hatch	Tonnes
l	527 Fines
4 -	1055 Fines
8 -	1005 Fines
8 -	611 Fines
l	512 Fines

Due to the relative narrowness of the holds and from the experiences of the ship's previous visits to the port as the ACACIA, the loading 'supervisors advised the Chief Officer that there would be a problem with the lump ore peaking above the hatch coamings at hatches 5 and 6. To avoid this problem the Chief Officer was advised that the crew would

need to trim the ore into the hatch corners. However, this advice was not heeded and when hatches 5 and 6 were completed at around 1800 hours 12 March the lump ore, as predicted, was peaked above the coamings. At the time of sailing the lump ore was still peaked and the hatch covers could not be closed.

No.3 hatch again proved problematical when the crew came to close it on completion of loading in that it slewed sideways off the rails, thus preventing closure.

Loading completed at 2133 hours 12 March 1990, cargo loaded being 25836 tonnes Lump and 62658 tonnes Fines, total cargo being 88494 tonnes, distributed as follows

Hatch	Tonnes
1	10794
2	10061
3	10613
4	9791
5	13980
6	11856
7	10049
8	11350

According to the Draught Survey Report (Attachment 2), 700 tonnes of ballast remained on board, but the distribution is unknown.

The draught on completion of loading was

	Fwd	13.27 metres	
	Aft	14.67 metres	Mean 13.97 metres
Midships	Port	14.25 metres	
	Stbd	14.25 metres	Mean 14.25 metres

giving a sag of 28 centimetres. According to the Draught Surveyor the ship was reputed to have a large sag when in the loaded condition and this is born out by the record of the ship's previous loadings at Dampier (Attachment 4).

The Pilot boarded at 2235 hours and, learning that the ship had to proceed to an anchorage to trim cargo and secure hatches, contacted the port control for an anchorage allocation. In order to avoid incurring additional pilotage charges on completion of securing hatches the master opted for an outer anchorage position. Due to the ship's VHF radio being non-operational communication between the ship and the Port Control Office was made using the pilot's portable VHF set. (A Radio Technician had been engaged to service the ship's VHF set, but the necessary spare parts were not available in Dampier).

ALEXANDRE-P departed from the berth at 2323 hours 12 March 1990 to proceed to the outer anchorage, the pilot disembarking to the pilot launch in the vicinity of the sea buoy at 0115 hours 13 March 1990, having advised the Master to contact the Agent by radio when he had anchored, giving time and position, and again when he had sailed from the anchorage.

COMMENTS ON THE LOADING

The IMO Bulk Cargoes Code requires that Shippers provide the Master with a declaration advising the stowage factor, water content and angle of repose of the cargo to be loaded, also any hazardous properties of the cargo. Hamersley Iron P/L complied with this requirement and the cargo specification was within the prescribed limits for moisture content.

The loading sequence is determined by the Master of a ship and the loading terminal follows the Master's requirements. In the case of the ALEXANDRE-P, due to the problems experienced in opening No.3 hatch, the sequence had to be changed, the Chief Officer determining the new sequence to be followed. At all times the terminal shift supervisors and loader operators complied with the Chief Officer's requirements.

By loading into hatch No.4 after hatch No.5 a total of 10,635 tonnes was loaded into the mid-length area.

The normal sea passage ballast condition, in addition to the Fore Peak, Aft Peak and Nos. 1 and 2 Bottom Ballast tanks, allows for 12,200 tonnes of salt water ballast in No.2 Hold (hatches 3 and 4). The 10,635 tonnes of ore distributed between the after end of No.2 Hold and the forward end of No.3 Hold does not therefore appear to be unreasonable with respect to hull longitudinal stress factors.

To evaluate fully the hull stress conditions during loading would require information on the distribution of the ballast and the deballasting programme; such information is not available.

CONCLUSIONS

1 The cargo of iron ore, lumps and fines, was presented for loading in a proper manner.

2 The cargo was loaded in accordance with the Master's/Chief Officer's requirements.

3 The loading sequence, which was modified as a result of No.3 hatch jamming, although perhaps not the most preferable, is not considered unreasonable or to have placed undue stress upon the ship.

CONDITION OF SHIP

The majority of those interviewed attended the vessel during hours of darkness and when on board ventured little further than the accommodation. However, the general opinion was thatthe vessel was not in a well maintained condition. Those that could recall the ship's previous visits, under the name ACACIA, were of the opinion that even then the ship was not well maintained.

The air conditioning was not working and the accommodation was very warm; the crew were reportedly sleeping in the alleyways and out on deck. The accommodation was stated to be in 'rather a sad state', 'very scruffy - many deep rusty patches in floors', 'smell of sewage and everything - a really dirty ship'.

The Providore gave evidence that he had commented to others boarding at the time of the ship's arrival 'that this was the worst "rust bucket" he had boarded in his 15 years of boarding vessels'. On the morning of 12 March, whilst he was waiting to place freezer stores on board, the Providore stated that he strolled around the superstructure decks and his impressions of a "rust bucket" 'were as true as when I first boarded - the poop and upper decks completely rusted, appeared as if the vessel had been laid up for some time'. The Providore also noted that the lanyard on a life buoy was somewhat old and had rotted, also that around the lifeboat davits there was a lot of rust everywhere.

The loader operators, from their vantage point above the deck, observed rusty pipes and steam emanating from around winches.

The shift supervisors, who had occasion to walk along the deck, said that the deck was very rusty, one describing it as like "walking on cornflakes - about the worst I've seen". Large clouds of steam were also recalled. All the openings of the hatches were reported as being badly rusted. One supervisor, who had climbed onto No. 5 hatch cover whilst directing the topping-off at Nos 6 and 5 hatches, stated that he had noticed holes in the corrugated bulkhead between hatches 4 and 5 (i.e the transverse bulkhead between holds 2 and 3) through which he had been able to see daylight. Another supervisor, observing the ship from the jetty just prior to sailing time, described 'fist sized' holes in the port side of No.5 hatch cover and holes in the port side of both Nos. 5 and 6 hatch coamings; the forward port corner of

No.5 coaming being described as 'all but rusted away and was like lattice, only the actual corner appeared solid'.

