

CLIENT NAME:
LOCATION:
CALM BUOY INSPECTION:

CLIENT CONTRACT:

INSPECTOR

REVIEWED

**INSPECTION OF
CALM BUOY**

OVERALL PHOTO

REVISION DESCRIPTION:

Preliminary / Final



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- Fixed Part - Equipment Assembly N°
- Cathodic protection layout N°
- Anchor leg N°


The buoy body is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Float on even keel?	
	Insert Photo	
02	Visibility of draught marks	
	Insert Photo	
03	Condition of hull plating	
	Insert Photo	
04	Condition of the circular top fender	
	Insert Photo	
05	Condition of diagonal fender	
	Insert Photo	
06	Condition of deck plating	
	Insert Photo	
07	Condition of hydraulic jack base plates	
	Insert Photo	
08	Condition of mooring bollards	
	Insert Photo	
09	Condition of manhole covers	
	Insert Photo	
10	Condition of sounding plugs	
	Insert Photo	
11	Compartments gas free	
12	Condition of ladders	
	Insert Photo	
13	Condition of compartments	
	Insert Photo	
14	Condition of skirt and underwater hull plating	
	Insert Photo	
15	Position of buoy relative to PLEM	
16	Condition of anodes	
	Insert Photo	
17	Chain angles	
	Insert Photo	
18	Wear on first chain links	
	Insert Photo	
19	Condition of chain stoppers and chain hawses	
	Insert Photo	

3.2. CENTER WELL

The centre well is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
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 <small>Value from technology and experience</small>	CLIENT NAME: LOCATION: CALM BUOY INSPECTION:	
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01	Condition of center well	
	Insert Photo	
02	Condition of bearing support	
	Insert Photo	
03	Condition of brackets	
	Insert Photo	
04	Condition of main bearing bolting	
	Insert Photo	
05	Condition of structural bolting	
	Insert Photo	
06	Condition of piping bolting	
	Insert Photo	
07	Condition of drain pipes from water barrage	
	Insert Photo	

3.3. FIXED PART PIPING

Reference drawing:

- Fixed Part Piping - General Arrangement N°

The fixed part piping is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Condition of piping	
	Insert Photo	
02	Condition of valves	
	Insert Photo	
03	Operation of valve and gear	
	Insert Photo	
04	Condition of flange connections	
	Insert Photo	

3.4. UNDERWATER HOSES


The underwater hoses string is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Condition of underwater hose string	
	Insert Photo	
02	Hose and string configuration	
	Insert Photo	
03	How often is the hose string inspected	
04	Condition of umbilical and its supports	
	Insert Photo	

3.5. PLEM VALVES OPERATIONS

The PLEM valves are subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Condition of compartment	
	Insert Photo	

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02	Condition of rubber seal on hatch cover	
	Insert Photo	
03	Availability of external HPU	
	Insert Photo	
04	Condition of PLEM valves	
	Insert Photo	

4. ROTATING PART

This section applies to the turntable structure, equipment and piping, mooring platform, boat landing platform, divers platform, piping platform, ballast platform, ballast boxes.

4.1. TURNTABLE

The turntable is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Overall condition of turntable	
	Insert Photo	
02	Condition of turntable equipment	
	Insert Photo	
03	Condition of lifting lugs	
	Insert Photo	
04	Condition of locking device	
	Insert Photo	
05	Condition of locking pins latches	
	Insert Photo	
06	Condition of hydraulic jack head landing plates	
	Insert Photo	
07	Condition of locking cleats	
	Insert Photo	
08	Condition of ballast platform	
	Insert Photo	
09	Condition of boat landing platform	
	Insert Photo	
10	Condition of manhole covers	
	Insert Photo	
11	Condition of ladders, walkways handrails	
	Insert Photo	
12	Condition of anti-fouling cage	
	Insert Photo	
13	Condition of grating panels	
	Insert Photo	
14	Condition of toolbox	
	Insert Photo	

4.2. MOORING SYSTEM


Reference drawings:

Mooring Bridle - General arrangement

N°

Mooring lug bushing

N°

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Mooring line Layout

N°

The mooring system is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Overall condition of mooring platform	
	Insert Photo	
02	Condition of deck timber	
	Insert Photo	
03	Condition of front fender	
	Insert Photo	
04	Condition of mooring bridle	
	Insert Photo	
05	Condition of load monitoring system	
	Insert Photo	
06	Mooring lug – shackle interface wear	
	Insert Photo	
07	Condition of hawser and chafing arrangement	
	Insert Photo	
08	Condition of pick up arrangement	
	Insert Photo	


4.3. ROTATING PART PIPING

Reference drawing:

- Rotating Part Piping - General arrangement N°

The rotating part piping is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Overall condition of piping platform	
	Insert Photo	
02	Condition of piping	
	Insert Photo	
03	Condition of pipe supports	
	Insert Photo	
04	Condition of flanges - alignment	
	Insert Photo	
05	Condition of bolting	
	Insert Photo	
06	Condition of expansion joints	
	Insert Photo	
07	Condition of main valves	
	Insert Photo	
08	Condition manual gear actuators	
	Insert Photo	
09	Condition of cross over valve	
	Insert Photo	
10	Condition of overboard piping	
	Insert Photo	

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4.4. FLOATING HOSE STRINGS

Reference drawing:

Floating Hoses String Layout

N°

The floating hose string is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Condition of the floating hose string	
	Insert Photo	
02	Frequency of floating hose string inspection	
	Insert Photo	
03	Hose string inspection during loading	
	Insert Photo	

5. FIXED-ROTATING INTERFACE

This section covers the product swivel and its driving arm; the main roller bearing, its water protection and its greasing system.

5.1. PRODUCT SWIVEL

Reference drawings:

- Product swivel - Mounting drawing N°
- Product swivel roller bearing mounting assembly N°


The central pipe swivel is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Overall condition of swivel	
	Insert Photo	
02	Condition of swivel bolts - tightening	
	Insert Photo	
03	Condition of external seal	
	Insert Photo	
04	Condition of flanges - alignment	
	Insert Photo	
05	Alignment of flanges and bolt tightening	
	Insert Photo	
06	Condition of swivel bearing	
	Insert Photo	
07	Condition of grease nipples	
	Insert Photo	
08	Condition of relief valves	
	Insert Photo	
09	Is the bearing grease sampled and analyzed?	
	Insert Photo	

5.2. DRIVING ARRANGEMENT

The driving arrangement is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
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 <small>Value from technology and experience</small>	CLIENT NAME: LOCATION: CALM BUOY INSPECTION:	
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01	Condition of driving arm – deformation/wear	
	Insert Photo	
02	Clearance check	
	Insert Photo	
03	Lubrication	
	Insert Photo	

5.3. MAIN ROLLER BEARING

Reference drawings:

- Main bearing roller bearing mounting assembly N°
- Main Bearing greasing system - General Arrangement N°

The main roller bearing is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Overall condition of main bearing	
	Insert Photo	
02	Condition of bearing bolts - tightening	
	Insert Photo	
03	Condition of grease lines and nipples.	
	Insert Photo	
04	Is the bearing grease sampled and analyzed?	
	Insert Photo	
05	Bearing axial play	
	Insert Photo	
06	Smoothness of rotation	
	Insert Photo	
07	Conformity of rotation torque	
	Insert Photo	


5.4. WATER BARRAGE

Reference drawing:

- Water Barrage - General arrangement N°

The bearing water protection is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Overall condition of water barrage	
	Insert Photo	
02	Condition of rubber skirt	
	Insert Photo	
03	Condition of inner lip seal.	
	Insert Photo	
04	Condition of outer lip seal	
	Insert Photo	
05	Condition of drain pipes – no obstruction	
	Insert Photo	
06	Condition of bolting	

 <small>Value from technology and experience</small>	CLIENT NAME: LOCATION: CALM BUOY INSPECTION:	
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	Insert Photo
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6. LIFTING AND HANDLING EQUIPMENT

Reference drawings:

- Elevation view - General arrangement N°
- Top view - General arrangement N°
- Hoisting & Lifting - General arrangement N°

The hoisting and lifting equipment will be subjected to the following checks and the results recorded in the appropriate box:

Item	Check	Comments
01	Condition of air motor winch	
	Insert Photo	
02	Level of lubricants	
	Insert Photo	
03	Condition of winch protection	
	Insert Photo	
04	Condition of the wire rope	
	Insert Photo	
05	Condition of tripod	
	Insert Photo	
06	Condition of sheave block	
	Insert Photo	
07	Condition of hose lifting frame	
	Insert Photo	
08	Condition of overhead pulley	
	Insert Photo	
09	Condition of swinging davit	
	Insert Photo	
10	Condition of sheaves - greasing	
	Insert Photo	
11	Condition of lifting and attachment points – SWL marking	
	Insert Photo	


7. ELECTRICAL EQUIPMENT

Reference drawings:

- Elevation view - General arrangement N°
- Top view - General arrangement N°
- Equipment assembly N°

The electrical equipment is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Condition of marine lantern	
	Insert Photo	
02	Condition of navais cabinet	
	Insert Photo	
03	Condition of accumulator battery – fully	

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	charged	
	Insert Photo	
04	Condition of the solar panels and support	
	Insert Photo	
05	Condition of foghorn	
	Insert Photo	
06	Condition of load monitoring	
	Insert Photo	

8. SAFETY EQUIPMENT


The safety equipment is subjected to the following checks and the results recorded accordingly:

Item	Check	Comments
01	Condition of radar reflector	
	Insert Photo	
02	Condition of fire extinguishers and cabinets	
	Insert Photo	
03	Condition of ring lifebuoys	
	Insert Photo	
04	Ring lifebuoy – buoyant line and light	
	Insert Photo	

9. PAINT SYSTEM

This section concerns the painting system, special coatings and other forms of protection applied to the equipment.

