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Environmental approval for Ship recycling and scrapping of platforms and oil-rigs



Company Name:	Modern American Recycling Services Europe, M.A.R.S
Company list name:	K210 (Ship recycling)
Company location:	Sandholm 60, 9900 Frederikshavn
Cadastral no:	507a Frederikshavn Bygrunde
Company registration no:	Pending
Company site registration no.:	Pending
Operaton responsible:	Dwight "Butch" Caton, Sr
Authority:	Municipality of Frederikshavn

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1. The Municipality's decision and terms of operation

The Municipality of Frederikshavn hereby announces environmental approval to Modern American Recycling Services Europe, M.A.R.S at Sandholm 60, 9900 Frederikshavn, cadastral no. 507 Frederikshavn Bygrunde.

The approval is valid from the day of issue and is given on a number of terms given below, which ensure that the applied activities can operate on site without inflicting environmental impact incompatible with the environmental vulnerability and desired environmental quality.

Approval includes Ship recycling and scrapping of platforms (incl. oil-rigs) and discharge of surface water to the recipient.

Utilization of the approval

1. If the environmental approval has not been used no later than 2 years after the environmental approval is notified, the environmental approval expires.
2. Upon handling of NORM1 waste, the company must comply to the rules set by the Danish National Board of Health². Before acceptance on site and further handling the Municipality of Frederikshavn shall receive documentation, that these rules will be respected.
3. Approval shall expire at the latest when the operation has been suspended for 3 years.

General terms

4. Upon termination of operations, the company must take the necessary measures to avoid contamination and leave the site area in satisfactory term. A statement of these measures must be submitted to the supervisory authority no later than 3 months before the operation ends. The statement shall include a survey of the area's pollutant status.
5. Where the term "fortified area" is used in the terms, this term refers to a firm coating that allows for collection of spills and controlled derivation of rainwater (surface water). Where the terms "seal coating" is used in the terms, this term refers to a solid coating that is impermeable during the period of impact from pollutants handled on the area.

Site Lay-out and operation

6. The company must be organized and operated in accordance with the approval terms and terms of the case, including information submitted by the applicant.

The company's layout is set out in Annex A and the location of the company is shown in Annex C.

¹ NORM - Naturally Occurring Radioactive Materials

² SIS order no. 85 of 2. February 2018 on handling of radioactive substances

7. The membranes on quay areas and parts of hinterland areas (see Appendix A and explanation in section 2.1) must be dimensioned and established so that the membrane is seal and can withstand the expected load during the operating period. It must be ensured that surface water on the areas collected cannot be diluted with intrinsic groundwater and seawater.
8. A detailed project, including surface water handling plan must be sent to Frederikshavn no later than 4 weeks before establishment Municipality acceptance containing:
 - Membrane system (see term 7)
 - Surface water and drainage system (see term 7), including drainage on ship ramp (term 62)
 - Buffer tank (see term 58)
 - Sand-traps and oil separators incl. alarm and flood protection (see terms 63, 64 and 65)
 - Water treatment facility with heavy metal felling (see term 58)
 - Pre-treatment filtration system (cf. term 59)
 - Measuring wells and shut-off valves (cf. terms 58, 59, 33, 37, 39 and 61)
9. When ships are located at berth a boom must be present around the ship before commence of work. When ships are located at berth below ramp drain gutter a boom must be present around the ship. When working with platforms and oil rigs at berth, a boom must also be preset around these when there is a risk oil spill to the harbor basin.
10. The person responsible for the company must notify the supervisory authority before the company:
 1. Changes or partially changes responsible person, moreover if the company is completely or partially transferred or leased,
 2. Ceases operations permanently or for a prolonged set period or, or
 3. Resumes operation after cessation for a longer period.
11. Substantial pollution or risk of this as a result of the operations, including these as a result of operational malfunctions, abnormal operating situations or accidents must be reported to the supervisory authority immediately.

Outside normal working hours, contact must be taken to the emergency center (telephone 112).

A written statement of the incident must be given to the supervisory authority no later than one week after of occurrence of the incident. The statement must specify what actions are taken or which action are expected to be undertaken to prevent similar future pollution incidents.

12. A copy of this approval (authorization) must be available to anyone responsible for the company's layout and operation.

Air Pollution

13. Operation of the company must not give rise to odor or dust outside the company's area, which according to the assessment by the supervisory authority is regarded significant. The Company, shall ensure, that dust nuisance outside the site area does not appear. This may be done through watering or wetting.
14. Off-gasses from indoor room- and process-suction must be discharged at least 1 meter above the roof, where the off-gas discharge is located.
15. To the extent possible, use of shearing must be performed over flame cutting.
16. If new knowledge emerges regarding mobility of fume gas from flame cutting operation, intermittence of operations, concentrations of fume gas from flame cuttings operation etc., the company, on request from the supervisory authority, is required to have indicative dispersion calculations performed (OML calculations). A limit value of 0.004 mg fume gas per m³ (B-value) is to be used for calculations.

Noise

17. The operation of the company must not entail the company's total contribution to noise levels in neighboring areas to exceed the limits given below.

The area types refer to chart in Annex C of the approval. The values given for noise load are the equivalent, corrected sound levels in dB (A).

	Time	Reference period (hours)	Area Types				
			I dB(A)	II dB(A)	III dB(A)	IV dB(A)	V dB(A)
Monday-Friday	07-18	8	70	60	55	50	45
Saturday	07-14	7	70	60	55	50	45
Saturday	14-18	4	70	60	45	45	40
Sundays and holidays	07-18	8	70	60	45	45	40
All days	18-22	1	70	60	45	45	40
All days	22-07	0,5	70	60	40	40	35
Peak value	22-07	-	-	-	55	55	50

Table 1: Noise limits.

Area types:

- I Industrial areas
- II Commercial and industrial areas excluding nuisance activities

III Areas for combined domestic and business purposes, center areas (town area) as well as urban recreational areas

IV Residential building areas (multiple floor buildings)

V Residential areas with attached housing

18. Upon requirement from the supervisory authority, the company must perform measurement and calculations to document that the limit values in Table 1 are respected. If noise levels are met, the measurements and calculations can only be required maximum once a year.
19. The documentation must be sent to the supervisory authority no later than 3 months after the request (claim) for documentation has been forwarded. Documentation must include information on operating conditions during measurement.
20. The documentation must be performed by a measurement company accredited by DANAK or approved by the Danish Environmental Protection Agency for "Environmental measurements external noise". Noise from the company's operations must be documented by measurement and / or calculation according to applicable guidelines from the Danish Environmental Protection Agency, cf. guideline No. 6/1984: External noise measurement and guideline No. 5/1993: "Calculation of external noise from companies".
21. Noise measurement must be performed when the company is in full operation or in agreement with the supervisory authority.
22. Limit values for noise, cf. Term 17, are regarded to be met if measured or calculated values deducted uncertainty are less than or equal to the limit values. Total uncertainty of measurements and calculations is determined in accordance with the Danish EPA guidelines.

Low frequency noise, infrasound and vibration

23. The operation of the company must not cause measured infrasound and low frequency values to exceed the values given in table 2, measured indoors in affected buildings. Values determine the company's contribution values (in dB re 20 μ Pa):

Use		A-weighted Sound pressure level (10-160 Hz), dB	G-weighted Infrasound level dB
Living areas, kindergardens etc.	evening/night 18-07	20	85
	Day 07-18	25	85
Offices, schools and other noise sensitive areas		30	85
Other company rooms		35	90

Table 2: Limit values for low frequency noise and infrasound.

Limit values apply to the equivalent level over a measurement period of 10 minutes during maximum noise impact. In case of noise being impulsive, the above given limit values may be reduced by 5 dB.

24. The operation of the company must not cause the transmission of vibration to exceed the values given in table 3, measured as acceleration level indoors in affected building, (dB re 10^{-6} m per s²):

Use	Weighed acceleration level L_{aw} in dB
Residential buildings (throughout the day), Residential buildings in combined domestic and business area (18-07) Child care institutions etc.	75
Residential buildings in combined domestic and business area (07-18) Offices, schools etc.	80
Industrial buildings	85

Table 3: Vibration Limit values

25. The limit values apply to the maximum KB-weighted acceleration level with time weighting S.
26. If the Authority, through own observations or provisional measurements find, that the above low frequency noise, infrasound or vibration limit values may be exceeded, the company must have measurements / calculations made by means of accredited company.