No witness recalled any concern being expressed by the Master or officers regarding the ship's condition and no witness felt it his concern, or had received instructions from his superiors, to advise the Department of Transport and Communications Surveyor at Karratha of any ship that was observed to be in a poor condition.

CONCLUSION

4 From the observations of witnesses it is considered that the ALEXANDRE-P had not been well maintained, that there was heavy corrosion and wastage around the main deck and cargo hatches and also in the upper sections of the transverse bulkhead between holds 2 and 3.

THE FOUNDERING

The Master of ALEXANDRE-P advised his Agents (Barwil) by cable through Perth Radio, that he had "anchored 0150[hrs]/13th[March] bearing 175 dist 6.8 from Courtenay Head now we are making effort to restore to the original state".

The Master later advised Barwil, again through Perth Radio, "completed restoring hatch and sailed anchorage 13th[March] 1610[Hrs]". This was the only confirmation received that the crew had trimmed the lump ore at hatches 5 and 6 and had been able to restore No. 3 hatch to its rails. Inference of the Master's cable is that ALEXANDRE-P was secured for sea.

On departure from the anchorage ALEXANDRE-P filed a 'sail plan' with the Federal Sea Safety Centre and the ship was accepted as an active member of the Australian Ship Reporting System (AUSREP).

At 140600Z ALEXANDRE-P dispatched the requisite daily position report, giving the position as 2018S 11314E. No further messages were received from the ship.

When ALEXANDRE-P failed to report at 150600Z the computer at the Federal Sea Safety Centre indicated that the ship was overdue and operational procedures were set in motion (Attachment 8). These procedures comprise messages to the ship requesting that it make contact, messages to other ships in the area requesting sighting reports and requests to attempt to make contact, also checks with other radio stations, both national and international.

When ALEXANDRE-P was 24 hours overdue air searches were implemented. The first flights, on 16th March, ascertained that ALEXANDRE-P was not where it was computed to be and thereafter more detailed searches were carried out over an area based on the ship's last known position and the computed 150600Z position.

On 18 March an oil slick and various items of flotsam, including a liferaft with deflated canopy and lifejackets were sighted in or near position 2005S 11210E. Further flotsam, including a damaged lifeboat, was sighted on 19 March, when it was also reported that there was a lot of ore dust in the oil slick.

On 20 March the drill ship ENERGY SEARCHER arrived on the scene, located and retrieved the liferaft in position 1959S

11155E and inspected the lifeboat, which had the bow and stern sections missing. The liferaft was found to contain two bodies, of Oriental origin. No survivors or further bodies were found. Details of the liferaft were checked with the ship's Owners who confirmed that the liferaft did belong to the ALEXANDRE-P.

The air search was suspended after the search aircraft returned on 20 March.

The opinion of the Medic aboard ENERGY SEARCHER was that the two crewmen had been dead for some time. One had suffered a broken arm, the other a blow to the back of the head, whilst both corpses bore several lacerations. (See Attachment 6).

WEATHER

The weather and sea conditions during the period were good; the wind was from the southsouthwest at 15 knots and the sea slight (Attachment 5). A ship located 120 miles to the west of the area of foundering reported a change in direction of swell on 14 March from a northerly to a southwesterly, reporting a 3 metre swell from the southwest at 140600Z, which had decreased to 2 metres by 141200Z. Such swell would have been encountered somewhat later by ALEXANDRE-P and although not of sufficient magnitude to normally cause problems to a ship its size, would have caused ALEXANDRE-P to pitch moderately and also to roll easily.

COMMENT ON THE FOUNDERING

In sailing without an operational VHF radio the Master of ALEXANDRE-P contravened international regulations in that the ship was unable to maintain a listening watch on VHF Channel 16 as required by Regulation 8 of Chapter IV, International Convention for the Safety of Life at Sea 1974, as amended. However, this is not considered to be pertinent to the actual foundering, although the crew were deprived of the capability of transmitting a distress message, albeit a short range one, by this means.

By having participated in the AUSREP system the Master had ensured that search operations were initiated at the earliest opportunity. Had he not done so, the first indication that something may have been amiss would have been his failure to make a scheduled communication with the Owners on 16 March 1990. Search operations would then have depended upon the concern and reactions of the Owners, but would have been unlikely to commence before 18 March and would have involved a much greater search area.

ALEXANDRE-P was designed as an ore/oil carrier, the centre, ore-carrying holds being relatively narrow, thus minimising the possibility of a transverse shift of cargo.

Due to the light wind and sea conditions, even with a 3 metre swell, seawater is unlikely to have entered and flooded the cargo holds. Had progressive flooding been the cause, the crew would have been alerted to the fact and would not only have been able to transmit a distress message, but would have had time to prepare to abandon ship.

The fact that there was no distress message, coupled with the fact that the crew failed to abandon ship, indicates that the foundering must have been without warning and very rapid. The lifeboat, with the end sections missing, indicates that the lifeboat, owing to its inbuilt buoyancy, broke free after the capsize, rather than being released preparatory to launch by the crew. For such a foundering to occur either a massive structural failure, or a massive explosion would be necessary.

ALEXANDRE-P had not carried an oil cargo for a number of years, therefore a build up of hydrocarbon gases and an explosive mixture in any of the oil cargo wing tanks or the slop tanks, as is considered to have occurred in the loss of the BERGE ISTRA in December 1975, is highly unlikely. Some form of explosion may have occurred in the engineroom, sufficient to rupture the ship's hull and cause rapid

flooding, but such an explosion, without the presence of hydrocarbon gases, is difficult to envisage. However, if the bunker fuel had been "spiked" or contaminated with crude oil or high fraction distillates, then an explosive atmosphere would in all probability have been present in the bunker tanks. Even so, evidence from other major engineroom explosion incidents (OMI YUKON October 1986, and the recent MEGA BORGE) indicates that the main force of such explosions is upwards through the engineroom casing, the line of least resistance, not through the ship's side.

Any failure of a longitudinal bulkhead, between a centre hold and a wing tank, would in all probability be localised, between deep web frames within the wing tank. The resultant transverse shift of cargo would be unlikely to be of sufficient magnitude to cause capsize, merely a heavy list.