Item	Check	Comments
01	Condition of the deck, sides and fenders multi coat paint protection system.	
	Insert Photo	
02	Condition of the hull underwater multi coat paint protection system	
	Insert Photo	
03	Condition of the inside of compartment multi coat paint protection system	
	Insert Photo	
04	Condition of the center well multi coat paint protection system	
	Insert Photo	
05	Condition of the piping and valves multi coat paint protection system	
	Insert Photo	
06	Condition of the turntable structure (piping platform, boat landing) multi coat paint protection system	
	Insert Photo	
07	Condition of the turntable lattice structure (mooring rope guards, protection cage) multi coat paint protection system	
	Insert Photo	

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08	Condition of the equipment multi coat paint protection system	
	Insert Photo	


10. HOUSEKEEPING AND MAINTENANCE

Item	Check	Comments
01	General care and housekeeping	
	Insert Photo	
02	Removal of dirt, grease and contamination	
	Insert Photo	
03	Preventive maintenance on coating	
	Insert Photo	
04	When is compartment sounding performed	
05	Are anodes scrubbed?	
06	When is the mooring bridle greased?	
07	When is the driving arm fork and pin greased?	
08	Are the bearings lubricated as per maintenance manual	
09	What grease is used?	
10	Is grease sampling and analysis performed periodically?	

11. SYSTEM REINSTATEMENT

This section relates to the reinstatement of the CALM system upon completion of the inspection program and to the eventual re-preservation or preservation maintenance.

Item	Check	Comments
01	Are all manhole covers in place?	
	Insert Photo	
02	Are all compartments resealed?	
	Insert Photo	
03	Have any elements been replaced?	
	Insert Photo	
04	Are the valves in the correct position?	
	Insert Photo	
05	Is the turntable free to weathervane?	
	Insert Photo	

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12. SPARE PARTS

This section relates to the general quantities of spare parts that OCIMF recommends be kept by the operator. The list is usually amended by the operator in order to better reflect his minimum needs (taking into account number or terminals sharing the spares, time to source, local condition etc...)

12.1. Submarine hose system

Part	Recommended Q	Inventoried Q
Hose coupling	100%	
Hose spreaders	100%	
Hose spool pieces	100%	
Hose gaskets	100%	
Hoses	100%	
Buoyancy tanks or floats	100%	
Associated bolts	200%	

12.2. Floating hose system


Part	Recommended Q	Inventoried Q
Hose coupling	100%	
Hose spreaders	100%	
Hose spool pieces	100%	
Hose gaskets	100%	
Hoses	100%	
Buoyancy tanks or floats	100%	
Tanker rail hoses	200%	
First off buoy hoses	200%	
Valves	20%	
Flanges	20%	
Lifting chains	200%	
Shackles	200%	
Hose lights	100%	
Battery packs	100%	
Associated bolts	200%	
Pick up buoys	200%	

12.3. Mooring Assemblies

Part	Recommended Q	Inventoried Q
Mooring hawser	200%	
Chain support	100%	
Buoy shackles	100%	
Pins	100%	
Thimbles	100%	
Links	100%	
Triangular plate	100%	
Chafing chain	200%	
Hawser floats	100%	
Messenger lines	200%	
Marker buoys	100%	

12.4. PLEM

Part	Recommended Q	Inventoried Q

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Valves	50%	
Associated bolts and gaskets	200%	
Purge fittings	100%	
Spool pieces	50%	
Anodes	50%	

12.5. Buoy body and turntable

Part	Recommended Q	Inventoried Q
Chain stoppers	50%	
Manhole cover seals	100%	
Expansion joints	100%	
Main bearing seals	100%	
Fluid swivel bearing seals	100%	
Bearing bolts	100%	
Navigational lights	100%	
Lamps	400%	
Batteries for navigation lights	100%	
Valves	50%	
Flanges	50%	
Anodes	50%	
Associated bolts	200%	

12.6. Anchor chain system

Part	Recommended Q	Inventoried Q
Shackles	20%	
Chain links	20%	
Anchors	20%	

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13. BUDGETARY QUOTATION

This budgetary quotation provides a ball park figure for the expected cost and delivery time for the parts and quantities as listed in below table: