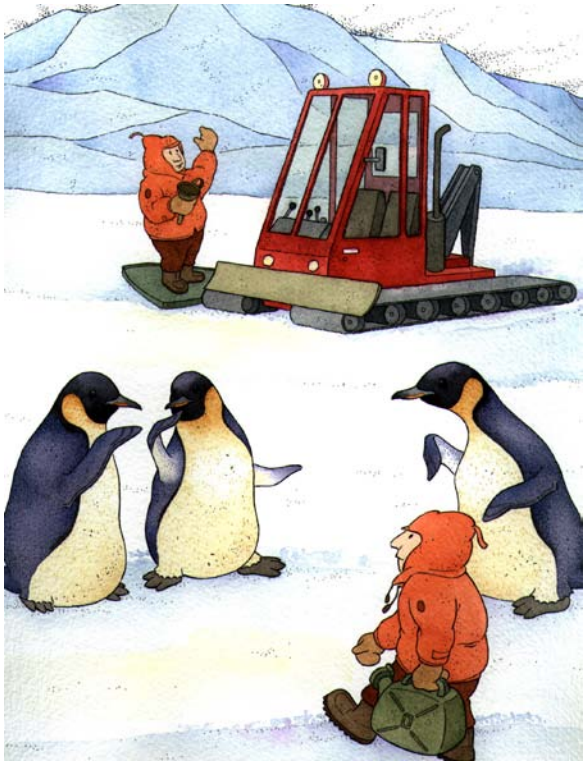
OIL SPILL CONTINGENCY PLAN

SWEDISH ANTARCTIC RESEARCH PROGRAM



WASA STATION
SVEA STATION
FIELD OPERATIONS

SWEDISH POLAR RESEARCH SECRETARIAT
1999

Background

The Protocol on Environmental Protection to the Antarctic Treaty, Article 15 (1b), states that:

"Each Party agrees to establish contingency plans for response to incidents with potential adverse effects on the Antarctic environment and associated ecosystems."

In accordance with Resolution 6 (1998) from the twenty-second Antarctic Treaty Consultative Meeting Parties whose research stations and vessels operating in Antarctica which are not covered by contingency plans should take the necessary steps to ensure that the operators of the stations and vessels introduce plans based on the 1992 Guidelines prepared by COMNAP.

To fulfil the requirements of the Protocol and the corresponding national legislation, as well as Recommendation 6 from ATCM XXII, the Nordic Antarctic programs[1] have agreed on a common framework for Oil Spill Contingency Plans for the Finnish, Swedish and Norwegian Antarctic programs.

This OSCP framework has been developed with the 1992 COMNAP "Guidelines for Oil Spill Contingency Planning" as a guidance, although the framework has been adjusted to reflect the needs of the small, summer-only operations of the Nordic programs.

The main structure and contents of the OSCP is common for all three Nordic Antarctic programs. Separate versions of Chapter 2, as well as Chapter 4, have been developed for the individual facilities operated by the Nordic Antarctic programs and for field activities.

The OSCP consists of three main parts:

Part I: Strategic Information
Chapter 1: Introduction
Chapter 2: Spill risk environment and spill risk assessment

Part II: Operational Response
Chapter 3: Actions and Operations

Part III: Information and Data Directory
Chapter 4: Annexes

The following individuals from the three national operators have been responsible for developing the common OSCP framework:

Finland: Henrik Sandler (Finnish Institute of Marine Research)
Norway: Birgit Njåstad (Environmental Officer, Norwegian Polar Institute)
Sweden: Anders Modig (Environmental Officer, Swedish Polar Research Secretariat)

[1] The national operators, responsible for the national Antarctic programs, are
1) Finland: Finnish Marine Research Institute (FMRI)
2) Norway: Norwegian Polar Institute (NPI)
3) Sweden: Swedish Polar Research Secretariat (SPRS)

CONTENT

PART I: STRATEGIC INFORMATION

1. INTRODUCTION

1.1 BACKGROUND

Legal requirements and guidelines for oil spill contingency planning in Antarctica
The Protocol on Environmental Protection to the Antarctic Treaty requires that Parties establish contingency plans for environmental emergencies. Nordic operations must fulfil these obligations, as well as national Antarctic legislation of their countries:

Finland: *Law for Conservation of Antarctic Environment, October 18, 1996. Regulation for Conservation of Antarctic Environment, February 13, 1998.*
Norway: *Regulations Relating to Protection of Environment in Antarctica, May 5, 1995.*
Sweden*: Swedish Antarctic Act (1993:1614), April 1, 1994.*

In accordance with Resolution 6 (1998) from the twenty-second Antarctic Treaty Consultative Meeting the OSCP has been developed on the basis of the Guidelines for Oil Spill Contingency Planning prepared by COMNAP (1992).