With a massive structural failure, ie. the ship breaking into two sections, the after section would probably capsize rapidly, especially as a moderate swell was running, allowing little or no time for the crew to abandon. Such a structural failure and capsize occurred with the SINGA SEA in July 1988, as confirmed by the few crew members who did survive on that occasion.

The report by the Medic aboard ENERGY SEARCHER and photographs taken by him of the two corpses were studied by Dr T H G Oettle, Director of Forensic Medicine, New South Wales Department of Health. His opinion (Attachment 7), shared by his colleagues, was that the injuries described and seen in the photographs were typical of flash burns and blast injuries. An independant assessment carried out in London on behalf of the ship's owners formed the same conclusions. Some form of explosion may therefore be assumed to have occurred, either causing, or occurring as a result of, the foundering.

The Korean Authorities subsequently identified the corpses from the photographs as being those of a greaser and a wiper. As the corpses were clad only in shorts, not in working clothes, it is reasonable to assume that they were not on watch at the time of the catastrophe.

CONCLUSIONS

5 From the position of the flotsam it is considered that the ALEXANDRE-P foundered sometime around 1800/1900 hours ship's time on 14 March 1990 in approximate position 2020S11200E.

6 Due to the fact that no distress message was heard by either coast radio stations or other shipping and due to lack of survivors or further bodies it is concluded that the foundering was both sudden and rapid.

7 The wind and sea conditions, being light, are not considered to be causal factors to the loss.

8 The 2 - 3 metre swell from the southwest would have caused the ALEXANDRE-P to pitch moderately and also to roll slightly.

9 Although the cause of the foundering cannot be determined with any certainty and is beyond the scope of reference of this investigation, it is considered'that either a sudden, massive structural failure occurred, with the ship breaking into two sections or, there was some form of explosion in the engineroom, of sufficient magnitude to rupture the ship's hull and cause rapid flooding and sinking.

10 Professional opinion is that the two recovered corpses bore evidence of flash burns and blast injuries, indicating that some form of explosion did occur.

PORT STATE CONTROL INSPECTIONS

Under the Safety of Life at Sea (SOLAS), International Loadline and Marine Pollution Conventions administrations may conduct inspections of foreign flag ships visiting their ports for compliance with those Conventions. Also, inspections of crew accommodation may be conducted under the provisions of the International Labour Organization Resolution 147 (ILO 147). Australian policy is to inspect 30% of visiting foreign flag ships.

Where there are deficiencies under any of the Conventions that affect a ship's seaworthiness, or where there are deficiencies that affect the health of the crew under IL0 147, a ship may be detained until such deficiencies have been rectified.

ALEXANDRE-P was not programmed for inspection at Dampier under the Port State Control provisions of the above conventions.

From the observations of the various persons interviewed it is probable that had the ALEXANDRE-P been inspected under the Port State Control provisions the ship would have been detained until deficiencies under the International Loadline and SOLAS Conventions had been rectified. However such an inspection would have been unlikely to reveal any major hull deficiencies that may have caused the ship to founder.

CONCLUSION

11 If the foundering was in fact due to a major structural failure, it is considered that inspection at Dampier under the port state control provisions of the international conventions would have been unlikely to prevent the foundering.

SHIP REGISTRATION REQUIREMENTS

The ship ACACIA was purchased by new owners and renamed ALEXANDRE-P on 21 February 1990. Registration of the ship was changed at this time from Korean to Panamanian, however the ship remained Classed with the Korean Register of Shipping.

Where a ship is changed from one Classification Society to another the insurers may require details of any "conditions of Class" to be supplied to the new Classification Society by the original Classification Society. Where a change of registration from one Flag State to another occurs there is no requirement for confirmation that the ship is "in Class" or whether conditions apply to that Class. Had there been such a requirement it could reasonably be assumed that had there been any deficiencies on ALEXANDRE-P under the International Loadline Convention or any major deficiencies in structural strength/integrity these would have been rectified prior to the issue of such a certificate by the Korean Register of Shipping and acceptance by the Panamanian Administration.

If the foundering of ALEXANDRE-P was due to structural failure, with such a mandatory requirement in place for a change of registration the foundering and loss of crew may well have been prevented.

ATTACHMENT 1

Bulk Cargoes
Declaration by Shipper

The commodity to be shipped on your vessel is IRON ORE.

The following properltes have been ascertacned by the use of recognized international procedures as specified in the IMCO Bulk Cargoes Code.

Physical Proportions

Transportable Moisture limit NOT APPLICABLE.

Average moisture content of shipment 2% to 6% Date of test CONTINUOUS.

The average moisture content will not be confirmed by tests carried out during the loading process.

Angle of repose 37 DEGREES determined for the commodity with an average moisture of 2% to 6%.

Stowage factor 2.35 to 2.50 tonnes/cu.metre.

This commodity is not considered to be a cargo which may liquify during the voyage.

Chemical Hazards

This commodity can present a hazard during transport due to its chemical nature and properties.

Classification	Nil
Description of hazard	Nil
Precautions to be taken	Nil
Emergency Procedures	Nil

It is certified that for the bulk cargo nominated in this certificate any relevant hazards attendant upon its marine transportation have been properly described and that the information given is based upon the latest available including experience in storage prior to shipment.

ATTACHMENT 2

MARINE SERVICES OF W.A. PTY. LTD.

(INCORPORATED IN WESTERN AUSTRALIA

DRAFT SURVEY REPORT AND CERTIFICATE OF WEIGHT

Vessel: ALEXANDRE P No. 7750 LFPS Date. 12/03/1990 G.R.T. 54,566
Owners: ACACIA MARITIME CORP. Captain: Chee Sam LEE
Port from: DAMPIER ,WESTERN AUSTRALIA. Port to: GIJON
Description of Cargo: HAMERSLEY HEMATITE LUMP IRON ORE 30 x 6mm
HAMERSLEY HEMATITE FINE IRON ORE MINUS 6mm
Berth loaded: PARKER POINT
Date of Initial Survey: 11/03/1990 Date of Final Survey: 12/03/1990
Consignee(s): EMPRESA NACIONAL SIDERURGICA, S.A.
MADRID-6 SPAIN.

