Table of Contents

GLOSSARY OF TERMS USED

EMPLOYER	Owner of the Windpark
LAT	Lowest Astronomical Tide
MOB	Man Over Board
NLCG DH	Netherlands Coastguard – Den Helder
NOK	Next of Kin
Q4-WP	Offshore Windpark Q4-WP
OHVS	Offshore High Voltage Station
OMC	Offshore Maintenance Coordinator
O & M	Operation and Maintenance
RCC DH	Rescue Coordination Centre – Den Helder
STI	Safety Training Institute
VCEU	Vestas
WTG	Wind Turbine Generator
ERC	Emergency Response Coordinator

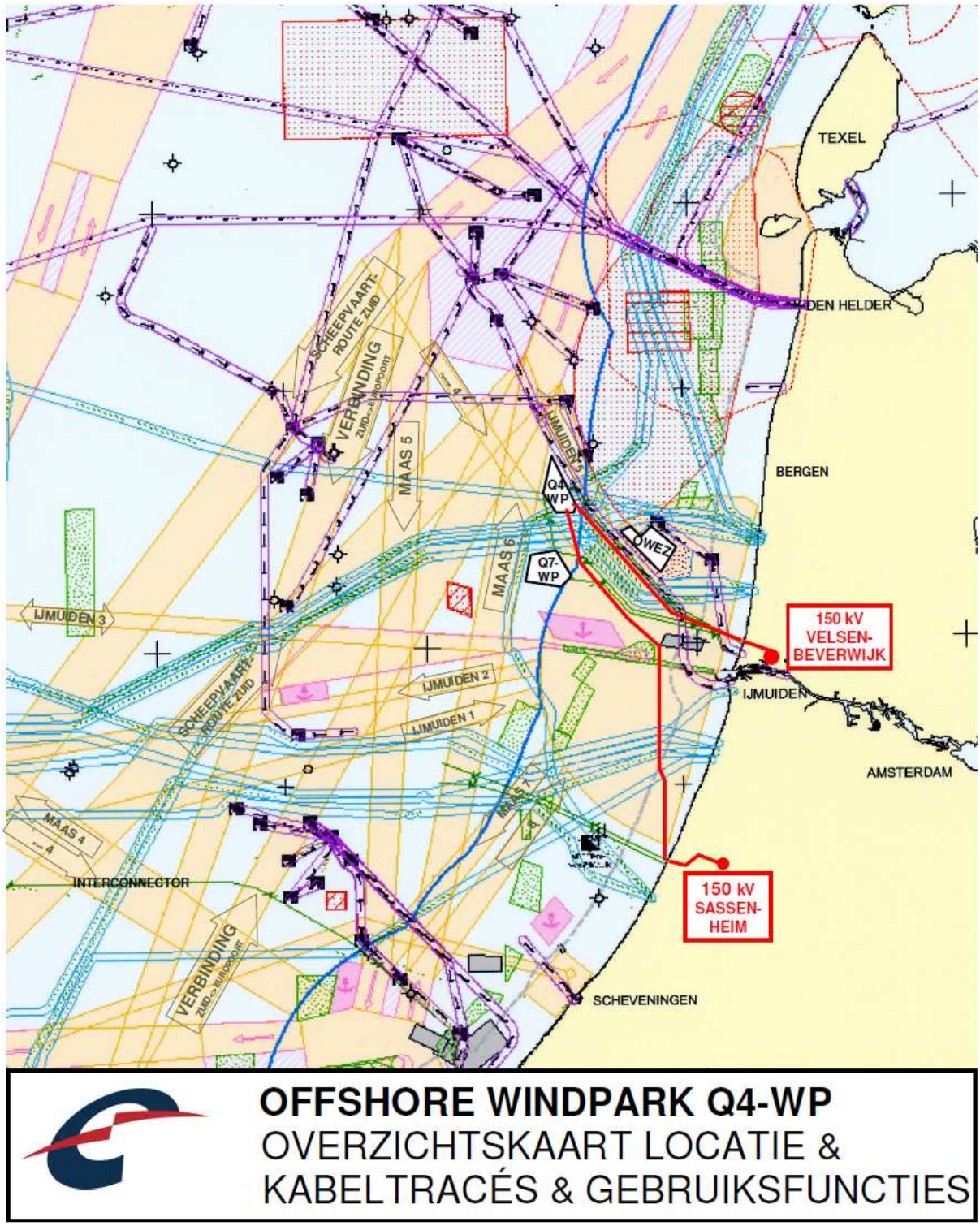
1 SCOPE OF DOCUMENT

This document is to consolidate emergency response arrangements for the operational period of Offshore Windpark Q4-WP (hereafter WP Q4-WP).

This document is owned by the Windpark operator, and held live for update and revision as work progresses and protocols mature.
During the operational phase this document is held live and updated by the Operational Manager of WP Q4-WP.

2 PROJECT INFORMATION

Offshore Windpark Q4-WP is located in the western part of the Dutch Continental Shelf, approximately 24 km west of Egmond aan Zee.



Offshore Windpark Q4-WP comprises 40 offshore Wind Turbines Generators and a Offshore High Voltage Station.
All offshore Wind Turbines Generators are identical, type V90, made by Vestas and have variable speed.
The Wind Turbines Generators are of the upwind type, and have three rotor blades with a diameter of 90 m. The hub height of the rotor-axis from the wind turbines is approx. 65 m above LAT.

The electrical infrastructure comprises 22 kV cables running from the Wind Turbine Generators to the Offshore High Voltage Station, and a 150 kV cable connection at the Offshore High Voltage Station itself. This Offshore High Voltage Station transforms the 22 kV to 150 kV to realize efficient energy transportation. Sub-sea HV-cables transport the electrical energy to the existing 150 kV grid connection at Beverwijk/Velsen.

The wind turbines can be accessed by vessel using the boat landing.
The wind turbines can be recognised due to numbers at the side of the tower for recognition by boat; and in emergency situations by helicopter. To access the wind turbines special safety survival training is required.

3 REFERENCE DOCUMENTS

Attention is drawn to the following reference documents:

Document Reference	Document Title	Status
Date xx-xx-08	Maintenance Agreement Q4-WP, Schedule 1 Contractor Services Rev3	Live

4 OVERVIEW OF WIND PARK OPERATIONS

The aspects of operations relevant to emergency response are summarised as follows:

(i) Service Harbour. The Service Harbour is the Port of IJmuiden, the exact quay number is not known yet.
(ii) Operational Base. The Operational Base is not known yet, this will be the place where the Control Room will be situated.
(iii) WTG Servicing. The Wind Turbines Generators are scheduled to have two planned maintenance services per year, at six-monthly intervals.
(iv) OHVS Servicing. The OHVS is scheduled to have a service visit each month.
(v) Sub Structure Servicing. The Sub Structures are scheduled to have an inspection which will be incorporated in a five year underwater inspection plan. In this plan it will be defined, in cooperation with a certifying authority, how the inspection will be scheduled.
(vi) Sub Sea Cable Inspection. Part of the maintenance procedure is the inspection of all interfield sub sea cables within the wind farm and towards the shore, this is done according to the Maintenance Agreement and in consultation with a certifying authority.
(vii) The dedicated service vessel, and other crew vessels will also visit the wind farm for unplanned situations, for example the failure of a component,
(viii) Replacement of components in excess of the capability of the dedicated service vessel will be performed on an as-required basis using vessels with larger crane capacity.

5 CONSIDERATION OF WIND PARK OPERATIONS

The possible scenarios that may require intervention / support of emergency services are numerous and therefore is it considered prudent to analyse worst case scenarios.

Examination of the list of work activity yields the following possible scenarios, split in to internal and external issues.

DURING OPERATION		
Location	Internal	External
OHVS	Fire, Accident, Electrocution involving O&M staff.	Vessel collision, unauthorised access related injury, arson, terrorist activity.
Land cable route	Accident / Electrocution through maintenance work involving O&M staff.	Accident / Electrocution through interference or future road excavation.
WTG's	Fire, Accident, Electrocution or stranding in turbine involving Maintenance staff.	Vessel collision with turbine, unauthorised access related injury, arson, terrorist activity.

6 SUMMARY OF EMERGENCY SCENARIOS AND RESPONSE PROCEDURE

The emergency procedures of Offshore Windpark Q4-WP comprises the following:

- The summary of emergency response procedures presumes that all vessels have their own emergency response procedures; and that the procedures are in accordance with Port of Rotterdam procedures.
- The risk scenarios for the onshore works would be covered by conventional onshore call-out procedures, i.e. call 112. In all cases the O&M Manager must be informed on xxxxxxx. Follow up calls should be made to the Employer on xxxxxx.

SUMMARY OF OFFSHORE EMERGENCY SCENARIOS
(THERE WILL BE NO SINGLE PERSON WORKING – TWO PERSONS MINIMUM ON ANY OPERATION).

Hazard	**Risk Scenarios**	**Procedure**
Fire	• Fire – No personnel on WTG. • Fire – Personnel on WTG.	• Appendix C • Appendix D
Injured Person	• Walking Casualty • Stretcher Casualty	• Appendix E • Appendix F
Stranded by Weather	• Weather conditions turning rapidly severe • Survival kit	• Appendix G • Appendix J
Man in water	• Man Overboard	• Appendix H
Stranded Vessel	• Incapacitated Vessel	• Appendix I
Diving incident	• Underwater incident	• Appendix J
Stop of WTG	• Ship drifting towards windpark • Cleaning oil spills	• Appendix K
Oil spill	• Oil spill caused by windpark • Oil spill not caused by windpark	• Appendix L1 and L2

In any of the above circumstances NLCG-DH and Employer contacts should be kept fully aware and informed of the situation.

7 COMMUNICATIONS WITH NLCG-DH IN THE EVENT OF AN EXTRA INCIDENT

Communications will be via an agreed single point of contact within the operations team – this has been identified as the Emergency Response Coordinator. The Emergency Response Coordinator will be head of the onshore emergency response team and will be prime point of contact for the NLCG-DH and in case of the event that offshore maintenance is involved, point of contact with the offshore operations group.

8 EMERGENCY SERVICE CONTACTS

Refer to Appendix K for contact details of the Emergency Services.

9 SUMMARY, CONCLUSION & NEXT ACTIONS

The full support of the NLCG-DH and associated emergency services is required for Offshore Windpark Q4-WP during operations in emergencies only.

Clear and proper lines of communications between service vessels, the Emergency Response Coordinator and the NLCG-DH are required to ensure good coordination during emergency actions.
These lines must be made clear between the Emergency Response Coordinator, the O&M Manager and the NLCG-DH, and become a part of this document.

Proper and adequate emergency response requires familiarisation and timely training. Risk assessments and compliance with operational procedures contribute to safer working methods and will lead to provision of continuity of service at the project site.

For this document some more appendices shall be made, like Service Vessel information, detailed call out procedure to the NLCG-DH, complete contact list, training scenario's, organogram for the emergency response organisation etc.

10 APPENDICES

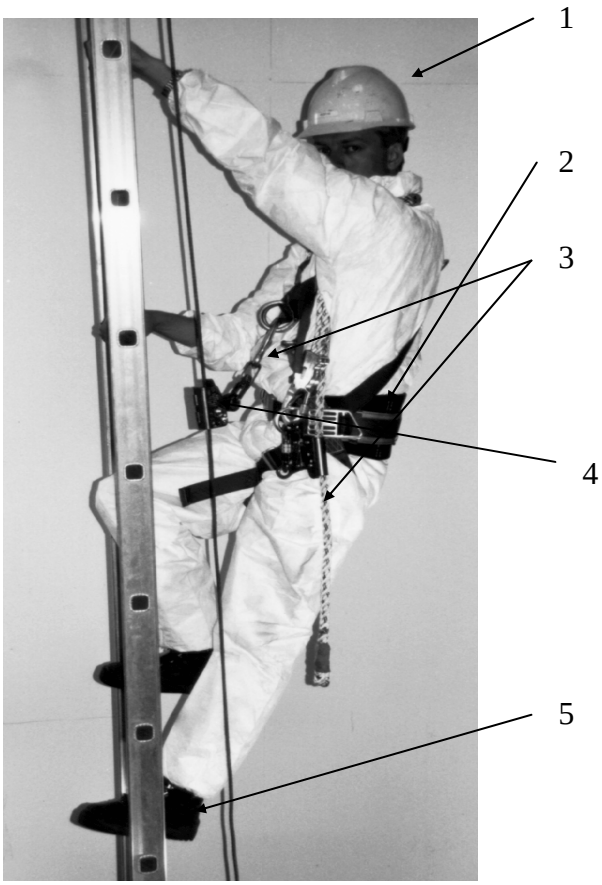
A	Offshore Access System.
B	Safety equipment for working at heights.
C	Fire, no personnel on the WTG procedure.
D	Fire, personnel on the WTG procedure.
E	Walking casualty procedure.
F	Stretcher casualty procedure.
G	Stranded by weather procedure.
H	Man over board (MOB) procedure.
I	Incapacitated service vessel procedure.
J	Diving incident procedure.
K	Stop of WTG procedure.
L1 &L2	Oil spill response procedure.
M	Collision procedure
N	Survival kit supplies.
O	Emergency service contacts.

APPENDIX A – OFFSHORE ACCESS SYSTEM

The Offshore Access System will be a combination of a vessel equipped with a so called OAS (Offshore Access System) for the winter period and the scheduled preventive maintenance periods. During summer a lighter and faster vessel will be scheduled.
The service vessel is not yet selected, but once selected a full Appendix will be inserted in this document with all the relevant information about the vessel(s) and specific details about the OAS.

APPENDIX B – SAFETY EQUIPMENT FOR WORKING AT HEIGHTS

1. Safety helmet/hard hat.
2. H-belt.
3. Lanyards, one line with fall damping device, one line with shortening device.
4. Fall safety device.
5. Footwear with rubber sole properly tightened to the feet.



When climbing in the tower, the fall safety device must be fastened directly to the D-ring of the H-belt.

During transportation by boat the service engineers wear special live vests and offshore suits, they are only allowed to take of this live vest and suit when they are inside the WTG or tower.

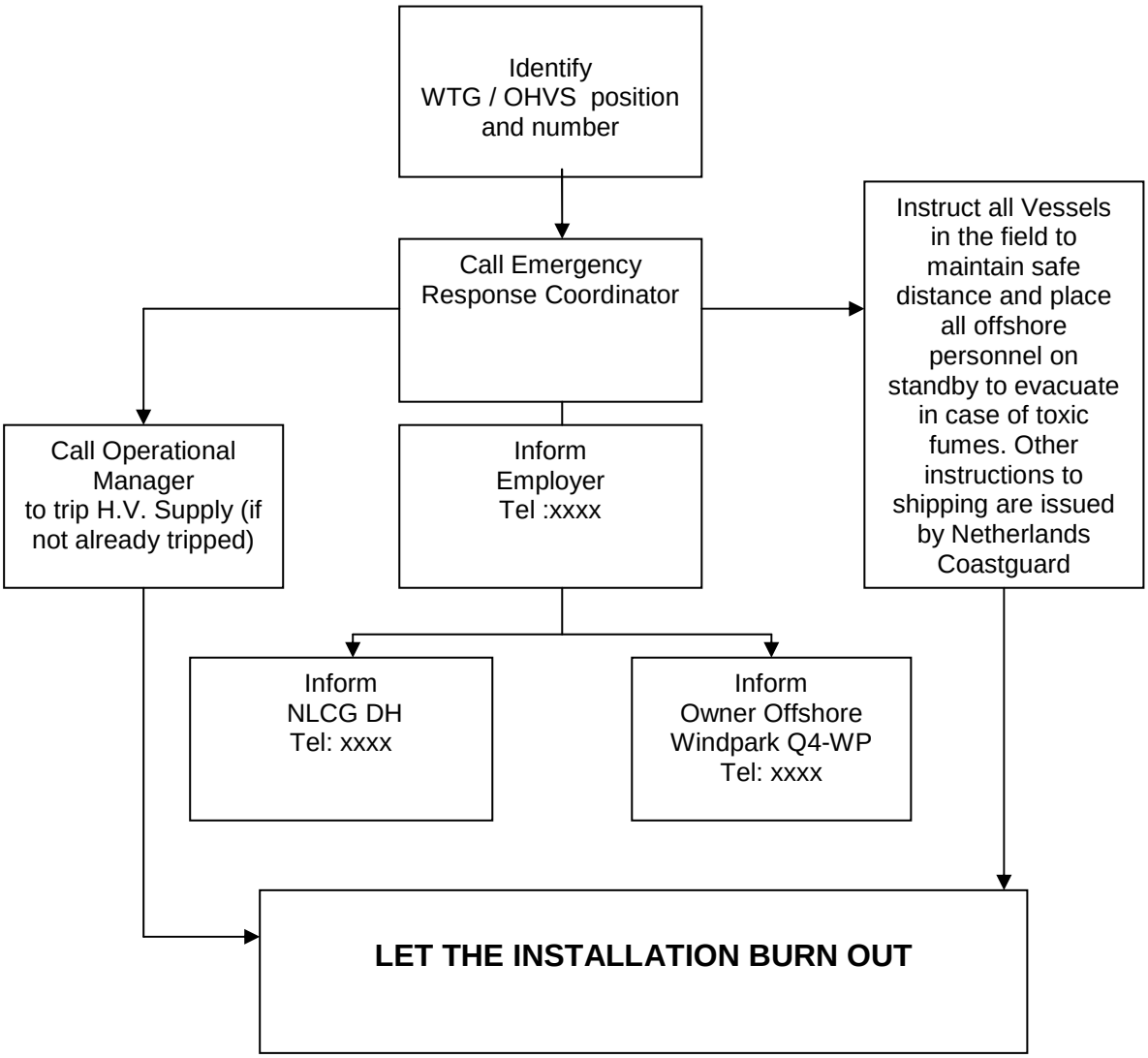
Each service engineer will be equipped with a radio that is tuned at the same frequency as that on board of the dedicated service vessel. Inside the turbine there is a telephone line for online support if necessary.

NB: Two full sets of safety equipment for working at heights (harness, lanyards, slider, helmet) will be stored on board the dedicated service vessel, for the use of external assistance, e.g. Coast Guard, Medic etc., needing access to the WTG. Any person without allowed climbing qualifications will be accompanied by two climbing trained personnel.

All maintenance personnel who will work on offshore WTG's will have to be certified for offshore work and will therefore attend a proper offshore safety training, which will be in accordance with Dutch offshore requirements.
This training will include basic fire fighting, survival techniques, descending from a height, first aid and life saving techniques for sea.
This training will be carried out by an officially approved company, which is accepted by Dutch authorities.
This will be the STA in this procedure.

Appendix C – Fire, No Personnel on the WTG / OHVS Procedure

If you see signs of fire on a WTG / OHVS, the following procedure must be followed:



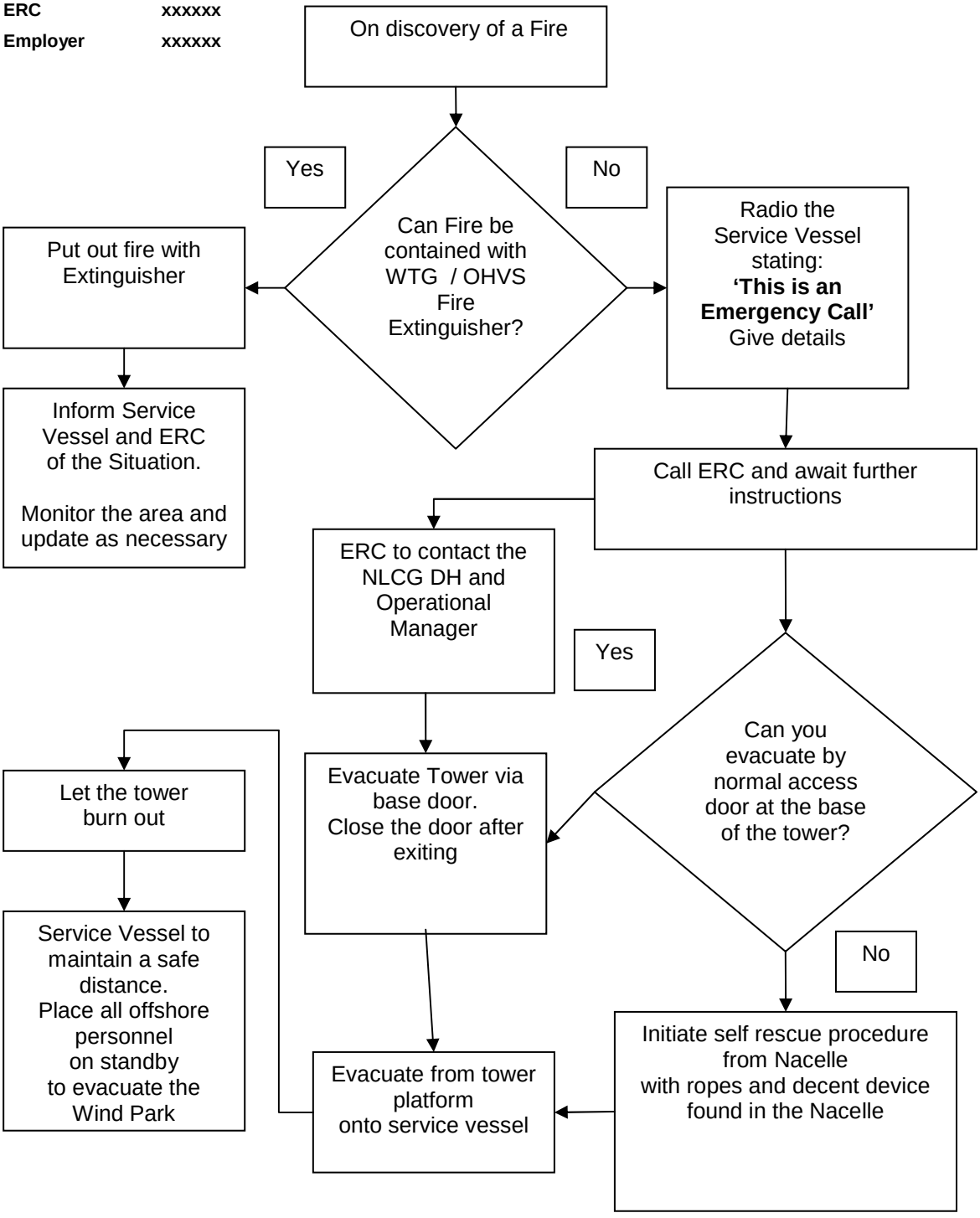
BEWARE OF TOXIC FUMES AND FALLING DEBRIS.

KEEP OTHER VESSELS CLEAR AND UP-WIND OF FIRE

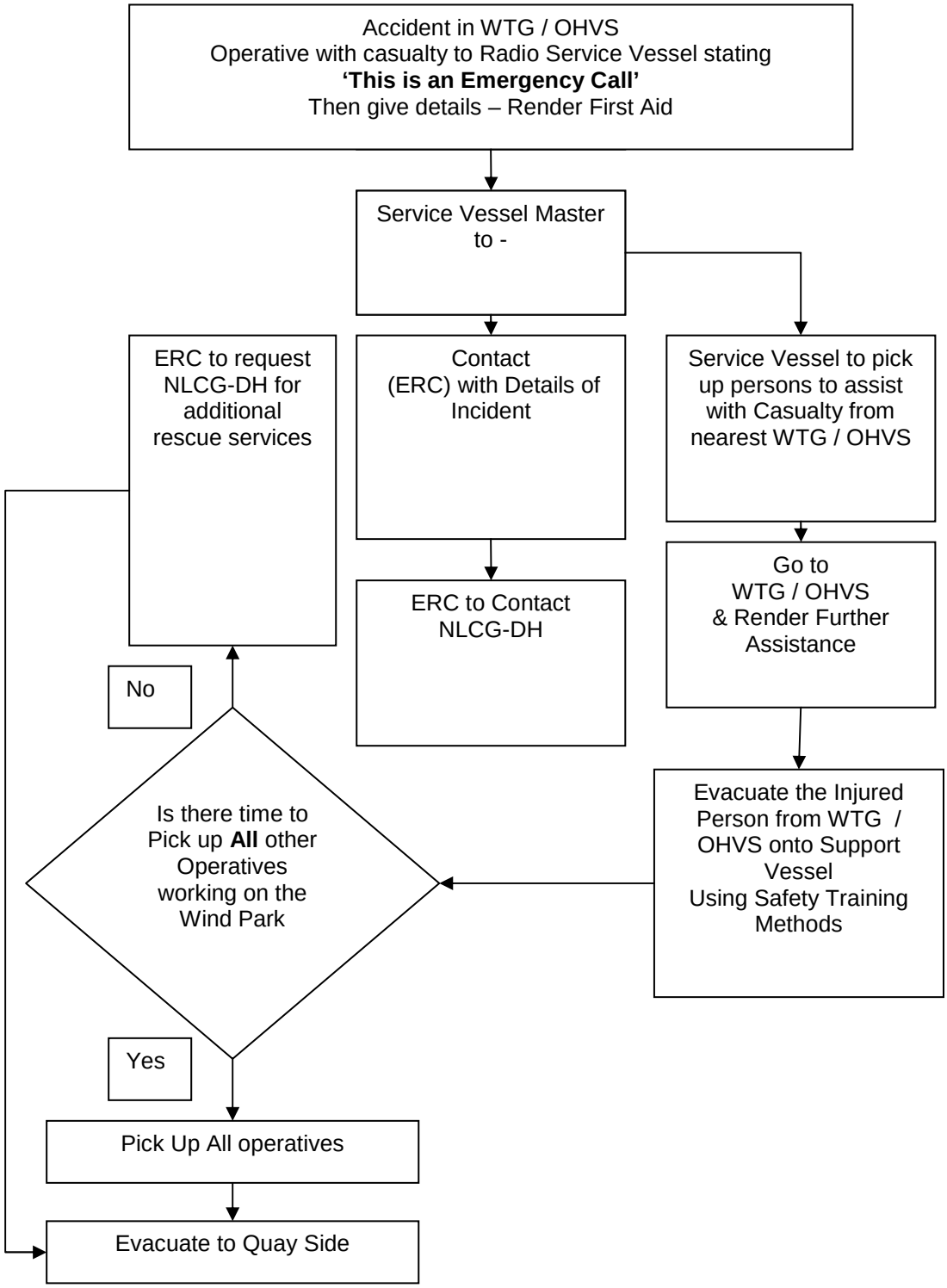
Coast Guard	**xxxxxx**
OMC	**xxxxxx**
ERC	**xxxxxx**
Employer	**xxxxxx**

APPENDIX D – FIRE, PERSONNEL ON THE WTG / OHVS PROCEDURE

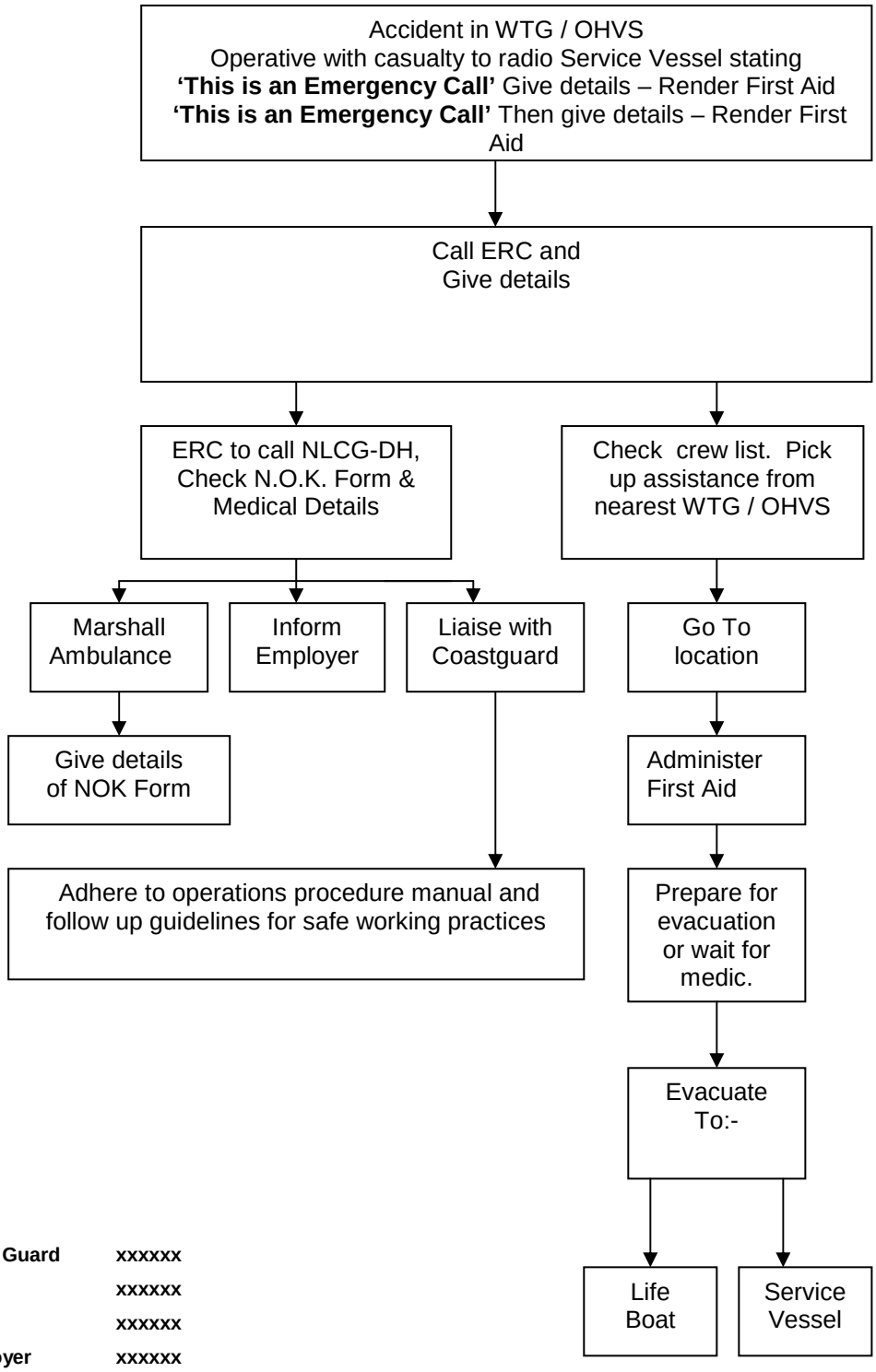
Coast Guard	**xxxxxx**
OMC	**xxxxxx**
ERC	**xxxxxx**
Employer	**xxxxxx**



APPENDIX E – WALKING CASUALTY PROCEDURE

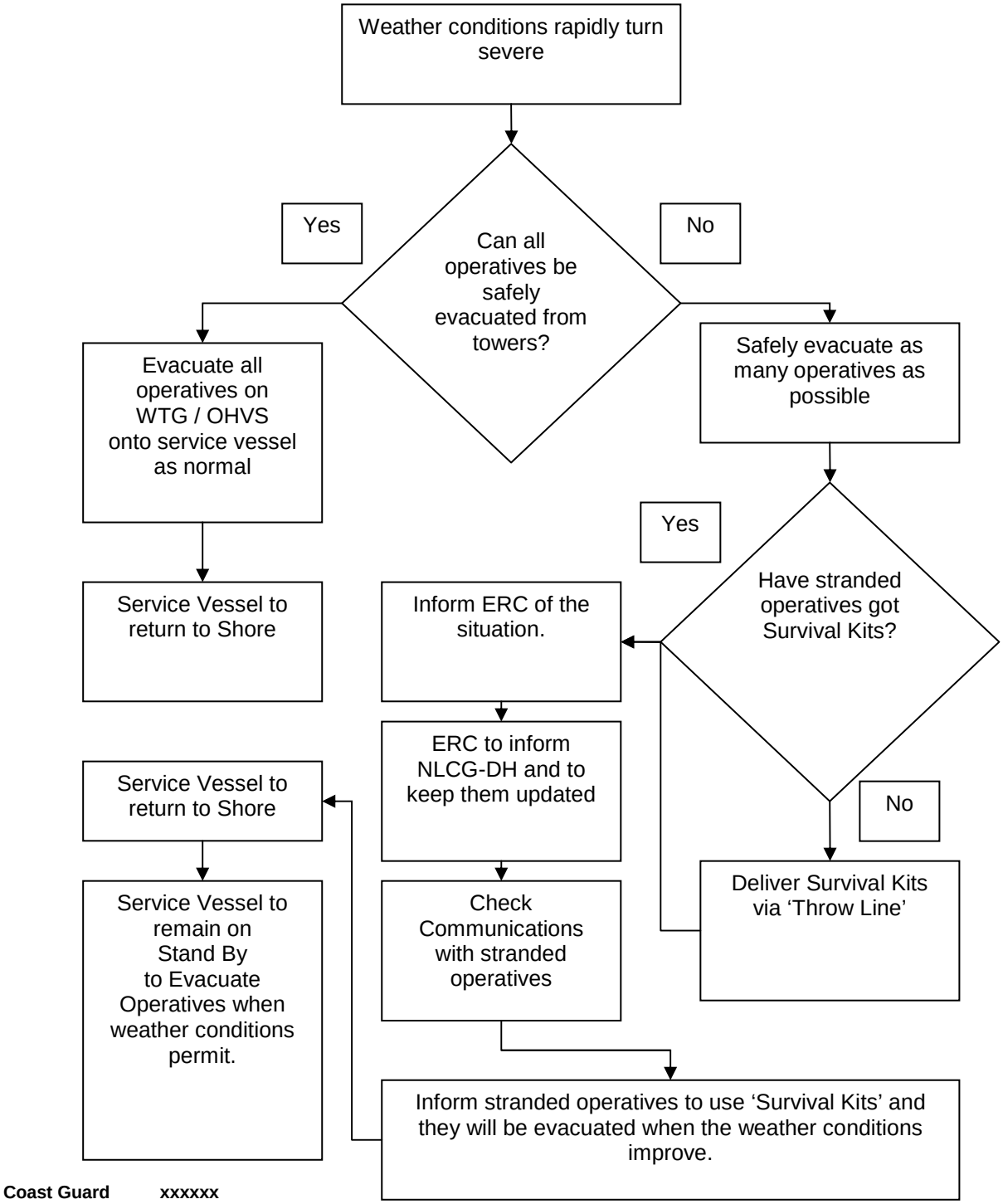


APPENDIX F – SINGLE STRETCHER CASUALTY PROCEDURE



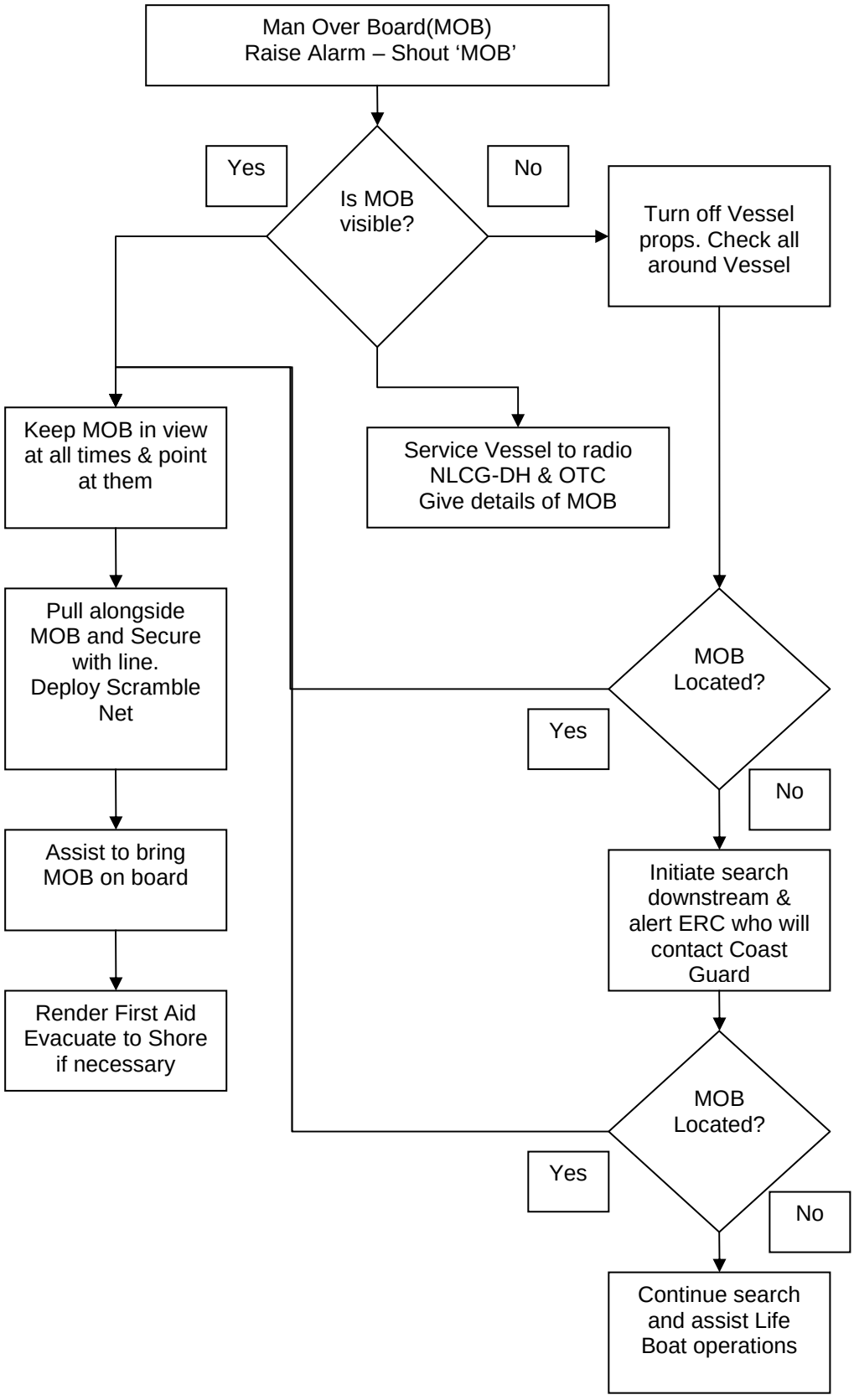
Coast Guard	**xxxxxx**
OMC	**xxxxxx**
ERC	**xxxxxx**
Employer	**xxxxxx**

APPENDIX G – STRANDED BY WEATHER PROCEDURE



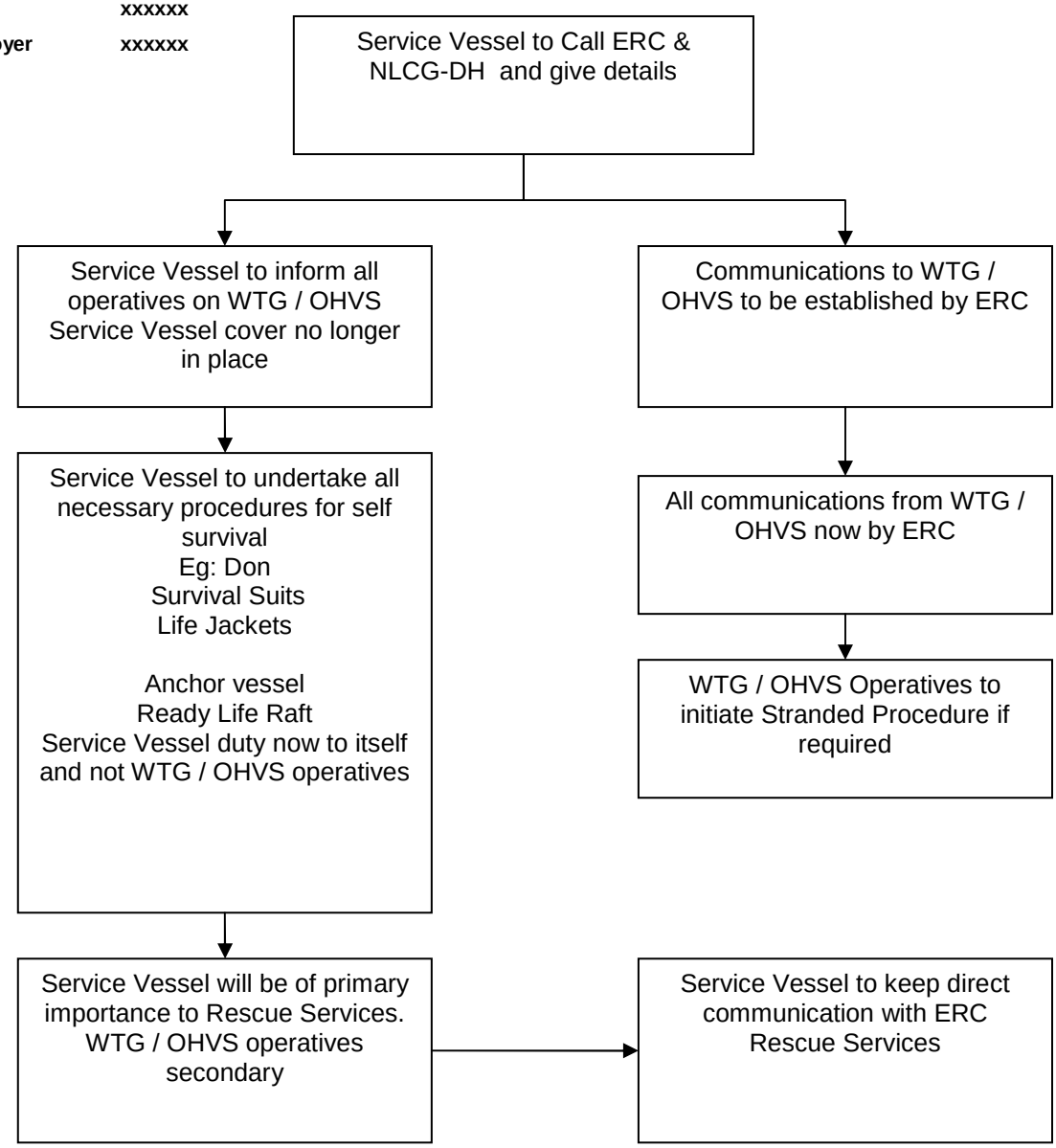
Coast Guard	**xxxxxx**
OMC	**xxxxxx**
ERC	**xxxxxx**
Employer	**xxxxxx**

APPENDIX H – MAN OVER BOARD (MOB) PROCEDURE

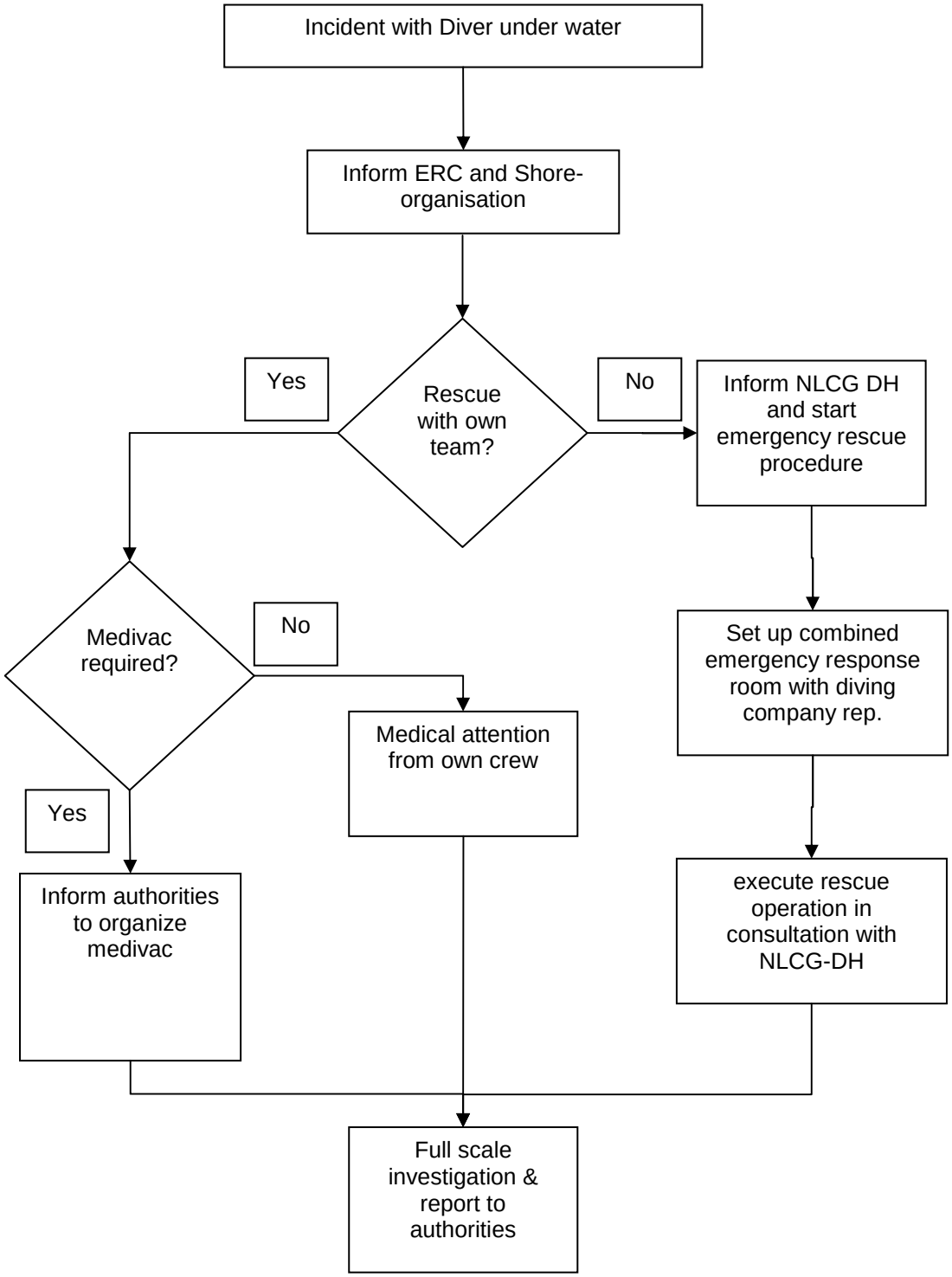


APPENDIX I – INCAPACITATED SERVICE VESSEL PROCEDURE

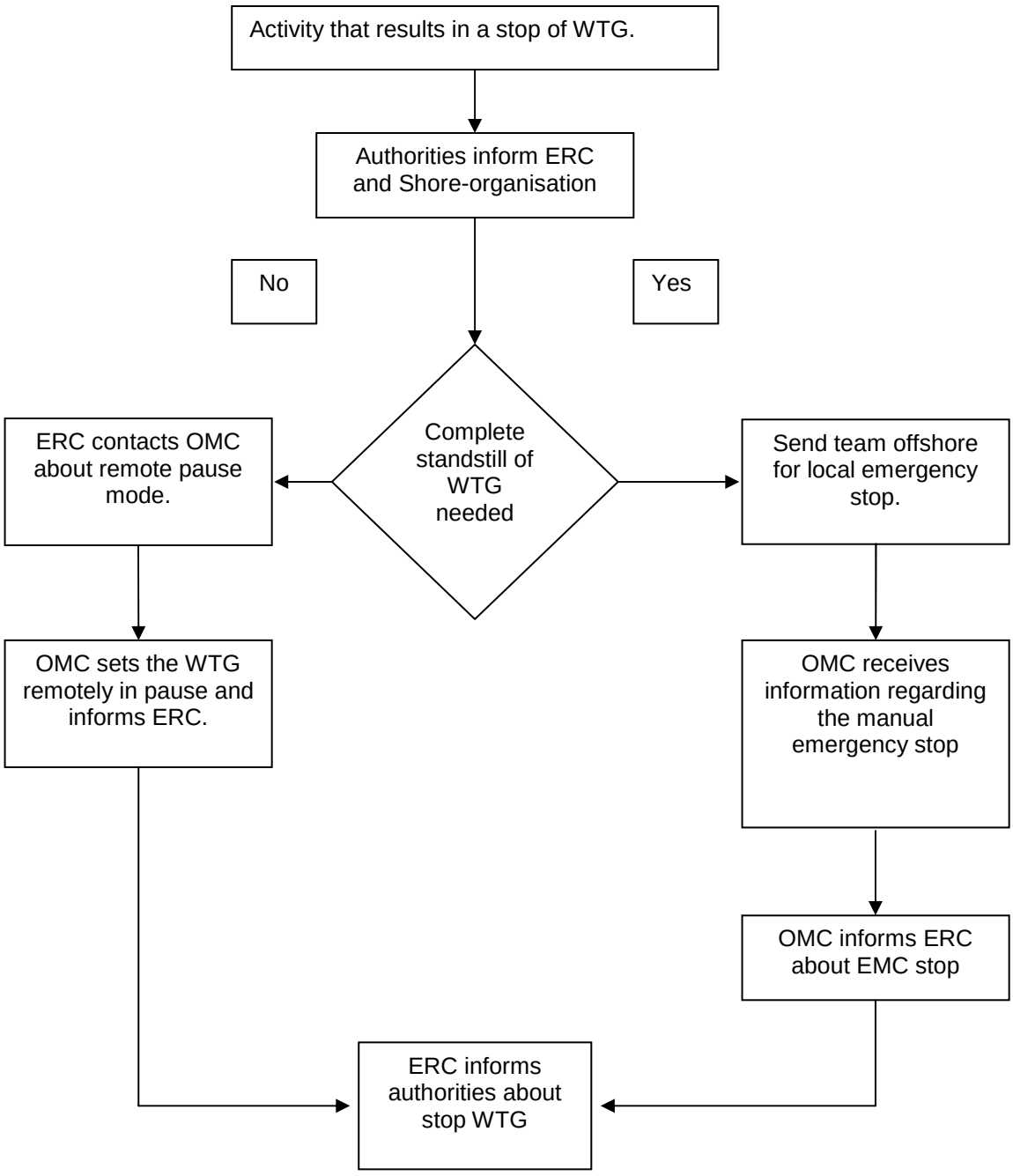
Coast Guard	**xxxxxx**
OMC	**xxxxxx**
ERC	**xxxxxx**
Employer	**xxxxxx**