The Nordic Antarctic programs' Policy on Oil Pollution
In accordance with the intentions of the Protocol and the provisions of the national regulations, the Finnish Marine Research Institute (FMRI), the Norwegian Polar Institute (NPI) and the Swedish Polar Research Secretariat (SPRS) prohibits any deliberate discharge of oil or oily mixtures from their operations in Antarctica.

During operations every effort is made to prevent accidental oil spills through careful attention to fuel management and transfer operations, and by maintaining storage facilities to a high standard. Oil spill contingency procedures are required in case accidents happen in spite of precautions.

The FMRI, NPI and SPRS view any oil spill which might occur from their operations as serious and will seek to minimise the environmental impact as far as possible. Any spill response seeks to complement and make use of natural processes wherever possible.

In all operations, emphasis should be given to prevention of any spills or leaks. This can be achieved by teaching people about the importance of the Antarctic environmental protection, a positive attitude towards the environment and proper training of fuel handling and storage.

1.2 PURPOSE

Aim of the oil spill contingency plan
The aim of this OSCP is to describe the procedures that will be used by the FMRI, NPI and SPRS to enable a timely, effective and co-ordinated response effort in the event of an oil spill during their Antarctic operations.

1.3 SCOPE OF THE PLAN

The scope of the oil spill contingency plan
This OSCP describes procedures to be used in the event of oil spills occurring during all Nordic operations taking place on *land* or *ice-shelves* in Antarctica[2], in order to reduce loss and damage to the environment.

All personnel in Finnish, Norwegian and Swedish expeditions are obliged to adhere to the OSCP during operations. Personnel in charge of any given activity are always responsible for the practical implementation of the OSCP. All personnel are required to familiarise themselves with the operational response action procedures. For this purpose a summary of the procedures set out in the OSCP is given in the *Guidelines for fuel handling, storage and transport* found in the Nordic Environmental Handbook.

1.4 THE AREA COVERED BY THE OIL SPILL CONTINGENCY PLAN

The OSCP pertains to all areas visited during all Finnish, Norwegian and Swedish national expeditions to the Antarctic, including Sub-Antarctic islands. It pertains to station areas as well as to areas visited during transports or field camps.

1.5 THE SUBSTANCES COVERED BY THE PLAN

The terms "oil" and "oils" in this OSCP include fuels, oils, liquid lubricants and oil based hydraulic fluids in the absence of other specifications.

[2] Oil spills into the marine environment is not considered in the current plans as separate contingency plans are required for any expedition vessels used by Nordic countries.

2. SPILL RISK ENVIRONMENT AND SPILL RISK ASSESSMENT

2.1 DESCRIPTION OF WASA AND ITS ENVIRONS

2.1.1 The environment

The Wasa station is located on the nunatak Basen in Vestfjella, Dronning Maud Land, at 73º03'S, 13º25'W. Vestfjella is located approximately 120 km from the ice edge. The station is located about 200 meters from the Finnish station Aboa on a plateau of Basen at an altitude of 450 m.

Basen is sparsely vegetated. There are no bird colonies in the immediate vicinity of the station. Only a small number of non-breeding south polar skua (*Catharacta maccormicki*) and snow petrels (*Pagodroma nivea*) have been observed.

2.1.2 Physical layout of the station

Wasa consists of one main building, a generator and workshop compartment, and a storage and workshop compartment. There are also usually a number of mobile modules, used for field parties. See Annex 4.2 for layout of facilities.

2.1.3 The role of Wasa

Wasa is the main facility for the Swedish Antarctic Research Program and the center of Swedish science programs in the Antarctic. The vast majority of the scientific work is carried out between December and March with expedition size of 10 to 20 associated with the station.

2.1.4 Oil stored at Wasa

Fuel depots
The majority of the fuel is stored in 200-liter drums, although some is stored in 20-liter jerry cans. Most of the drums and cans are stored on flat racks or sledges. The depot is located close to the station, on ice-free ground, as indicated in the site facility map in Annex 4.2.

Small amounts of lubricants and other oil-based products are stored in 1-5 liter bottles which are located in the workshops and generator unit. At Wasa there is furthermore a 3 m^3 gas cistern, which when needed is filled up from smaller gas bottles.

