



PACIFIC MARINE GROUP PTY LTD
AUSTRALIA



MARITIME SAFETY QUEENSLAND PRE-SALVAGE INSPECTION MV "DEFENDER"

DOCUMENT NUMBER

1725-PRE-SALVAGE DEFENDER-R0

DATE

03/03/16

PMG JOB NUMBER

1725

CLIENT JOB NUMBER

Req. 2010465523

CLIENT

Maritime Safety Queensland

RECIPIENT/POSITION

Max Haste
Area Manager (Townsville Region)

DOCUMENT CONTROL

REVISION	DATE	DESCRIPTION OF CHANGES	AUTHOR	CHECKED	APPROVED
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1.0 INTRODUCTION

1.1 GENERAL

This document details the findings of the pre-salvage inspection conducted on the MV "Defender" sitting on the Ross Creek seabed in Townsville. The inspection was conducted in order to ascertain the condition of timbers and fixtures of the casualty for possible salvage.

Operations were conducted on the 3rd March 2016.

1.2 SAFETY & COMPLIANCE

All work was performed using surface supplied breathing apparatus in accordance with the following:

- *Queensland Work Health and Safety Act 2011*
- *Queensland Work Health and Safety Regulation 2011 – Part 4.8 Diving work*
- *Australian Standard Occupational Diving and Operations AS/NZ 2299.1:2015*
- Pacific Marine Group's Quality Assurance System

A pre start / safety briefing was carried out daily prior to the commencement of the work and a diving and equipment function checklist was completed prior to commencement of diving operations.

2.0 SCOPE OF WORKS

The inspection focused on the following points:

1. General condition of the hull.
2. Condition of timbers below normal waterline.
3. The presence, number and dimensions of any holes and or gaps in the planking and deck.
4. Any assessable decay in the hull timbers.
5. Obvious worm infestation.
6. Potential lifting areas.
7. Relative position of the ship on the creek bed.
8. Areas and percentage of the hull embedded into the sediment.
9. Any sealable opening in the hull.
10. Integrity of the structures above the deck.
11. Integrity of the areas surrounding the mast base.
12. Any major debris.



3.0 OPERATIONAL SUMMARY

The Dive Support Vessel (DSV) MV "Malkarra", vessel master, 4 man dive team and equipment were mobilised from Pacific Marine Group facility to the Ross Creek site. Prior to diving, the crew performed the necessary equipment checks, pre-start meeting and hazard assessment. The DSV was positioned on the stern of the casualty and the diver entered the water.

Visibility was reported to be approximately 300mm- 0mm. Depths were taken on port and starboard side gunwales and along the turn of the hull on the seabed. A full video inspection was conducted, starting on the starboard side then around the stern and up the Port side. Finally, an inspection was conducted on the deck of the casualty.

Still photographs were taken of points of interest. The inspection was conducted on the falling tide with a low of 1.6m at 12:36hrs on the 3rd of March 2016

4.0 RESULTS

SUMMARY

Information required as per the SOW	Reference
General condition of the hull.	4.1 Starboard Hull Inspection 4.3 Port Hull Inspection
Condition of timbers below normal waterline	4.1 Starboard Hull Inspection 4.3 Port Hull Inspection
The presence, number and dimensions of any holes and or gaps in the planking and deck.	4.2 stern Inspection 4.4 Deck Inspection
Any assessable decay in the hull timbers.	4.1 Starboard Hull Inspection - Defect 1 4.2 stern Inspection - Defect 2 4.4 Deck Inspection
Obvious worm infestation.	4.1 Starboard Hull Inspection 4.3 Port Hull Inspection
Potential lifting areas.	4.2 Stern Inspection
Relative position of the ship on the creek bed.	See Tables 4.6.1 to 4.6.4
Areas and percentage of the hull embedded into the sediment.	4.1 Starboard Hull Inspection 4.3 Port Hull Inspection
Any sealable opening in the hull.	See tables 4.6.5 to 4.6.7
Integrity of the structures above the deck.	4.4 Deck Inspection
Integrity of the areas surrounding the mast base.	4.5 Mast inspection