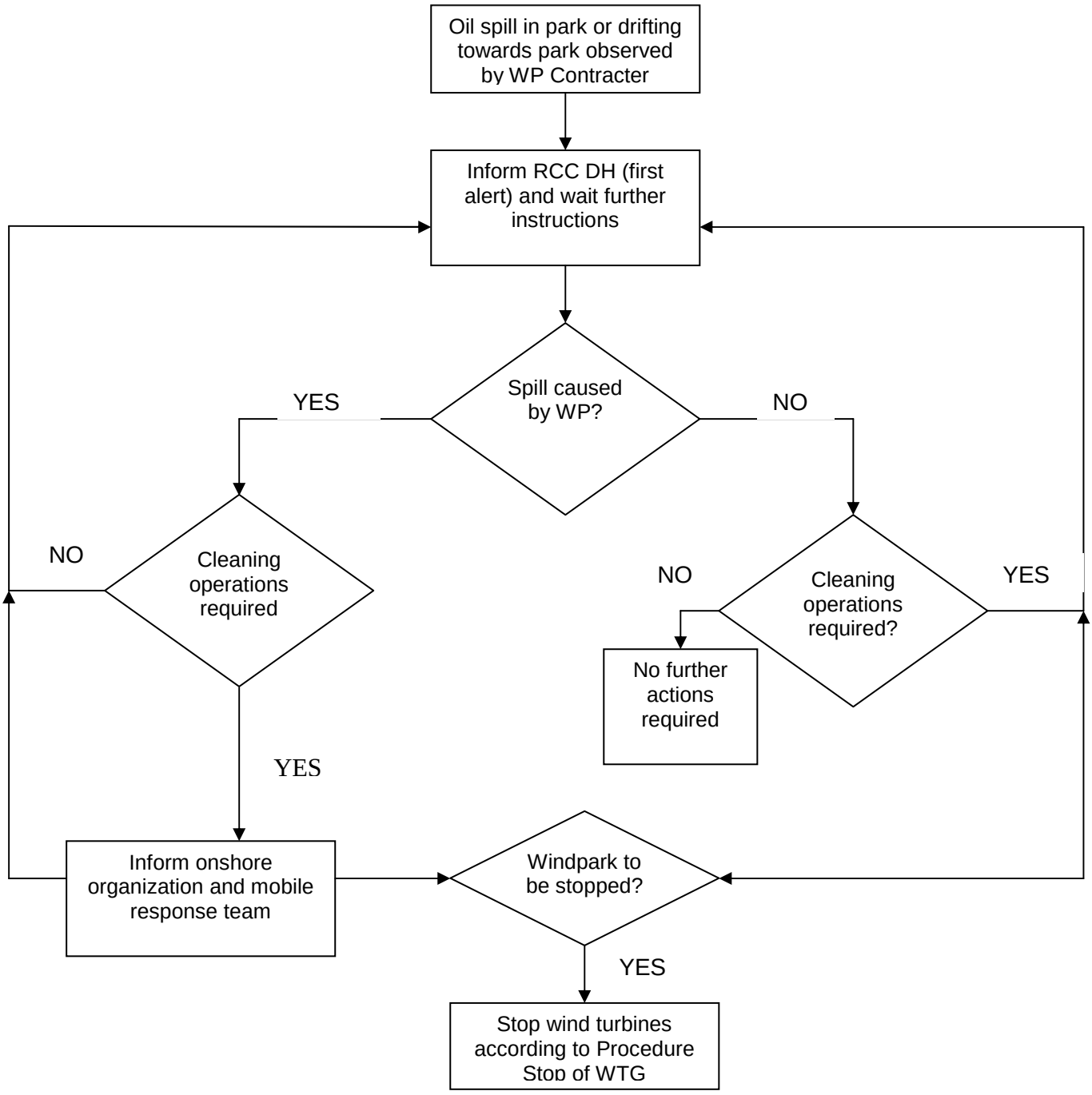
APPENDIX J – DIVING INCIDENT PROCEDURE



APPENDIX K – STOP OF WTG PROCEDURE



APPENDIX L1 – OIL SPILL RESPONS PROCEDURE 1



Meldformulier C-2: Standaard Zeeverontreinigingsbericht (SZB)

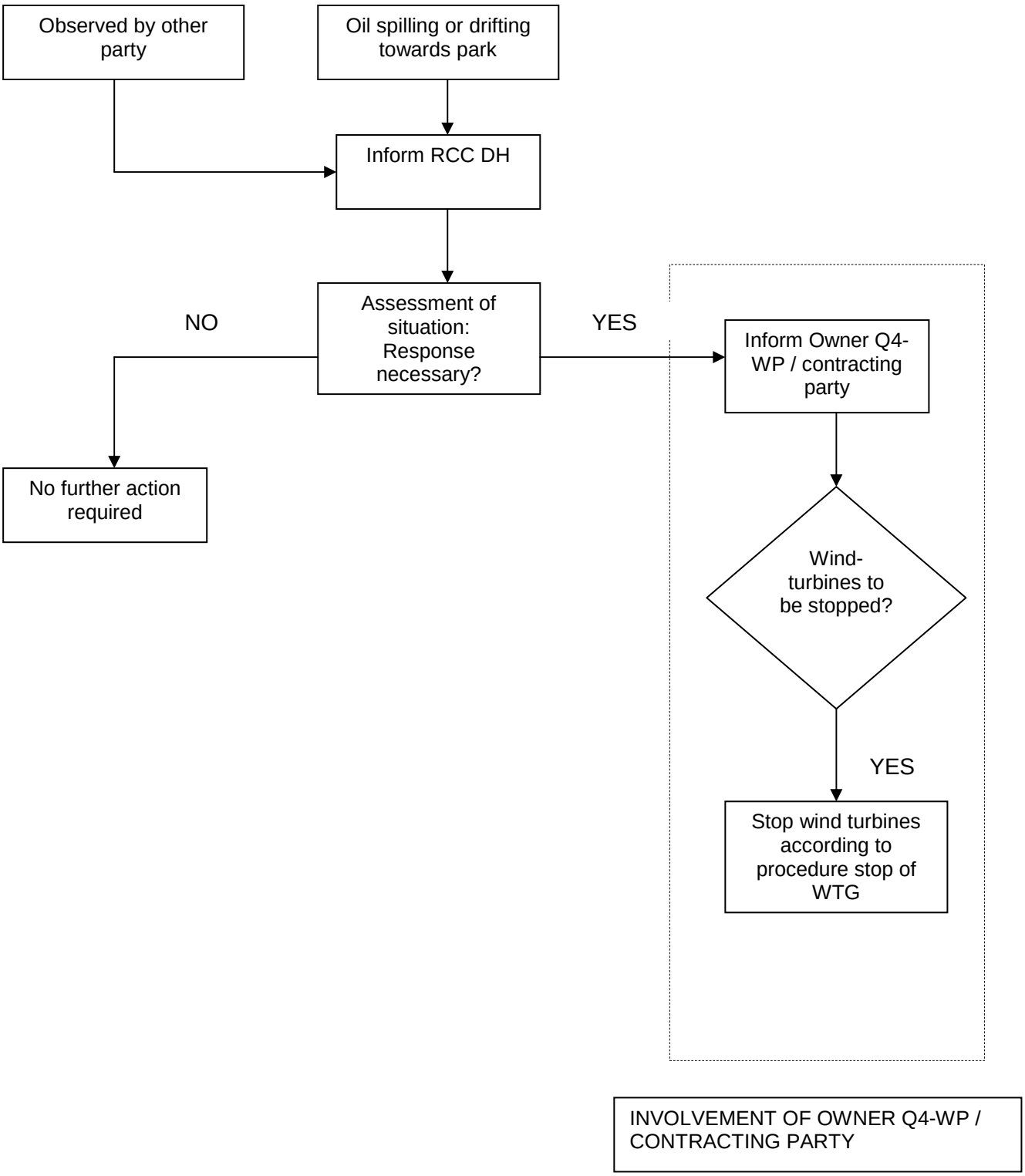
AAN: CCC-KWC faxnummer: 0223-542300 (E-mail: ccc@kustwacht.nl)