Table 1. Capacity and type of fuel storage holders at Wasa

Tank type	Capacity (liters)	Fuel type	Max. amount stored at any time (liters/drums or cans)
Drums	200	Jet A1	20,000/100
Drums	200	Diesel	
Drums	200	Gasoline	10,000/50
Jerry cans	20	Gasoline	200 liters/10
Gas cylinder	3 000	Propane gas	3 000

Oil transfer operations and maintenance
Refueling of tracked vehicles and snowmobiles usually takes place in a snow-covered area near the fuel depot.

Refueling of helicopters takes place in a snow-covered area near the fuel depot, or at the helicopter landing area on snow free ground. All maintenance also takes place here. Response equipment is present during operations at the landing and refueling site. A designated helicopter landing and maintenance site is being discussed, but not yet in place.

All transfer of fuel from fuel drums is done by hand pump or electric pump.

Spill containment equipment is available at the refueling sites.

2.1.5 The likely migration patterns of oil spill at Wasa

Most spills around the station are likely to be Jet A-1 or gasoline spilt during vehicle refueling. Small spills are likely to quickly evaporate, even in low temperatures and calm conditions.

Snow-free ground
The Wasa station is built on ground of frozen moraine underlain by permafrost. Oil spilled on such ground will seep into the underlying material. Clean-up of such spills is difficult.

If the spill occurs on impermeable ground, the oil will run off from rock and concentrate in puddles, and the ground will seem to be coated with oil.

Large oil spills on snow-free ground at Wasa are not likely since most fuel related activities take place in snow-covered areas.

Ice-covered ground
Oil spilled on ice-covered ground is likely to remain on the surface and not penetrate much into the ice as long as there are no cracks.

Snow-covered ground
Oil spills on snow-covered ground will seep into the snow. Due to capillary effects, the oil will also spread horizontally. The vertical spreading is always bigger than the horizontal, at least in the upper layers. If the quantities spilled are large, the oil will reach into layers of higher density until it reaches the ground or an impermeable layer of ice.

2.1.6 Sensitive locations at Wasa

Scientific monitoring sites
There are currently no scientific monitoring sites at Wasa or in the surrounding area which are particularly vulnerable to oil pollution.

Nesting birds
There are no nesting birds near Wasa, which could possibly be affected by spills.

Vegetation
Spills on snow-free ground may affect micro-fauna and lichen occurrences in the station area. In oil spill affected areas these are likely to perish.

Drinking water
Drinking water at Wasa is taken from a blue ice area. The only possibility for spill to reach the water supply area is if the spill occurs in or near the area (i.e. while water is collected). Spills in this area will have large consequences for the station operations.

2.1.7 Spill response equipment at Wasa

The following response equipment is at all times to be available at the station:

1) Oil absorbing mats for refueling sites
2) Spill kits containing absorbent pillows and fabric for vehicles and field parties
3) Protective plastic barrels for 200 liter fuel drums
4) Plastic bags
5) Protective masks and rubber gloves

The response equipment at Wasa is stored in the workshop unit close to the fuel storage area.

2.2 DESCRIPTION OF SVEA AND ITS ENVIRONS

2.2.1 The environment

The station Svea is located at a small nunatak in Heimefrontfjella, at 74º34'S, 11º13'W, Dronning Maud Land.

There are approximately 200-500 breeding pairs of snow petrel in the vicinity of Svea. In addition, there are south polar skuas in the area, even no breeding has so far been recorded.

2.2.2 Physical layout of the station

Svea consists of two fiberglass huts put together. See Annex 4.2 for layout of facilities.

2.2.3 The role of Svea

Svea is built to support the research that has been carried out in the Heimefrontfjella area since 1988. The station is also used by research parties working in the surrounding area.

2.2.4 Oil stored at Svea

Fuel depots
The majority of the fuel is stored in 200-liter drums. The drums are stored on the ice in a blue ice area close to the station. The location of the depot is indicated in the site facility map in Annex 4.2.

Table 2. Capacity and type of fuel held in small storage tanks at Svea

Tank type	Capacity (liters)	Fuel type	Max. amount stored (liters/drums)
Fuel drums	200	Jet A1	10.000/50
Fuel drums	200	Gasoline	2.000/10

Oil transfer operations and maintenance
Refueling of helicopters takes place at the fuel depot. In addition, fuel is transferred in jerry cans from the depot to the small generator at the station.

Response equipment is to be present during helicopter operations at the landing and refueling site.

All transfer of fuel from fuel drums is done by hand pump or electric pump.

2.2.5 The likely migration patterns of oil spill at Svea

Most spills around the station are likely to be Jet A-1 or gasoline, spilt during vehicle refueling. Small spills are likely to quickly evaporate, even in low temperatures and calm conditions.

Snow-free ground
The Svea station is built on ice-free ground of mostly impermeable rocks. If oil spill occurs on impermeable ground, the oil will run off from rock and concentrate in puddles.

Large oil spills on snow-free ground at Svea are not likely since most fuel related activity takes place in the ice-covered areas.

Ice-covered ground
Oil spilled on ice-covered ground is likely to remain on the surface and not penetrate much into the ice as long as there are no cracks.

Snow-covered ground
Oil spills on snow covered ground will seep into the snow. Due to capillary effects, the oil will also spread horizontally. The vertical spreading is always bigger than the horizontal, at least in the upper layers. If the quantities spilled are large, the oil will reach into layers of higher density until it reaches the ground or an impermeable layer of ice.

2.2.6 Resources at risk at Svea

Scientific monitoring sites, nesting birds and Sites of Special Scientific Interest
There are currently no scientific monitoring sites at Svea or in the surrounding area, which are particularly vulnerable to possible oil pollution.

Vegetation
Spills on ice-free ground may affect micro-fauna, lichen and algae occurrences in the station area. In oil spill affected areas these are likely to perish.

2.2.7 Spill response equipment at Svea

The following response equipment should at all times be available at the station:

1) Oil absorbing mats for refueling sites
2) Spill kits containing absorbent pillows and fabric for vehicles
3) Plastic bags
4) Protective masks and rubber gloves

The response equipment at Svea is stored in the station.

2.3 FIELD PARTIES

2.3.1 Environment

Field operations primarily occur in ice-covered areas, using snowmobiles or tracked vehicles. In these areas, there are limited biological occurrences. A limited number of field parties will conduct research or other activity in ice-free areas as well, mostly in areas sparsely vegetated and with few other biological occurrences.

2.3.2 Transport of oil and fuel products

Field parties using snowmobiles for their operations carry fuel in 20-liter jerry cans, approximately 10 cans per snowmobile.

Field parties using tracked vehicles for their operations carry fuel in 200-liter drums. During convoys, as much as 40 drums may be transported per tracked vehicle**.**

2.3.3 The likely migration patterns of oil spills

Ice-covered ground
Oil spilled on ice-covered ground is likely to remain on the surface and not penetrate much into the ice as long as there are no cracks.

Snow-covered ground
Oil spills on snow covered ground will seep into the snow. Due to capillary effects, the oil will also spread horizontally. The vertical spreading is always bigger than the horizontal, at least in the upper layers. If the quantities spilled are large, the oil will

reach into layers of higher density until it reaches the ground or an impermeable layer of ice.

Ice-free ground
Oil spilled on porous ice-free ground will seep into the underlying material. Cleanup of such spills is difficult. If the spill occurs on impermeable ground, the oil will run off from rock and concentrate in puddles, and the ground will seem to be coated with oil.

2.3.4 Resources at risk

Transport during fieldwork takes place mainly on snow- and ice-covered areas where there are no resources at particular risk. Oil-spills in ice-free areas will affect vegetation and micro-fauna in the area of the spill. Fieldwork taking place in particularly sensitive areas must adhere to specific guidelines given by the authorities in order to avoid oil spills and other negative effects on the biota.

2.3.5 Response equipment

Field parties are to be equipped with the following response equipment:

1) Spill kits containing absorbent pillows and fabric for vehicles
2) Plastic bags
3) Rubber gloves

2.4 SPILL SCENARIOS

2.4.1 The expected probability, size and type of oil spills during Nordic operations

A range of spill scenarios can be generated for Nordic operations in Antarctica (Table 3). These range from the very low probability of a relatively large oil spill if a large number of fuel drums are damaged simultaneously, to the high probability of small spills during refueling operations and the handling of fuel drums.

Table 3. Expected probability, maximum spill size and fuel type for a range of possible scenarios during Nordic Antarctic Research Expeditions.

Spill	Assumed probability	Maximum spill size (liters)	Fuel type
Overflow whilst refueling	High	10	Jet A1, gasoline
Drum/can leakage	Medium	200	Jet A1, gasoline
Damage of drum/can	Medium	200	Jet A1, gasoline
Large number of drums damaged simultaneously	Very low	8 000	Jet A1, gasoline

2.5 THE CLASSIFICATION OF FUEL SPILL IN NORDIC OPERATIONS

Oil spill incidents are classified as follows:

1) Type 1 Small local spills that can be dealt with immediately by one person (< 200 liters)

2) Type 2 Medium spills that require a dedicated clean-up team (> 200 liters)

2.6 PRIORITY FOR PROTECTION

The health and safety of personnel is paramount during an oil spill. Protective gear should be used when carrying out a Type 2 oil spill clean-up.

