

# NSF#1

## Safety Management System



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## 1 Introduction

This document constitutes the safety management system of the NSF#1 project. It covers risk management, safety policies, roles & responsibilities, training & competence, incident reporting and emergency response.

## 2 Risk management

This project uses an industry standard risk management approach to address safety associated with the system design and operations. As part of this approach many stakeholders were consultant on risks associated with (seaweed farm) co-use in a wind farm. These risks have been grouped in meaningful hazard categories as listed in the below table. In addition, a design risk review was performed in accordance with the Recommended Design Practice for nearshore and offshore seaweed farms, as published on the NSF website.

Table 1: Hazards

Hazard	Hazard description
<b>01: Fixed structures offshore</b>	The presence of an offshore structure poses a hazard for various stakeholders: -Ship traffic -Personnel -Recreational traffic -Vessels adrift -Shipwreck survivors -Nature flora and fauna -Air traffic Any adverse consequences and the risk thereof that can be attributed to the presence of an offshore structure at sea should be grouped under this hazard
<b>02: Moored multi-use assets within a wind farm</b>	Having moored multi-use assets present and operational within a wind farm could lead to potentially adverse consequences. This includes any form of multi-use such as flexible and rigid structures as well as temporary moored assets such as crab- and lobster cages. It excludes non-moored assets such as reef-balls etc. as these are not moored.
<b>03: Multi-use area operation</b>	Any activities associated with MU-farms in the wind farm. This excludes the MU-farm assets themselves. It also excludes the wind farm, so this is exclusively on multi-use activities in addition to the present (and operational) wind farm
<b>04: Offshore transportation</b>	In the broadest sense, everything to do with vessel transportation to, in and from the wind farm/ multi-use area
<b>05: Offshore weather conditions</b>	In the broadest sense all metocean conditions that could have an adverse effect on assets, personnel, etc.
<b>06: Operation in a complex industrial zone/ area</b>	An offshore wind farm is a complex industrial facility (e.g. oil&gas factory), hence any activities undertaken in such an area is much more complicated & dangerous compared to a zone free of other stakeholders/(co-)users
<b>07: Operation of high voltage facility</b>	An offshore wind farm is a high voltage installation with high risks of electrically-related incidents
<b>08: People passing through the wind farm area</b>	Any stakeholders passing through the wind farm area under the applicable legislation for sail-through other than WFO and/or MUO personnel.

Hazard	Hazard description
<b>09: Personnel working in multi-use area</b>	These are multi-use area related activities. In principle not supposed to be active outside of these areas other than for transporting personnel/equipment
<b>10: Personnel working in wind farm area</b>	These are wind farm area related activities. I.e. not restricted to the multi-use areas and therefore more inclusive. For risks that are applicable for both areas
<b>11: Wind farm operation</b>	Wind farm operations in a wind farm with multi-use assets and operations

## 3 Safety policies

### 3.1 NSF#1 Zero incidents target

Although incidents are a given in any operation, the NSF#1 project shall do all in its power to limited the frequency and severity of incidents during to a minimum. By means of clear communication, emphasizing responsibility of all involved and a no-blame culture in case of mistakes or incidents.

### 3.2 Non-alcohol & non-drugs policy

There will be a strict non-alcohol & non-drugs policy throughout the NSF#1 project in all project areas.

### 3.3 PPE policy

#### 3.3.1 Onshore PPE

All person involved in onshore operations should have the following PPE available:

- Gloves,
- Helmet,
- Safety shoes Classification S3,
- Safety glasses,
- Ear protection,
- Either hi vis clothing according EN / ISO 20471:2013 class 2 or yellow oilskins can be used for enhanced visibility.

#### 3.3.2 Offshore PPE

On top of the offshore PPE, all person involved in offshore operations should have the following PPE available:

- Life jacket including PLB ( personal locator beacon),
- Safety suits.

## 3.4 Equipment and vessels

All vessels and equipment used in the NSF#1 operations shall be suitable, appropriate, are in fully operational conditions, properly maintained and have all required certification needed to perform the works safely.

Vessels shall have all required personnel, inspections and insurance certificates for the intended operations.

## 3.5 Stop Work Authority (SWA) policy

It is NSF#1 project applies a Stop Work Authority policy and this includes that:

- Employees have the authority and obligation to stop any task or operation where concerns or questions regarding the control of health and safety risk exist.
- No work will resume until all Stop Work issues and concerns have been adequately addressed.
- Any form of retribution or intimidation directed at any employee for exercising their authority to stop work will not be tolerated.