Waste

27. The company may only receive and store the waste fractions listed in Annex D. Waste fractions must not exceed the specified quantities.

Alterations to the annex can be accepted following written consent from the supervisory authority and can impact guarantee deposit amount re term 77.

28. Hazardous waste may only be stored on site for one year on the site area. Waste suitable for recovery and NORM waste may only be stored on site for one year on the site area.
29. Areas for storage of Hazardous waste fractions must be established and marked in a clearly defined manner, clearly denoting where each waste fractions are to be stored.
30. If the company receives hazardous waste that cannot be identified, the waste must be disposed of by placement in a separate storage area separate from other fractions while investigations or any analyzes are in progress, or while the company obtains the supervisory authority's position on the matter.
31. All hazardous waste packaging must be suitable for storing the relevant waste fraction and provided with clear labeling of content.

32. Spill of oil and chemicals including waste fractions hereof on fortified and non-fortified areas must be collected immediately and flowingly stored and disposed of as hazardous waste. At all times there must be absorbent material available on site. If there is a risk that the waste can reach a drain, relevant shut-off valve (s) must immediately be closed.
33. Stationary storage facilities for hazardous waste shall:
- be tight and in good maintenance condition,
 - be equipped with overflow alarm which marks when the tank is 90% full (the alarm and any monitoring and control panel must be able to be registered from the filling station)
 - be corrosion-proof inside or constructed of materials that are resistant to the type of waste to which they are used and to possibly condensation water, if this is excreted,
 - be secured against physical impact.

Leaks shall be repaired as soon as possible after they are detected. By "tank facility" tanks with associated piping systems and hoses are denoted. Tanks must be designed as closed containers with a firm top and placed raised over the ground level, as to allow for inspection of the bottom. Double-walled tanks shall be connected to a leakage pressure monitoring system. Filler pipe on tanks must be completed with hood or cover. Pipes and hoses for filling and emptying must be positioned and shaped so that they are empty when not hazardous waste is transported in the tank they are connected to.

Tanks used for hazardous waste must be equipped with pressure / vacuum valve. If a tank is located in a building, ventilation air from the tank must be fed via a vent pipe to the outside of the building and at least 1 meter over the roof top.

Outdoor tanks must:

- either be painted so that the tank surface has a total radiant thermal coefficient of at least 70%, or
- insulated so that the same effect is achieved with regard to reduction of temperature-dependent emissions from the tank.

Tank facilities must be located in closed tank-housing without drainage or with shut-off valve that ensures that the volume of the largest tank is a maximum of 90% of the closed tank-housing collection capacity. This however, does not apply to double-walled tanks.

34. Other fixed piping systems and hoses used for hazardous waste shall be tight, well maintained and corrosion-proof inside or made of materials resistant to the type of waste they are used for, and towards any condensation water if this is excreted.
35. Prior to initial use of stationary tanks and other fixed piping systems and hoses for hazardous waste, documentation for tightness of pipe system and hoses must be provided. This documentation must be made available to the supervisory authority.
36. Filling and emptying of tanks containing hazardous waste may only take under supervision.

Protection of soil, groundwater and recipients

37. Handling of hazardous waste may only happen on areas with a seal coating. The areas must be established as delimited areas with an edge and / or a slope towards drainage system with shut-off valves.