4.1 STARBOARD HULL INSPECTION

(Video reference MV Defender 1 & 2, 10:12hrs- 10:35hrs, MV Defender 3 11:21hrs – 11:45hrs)

Damage was reported on starboard side, aft of the wheelhouse and 1.1m down from the top of the gunwale. The diver reported decaying timbers and dislodged timber planks which allowed full penetration into the compartment immediately below deck level as detailed below in Defect 1. No overhanging debris was reported on the starboard side of the casualty. The seabed was reported to be soft silt and no debris was reported in the vicinity of the casualty.

Measurements were taken on the hull and gunwales. (Refer to table 4.6.2)

- Top of gunwales to deck 1.0 m
- From waterline mark (green band) to seafloor, mid-ships is approximately 1.0m
- The condition of the hull below the normal waterline reported by the diver was in a sound condition (diver using hammer to tap the timbers and listening for any dulling to indicate decay)
- Five Aft mast stay straps were reported on the starboard side. Straps and bolts secure with no signs of rust. Diver reported to the best of his senses, timbers in this location were of sound condition.
- Five forward mast stay straps were reported on the starboard side. Straps and bolts secure with no signs of rust. Diver reported to the best of his senses, timbers in this location were of sound condition.
- Diver reported starboard anchor deployed chain in good condition with an unknown length of chain to anchor.
- Starting from the bow, whilst conducting depth measurements towards the stern, the diver periodically sounded the timbers for any signs of decay or separated planking.
- No obvious worm infestation was located by the diver.

DEFECT 1

Defect was located on the starboard aft corner of the wheelhouse, 1.1m down from the top of the starboard gunwale. This area showed decaying timber and loose plank ends with deteriorating caulking between the planks. Full penetration on the vertical separation was reported (refer appendix A, photograph 1)

- Dimensions of the vertical defect, 170mm H x 14mm W
- Single planking separation, 1.06m L x max 30mm W (due to decay)

4.2 STERN INSPECTION

(Video reference MV Defender 2, 10:35hrs- 11:00hrs)

No damage or decaying timbers were reported on the stern end from the top of the gunwale down to the propeller. Diver reported one clear passage around the underside of the stern hull for possible slinging.

RUDDER

- Measuring down the leading edge from the top pintle bearing down to the seabed was 1.3m.



PROPELLER

- Three blade propeller, 100% exposed with lower blade tip just touching the seabed.
- 100mm of prop shaft exposed before entering hull.
- 250mm gap between prop boss and leading edge of rudder.

4.3 PORT HULL INSPECTION

(Video reference MV Defender 2 & 3, 11:00hrs- 12:43hrs)

Two areas of damage were reported on port side. The first location was aft of the wheelhouse and 1.1m down from the top of the gunwale as detailed in Defect 2. The second location between the 3rd and 4th aft mast stay straps (counting from the stern) and 1.95m down from the top of the gunwale as detailed in Defect 3. No overhanging debris were reported on the port side of the casualty. The seabed was reported to be soft silt and no debris was reported in the vicinity of the casualty.

Measurements were taken on the hull and gunwales. (Refer to table 4.6.1)

- Top of gunwales to deck 1.0 m
- From waterline mark (green band) to seafloor, mid-ships is approximately 2.0m
- The condition of the hull below the normal waterline reported by the diver was in a sound condition (diver using hammer to tap the timbers and listening for any dulling to indicate decay)
- Five Aft mast stay straps were reported on the Port side. Straps and bolts secure with no signs of rust. Diver reported to the best of his senses, timbers in this location were of sound condition.
- Five forward mast stay straps were reported on the port side. Straps and bolts secure with no signs of rust. Diver reported to the best of his senses, timbers in this location were of sound condition.
- Starting from the bow, whilst conducting depth measurements towards the stern, the diver periodically sounded the timbers for any signs of decay or separated planking.
- No obvious worm infestation was located by the diver.