### 3.5.1 Situations that may require a Stop Work Action

SWA should be initiated for conditions or behaviours that threaten danger or imminent danger to person(s), equipment or the environment. Situations that warrant a SWA may include, but are not limited to the following:

- **Change** - A modification or alteration that deviates from the way the job task is normally performed may cause unsafe work actions or conditions.
- **Unscheduled event** - An unplanned event that distracts employees from the job task being performed may cause unsafe work actions or conditions.
- **Observation with safety impact** - Whenever an employee observes a condition or situation that has an impact on safety.
- **Incomplete understanding** - Whenever an employee or co-worker does not completely understand instructions, procedures or ongoing activities.
- **Relay information** - Whenever a situation requires critical information to be relayed, an unsafe work action or condition may occur.
- **Observing new risks** - Whenever an employee encounters risks that have not been addressed during previous job safety analysis or risk assessments.
- **Need to ask for help** - Whenever a job requires additional people, or the experience level of the person performing the job task requires support, an unsafe work action or condition may occur.

If an imminent danger stop work is necessary, worker(s) must safely stop their work and notify their supervisor(s). For non-imminent danger stop work, normal supervisory procedures, staff communication, as appropriate, should be used. The condition that caused a stop work to be initiated must be evaluated to determine if the controls that are in place will adequately protect people and the environment. If it is unclear as to whether the controls are adequate or if the scope changes, workers must contact their supervisor to discuss the situation and have their work re-authorized as appropriate. It may also be necessary to secure another release.

### 3.5.2 Stop Work Authority procedure

The Stop Work Authority procedure is a several step process - STOP, NOTIFY, CORRECT and RESUME.

- **Stop** - when a person identifies a perceived unsafe condition, act, error, omission, or lack of understanding, a SWA shall be immediately initiated meaning all operations will be halted by all involved personnel.
- **Notify** - notify affected personnel and supervision of the stop work action.
- **Correct** – modifications to the work procedures will be made by the project leader. These will be reviewed and inspected to verify all safety issues have been properly resolved.
- **Resume** - all affected employees and contractors will be notified of what corrective actions were implemented and that work will recommence.

## 4 Roles & responsibilities

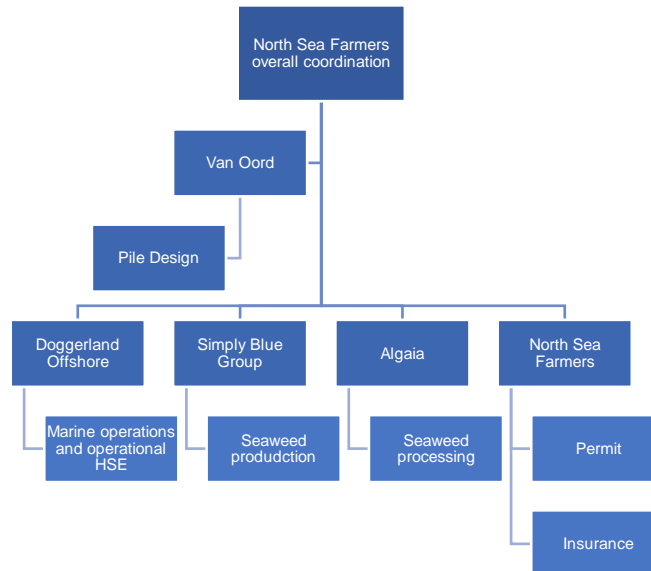


Figure 1: Roles & responsibilities in the NSF#1 Project

Table 4.1 Overview of the roles and responsibilities of the operational project team members

Role	Responsibility	Responsible party
Project Overall Coordination	Overall coordination and end-responsible for the NSF#1 project, including HSE	North Sea Farmers
Project Manager (PM) Works	Project management and coordination with all partners relating to onshore and offshore operational activities, including HSE	Doggerland Offshore
Seaweed production	Seeding, inspection and harvesting of the seaweed, including logistics onshore. Falls under HSE regime of PM Works	Simply Blue Group
Seaweed processing	Processing of the seaweed in an onshore facility	Algaia
Structural design	Lead engineer on seaweed farm design	Van Oord



## 5 Training and competence

- All involved personnel will have completed the 'STCW'95 Basic Safety Training', GWO, NOGEPa or similar courses. Record of certification will be kept by the NSF#1 project
- All personnel have completed a medical check
- All personnel working offshore have a medical check confirming they are cleared for work on vessels.