	INITIAL SURVEY	FINAL SURVEY
Density of seawater at the berth	1.023	
Ship's draft, Fore	3.95 metres	13.27 Metres
Ship's draft, Aft	7.70	14.67 "
Ship's draft port midship	5.78	14.26 "
Ship's draft, Starboard midship	5.77	14.25 "
Ship's draft, Hean of Neana	5.175	14.18 "
Corresponding displacement (Corrected for density, etc.)	(A) 40,993 Tonnes	(B) 109,570 Tonnes

ESTIMATED WEIGHTS OF FUEL AND WATER

Bunkers	1,767 Tonnes	1,762 Tonnes
Slop tanks	nil	nil
Fresh water	220 "	600 "
Ballast	20,992 "	700 "
Stores	200 "	200 "
TOTAL WEIGHT	(a) 23,179 Tonnes	(b) 3,262 Tonnes
	(A-a)= 17,814 Tonnes	(B-b)= 106,308 Tonnes

From above figures obtained by initial and final survey of the ship's draft, I determine that the weight of the cargo aboard the ship was at the time of the final survey or (as the case may be) the initial survey:-

When discharging: (A-a) - (B-b) =

When loading: (B-b) - (A-a) = 88,494 Metric Tonnes = 87,096 Long Tons

That is:-

EIGHTY EIGHT THOUSAND FOUR HUNDRED AND NINETY FOUR METRIC TONNES OF IRON ORE, BEING TWENTY FIVE THOUSAND EIGHT AND THIRTY SIX METRIC TONNES OF LUMP ORE AND SIXTY TWO THOUSAND SIX HUNDRED AND FIFTY EIGHT METRIC TONNES OF FINE ORE FOR ENSIDESA TO GIJON.

LOADING SEQUENCE

8	7	6	5	4	3	2	1
13	11	9	15	12	10	16	14
5	3	1	7	4	2	8	6

PER MASTER'S CABLE 9 MARCH 1990

13	11	15	9	12	10	16	14
5	3	7	1	4	2	8	6

AS REQUESTED BY SHIP AT COMMENCEMENT LOADING

13	11	15	10 (13)	12	9	16	14
5	3	7	1	2	8	4	

AS LOADED

ATTACHMENT 3

ACACIA

SHIP NO.	DATE	CARGO METRIC TONNES		SHIP HATCH #5	SHIP HATCH #6	TOTAL HOLD #3 METRIC TONNES	SAG (M)	DRAFT (M) FWD	PORT	STB	AFT
6211	210486	93179	F	8000	12500	20500	.1805	14.182	14.48	14.49	14.427
6052	101185	93324	F	8000	12824	20824	.1275	14.34	14.445	14.52	14.37
6020	131085	93179	F	8000	13500	21500	.1900	14.20	14.48	14.48	14.38
5638	141184	91362	L	10362	12500	22862	.2850	14.31	14.33	14.34	13.79
5607	141084	92591	L	10691	12900	23591	.2800	14.26	14.48	14.48	14.14
5573	100984	92743	F	8243	12500	20743	.2100	14.14	14.50	14.50	14.44
5537	060884	92585	F	WA	WA	20985	.2100	13.94	14.47	14.48	14.59
5496	060784	92679	F	9000	12179	21179	.1750	13.95	14.49	14.47	14.66
5318	210184	92548	L	WA	N/A	24048	.2675	14.41	14.49	14.47	14.015
5288	201283	92413	L	11013	12900	23913	.2500	14.29	14.48	14.48	14.17
5261	201183	92194	L	12394	12600	24994	.0950	14.51	14.45	14.45	14.20
5227	191083	92293	F	9000	12000	21000	.2025	14.20	14.56	14.38	14.335
5174	170883	92466	L	11500	12900	24400	.3300	14.13	14.48	14.48	14.17
5093	010683	92449	L	12431	11830	24261	.2550	14.23	14.49	14.47	14.22
5056	280483	92454	L	11400	12754	24154	.2750	14.19	14.49	14.47	14.22
5028	290383	90515	L&F	12384	12037	24421	.2800	13.75	14.46	14.50	14.65
7750	120390	88494	L&F	13980	11856	25836	.2800	13.27	14.25	14.25	14.67

ATTACHMENT 4

ATTACHMENT 5

DATA REQUESTED FOR AREA WITHIN 120NM OF 20 S 112 E FROM 12-18. MARCH 1990

EATS :	TIME (GMT)	WIND (KTS)	SEA	SWELL
12	0001	200/15	SLIGHT	
	0600	200/10	SMOOTH	
	1200	200/10	"	
	1800	200/10	"	
13	0001	200/10	"	
	0600	200/10	(0.5 m)	0.5 m SSW
	1200	200/10	SMOOTH	
	1800	240/10	(0 m)	0.5 m
14	0001	200/10	(0 m)	1.3 m N'ly
	0600	210/10	SMOOTH	3.0 m SW (Ship 120nm W)
	1200	210/15	(1.0 m)	2.0 m SW (")
	1800	210/15	SLIGHT	
15	0001	210/15	"	
	0600	200/10	SMOOTH	
	1200	200/10	"	
	1800	170/10	"	
16	0001	170/10	"	
	0600	040/10	"	
	1200	140/10	"	
	1800	140/10	"	
17	0001	130/10	"	
	0600	110/10	"	
	1200	110/10	"	
	1800	110/10	"	
18	0001	120/10	"	
	0600	130/10	"	
	1200	VRB/05	(0 m)	1.0 m N'ly
	1800	VRB/05	RIPPLED	
19	0001	VRB/05	"	

NOTE: SEAS ARE GIVEN IN METRES WHEN BASED ON A SHIP REPORT NEAR THE AREA. OTHERWISE SEA DESCRIPTION IS STATED FROM THE BEAUFORT SCALE.

SWELL VALUES GIVEN ONLY FROM SHIP REPORTS.

WEATHER PERTH
23/3/1990

ATTACHMENT 6

MARETECH OCEAN SERVICES PTY LTD.
INCORPORATED IN WESTERN AUSTRALIA

To : Sea Safety Canberra

From : W.Campbell - Medic - Energy Searcher

Date : 21 March 1990

Subject : RECOVERY OF BODIES ASSUMED TO BE FROM 'ALEXANDRE P'

At approx 1230 hrs on 20-3-90 two bodies were recovered from a partially inflated liferaft assumed to be from 'Alexandre P'.