Area of the hull embedded into the sediment

To determine the area of the hull embedded into the sediment precise measurements of the vessel are required, especially the distance between the deck and the bottom of the keel. The distance measured by the diver between the green water line and the seafloor can be used to calculate the approximate area of the hull into the sediment once the specific measurements of the vessel are available.

DEFECT 2

Defect was located on the port aft corner of the wheelhouse, 1.1m down from the top of the port gunwale. This area showed decaying timber and loose plank ends with deteriorating caulking between the planks. Penetration to 50mm (could be internal fixtures) (refer appendix A, photograph 2)

- Dimensions of the vertical defect, 180mm H x 5mm W
- Area of decay approximately 450mm DIA of this defect



DEFECT 3

Defect was located between the 3rd and 4th stay strap port side aft (counting from the stern) and 1.95m down from the top of the port gunwale, 220mm below waterline mark. This area showed decaying timber and a hole. (Refer appendix A, photograph 3)

- Dimensions of the hole, 300mm L x 120mm W
- Area of decay approximately 500mm DIA of this defect

4.4 DECK INSPECTION

The diver inspected the deck of the casualty to identify decay on the decking and the integrity of the structures on the deck.

- A scoop air vent was reported at the bow on the starboard side of the casualty. The vent measured approximately 700mm diameter and appeared to have a shutoff flap to close the vent.
- Another vent was located 2m back from the forward mast on the port side. The vent measured approximately 700mm diameter and appeared to have a shutoff flap to close the vent.
- A small vent was located 4m back from the forward mast on the port side and measures approximately 150mm dia. Diver reported this vent to be loose at the connection to the deck.
- A number of soft, decaying timber were reported throughout the deck.
- Two small below deck entry structures, one skylight and one wheelhouse all found to be firmly attached to the deck.

4.5 MAST INSPECTION

The diver inspected the accessible components of the forward and aft masts and found they were constructed of steel. No obvious signs of corrosion at the base of each mast were noted. Paint in good order.

4.6 DEPTH MEASUREMENTS

Measurements were taking at approximately 5m intervals along the casualty and the tide was recorded to calculate depths from LAT.

TABLE 4.6.1

SURFACE TO TOP OF GUNWHALE PORT SIDE			
POSITION	DEPTH FROM SURFACE	TIDE AT TIME OF MEASUREMENT	DEPTH FROM LAT
Stern	0.3m	1.6m	+1.3m
5m Forward	0.4m	1.6m	+1.2m
10m Forward	0.5m	1.6m	+1.1m
15m Forward	0.3m	1.6m	+1.3m
20m Forward	0.5m	1.6m	+1.1m
25m Forward	0.5m	1.6m	+1.1m
Bow	+0.15m	1.6m	+1.75m



TABLE 4.6.2

SURFACE TO TOP OF GUNWHALE STARBOARD SIDE			
POSITION	DEPTH FROM SURFACE	TIDE AT TIME OF MEASUREMENT	DEPTH FROM LAT
Stern	0.8m	2.0m	+1.2m
5m Forward	1.5m	2.0m	+0.5m
10m Forward	1.5m	2.0m	+0.5m
15m Forward	1.5m	2.0m	+0.5m
20m Forward	1.5m	2.0m	+0.5m
25m Forward	1.2m	2.0m	+0.8m
Bow	0.1m	2.0m	+1.9m

TABLE 4.6.3

SURFACE TO SEABED PORT SIDE			
POSITION	DEPTH FROM SURFACE	TIDE AT TIME OF MEASUREMENT	DEPTH FROM LAT
Stern	4.0m	1.6m	3.4m
5m Forward	3.8m	1.6m	2.2m
10m Forward	3.6m	1.6m	2.0m
15m Forward	3.6m	1.6m	2.0m
20m Forward	3.8m	1.6m	2.4m
25m Forward	3.6m	1.6m	2.0m
Bow	3.8m	1.6m	2.4m