Further, areas must be established such that:

- wastes of liquid hazardous waste can be kept within a defined area that must accommodate the contents of the largest storage unit for liquid waste in the area, such as
 - Surface water from areas that are not provided with coverage can be collected prior to discharge.
38. Hazardous waste, as well as oil and chemicals, must be stored under cover, e.g. roof, tarpaulin or the like and be protected from weather on an area provided with seal coating. The storage area must be designed so that waste spills can be kept within the area boundaries without risk of drainage to the soil, groundwater, harbor basin, surface water system or sewage system. The area must accommodate the contents of the largest container that is stored on the area.
39. Hazardous waste may only be transported on areas that are fortified. Surface water must be led to drain with shut-off valve.
40. Relevant shut-off valves for the surface water system in relevant areas must be closed during handling of hazardous waste, oil and chemicals on these. Valves must remain shut-off until any spills have been removed.
41. Iron and metal scrap and other wastes that can cause emission of oil or hazardous substances must be stored and handled on specified area or on areas with seal surface with drainage and controlled diversion to discharge or in closed or covered container with integral sump.
42. Iron and metal scrap that can emit metal dust must be handled and stored either outdoors on a fortified area, indoors on a solid floor or in a container. Storage and handling must be carried out so that dust formation is minimized and does not cause that dust or materials escape to the surroundings outside the company.
43. Shearing, flame cutting or other cutting of iron and metal scrap may only be carried out on areas or floors that are provided with a seal coating.
44. Other waste, excluding inert waste, may only be stored and handled on fortified areas with controlled discharge of rainwater.
45. Overground tanks for fuel oil and motor fuel must be secured against physical impact. Filling and drainage tanks (drainage devices) for oil products, including motor fuel, must be

placed within the contour of a seal coating with controlled drainage of drainage water. Alternatively, potential spill may be collected in seal bin or pit. Outdoor bins or pits must be drained so that rainwater in these does not exceed 10% of the volume of the waste bin or pit.

46. The area for cleaning of equipment and vehicles must be fortified with slope towards discharge from which controlled drainage of drainage water takes place.
47. All sealed coated and fortified areas, wells and the like, collection pools and tank-housings must be in good maintenance condition. Leaks should be repaired as soon as possible after they have been detected.
48. In case of fire, relevant drain valves must be closed for collection of water from firefighting (extinguishing water). Wastewater must be disposed of according to directions from the Municipality of Frederikshavn.

Self-monitoring

49. The company must carry out the inspection and performance testing of automatic control, alarm and security systems according to the supplier's instructions. Inspections must be performed at least once a year.
50. At least once quarterly the company must conduct visual inspection for leaks and cracks in:
 - coatings and joints on all seal coatings and fortified areas and floors,
 - pits, wells and similar collection pools,
 - stationary containers and own transport containers,
 - special storage areas and
 - tank yards

Leaks should be repaired as soon as possible after they are detected.

51. At least once quarterly the company must conduct a visual inspection of tank-systems for hazardous fractions for leaks and general maintenance condition. Other fixed piping systems and hoses for handling of hazardous waste must be visually inspected for leaks and general maintenance condition once a month.
52. The supervisory Authority may require the company to have an independent expert carry out a review of:
 - seal coating areas and fortified areas,
 - pits, wells and similar collection pools,
 - stationary containers and own transport containers, special storage areas and tanks

Inspection can be required only once every three years.

53. Every five years - the first time at latest 5 years after approval date, 1. March 2023, the company must provide a leak proofness test of all single-walled tanks with associated piping systems in order to prove compliance to term 34. The density test must be done by an independent, expert company and report The result must be submitted to the supervisory authority no later than 1 month after testing.
54. At the end of each quarter, the amount of each waste fraction on site, cf. Annex D must be recorded.

Operation Record (Journal)

55. The company must keep an operation record stating the following:
 - Continuous registration of type, fraction and quantities of waste removed from site with indication of name and address, CVR and P number of companies, to which the waste has been delivered.
 - Date and result of inspections and any improvements made by fortified areas and seal coatings, floors, pits etc. (cf. Terms 50 and 52)
 - Date and result of checking of automatic control, alarm and security systems (see term 49)
 - Date and result of visual inspection of refueling and other fixed installations piping systems and any improvements made (see term 51)
 - Date and result of density test of single-walled tanks (see term 53)
 - Date of receipt of waste not covered by the company's environmental approval and how it was handled and disposed of (see term 30)
 - Description of events where the surroundings have been exposed to significant impacts or pollution, including any violations of the approval terms (see term 11)
 - Quarterly registration of the amount of each stored waste fractions (see term 54)

The operating record must be kept at the company for at least 5 years and must be available to the supervisory authority on demand.

