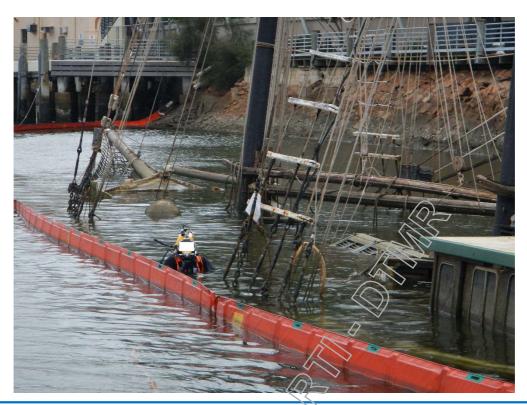
TOWAGE & BARGES COMMERCIAL DIVING MARINE CONSTRUCTION VESSEL HIRE





MARITIME SAFETY QUEENSLAND PRE-SALVAGE INSPECTION MV "DEFENDER"

DOCUMENT NUMBER

1725-PRE-SALVAGE DEFENDER-R0

PMG JOB NUMBER

1725

CLIENT

Maritime Safety Queensland

DATE

03/03/16

CLIENT JOB NUMBER

Req. 2010465523

RECIPIENT/POSITION

Max Haste

Area Manager (Townsville Region)

DOCUMENT CONTROL

REVISION	DATE	DESCRIPTION OF CHANGES	AUTHOR	CHECKED	APPROVED
R0	04/03/16	Draft for Review			
R1	04/03/16	FOR ISSUE			

TOWAGE & BARGES COMMERCIAL DIVING

MARINE CONSTRUCTION

VESSEL HIRE



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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, rumber 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.
- 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	4.2 stern Inspection
any holes and or gaps in the planking and deck.	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	4.1 Starboard Hull Inspection
into the sediment.	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 starb and 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 waterine 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 full 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 null 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
- 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
- A small vent was located 4m back from the forward mast on the port side and measures approximately 150mm dia. Diver reported this yent to be lose 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	TIDE AT TIME OF	DEPTH			
	SURFACE	MEASUREMENT FROM LA				
Stern	0.3m	DM TIDE AT TIME OF MEASUREMENT FROM LATE				
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 +1.1n 1.6m +1.3n 1.6m +1.1n 1.6m +1.1n				



TABLE 4.6.2

SURFACE TO TOP OF GUNWHALE STARBOARD SIDE							
POSITION	DEPTH FROM	TIDE AT TIME OF	DEPTH				
	SURFACE	MEASUREMENT	FROM LAT				
Stern	0.8m	FROM TIDE AT TIME OF MEASUREMENT FROM LAT 10					
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

7/							
SUFACE TO SEABED PORT SIDE							
POSITION	DEPTH FROM	TIDE AT TIME OF	DEPTH				
	SURFACE	MEASUREMENT	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

SUFACE TO SEABED STARBOARD SIDE						
POSITION	DEPTH FROM	TIDE AT TIME OF	DEPTH			
	SURFACE	MEASUREMENT FROM LAT 2.0m 1.8m				
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, 4			
900mm x 50mm	P			

TABLE 4.6.7

SCUPPERS PORT					
SIZE	QUANTITY				
450mm x 60mm	2				
500mm x 50mm	1				
400mm x 60mm	1				
620mm x 50mm	1				
600m 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

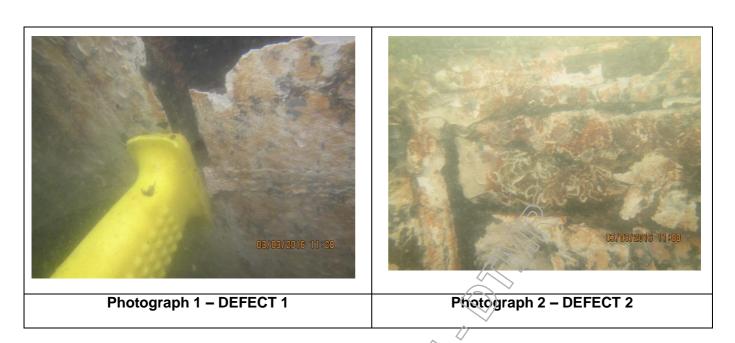
Pacific Marine Group successfully completed the pre-inspection for salvage of the MV "DEFENDER" as requested by Mr. Max Haste of Maritime Safety Queensland.