TABLE 4.6.4

SURFACE TO SEABED STARBOARD SIDE			
POSITION	DEPTH FROM SURFACE	TIDE AT TIME OF MEASUREMENT	DEPTH FROM LAT
Stern	3.8m	2.0m	1.8m
5m Forward	3.8m	2.0m	1.8m
10m Forward	3.8m	2.0m	1.8m
15m Forward	4.0m	2.0m	2.0m
20m Forward	4.0m	2.0m	2.0m
25m Forward	4.0m	2.0m	2.0m
Bow	4.2m	2.0m	2.2m



TABLE 4.6.5

SCUPPERS STARBOARD	
SIZE	QUANTITY
450mm x 45mm	5
250mm x 30mm	1
1560mm x 50mm	1
620mm x 65mm	1
590mm x 55mm	1
800mm x 50mm	7
750mm x 40mm	1

TABLE 4.6.6

SCUPPERS STERN	
SIZE	QUANTITY
500mm x 40mm	1
900mm x 50mm	1

TABLE 4.6.7

SCUPPERS PORT	
SIZE	QUANTITY
450mm x 60mm	2
500mm x 50mm	1
400mm x 60mm	1
620mm x 50mm	1
600mm x 50mm	2
510mm x 55mm	1
800mm x 50mm	8

4.7 Potential Lifting Areas

Out of the three main potential areas for lifting (Stern, mid-ship and towards the bow), only the stern was clearly identified as a clear area where a sling can be placed, the other two (mid-ship and towards the bow) will require excavation under the hull that's embedded into the sediment.



5.0 CONCLUSION

Pacific Marine Group successfully completed the pre-inspection for salvage of the MV "DEFENDER" as requested by Mr. Max Haste of Maritime Safety Queensland.

The inspection results indicated one hole below water line and two areas of decay just below deck level and above waterline. The vessel has a slight list to starboard approximately 15 degrees and several areas of decay reported throughout the casualty decking.

The diving services provided by Pacific Marine Group were carried out in compliance with AS/NZS 2299.1:2015. All work was carried out under our internationally certified Quality Assurance Program based on ISO 9001:2008.

Sch.4 Part 4 s.6 Personæ

Dive Supervisor

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APPENDIX A – REFERENCE PICTURES



Photograph 1 – DEFECT 1



Photograph 2 – DEFECT 2



Photograph 3 – DEFECT 3



Photograph 4 – General condition of fender



Photograph 5 – Stb plank separation



Photograph 6 – Condition of Stays

APPENDIX B – VIDEO LOG

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VIDEO LOG			
Project/Job: Pre Salvage Inspection		Sheet 1 of 1	
Client: Maritime Safety Queensland		Date: 3 rd March 2016	
Supervisor:	Diver:	Recorder Type& Serial No (HDD 10408)	
Chapter No (From HDD)	Component (i.e Pile No. Sea Chest)	Video start Time	Comments
0922hrs	Scuppers Starboard side		5 x photo's
0928hrs	Counting scuppers starboard side		
0934hrs	Starboard Aft stay supports		8 x photo's
0950hrs	Starboard aft stay		4 x photo's
1001	Starboard fwd stay support 1 st		
1003	Starboard fwd stay support 2nd		
1004	Starboard fwd stay support 3rd		
1005	Starboard fwd stay support 4th		
1006	Starboard fwd stay support 5th		
1014	Sounding hull starboard side		End video 1
1035	Stern		Start video 2
1044	Rudder/ propeller		
1100	Decay Port side		5 x photo's End video 2
1115	Soft timber		4 x photo's start video 3
1121	Starboard aft plank separation		7 x photo's
1145	Hole Port side		8 x photo's
1157	Port scupper inspection		
1200	Port aft stay supports		
1211	Port fwd. stay support		End video 3
1243	Aft Mast		Start video 4
1253	Fwd. Mast		
1255	Security of deck fixtures		

APPENDIX C – DAILY SUMMARY REPORT

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PACIFIC MARINE GROUP

PTY LTD ABN 38 066 261 112

1725

DAILY SUMMARY REPORT

LOCATION: Townsville

CLIENT/COMPANY: MSQ.