Secondly, the drinking water supply area is to be prioritised in case of a spill.

Thirdly, if spill occurs on ice, attempts should be made to avoid spill from reaching ice-free ground.

2.7 GENERAL SPILL RESPONSE STRATEGY

The general strategy is to contain and recover oil spills where practicable. Stations and field parties must be equipped with sufficient materials and equipment to follow the response strategy for all spills.

The use of dispersants and in-situ burning is not allowed.

The policy is that as much oil as possible it to be removed immediately after a spill and any remaining oil is left to degrade naturally. A large scale clean-up may cause more environmental damage than the oil itself.

2.8 TRAINING

In all operations, importance should be given to prevention of any spills or leaks. This can be achieved by teaching people about the importance of the Antarctic environmental protection, a positive attitude towards the environment and proper training of fuel handling and storage.

All participants on a Nordic Antarctic Expedition will be briefly trained in oil spill response before the expedition or during the first couple of days at the station. This training will cover procedures for reporting a spill, health and safety issues, and the use of equipment (e.g. absorbents, safety drums, etc.).

PART II: OPERATIONAL RESPONSE

3. ACTIONS AND OPERATIONS

3.1 RESPONSE ORGANISATION STRUCTURE

3.1.1 The roles and responsibilities of the personnel

The roles and responsibilities of key response personnel during an oil spill are:

A) Expedition Leader (EL)

1) Assumes overall control of the response operations for Type 2 spills
2) Responsible for organising environmental, technical, administrative and logistical support for the clean-up team
3) Decides when to terminate a response action for Type 2 spills
4) Prepares a final report for Type 2 spill

B) Environmental Officer (EO)

1) Advises on best practicable clean-up techniques, the ecological resources most at risk and likely environmental impact
2) Initiates and organises environmental monitoring of spill sites
3) Organises training in oil spill response
4) Reviews spill strategy and updates the OSCP when required
5) Responsible for procurement, maintenance and storage of oil spill response equipment

C) Personnel at scene of spill

1) Initial notification and classification of the spill
2) Implement spill response for Type 1 spills as described in Chapter 3.3.
3) Implement spill response for Type 2 spills as requested by EL.

3.1.2 Action plans

Action plans have been developed for the key personnel who will be involved in an oil spill during Nordic Antarctic operations.

1)	Expedition leader	Action plan 1 - Annex 4.5
2)	Environmental officer	Action plan 2 - Annex 4.6
3)	Personnel at scene of spill	Action plan 3 – Annex 4.7

3.2 RESPONSE NOTIFICATION

3.2.1 Initial assessment

The observer of the spill must carry out an initial assessment of the situation. He/she must check the:

1) Probable quantity of fuel spilled
2) Type of fuel
3) Location of the spill
4) Probable source and cause
5) Risk of fire or harm to human health
6) Risk to environment

3.2.2 Initial notification

If spill is assessed to be Type 2 spill (> 200 liters) the observer of the spill must notify Expedition Leader and communicate the information obtained in the initial assessment.

3.3 OPERATIONAL PLAN

3.3.1 Response team

If spill is assessed to be Type 1 spill, observer initiates further response alone or with present personnel. Observer should request additional personnel if deemed necessary.

If spill is assessed to be Type 2 spill, the Expedition Leader must decide on the most appropriate response strategy and ensure the presence of adequate personnel to take care of the spill. It is the duty of the selected personnel to protect:

1) Health and safety
2) Station facilities
3) Threatened resources

3.3.2 General response strategy

Although each oil spill is different, general common procedures are outlined below:

1) Ensure oil spill equipment is in a known and accessible location.

2) If a spill occurs, stop or minimise any further spillage. Ensure safety of all personnel. Check for fire and explosion risk. Ensure safety equipment is worn.

3) For all spills, deploy absorbents to contain fuel if possible. It may be possible to hold fuel in depressions by using absorbent materials, or by building small dams.

4) If possible use pump to remove fuel from ground straight into 200 liter drums. Ensure that sufficient good quality empty drums are available near the spill site.

5) Absorbent pads should be spread on any remaining fuel or oil outside which cannot be pumped or manually removed. Oil soaked absorbents must be picked up and put into plastic bags and/or empty 200 liter drums.