Raft details - Mitsubishi MTA-10-T 10 pers T No. 1817
60 kg No. 0092 Sep 77

The canopy of the raft had not been erected and the raft was partially filled with water.

Both bodies were laying face up partly covered by the canopy with water lapping the mouth and nasal cavities.

Both bodies were found to be devoid of any vital signs and pronounced dead at 1300 hrs 20-3-90 by myself and the Master of Energy Searcher Capt T.Lay.

The exact cause of death could not be established but it would appear to be from a combination of the following factors. Injuries - Shock - Exposure - Immersion - Drowning after lapsing into unconsciousness.

It was first thought that the bodies may have sustained extensive burns because of the size and depth of some of the lesions and extensive blackening of the skin. On closer examination it would appear the blackening may have been caused by oil or by the rubber of the Liferaft impregnating the pores of the skin.

The cause of the lesions could not be established because of the condition of the bodies which had started to putrefy.

An examination of the bodies was conducted by myself and the Chief Steward L.Petherick prior to preparing them for burial at sea.

A description of the condition of the bodies is contained in following paras.

The deceased were committed to the deep at 1650 hrs 20-3-90 at Lat 19 deg 51.3 min S Long 111 deg 33.5 min E.

52. MELVILLE PARADE. SOUTH PERTH. WESTERN AUSTRALIA. 8161
P 0 90X 505. SOUTH PERTH, WESTERN AUSTRALIA. 6151
TELEPHONE: (09) 399 2199 FACSIMILE: 1091367 1575 TELEX: MARE 92692

SEAMAN #l

Oriental extraction
Height 17OOmm - 5'7" Weight undetermined
Stocky build - round faced - flat nosed - bald (shaven) head.
Clad in shorts and jocks.
Nil I.D., rings etc, Tatoos or obvious scars.
Body very slimy, bloated and starting to putrefy.
Head - Mouth full of fluid.
Wound to top of scalp exposing skull.
Trunk - Deep lesions exposing flesh in both armpit regions.
Multiple minor lesions at various other locations.
Back of the trunk extensively blackened.
Arms - Fractured humerus right arm.
Lesion exposing muscle extending length of right arm.
Lesion exposing flesh inner upper left arm
Deep wound inside of left elbow.
Back of arms extensively blackened.
Legs - Minor lesions/abrasions down both legs.
Back of legs and front of lower legs extensively blackened.
Skin - Peeling off in various locations.

It would appear that this one had been dead the longest.

SEAMAN #2

Oriental extraction
Height 1800mm - 5'11" Weight undetermined
Medium build - Forward portion of scalp shaved long hair at the back and pig tail tuft on top.
Clad in shorts only.
Nil I.D., rings etc, Tatoos or obvious scars.
Body very slimy and startinq to bloat and putrefy.
Head - Mouth-full of fluid.
Signs of bleeding from the mouth,nose and right ear.
Wound to the back of the neck.
Trunk - Various minor lesions,abrasions and extensive peeling of the skin.
Some blackening of the skin on the back.
Arms - Minor lesions, abrasions and peeling skin.
Legs - Major lesion to right hip and upper thigh.
Multiple lesions to both thighs.
Major lesions to both knee regions.
Blackening on back of legs.

NOTE:

The original copy of this report complete with Polaroid photos of the deceased will be forwarded to Sea Safety Canberra on our arrival in India.

Regards

W.Campbell

Medic/Safety Officer
Energy Searcher

ATTACHMENT 7

New South Wales Government

Department of Health

DIVISION OF FORENSIC MEDICINE

. 42-50 Parramatta Road
Glebe, N.S.W. 2037
Address reply to
P.O. Box 90, Glebe, N.S.W. 2037

Mr. J. Leverton
Department of Transport and Communications
G.P.O. Box 594
CANBERRA ACT 2601

Your reference: THGO/ej

Telephone: 660 5977

1st June, 1990

Dear Mr. Leverton,

Thank you for the photographs and information re the corpses from the bulk carrier "ALEXANDRE-P".

The injuries described and seen in the photographs are typical of flash burns and blast-injuries.

Both would have occurred at the same time.

The bleeding from the air passages is commonly associated with decomposition.

I have conversed several of my forensic colleagues who agree with my opinion.

I hope this will be of some value to you.

Yours sincerely,

DR. T.H.G. OETTLE
DIRECTOR OF FORENSIC MEDICINE

ATTACHHENT 8

REPORT BY THE FEDERAL SEA SAFETY CENTRE ON SEARCH OPERATIONS FOR THE ALFXANDRE-P

APRIL 1990

SUMMARY ALEXANDRE-P

INTRODUCTION

Alexandre-P a 95,000 DWT bulk carrier participated in the Australian Ship Reporting (AUSREP) system during it's inbound voyage to Dampier. Details of the vessel were not known to Sea Safety Canberra (SSC) prior to this voyage but the vessel's reports did conform to the AUSREP format and as a result it was accepted into the system by SSC.

NOTE: This procedure is common practice as many vessels are not known to the SSC until they first arrive in Australian waters.

SEQUENCE OF EVENTS - DEPARTURE DAMPIER

1. SSC's first contact with Alexandre-P on departure from Dampier for Spain (via Capetown) was at 7.41 pm (AEST) on Tuesday. 13th of March when it's Sail Plan was received via Perth Radio (VIP). The vessel's passage plan was then filed in the SSC computer and consequently she was accepted as an active member of AUSREP. This therefore required that the ship report every 24 hours.

NOTE: "Should a ship not report as expected then the "system" will indicate that the vessel is "overdue" and a systematic set of responses (to the situation) will be set in motion.l'

2. In her sail plan (SP) Alexandre-P nominated 1406002 as her next report time (as distinct from 0600z as a daily time for each day) This report giving position 2018S 11312E was received by SSC at 140710z (5.10pm AEST/14 March).