VESSEL: MALKARA

DATE: 3/3/16.

SUPERVISOR:

SHEET 1 OF 4

TIME	DESCRIPTION
0700	Pre start Safety tool box meeting.
0715	Job specific briefing
0730	Dive equipment Safety function checks + setup.
0805	Depart Marine PMG for Ross Creek Townsville.
0850	Arrive Ross river. secure along side a Portabtype vessel Seacosta.
0855	Divers dressing in + conducting Site assessment.
0900	VTS contacted for Dive ops
0904	Stand-by diver checks completed
0911	Diver LS# 1725-1
0914	start at Aft stb corner on top of gunnel. Gunnel surface 1.2m. Top of gunnel to Deck 1.1m.
09:34	stb Aft mast stay strap x 1 bolts secure / no rust, x 1 st
09:42	" " " " " " " " " " x 2 nd
09:43	" " " " " " " " " " x 3 rd
09:44	" " " " " " " " " " x 4 th
09:47	1/2 moon hole  between 3 rd /4 th Aft stay strap.
09:48	stb Aft MAST stay strap x 4 bolts secure / no rust 5 th
09:50	Soundig of gunnel timber sounds solid.
10:01	stb aft stay strap fwd mast x 4 bolts secure / no rust 1 st
10:03	" " " " " " " " " " 2 nd
10:04	" " " " " " " " " " 3 rd

STB Scuppers:

CONSUMABLES

450x45x5 590x55x1
 250x30x1 800x50x7
 1560x50x1 750x40x1.
 620x65x1

PERSONNEL

1:	4:
2:	5:
3:	6:

SUPERVISOR SIGNATURE:

CLIENT SIGNATURE:

Re-order Townmarin 4779 9291 Ref: PMG050903

Use Sch.4 Part 4 s.6 Personal info

1725

DAILY SUMMARY REPORT

LOCATION: <u>Townsville</u>	CLIENT/COMPANY: <u>MSQ</u>
VESSEL: <u>MALKARA</u>	DATE: <u>3/3/16</u>
SUPERVISOR:	SHEET <u>2</u> OF <u>4</u>

TIME	DESCRIPTION
10:05	stb off stay forward stbotts secure no rust ^{left}
10:06	" " " " " " " " ^{5th}
10:13	Sounding timber stb bow. to stb Aft
10:35	identify Suppers stern
10:44	Rudder inspection + Prop.
	1.3m of Rudder exposed.
	from top Pintel bearing down ^{1.3m}
	Prop clear of seafloor with low blade tip touching seafloor
	100mm of Prop shaft exposed before entering hull.
	250mm between Prop + Rudder ^{250mm}
	Hull clear of seafloor to allow sling to be passed from
	Aft to stb + back to surface.
	Seafloor very soft easy 1m penetration.
11:00	Crack Pt. Aft. 180mm vertical x 5mm wide
	Could penetrate knife in upto 50mm but not able to
	penetrate right through as diver feels solid timber inside
	(like an internal patch).
11:21	Crack stb aft 1m from top of Gunwhale to top of crack
	Planking separated due to decay 170mm x 15mm x 1.06m
	full penetration through hull
11:35	Both Pt + stb timbers at the Aft end of wheel house shows

stern. suppers **CONSUMABLES**
 500 x 40 x 1
 900 x 30 x 1 1/2
 400 x 65 x 1
 Port suppers.