## 6 Work permit procedure

All NSF#1 operational works shall be subject to the NSF#1 Permit to Work system. This system requires to describe the planned work, identify potential risks & control measures, provide required weather conditions, provide the necessary documentation and submit contact information of all staff involved. Upon confirmation that all the required information has been provided and that the activities comply with the HSE requirements and policies a work permit will be issued and the works may commence.

### 6.1 Weather considerations

Weather is an important consideration for HSE. To ensure safety of personnel, animals and equipment, dive operations can only be done under 'good weather' conditions at the work location. Minimum requirements are:

- Acceptable visibility above water
- Acceptable wind speeds in consideration of planned operations
- Maximum significant wave height in consideration of planned operations

NSF#1 will organise the publication of a detailed weather forecast. Prior to each day of operation, weather forecasts will be checked the day before. The operations will not go ahead if the conditions listed in the Work Permit are not met. If weather conditions during operations change, then vessel captain and supervisor will jointly decide the appropriate course of action and abort the operations whenever needed. This includes sudden weather conditions such as lightning or fog.

## 7 Emergency Response Procedure

### 7.1 For offshore works: Designated Person Ashore (DPA)

For each offshore activity as part of the NSF#1 project there will be a Designated Person Ashore (DPA). This person will be identified in the Permit to Work system and issued Work Permits. The DPA will be the contact person in case of emergencies and will be available and reachable during the entire time of the planned operations. For each offshore operation, the responsible person shall personally notify to the DPA when all personnel are safely back onshore. In turn, the DPA will have the responsibility of instigating a search and rescue operation if the return to port message is not received within 12 hours of the designated return to port time.

### 7.2 Emergency response offshore

In case of an emergency, accidents or environmental incidents during offshore works, the following process will apply