NOTE: "The one hour ten minute delay is more or less standard as the report is first received by an OTC coast radio station (CRS) and then telexed to SSC for processing. The AUSREP system is designed to take into account this type of inherent delay"

3. The next position report was therefore expected at 150600z (4pm AEST on the 15th of March) as no other time had been nominated. This report did not arrive and the AUSREP system procedures were then set into motion. The first of these steps is to send a message to the ship either via the CRS that the ship is/has been communicating with or (if possible) via INMARSAT (International MARITIME sattelite communications system). In the case of ALEXANDRE-P (which did not have INMARSAT) it was sent to VIP at 151027z (8.27pm AEST) for onward transmission to the ship at the next available sked.

NOTE: Ships at sea operate on ships time: this means that the time on board ALEXANDRE-P at this stage would probably have been on the time zone of -7 (that is to say 7 hours ahead of GMT--and 3 hours behind AEST) ships time would therefore have been 5.27pm and the radio officer would have been expected to work at least one more radio sked for the day and

procedures) to an Urgency broadcast (see note) when all the communications checks had, failed to establish the vessel's safety; Several vessels did respond to these broadcasts and as a result made attempts to raise Alexandre-P on different frequencies, unfortunately to no avail.

NOTE: An urgency signal,indicates that the calling station has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or the safety of a person.

9. ssc also checked with the "MET" office in Perth to ascertain the weather conditions since the vessel's last report, this revealed that conditions in the ships area had been quite mild with S/W to S/E winds of 10 to 15kts and consequently nothing likely to affect a ship of the size of the Alexandre-P.

10. At 1603222 (1.22pm AEST/10.22am ships time) SSC declared a Marine Alert Phase to the Senior Operations Controller (SOC) in Perth (this procedure brings to the attention of the aviation authorities that "apprehension exists" as to the safety of a ship/persons on board) and discussed the probability of an air search at this stage Alexandre-P was 21 hours overdue for it's 150600z PR.

NOTE: The AUSREP procedure is arranged such that an air search will commence (allowing for available daylight and other extenuating circumstances) by the time a vessel is 24 hours overdue for a PR.

11. Concurrently with all the above actions SSC had also been talking with the vessel's Australian agents in case the master had communicated with them, the owners, or the managing company through another means (cable through overseas CRS etc). Unfortunately nc such contact had been made but the agents/owners were able to supply an accurate description of Alexandre-P and details of it's safety equipment.

12. At 1603452 (approximately 22 hours overdue) it was decided to proceed with an initial search flight to establish if Alexandre-P was somewhere along her planned route between it's last position report and it's estimated position at 1606002.

NOTE: The theory in the initial search is to look along the "planned track" and therefore to establish whether or not the ship is still underway and safe and had simply failed to report, or answer radio calls, for whatever reason or alternatively to prove that it has not reached the estimated position of it's next report, or is not somewhere in between.

When calculating the area to search during this initial phase SSC will allow for the fact that the ship may have increased or decreased speed or deviated (slightly) from it's intended track.

13. At 160708z (5.08pm AEST/2.08pm ships time) two aircraft became

available to conduct the initial search and this proved useful as a discrepency existed between Alexandre-P's original planned route and it's course and speed as advised in it's latest PR. This meant that two possible tracks needed to be covered in order to establish whether or not the-ship was still safely underway. Both these searches proved negative and a night radar search was arranged to cover a possible area around the vicinity of the estimated positions on the two tracks and the'area between them.

14. It had been established with the owners in London that the vessel was to have communicated with them at 161200z (10.00pm AEST / 7pm ships time); this did not happen and as contact with owners is considered a high priority for a ship (as distinct from sending position reports to SSC). A high degree of importance was attached to this fact and it was taken into account when the next course of action was considered.

15. The track search during late afternoon 16th March and the radar search that night did make some sightings/radar contacts of vessels but these were established as not Alexandre-P.

16. The size of the search area for 17th of March, as originally calculated by SSC, had become too large for the available aircraft to cover during the day. Therefore it had to be reduced in size to cover the area of highest probability that could be searched by the available aircraft.

NOTE: This is very often the case as the factors included in the calculation allow for errors in the last known position of the target, errors in search platform navigation and drift of the target itself: when a compromise is required and the search area needs to be reduced the extra factors are modified and consequently the search area can be reduced in size.

17. The search area for 17th March although reduced in size was still approximately 26,600 sq.nm and was located (at it's closest point) some 120 miles from North West Cape of Australia. Due to aircraft un-serviceabilities only about 60% of this was able to be covered. Sightings during this search included a yellow "oil?" slick (1949S 11425E) what appeared to be marine marker dye, polystyrene foam and other sightings considered not associated with the Alexandre-P, such as a pink marker buoy, plus another merchant vessel.

18. As a consequence of the unsuccessful search on the 17th SSC recalculated the search area for March 18th (taking into account the area omitted from the initial area for the 17th and that which was not able to be searched during the 17th, as well as the oil slick sighting) and this resulted in an area of some 44,500 sq.nm and with full availability of the two military and 6 civil aircraft it was hoped that this whole area (which included the previous day's area) would be search. As it turned out all but one portion was covered this time and this uncovered portion had already been search on the 17th March.

19. Sightings for the 18th were much more significant and included the follcwing:

* an orange liferaft with deflated canopy - no POB in position 2005S 11210E
* a lifering
* 4 yellow/orange lifejackets
* a white broken mast
* foam blocks
* a long orange object (8 - 10 ft, just below surface)
* an orange square board
* a number of white poles
* an oil slick (20nm in length) (2000S 11158E)
* fishing buoys
* fuel drum with green cover
* other smaller unidentified debris

20. A radio beacon was dropped adjacent to the liferaft to assist in relocaticn during the following days search. SSC also initiated procedures to identify a suitable ship which would be able to assist in locating and identifying these sightings.

NOTE: Due to the very large areas requiring to be searched and the limited number of aircraft available the coverage factor allocated to the aircraft was the result of further compromise and as a result the "probability of detection" for survivors in the water was as low as 46%: however this was improved to 74% with the cumulative affect of the repeat searches and this was considered to be an acceptable outcome taking into account the extent of the problem.

