

No. 1(2)/2000-CNS
GOVERNMENT OF PAKISTAN
MINISTRY OF PORTS & SHIPPING
DIRECTORATE GENERAL, PORTS & SHIPPING

Karachi, 17 October 2006

INQUIRY REPORT

SINKING OF SELF PROPELLED OIL BARGE ORION-I OFFICIAL NO. 998- M

Preliminary Inquiry under section 471 of Merchant Shipping Ordinance -2001 by Captain M. Aslam Shaheen, Nautical Surveyor (Exam.), Directorate General Ports & Shipping and Mr. Muhammad Saeed Roghay, Engineer & Ship Surveyor, Mercantile Marine Department, Karachi about Sinking of Self Propelled Oil Barge Orion-I Official No.998-M vide ref. No. 1(2)/2000-CNS dated 9 October 2006.

Vessel's Particulars and Other Information:

Name:	Orion-I Oil Tanker (Steel)
Official No:	998-M dated 21 February 2006
Port of Registry:	Karachi registered under Coasting Vessel Act, XIX of 1838 on 21 February 2006.
Name & Address of Owner:	Muhammad Arshad son of Peer Muhammad Khan, House No.B-285, Block-4, Metrovile Site Area, District West, Karachi.

Length = 25.2 M
Breath = 6.2 M
Depth = 3.05 M
Draft Max = 2.20 M
Keel length = 17.30 M

Tank Capacities:

No. 1 & 2 = 30 Tons each
3 & 4 = 32 Tons each
5 & 6 = 38 Tons each

Certificate of Survey/seaworthiness issued by Principal Officer, Mercantile Marine Department dated 2 March 2006 and is valid until 28 February 2007. (Please see A-9)

Permission to proceed from Karachi to Port Qasim subject to 2nd Class Master & 1st Class Engine Driver on board is valid:

From 8 March 2006 to 15 May 2006

From 16 September 2006 to 28 February 2007 (Please see A-10)

Brief details of accident/incident (background):

Self Propelled Barge Orion-I sailed from Karachi with five persons on board and cleared from Custom Check Post at about 0730 hours on 6 October 2006.

The barge was bound for Port Qasim with approximate 150 Tons of Intermediate Fuel Oil on board.

About 2 hours after sailing sea became moderate and barge started rolling heavily and Engine room started flooding with sea water through steering chain pipe.

After some time the Main Engine stopped and the barge kept on flooding and it trimmed heavily by the stern and almost capsized. Tried to tow the barge with another lanch/boat back toward Karachi and finally the barge grounded in a position 115 degree 2.4 miles from Manora Breakwater light at about 2130 hours on 6 October 2006. Some of its oil escaped in to the sea and still it is escaping upto 10 October 2006 at 1030 hours as some oil slick was seen by the Inquiry Officer while visiting the site.

Presently the barge is grounded from the stern in a capsized position making an angle of about 45 degree with the horizontal and almost 80% under water.

There were five person on board all were rescued without any injury.

Incident caused pollution and it is a hazard to navigation for small vessels navigating in that area.

Sequence of Events Leading to the Accident:

150 tons of oil was taken on board from road tankers and distributed evenly in all the six cargo tanks by keeping the interconnecting tank valves open.

As the total capacity of the all 6 tanks is about 200 tons all the tanks were partly filled and there was maximum possible free surface effect during passage.

All tank manholes were closed but not secured properly for sea. During rolling and sinking from aft tank No.1 manhole was found opening and closing. All the air pipes of cargo tanks were not closed/tightened and during rolling some oil was coming from the air pipes.

As per statement of Engine Driver all interconnecting tank valves were closed before sailing. In our opinion they were not closed or if closed then the valves were not functioning properly and they were stuck some where in an open position.

No body has seen/checked the draft as per Master's statement the barge was slightly by the stern.

During rolling the deck edge immersed in to the sea and the engine room was flooded with sea water through steering chain pipe then the barge trimmed heavily by the stern and kept on trimming further gradually and then almost capsized and finally she grounded in 4.2 meter depth from stern and still it is there.

Conclusion as to the Facts of the Accident:

Fact can not be certainly established we have reached a conclusion on the basis of incomplete or doubtful information i.e. it is a guess based on incomplete or doubtful information and really do not know for certain that it is true.

As the vessel do not carry stability booklet, therefore, exact amount of virtual loss of GM can not be calculated. But any-how it is established that vessel had maximum possible free surface at the time of departure from Karachi which any vessel can not afford even during shifting within the harbour.

The vessel have no GM or negative GM due to free surface effect. As the vessel trimmed by the stern might have rolling in Jerks around angle of loll the deck edge immersed into the water from astern and engine room flooded through steering chain pipe.

The vessel further trimmed by the stern. Once the trim increased and most probably the interconnecting tank valves were left in open position. The oil from tank No. 1 & 2 drained/shifted into tank No. 3,4,5&6.

Due to engine room flooding total buoyancy of engine room lost and due to shifting of oil aft the vessel kept on sinking from aft.

All the six cargo tank acted as there was only one compartment. Some of the manholes of cargo tank were not properly closed and air vents/air pipes were also left open/loose.

Findings:

The primary cause of accident is max free surface effect of all 6 tanks at the same time caused heavy rolling on one side then flooding and capsizing. The secondary cause of accident is leaving interconnecting valves open, due to which oil shifted from forward to aft leaving, the forward tank empty and aft portion heavy a result of it excessive trim by the stern and finally sinking the after part of the vessel.

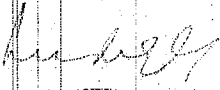
Recommendations:


The fundamental purpose of investigation under MSO 471 is determine circumstances and the causes of accident, with aim of improving the safety of life at sea and avoidance of accidents in the future.

The purpose of this investigation is not to apportion liability/blame except so far as is necessary to achieve the fundamental purpose.

For avoidance of such kind of accidents in future following is recommended.

1. Barge Operator must realize the danger of free surface. There should be no free surface or it should be reduced to minimum possible when such oil barges are moving from Karachi to Port Qasim or to the anchorage.
2. All interconnecting valves must be closed before leaving berth.
3. All cargo tank manholes must be closed and tightened before leaving harbour.
4. All the air vents must be tightened before leaving harbour.


Muhammad Saeed Roghay
Engineer & Ship Surveyor


17/10/06
Captain M. Aslam Shaheen
Nautical Surveyor (Exam.)