PERSONNEL	
1:	4: -
2:	5:
3:	6:
SUPERVISOR SIGNATURE:	CLIENT SIGNATURE:

Refuse Sch.4 Part 4 s.6 Personal infor

Re-order Townprint 4779 9291 Ref:PMG060903

1725

DAILY SUMMARY REPORT

LOCATION: <u>Townsville</u>	CLIENT/COMPANY: <u>MSQ</u>
VESSEL: <u>MALYATTA</u>	DATE: <u>3/3/16</u>
SUPERVISOR:	SHEET <u>3</u> OF <u>4</u>

TIME	DESCRIPTION
	Several timbers Planks in different state of decay.
1145	220mm below Green water line mark Inbetween 3+4 stay Pt cordig from the stern feel internal Planking & Good timber 500mm square.
1200	1 st stay strap 5x bolts secure Pt side. front stern
	2 nd " " 4x " " "
	3 rd " " 5x " " "
	4 th " " 5x " " "
	5 th " " 4x " " "
1205	Green waterline mark to see floor dm
1211	1 st stay strap 4x bolts secure Pt side. fwd cordig from stern
	2 nd " " 4x " " " " "
	3 rd " " 4x " " " " "
1216	from Green water line to see floo 1.85m of fwd mast Pt side
1217	4 th stay strap 5x bolts secure Pt side
	5 th " " 5x " " " "
1243	Diver making his way to inspect Aft mast base 200mm viz @ low tide. Feels in good order. Steel mast
1253	Diver inspecting fwd mast (steel).

Port scuppers 450 x 60 x 11 500 x 50 x 1 600 x 60 x 1	CONSUMABLES 620 x 50 x 1 600 x 50 x 11 510 x 55 x 1 800 x 50 x 1 HT III	General Deck is soft with holes & decaying timbers
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PERSONNEL

1:	4:
2:	5:
3:	6:

SUPERVISOR SIGNATURE:	CLIENT SIGNATURE:
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Re-order: Townprint 4779 9291 Ref: PM6050903

APPENDIX D – RECORD OF DIVE LOG

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PACIFIC MARINE GROUP PTY LTD

Record of Dive

Customer: MSQ Vessel: MAIKARA Date: 3-3-2016
 Location: Townsville Dive Number: 1725-1
 Diver: _____ Standby Di: _____ Supervisor: _____
 Depth: AM 0.5M Viz Dive Table: DCIEM

Left Surface: <u>0911</u>	Left Bottom: <u>1300</u>	Bottom Time: <u>3hr 57min</u>	Reach Surface: <u>1309</u>	Total Water Time: <u>3hr 58min</u>			
Depth	Water Stops feet (metres)					Chamber Stop feet (metres)	Notes
	50(15)	40(12)	30(9)	20(6)	10(3)		
Interval						<u>40(12)</u>	<u>Viz 0.5m</u>
Arrive Stop							
Depart Stop							

Decompression Completed: 1309 Total Time Under Pressure: 3hr 58min
 Diver OK: Yes / No Diver's Signature: _____

Breathing Supply	Pre Dive	Regulated To	Post Dive	Gas Used
Air Compression	<u>/</u>			
Air Bank 1	<u>200 bar</u>	<u>11bar</u>	<u>50bar</u>	<u>150bar</u>
Air Bank 2	<u>200 bar</u>	<u>11bar</u>	<u>20bar</u>	<u>/</u>
Bailout Cylinder 1	<u>200 bar</u>	<u>135 psi</u>	<u>20 bar</u>	<u>/</u>
Bailout Cylinder 2	<u>140 bar</u>	<u>135 psi</u>	<u>140bar</u>	<u>/</u>
Medical O ₂	<u>150 bar</u>	<u>Reg</u>	<u>150bar</u>	<u>/</u>

Dive Hat: KM37 Standby Hat: KM28
 Notes and Work Carried Out: Pre Salvage Inspection. MV Defender.

Supervisor's Signature: _____	Client's Signature: _____
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