As it turned out the final outcome of the search could be considered to be successful as the significant sightings and their relative proximity to each other meant that it was highly unlikely that other potential sightings assocated with the ship, had been missed;

21. The search area for 19th of March was recalculated to take into account all previous sightings and possible drift of other objects not yet sighted but which could have eminated from the main area of the sightings detected so far. The area (of approximately 31,000 sq. nm) was therefore more of a square as distinct from the previous long rectangles and with the eventual availability of twelve civil aircraft (in two sorties) was able to give a much higher degree of "probability of detection". Sightings for the 19th were as follows:

* a liferaft (2003S 11208E)
* "boiling/foaming" water near liferaft
* large number of orange oars
* large number of white planks
* a white lifeboat: on its side: orange around top: green rudder: davit attached (2009S 11156E)
* 8/9 lifejackets nearby lifeboat
* large slabs of wood
* a hatch cover
* a lifering; red/white marking
* the oilslick

* large amount iron ore dust through oilslick; not there yesterday.
* semi-submerged orange object
* green drums with yellow top
* large flat items (fibreglass)
* foam blocks 3/4ft to 8ft
* large amount other smaller unidentified debris

NOTE: All sightings of debris and lifesaving equipment were found in general vicinity of the oil slick. This concentration of significant sightings highlights the benefit of the AUSREP system which requires a search to be mounted within 24 hours of a missed report.

22. By the end of the search on 19th March the vessel "Energy Searcher" a mobile drill ship had been diverted to identify the sightings. Unfortunately it broke down with main engine problems and was forced to postpone this attempt until it was serviceable. The ship became serviceable during the night and elected to stay in the area until the following day to assist in the search effort.

23. Activity planned for the 28th of March included another aircraft sortie (4 aircraft eventually allocated) to assist Energy Searcher in locating major sightings and to attempt further sightings in surrounding area. This objective was accomplished in part as Energy Searcher did locate the liferaft and lifeboat but no other significant sightings were made.

24. Energy Searcher reported that the lifeboat was actually split in two, that is to say the bow and stern were seperate sections, no name could be seen but the thwarts had white circles of 600mm painted on them with the inside of the hull being a very dull "international orange" colour. The boat itself was very old and dilapidated but had no marine growth indicating that it had not been in the water very long. They were unable to recover this boat.

25. Energy Searcher was then directed to the liferaft where the two male bodies were found. A separate report by the ship's doctor gives details of the condition of the bodies. The doctor and master on board Energy Searcher decided that the only realistic action was to bury the bodies at sea, after examination by the doctor.

26. Details of the liferaft were subsequently checked with the owners and were confirmed as having belonged to the Alexandre-P. This information along with the sightings and results of the five days of searching resulted in SSC deciding that the vessel had sunk and that no survivors were now likely to be found. The air search was suspended after search aircraft returned on the 28th.

27. A separate investigation (Preliminary Investigation) has been announced by the Minister for Transport and Communications with the following terms of reference:

"To make a preliminary investigation into the loading of the Panamanian flag bulk carrier "Alexandre-P" prior to its loss off the

west coast of Australia on 14/15 March 1990 and in particular;

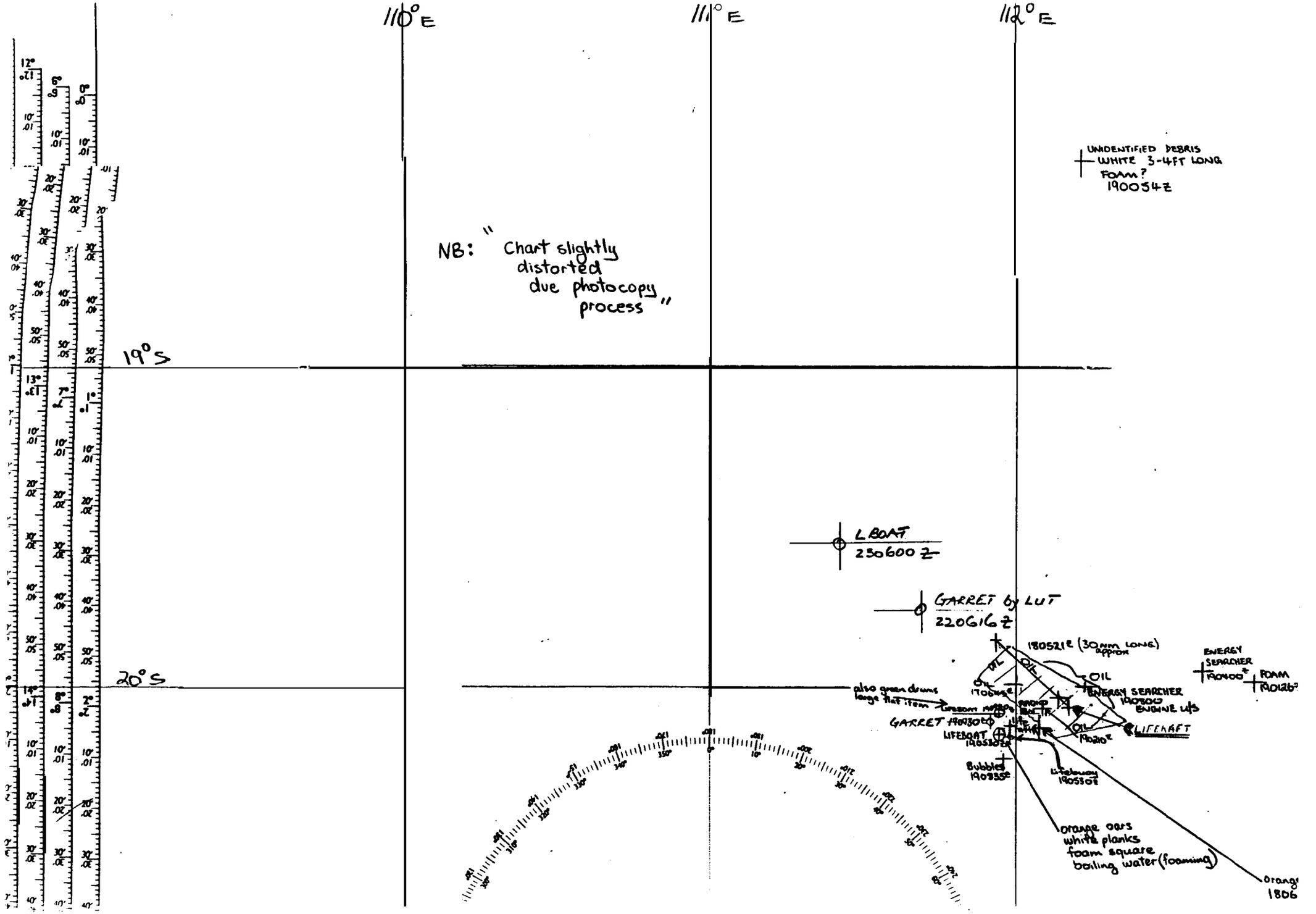
- whether the cargo shipped at Dampier between 9 and 12 March 1990 was loaded in an appropriate manner, and

- the general condition of vessel and any other relevant information that may be pertinent to the loss."