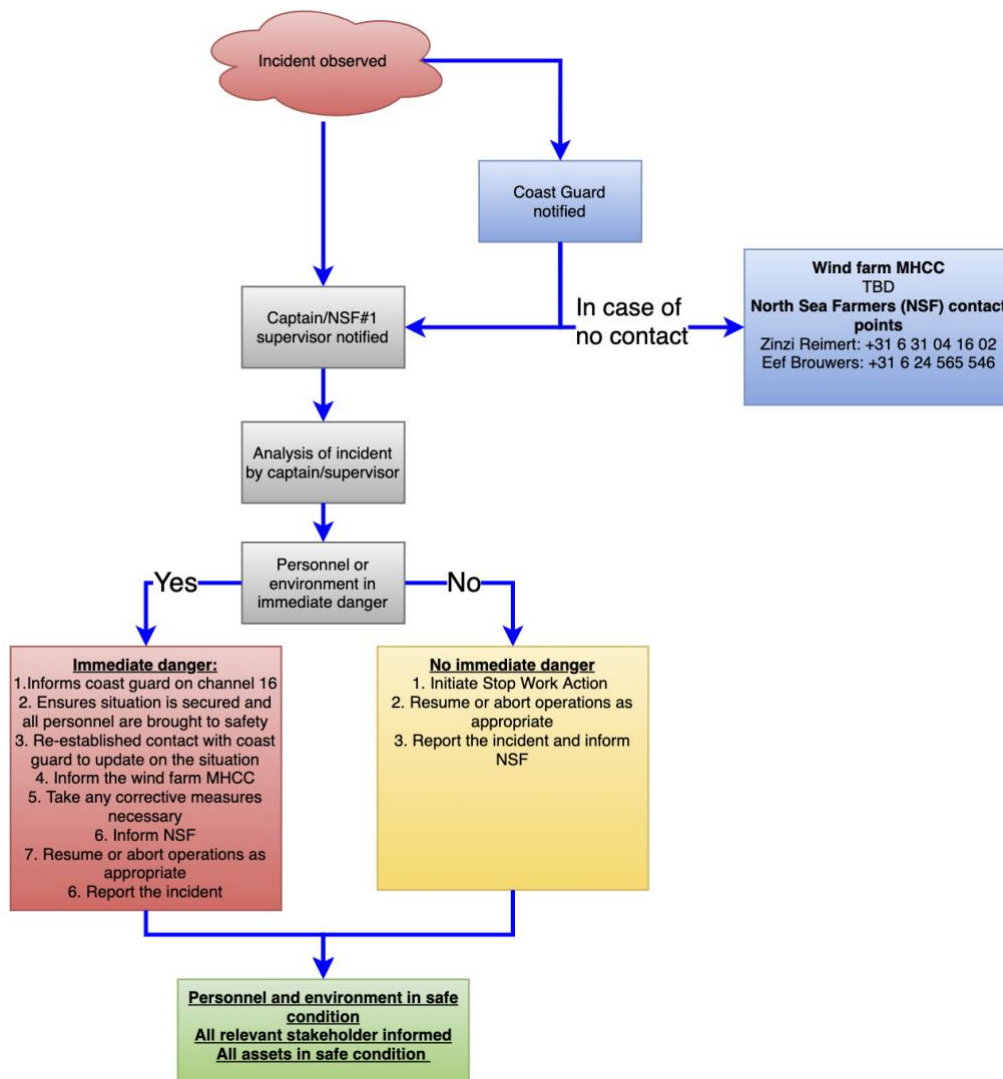


Figure 2: Emergency response procedure for offshore works

### 7.3 Emergency response onshore

In case of an emergency, accidents or environmental incidents during onshore works, the following process will apply

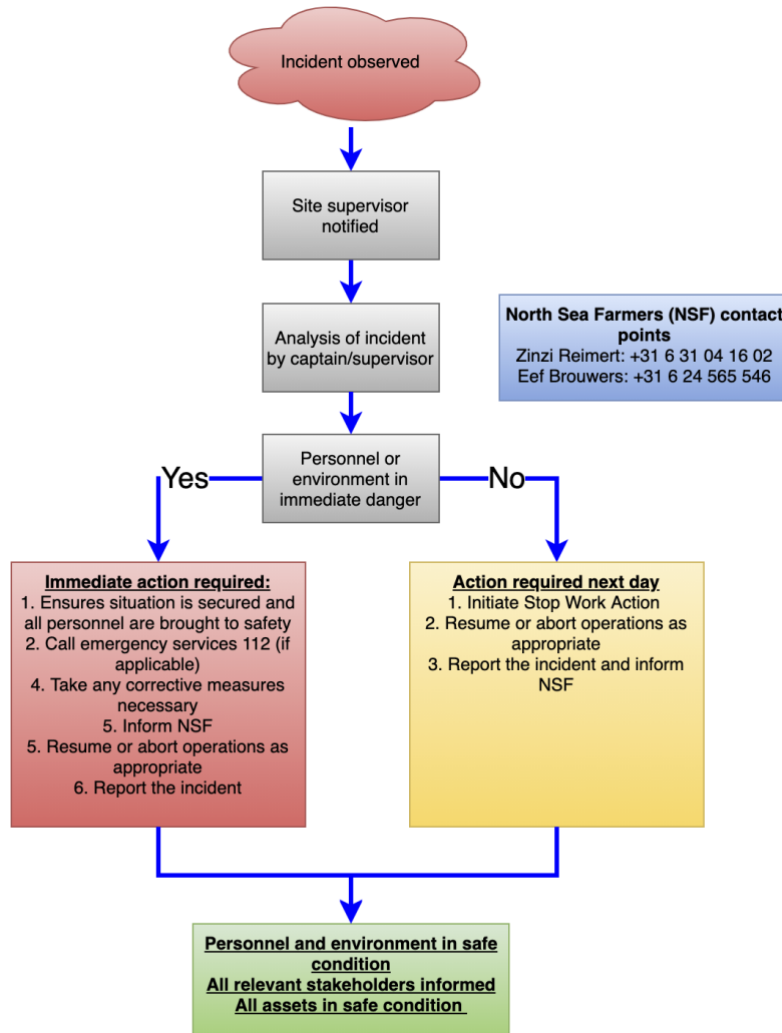


Figure 3: Emergency response procedure for onshore works

### 7.4 Reporting of incidents

A report will be made of each incident occurring during the works. This report will be made by the works supervisor at the moment of the incident and reported to the NSF management. The following shall be reported as incident:

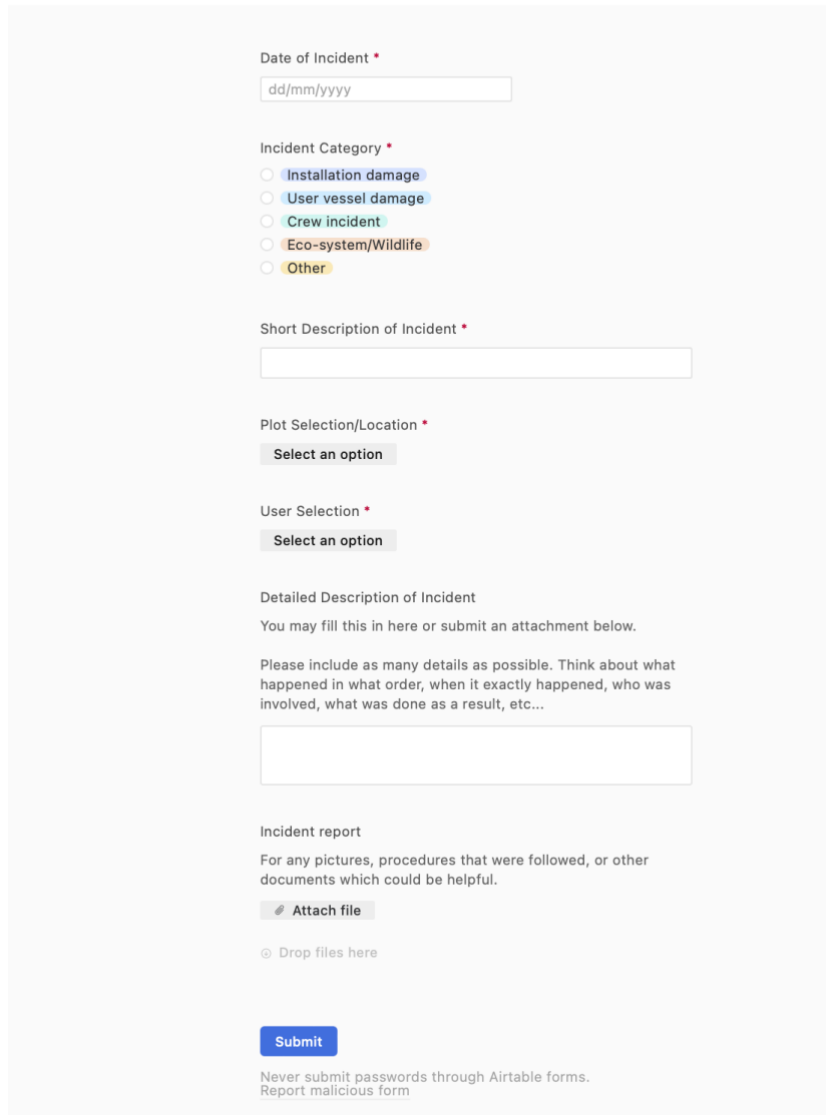
- An incident involving personnel, visitors or members of the general public,
- An incident involving other parties working in the wind farm area
- An environmental incident,
- An incident leading to damage of assets and/or equipment,
- Near miss incident that could have resulted in one of the above, and
- Any other incident that is deemed relevant to be reported by the responsible person.

The incident will be reported via this [online form](#):



### OTS Incident Form

Please enter this form if you wish to record an incident during a visit to the Offshore Test Site or during any onshore operations in preparation for a visit.



The screenshot shows an online form for reporting an incident. It includes the following fields and sections:

- Date of Incident \***: A text input field with a placeholder "dd/mm/yyyy".
- Incident Category \***: A list of radio button options: "Installation damage", "User vessel damage", "Crew incident", "Eco-system/Wildlife", and "Other".
- Short Description of Incident \***: A text input field.
- Plot Selection/Location \***: A dropdown menu with the option "Select an option".
- User Selection \***: A dropdown menu with the option "Select an option".
- Detailed Description of Incident**: A section with the instruction "You may fill this in here or submit an attachment below." and "Please include as many details as possible. Think about what happened in what order, when it exactly happened, who was involved, what was done as a result, etc...". It includes a large text input field.
- Incident report**: A section with the instruction "For any pictures, procedures that were followed, or other documents which could be helpful." and an "Attach file" button.
- Drop files here**: A text label with a circular icon.
- Submit**: A blue button.
- Footer**: Text stating "Never submit passwords through Airtable forms. Report malicious form".

Figure 4: Online form for quickly submitting incident reports