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 Persona **Dive Supervisor**

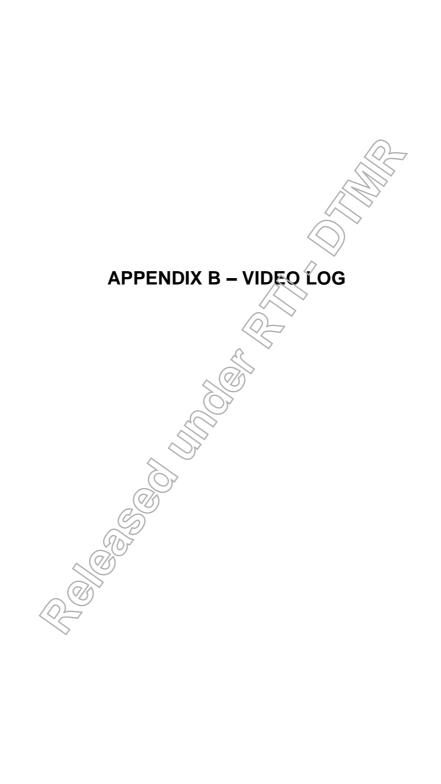
APPENDIX A - REFERENCE PICTURES







RTI-508 MSQ Pre-salvage inspection MV "Defender" 3 March 2016.pdf - Page Number: 11 of 20





PACIFIC MARINE GROUP PTY LTD

AUSTRALIA

	V	IDEO LOG	
Project/Job: Pre S	Salvage Inspection		Sheet 1 of 1
Client: Maritime S	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 1st	4	
1003	Starboard fwd stay support 2nd		7
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 Fort 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		

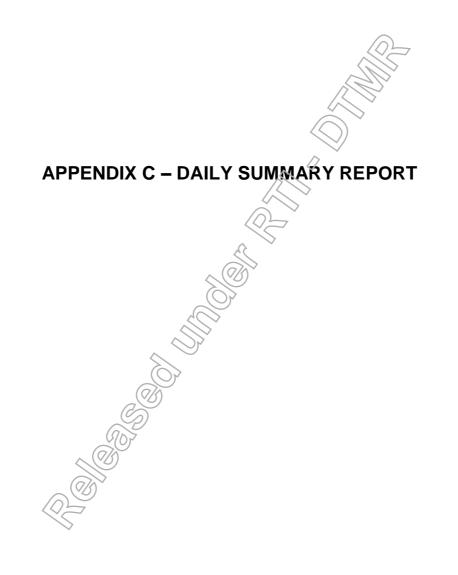
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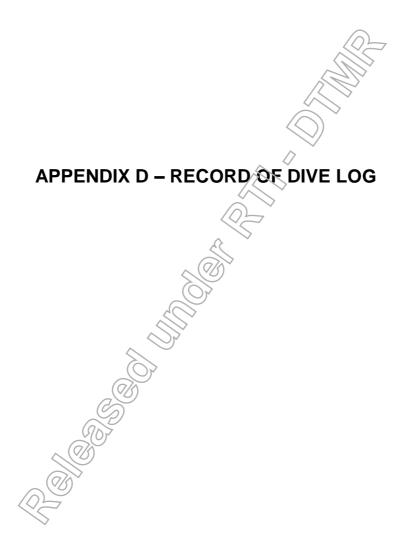


PACIFIC MARINE GROUP PTY LTD ABN 38 066 261 112						
1725	DAILY SUMMARY REPORT					
LOCATIO	on: Townsuitle	CLIENT/COMPANY: MSQ.				
VESSEL:	MALLARA	DATE: 3/3/16.				
SUPERVI	ISOR:	SHEET \ OF L				
TIME) DI	ESCRIPTION				
0790	Pre start Salery tool &	sox Meeting.				
0715	Job specific brel	'a				
0730		function checks + Setup				
	Depart Marine PML	Cor loss chel Townsville				
	Arrive Ross River secure					
	Sea esta.					
08 <i>55</i>	Divers onessing in + conduct					
Oleo	VTS Contacted for Di	/1/				
0904	Stand-by diver clerks complet	ed				
0911	Diver LS#1725-1					
914	l	op of hunnel. Gunnel / Suffore 1.2M.				
•	Top of Gunnel to Deck	^ · · · · · · · · · · · · · · · · · · ·				
09:34	546 Aft Mast stay strap x 5	botts secure (No Pust, XI				
09:42	10 11 10 - 11 1 1 1 1 1 1 1 1 1 1 1 1 1	- 10 11 10				
04:43	1, 1, 1, 10 V	¥ 3				
A:44	10	mil and I had				
09:47	12 roon hole and	between 3 / 11 1Ht Stay Strap.				
0948	stb ALT MAST Strap X					
09.50 10:01	11 12 12 (78)	sounds solid.				
10:01	Stb alt stay strap fud Me	ust 14 bolts secure no hust in				
10:04	" "	Lighty .				
StB. scrope	Pers ; CONSUI	MABLES				
4508451	15 590455 x 1					
250 x 30						
6204 65	1560+50+1 750+40x1. 620+65+1					
	PERSO	<u> </u>				
1:	<u></u>	4:				
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3:		6:				
SUPERVIS	SUPERVISOR SIGNATURE: CLIENT SIGNATURE:					
se Sch.4 Part 4	e Sch.4 Part 4 s.6 Personal info					