Discharge to the sea

56. Surface water from the company's areas and process waste water is covered by This discharge permit (terms 56-76)
57. Terms relating to lead, cadmium, nickel, mercury, tributyltin and benz(a)pyren may be revised at any time if necessary for compliance with Danish EU legal obligations,

including obligations under Water Framework Directive (2000/60 / EC) and the Environmental Quality Directive (2008/105 / EC).

58. Water from quay areas, ship ramp area above drain, concrete area and tank area must be discharged to the recipient via sand trap, coalescens type oil separator, buffer tank, water

treatment facility with heavy metal felling and measuring well³.

The buffer tank must be dimensioned to accommodate water supply from quay areas. In addition, the buffer tank must be dimensioned based on a rainfall of $N = 5$ corresponding to overflows every 5 years and a rain intensity of 180 l / s / ha – without supplementary climate supplement.

59. Water from hinterland areas must be discharged to the recipient via filtration system, coalescence type oil separator and measuring well. If the limit values (term 69) cannot be met, the water must be led through water treatment facility with heavy metal felling.
60. Surface water from the storage areas may be discharged the recipient via sand trap, coalescence oil separator and measuring well³. If the limit values (term 69) can-not be complied to, the water must be led through pretreatment.
61. There must be possibilities of shut-off of discharge from the area to the recipient.
62. The ship ramp must be fitted with a drain pipe so that surface water and any other spill can be collected.
63. Sand traps and oil separators must be dimensioned according to DS / EN 858-1 and -2. Sand trap and oil separator must be installed and used in accordance with supplier's instructions.

The oil separator must be completely molded below inlet and outlets. For sealing off elevators and supply and drainage pipes, a sealant waterproof and resistant to oil and gasoline must be used.

64. Oil separators covering quay areas, ship ramp area above drain, concrete area and tank area must be fitted with either optical or acoustic alarm.
65. Oil separators must be equipped with high-water protection so that seawater may not run into oil separators.
66. The oil level in collection chamber of all oil separators must regularly be checked. Emptying must be done when the recommended level in the collection chamber is reached, and no later than 75% of the collection chamber is filled.

The sand-traps must be emptied at the latest when half full. Sand-traps and oil separators must be emptied and inspected at least once a year.

67. The discharge of surface water shall be via the outlet points given in Table 4

Discharge	Discharge placement (UTMx, UTM _y)	Water body	Total area (m ²)
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³ Areas, re Annex A and table 7.

8	593.627	6.367.135	Frederikshavn Harbor basin	126,600
10	593.314	6.367.455		168,200

Table 4: Discharge points and size of areas discharging to each discharge point. The discharge points are also shown in Appendix E.

68. The discharge from the outlet must not cause visible oil film, foam formation or fluids, or otherwise cause in-aesthetic conditions.
69. The surface water shall, when discharged to the sea, comply with the following requirements:

Parameter	Dicharge limit (mean)	Dicharge limit (max.)
Lead*	26 µg/l	280 µg/l
Cadmium*	4.0 µg/l	9 µg/l (<50mg COCO ₃ /l) 12 µg/l 50-(<100mg COCO ₃ /l) 18 µg/l (100-<200mg COCO ₃ /l) 30 µg/l (>200mg COCO ₃ /l)**
Chromium VI*	68 µg/l	340 µg/l
Chromium III*	68 µg/l	2,480 µg/l
Cupper*	20 µg/l	40 µg/l
Nickel*	172 µg/l	680 µg/l
Zinck*	156 µg/l	168 µg/l
Mercury*	-	1.4 µg/l
Arsenic*	2.2 µg/l	22 µg/l
Tributyltin, TBT*	0.004 µg/l	0.03 µg/l
Benz(a)pyren*	0.0034 µg/l	0.54 µg/l
Calcium carbonate (CaCO ₃) – (mg/l-hardness)*	-	-
Suspended solids*	50	-
Mineral oil*	10 mg/l	20 mg/l
pH*		6.0-9.5

Table 5: Parameters and requirements for surface water discharge. Rainfall will entail a discharge of approximately 150.000 m³/year

* It is assumed that sampling and analysis must be in accordance with the requirements of the Executive Order on Quality Requirements applicable at any time environmental measurements, pt. Executive Order No. 1146 of 24 October 2017. For the metals (excluding TBT), the requirement for the concentration is in solution, i.e. the dissolved phase of a water sample filtered through a 0.45 µm filter.