6) Contaminated snow can be stored in 200 liter drums which have had their tops removed. Allow the snow to melt and decant off fuel.

7) Any waste drums containing a mixture of fuel and snow or water are likely to freeze. To prevent drums from splitting, use only those in good conditions. Do not fill completely.

8) Drums of recovered fuel/water should be stored on fuel containment mats.

9) Drums of recovered fuel/water, oil soaked absorbents and contaminated clothing must be sent for disposal outside Antarctica. Follow the disposal instructions given in the Nordic Waste Management Handbook.

3.3.3 Communication and reporting during clean-up operations

The probable sizes of spills, and the sensitivity of probable spill areas, are considered to be such that reporting during clean-up operations is not deemed necessary in Nordic operations. In some specific cases the Expedition Leader may deem it necessary to report to the National Antarctic Operator in order to obtain advice on clean-up procedures.

3.3.4 Personnel safety

The health and safety of personnel is paramount during an oil spill. Emergency spill response actions should not be undertaken in periods of extreme weather conditions or darkness unless the situation has been fully assessed by the Expedition Leader and deemed safe.

Inhalation of hydrocarbon fumes
Inhalation of hydrocarbon fumes can cause headaches and nausea. These are short-term effects. For Type 2 spills clean-up personnel should consider using facemasks until fumes have disappeared.

Skin irritation by fuel
Fuel and oil can be a skin irritant. Sever reactions can lead to dermatitis. Clean-up personnel should consider wearing rubber gauntlets to protect hands and arms during clean-up operations.

Contamination of drinking water by fuel
Drinking water would have to be highly contaminated by hydrocarbons for harm to occur. This is highly unlikely since very low concentrations of hydrocarbons alter the taste of water and make it completely unpalatable.

Advice on health effects
The expedition doctor is to advise Expedition Leader on likely health effects of an oil spill.

Material Safety Data Sheets
The Material Safety Data Sheets for Jet A-1, gasoline, and LPG (gas) used in Nordic operations are contained in Annex 4.3.

3.3.5 ENVIRONMENTAL ASSESSMENT

Assessment
As soon as practicable after a spill the environmental situation at the spill site should be assessed. If Type 2 spill, the Expedition Leader shall ensure that the Environmental Officer is able to give input and directions to the assessment. The findings of the assessment shall be recorded. The Environmental Officer arranges for further investigations and assessments, or environmental monitoring. If possible, assessments should continue to be made at regular intervals between the spill and the end of the season.

Photographic record
For Type 2 spills, the Expedition Leader shall ensure a photographic record of the spill and its subsequent clean-up. The photographs should be as comprehensive as possible and are to be attached to the final report of the expedition.

Sampling of water, soil, fauna and flora
The Environmental Officer will advise the Expedition Leader if the sampling of water, soil, flora and fauna are requested to monitor the impact of the spill. Monitoring of water from the water supply may also be necessary.

3.4 RESTORATION

In the snow and ice covered areas environmentally effective results can be achieved by restoring the area to the initial condition. After clean-up and removal of the oil from the environment it is possible to look at this as restoration to the initial state.

When ice-free ground, flora or fauna is harmed by a fuel spill, a complete clean-up and restoration to the initial condition may be difficult. The decision for restoration and for the methods to be used is made at the National Antarctic Operator based on recommendations from the Environmental Officer and the Expedition Leader, after hearing experts.

Lack of appropriate equipment at the stations will prevent cleaning of fuel-contaminated seabirds or other vertebrates. It may be necessary to kill the affected animals. In these cases the following guidelines should be followed: Cleaning of oil-affected birds requires trained personnel, suitable facilities and appropriate equipment at the stations. Consequently, cleaning of fuel contaminated seabirds will not be possible at the stations in question, and it may therefore be necessary to put the affected birds to death in order to minimise suffering. Such action should be done with care and in a humane manner. The number of birds put to death shall always be recorded. In consultation with the home institute it shall be decided whether the birds shall be brought home for further studies. Birds that will not be brought home for further studies shall be collected separately and treated as hazardous waste.

3.5 WASTE DISPOSAL

Oil contaminated material from the clean-up operation is to be stored at the pre-designated waste storage area. Recovered oil, if usable, can be stored at the fuel depot. All contaminated material collected must be marked clearly, treated as hazardous waste and be retrograded from Antarctica. Proper handling of waste at waste reception facility must be ensured (cf. Nordic Antarctic Waste Management Handbook).