POLLUTION OBSERVATION REPORT ON POLLUTERS AND COMBATABLE SPILLS

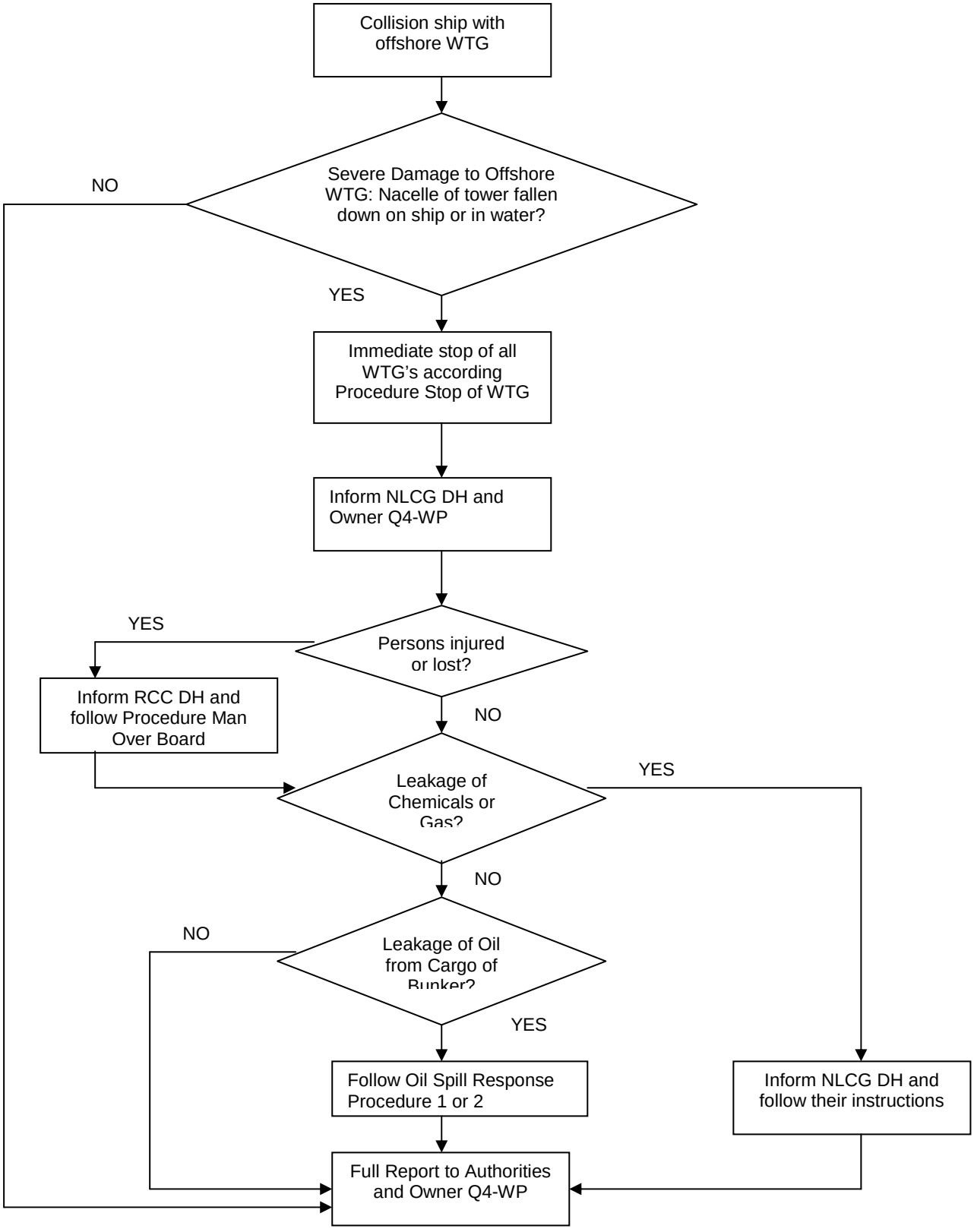
1. REPORTER:							
a. Reporting State	*: THE NETHERLANDS*						
b. Observer (organisation/aircraft/ship/platform)	*: , Coastguard aircraft: Callsign PH-.*						
c. Observe(s) (family name(s)	*: 1*			*2 .*			
2. DATE AND TIME:							
a. Date (yy,mm,dd) b. Time of observation	*: Date*			*Time. UTC*			
3. LOCATION OF THE POLLUTION:							
a. Position of the pollution (lat/lon) begin	*: .N*			*E/W*			
	end : .N			*E/W*			
b. Inside/outside territorial waters	*:* ☐ *Inside*			☐ *Outside*			
4. DESCRIPION OF THE POLLUTION:							
a. Type of substance discharged	*: .*						
b. Estimated quantity	*: .cub. mtrs*						
c. Lengte d. Width e. Total cover	*: Lengte ..km*		*Width. ..km*		*Total cover %*		
f. Percentage of covered area coloured (%)	*: 1 %*		*4 %.*		*7 %*		
1 sheen, 2 rainbow, 3 metallic,	*2 %*		*5 %*		*8 %*		
4 scattered:true colour in a background of metallic, 5 continuous true colour	*3 %*		*6 %*		*i.e.*		
	:						
5. METHOD OF DETECTION AND INVESTIGATION:							
a. Detection method (visual,SLAR,IR,UV,MWRM	☐ *visual*	☐ *SLAR*	☐ *IR*	☐ *UV*	☐ *MWRM*		
LFS, video cam., identification cam., other i.e.) :	☐ *LFSI*	☐ *video cam.*	☐ *id. cam*	☐ *Other*			
b. Discharge observed c. Photographs taken : ☐	*Observed:*	*yes* ☐ */ no* ☐	*foto's:*	*yes* ☐ */ no*			
c. Samples taken e. Need of combating : ☐	*Samples:*	*yes* ☐ */ no* ☐	*Combat:*	*yes* ☐ */ no*			
f. Other ships/platforms in vicinity (names) :							
6. WEATHER AND SEA CONDITIONS:							
a. Winddirection b. Windforce c. Visibility km	*: Direction degr*		*Force bft*	*Vis*			
b. Cloud coverage f. Current direction	*: Clouds octa*		*Current. degr*				
OBSERVATION OF A DISCHARGE OF HARMFUL SUBSTANCE BY A SHIP UNDER ARTICLE 6(3) OF MARPOL 73/87							
7 SHIP INVOLVED:							
a. Name	*: .*						
b. Callsign c. Flag State	*: CallSign*		*Flage State*				
d. Home Port	*:*						
e. Type of ship	*:*						
f. Position (lat/lon)	*: .N .E/W at. .UTC : .N .E/W at.....UTC*						
g. Heading h. Speed	*: Heading .degr Speed . kts*						
i. Colour of the hull	*:*						
j. Colour of the funnel and funnel mark :							
8. INFORMATION BY RADIO CONTACT:							
a. Radio contact b. Means of communication Chn/Freq	*: Contact: yes* ☐ */ no* ☐		*Means: VHF/Telep,*				
c. Last port of call	*:*						
d. Next port of call, ETA (yy,mm,dd)	*: eta*						
e. Statements of captains/officer on duty	*:*						
OBSERVATION OF A DISCHARGE OF HARMFUL SUBSTANCE BY AN OFFSHORE INSTALLATION							

9. OFFSHORE INSTALLATION INVOLVED:		
a. Platform name	*:*	
b Position (lat/lon)	*:*	*N E/W at UTC*
c. type of platform (production/drilling/rig etc	*:*	
d. Company name	*:*	
10. INFORMATION BY RADIO CONTACT:		
a. Radio contact b. Maeans of communication Chn/Freq	*:*	*Contact: yes / no Means: VHF/Telep*
c. Contact with (position)	*:*	
e. Statements	*:*	
	:	
11. REMARKS AND ADDITIONAL INFORMATION:	*:*	
CCC-KWC stuurt copy aan IVW/DS, HMR, SodM, KLPD-UNZ en stafbureau Zeezaken FP.		

APPENDIX L2 – OIL SPILL RESPONS PROCEDURE 2



APPENDIX M – COLLISION PROCEDURE



Appendix N – Survival Kit Supplies

The Service Vessel will be equipped with three Grab Bags, each containing the following items:

Item	Q	Unit
Sleeping Bags	3	Nr
Foam mattresses	3	Nr
Head Lamp - Nicad & Shoulder Strap	3	Nr
Kettle - 240v / 12v	1	Nr
2 litre bottles water	2	Nr
Eating Utensils, mugs, bowls	3	Sets
Hot Can Food and Drinks	1	Lots
Orange Throwing Rope	50	M
Life Jackets	3	Nr
Hauling Line - 11mm pre stretched	50	M
Aluminium Screw Gate Karabiners	4	Nr
Rope Protectors	4	Nr
Warm Suits	2	Nr
VHF Spare batteries	2	Nr
Emergency Flares	2	Nr

APPENDIX O – EMERGENCY SERVICE CONTACTS

Service	Contact	Address / Phone / Email
Fire & Rescue Service	Telephone exchange	Emergency 112
Ambulance Service	Telephone exchange	Emergency 112
Police	Telephone exchange	Emergency 112
Netherlands Coastguard (NLCG)/ RCC Den Helder	Duty Officer	Coastguard Centre MHKC Building Nieuwe Haven PO Box 10000 1780 CA DEN HELDER Phone: (H24) 0900 0111 (alarm) (H24) 0223-542300 Fax : (H24) 0223-658358 E-mail: ccc@kustwacht.nl International Maritime Emergency monitored by NLCG: • VHF-Channel 16 • VHF Channel 70 DSC • MF 2187.5 kHz DSC Call sign during rescue operations: DEN HELDER RESCUE
Helicopter Company	xxxx	Schreiner Airways
Emergency Rescue Coordinator (24 hour call)	Maintenance Manager Back up: Q4-WP Maintenance Engineer	XXXXXXXX Phone: xxxxxxxxxxxxx Mobile phone: xxxxxxxxxx XXXXXXXXX
Operation & Maintenance Manager	Q4-WP Maintenance Engineer Back up: Maintenance Manager	XXXXXXXX Phone: xxxxxxxxxxxxx Mobile phone: xxxxxxxxxxx XXXXXXXXXXX
VCEU Offshore Service Department VCEU	Vestas Offshore Service Coordinator Back up:	VVVVVVVVVVVVVV Phone: vvvvvvvvv Mobile phone: vvvvvvvvvvvvv VVVVVVVVVVVVVV

Offshore Field Crew	Offshore Field Supervisor Back up: Deputy Field Supervisor	
Service Vessel Company	Service Vessel Captain Back up: Service Vessel Owner	
Owner Offshore Windpark Q4-WP	Q4-WP General Manager Back-up: Technical manager	QQQQQQQQQQ Phone: qqqqqqqqqqqqqqqqqqqqqq QQQQQQQQQQQQQQ

The phone numbers in the above schedules will be filled in in a later stage, because these numbers are subject to change. When the building permits are obtained, the right numbers will be added.

Emergencies can be divided in two categories:
- Manned Wind farm (with scheduled service crews)
- Unmanned Wind farm

Manned Wind farm
In the event, that an emergency occurs, the first response will be to the Emergency Response Coordinator. He will decide how to handle and inform other relevant parties when required. He will act as the emergency director from the operations point of view. He is the **only** point of contact for the NLCG DH.

Unmanned Wind farm
Apart from a fire-alarm all situations in unmanned situations will not be coordinated by the emergency response organisation, but by the NLCG DH as the reporting of an emergency will come from a third party towards the NLCG DH, who will inform the ERC and possibly ask for assistance.

Additional rescue services
It will be decided by the Emergency Response Coordinator in consultation with the Coast Guard when and what additional rescue services are required for assistance; e.g. SAR helicopter, additional vessel(s) etc. The initial call out for these services will be coordinated by the Coast Guard.

Training
At least once per year a full scale desktop emergency response scenario exercise will be organized to train the organisation and test the response. After such an exercise an evaluation will be discussed in order to seek for improvement for response.