28. The report will be published when the investigation is ccmplete.

END.

Attachments: a. AUSREP instructions (Jot included in this Report)
b. Chartlet showing areas/dates of searches
c. Chartlet showing sightings/positions/times


110° E
111° E
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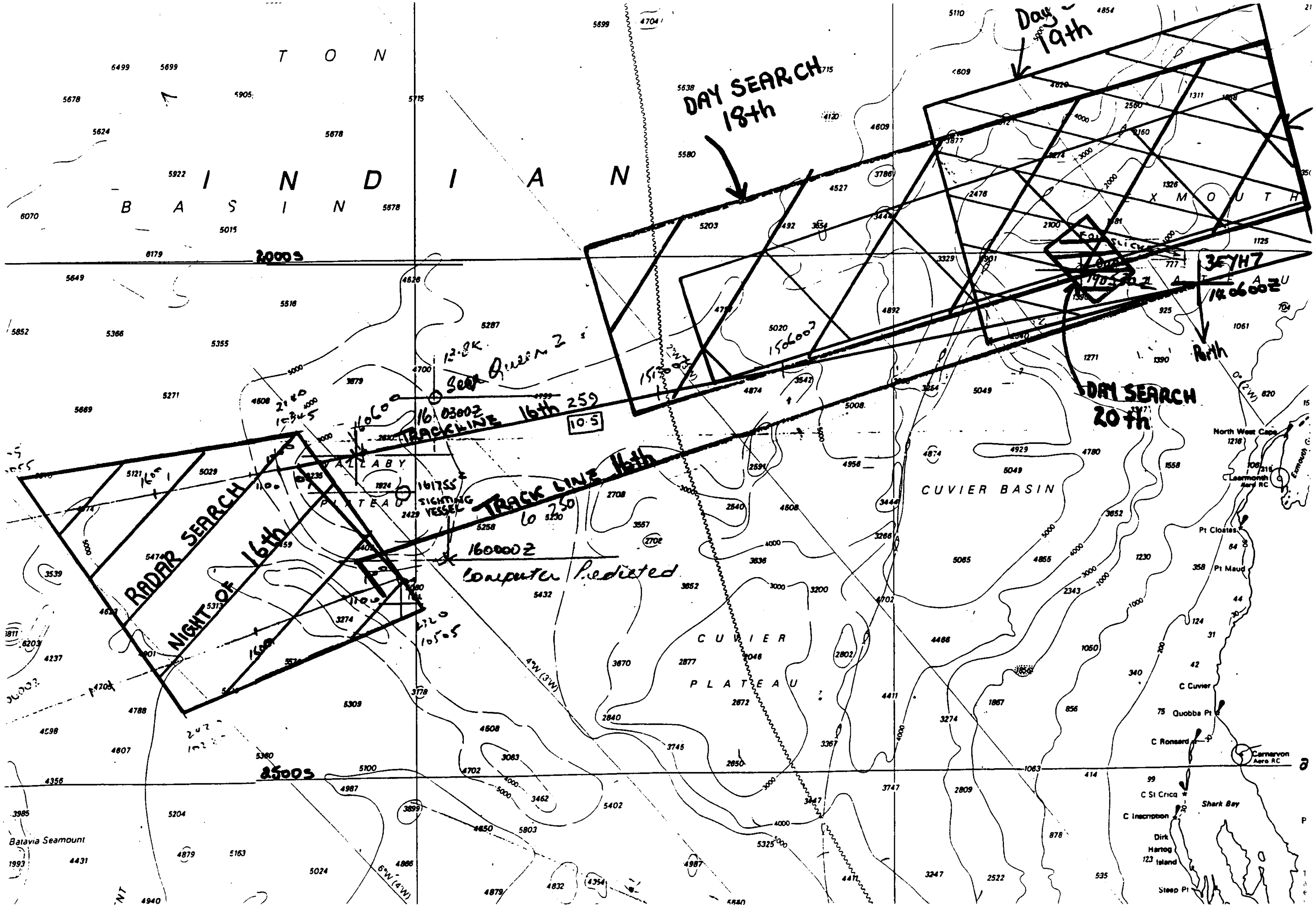
19° S
20° S
NB: " Chart slightly distorted due photocopy process "
UNIDENTIFIED DEBRIS
WHITE 3-4FT LONG
FOAM?
190054Z
LBOAT
250600Z
GARRET by LUT
220616Z
180521Z (30nm LONG) approx
OIL
ENERGY SEARCHER
190800Z
ENGINE U/S
ENERGY SEARCHER
FOAM
FOAM
LIFERAFT
also green drums
large flat item
GARRET 190830Z
LIFEBOAT
190530Z
Bubbles
190835Z
Lifebuoy
190530Z
orange oars
white planks
foam square
boiling water (foaming)
Orange
1806


DAY SEARCH 18th
Day 19th
DAY SEARCH 20th
RADAR SEARCH NIGHT OF 16th
TRACKLINE 16th 259
TRACK LINE 16th
10.5
16 0300Z
1617SS Z SIGHTING VESSEL
160000Z
Computer Predicted
3EYH7
140600Z
Perth
INDIAN
BASIN
CUVIER BASIN
CUVIER PLATEAU
WALLABY PLATEAU
EXMOUTH PLATEAU
20°00S
25°00S
North West Cape
Learmonth Aero RC
Pt Cloates
Pt Maud
C Cuvier
Quobba Pt
C Ronsard
Carnarvon Aero RC
C St Cricq
C Inscription
Shark Bay
Dirk Hartog Island
Steep Pt
Batavia Seamount