When storing oil contaminated waste, allow for expansion and do not overfill drums. Watch out for pinhole leaks.

3.6 TERMINATION OF OIL SPILL RESPONSE

The termination of an oil spill response is to be decided by the Expedition Leader, preferably in consultation with the Environmental Officer.

Any re-usable equipment must be washed and cleaned before being put into storage. A record of the amount of used material has to be kept by the Expedition Leader, so that this can be replaced at the next expedition.

3.7 POST SPILL MONITORING

The Environmental Officer, in discussions with other experts, is responsible for deciding whether post spill environmental monitoring is desired, in which case the Environmental Officer is responsible for designing a appropriate monitoring program.

3.8 REPORTING

Type 1 spills: An observer/responder to a Type 1 spill larger than 10 liters is to prepare a final report utilising form in Annex 4.4. The report should cover the following aspects:

1) Date and location of spill
2) Estimated quantity of fuel lost
3) Type of fuel
4) Source and cause
5) Response action taken
6) Evaluation of impact

Type 2 spills: The Expedition Leader is to prepare a final report on Type 2 spills. The report should describe the following:

1) Time and date of spill
2) Estimated quantity of fuel lost
3) Type of fuel
4) Source and cause
5) Location and extent of spill (map)
6) Resources affected
7) Environmental impact
8) Response action taken
9) Stopping or minimising the spill (technical work carried out)
10) Clean-up (techniques used, amount collected)
11) Environmental monitoring (photographs, soil samples)
12) Value of response action
13) Other comments deemed necessary

PART III: INFORMATION AND DATA DIRECTORY

4. Annexes

4.1 CONTACT DETAILS

In the event that the Expedition Leader deems it necessary to obtain outside advice with respect to clean-up operations, the following contact points may be helpful:

4.1.1 National Operator Head Quarter

Swedish Polar Research Secretariat
Box 50003
105 05 Stockholm
Sweden

Ph. (+46) 8 673 96 00
Fax: (+46) 8 15 20 57

4.1.2 Environmental Officer (EO)

Anders Modig
Swedish Polar Research Secretariat
Box 50003
105 05 Stockholm
Sweden

Ph. (+46) 8 673 96 10
Mobile (+46) 70 572 62 82
Fax: (+46) 8 15 20 57
E-mail: anders.modig@polar.se