PACIFIC MARINE GROUP PTY LTD ABN 38 066 261 112 1725 LOCATION: TOWNSVIlle CLIENT/COMPANY: MSQ VESSEL: MALKATA DATE: 🌂 SUPERVISOR: SHEET OF 4 TIME DESCRIPTION 10:05 seave no bust 3 006 1013 1035 644 11:00 180mm Verticle 1121 at the Aft end Of u 1135 **CONSUMABLES** stern. suppers Port scuppors. 500 x 40 x 1 Q00 x 30 x 14 PERSONNEL 4: 1: 2: 5: SUPERVISOR SIGNATURE: CLIENT SIGNATURE: efuse Sch.4 Part 4 s.6 Personal infor

PACIFIC MARINE GROUP PTY LTD ABN 38 066 261 112 DAILY SUMMARY REPORT 1725 LOCATION: Townsuite CLIENT/COMPANY: MSQ VESSEL: MALYATTA 3/3/16 DATE: SUPERVISOR: SHEET **TIME** DESCRIPTION 1165 1200 1 11 V 5 1205 1211 LX 1216 1217 Pst side 1243 inspect 1253 Port scuppers **CONSUMABLES** 450460-11 620 x 50x 1 600-4504(1 500-450 X1 + decaying tinbers 510-155 41 4 00 x 00 x 1 800 x 50 x WIII PERSONNEL 1: 4: 2: 5: SUPERVISOR SIGNATURE: **CLIENT SIGNATURE:**

PACIFIC MARINE GROUP DAILY SUMMARY REPORT LOCATION: Townsville CLIENT/COMPANY: NGQ 3/3/16 MALKARFA VESSEL: DATE: SUPERVISOR: **SHEET TIME** DESCRIPTION PT side 1255 1308 1330 **CONSUMABLES** PERSONNEL 1: 4: 2: 5: 6: SUPERVISOR SIGNATURE: **CLIENT SIGNATURE:**





PACIFIC MARINE GROUP PTY LTD

Record of Dive

Customer: MSQ			Ves	ssel: _	MAYK	272	Da	te: <u>3</u> -	3-2016.
Location: Townsville Dive Number: 1725-1									
Diver: Standby Div					Suț	ervisor: (· u		
Depth:								,	
Left Surface: OGN		Left Bottom:	30გ	Bo Tin	ttom ne: 3	51min	Reach Surface:	309	Total Water Time: 3 58 4
Depth	50(15) 40(12)	Water St	três)	20/6)	10(2)	Chamber Stop feet (metres)	,	Notes
Interval	50(15	40(12)	30(9	<u>') </u>	20(6)	10(3)	40(12)	VIZ E	1.5n
Arrive Stop				ļ		/2			
Depart Stop									
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Breathing Supply		Pre Dive	;		Regulated	r	Post I	 Dive	Gas Used
Air Compression		/		<u></u>	\$\frac{1}{2}			*.	
Air Bank 1		2006	ar_(S)	9)	NPar	•	40°	ber	150bar
Air Bank 2		200 6	(107 200)		11ber. 200 ber.				
Bailout Cylinder 1		200	ser		135 PSI 200 ber			-	
Bailout Cylinder 2		000	135 PSI		lhober		_		
Medical O ₂		150	oer.		Reg		150	ban_	
Dive Hat: Krb28.									
Notes and Work Carried Out: <u>Vie Salvage Inspection</u> . MV Delander.									
		· · · · · · · · · · · · · · · · · · ·							
Supervisor's Signature:	use Sch.4	Part 4 s.6 Perso	nal inf			ent's gnature:			