4.2 FACILITY MAPS

4.2.1 Wasa

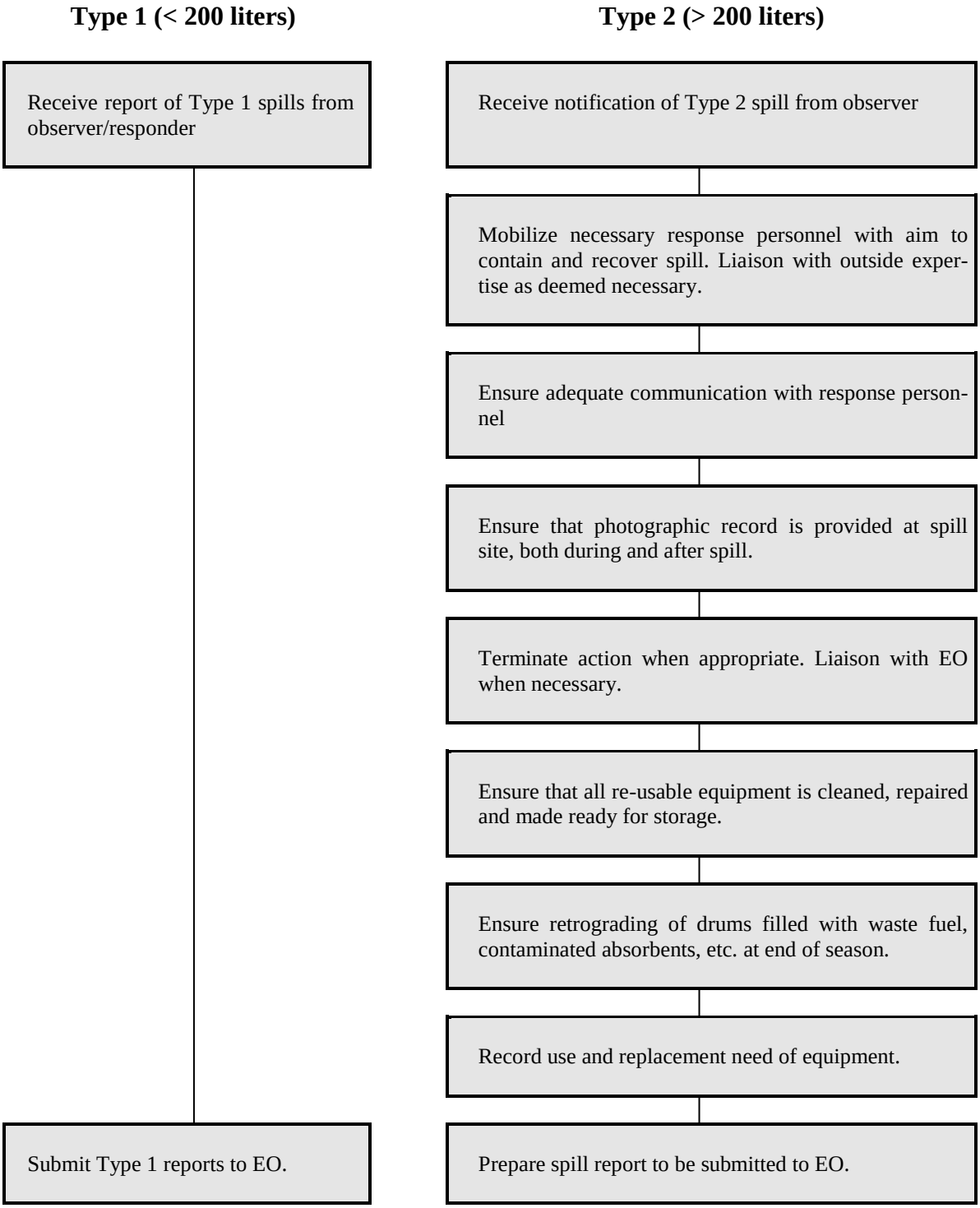
4.2.2 Svea

4.3 MATERIAL SAFETY DATA SHEETS

4.4 FINAL SPILL REPORT FORM FOR TYPE 1 AND TYPE 2 SPILLS

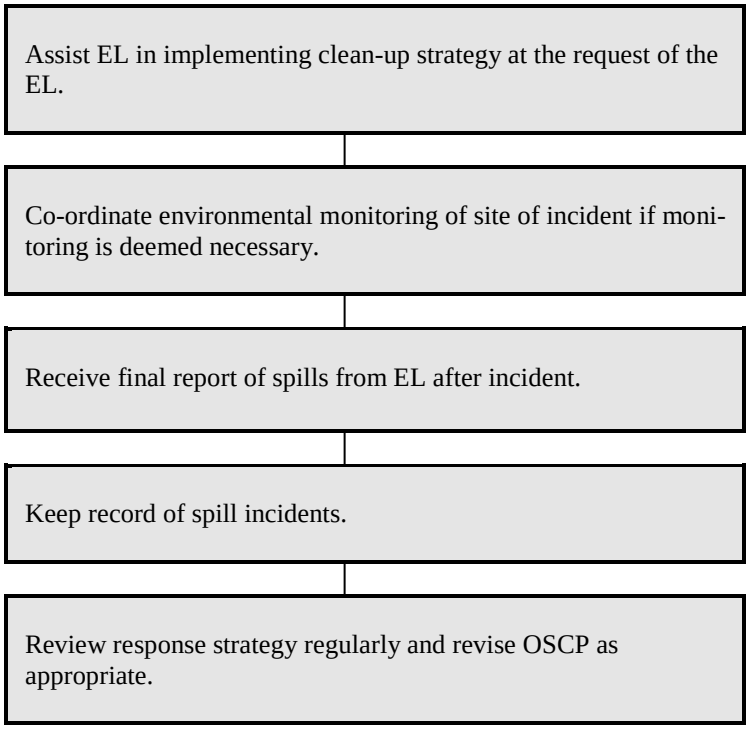
1. Date of spill:	☐ Type 1 (<200 l) ☐ Type 2 (>200 l)
2. Approximate location, size and movement of spill (attach map if possible)	
3. Type of fuel and estimated quantity/revised estimate of quantity of fuel spilled:	
4. Source and cause of spill:	
5. Evaluation of environmental impact:	
6. Short overview of response action implemented:	
7. Additional comments:	
Signature:	

4.5 ACTION PLAN 1 – EXPEDITION LEADER (EL)



4.6 ACTION PLAN 3 – ENVIRONMENTAL OFFICER (EO)

Type 1 (< 200 liters) and Type 2 (> 200 liters)



4.7 ACTION PLAN 3 – PERSONNEL AT SITE OF SPILL

Type 1 (< 200 liters) and Type 2 (> 200 liters)