** Limit depends on water hardness, i.e. content CaCO₃

70. The limits for discharge water are met when the (arithmetic) mean of the samples over one complete calendar year does not exceed discharge limits (mean) and none of the individual measurements exceeds the given max. discharge limits, re table 5.

Parameters with values below the detection limit contribute to the average calculation with half the detection limit.

71. In case an analysis exceeds the specified value (in term 69), the company must contact the supervisory authority immediately, at latest 2 weeks after result of analysis is available, and explain the circumstances and possible actions to remediate these in further sampling.
72. In the measuring well following the water treatment facility with heavy metal felling, 8 representative control samples must be taken each calendar year.
In the measuring well following the pretreatment system, 8 representative control samples must be taken each calendar year.
In the measuring well following the coalescence oil separator 8 representative control samples must be taken each calendar year.

Samples must be taken evenly distributed throughout the calendar year. Samples can be taken either as time proportional or as flow proportional daily samples.

Upon compliance with limit values (in term 69), the number of control samples can be reduced after 3 full calendar years following agreement with the supervisory authority. The operations status of the company will be taken into account in the assessment.

73. The supervisory authority may require extra samples to be taken/analyzed for parameters other than those mentioned in term 69, when this is considered environmentally founded.
74. There shall be written procedures for the operation and maintenance of water treatment measures. By "Treatment measures", sand traps, oil separators, water treatment with heavy metal felling, pretreatment and shut-off valves.

Procedures must be sent to the municipality of Frederikshavn before water treatment measures are put into service. In case of any changes in operation and maintenance of the treatment measures, the procedures must be revised and made available to the supervisory authority.

75. Analysis results must be sent to the supervisory authority when available from the laboratory. The company must also report analysis data to the public analysis database PULS⁴. Transfer to the PULS database must be conducted at latest 8 weeks following sampling.

⁴ PULS (PunktUdLedningsSystem) – the EPA database for discharge data.

Further, each year before 1. February, the company shall report to supervisory authority the outcome of the analysis results of the previous calendar year as well as registrations of water volumes re. discharge limits .

76. An operation record for the water treatment measures given (in term 74) must be compiled. In this all relevant operational information must be disclosed results of measurements of levels, emptying, removed sludge amounts, cleaning, repair works undertaken etc.

The operating record must be submitted to the supervisory authority on demand and stored at least 5 years.

Guarantee deposit amount

77. A guarantee deposit must be established in accordance with this approval before the operation of the company is initiated.

The guarantee deposit sum is set at 2.36 million DKK cf. the maximum amount of waste, see Annex D.

The guarantee deposit may be in the form of a bank guarantee, insurance policy or deposit of cash on a blocked account in a bank.

The company must submit a renewed calculation of guarantee deposit at least once every four years to which the municipality of Frederikshavn may regulate the guarantee deposit sum. The first calculation must be submitted no later than March 1. 2022.

2. Reasoning for the Approval

On 28. June 2017, the Municipality of Frederikshavn has received an application for environmental approval of Modern American Recycling Services Europe, M.A.R.S Sandholm 60, 9900 Frederikshavn. Additional information has been received throughout the approval process.

2.1 Description of the activities

The company will scrap ships and platforms (including oil-rigs) using shearing and flame cutting operations. Large cranes will be used for moving members and materials. The highest crane will operate during operation at a maximum height of 120 meters.

Site layout

The company's site area, which covers an area of 290,000 m² that will be leased from port of Frederikshavn (POF).

The layout of the company is shown in Annex A, where the areas are also shown.

The site area will be subdivided into the following areas:

- Load in / load off area: Quay areas designated areas I, III and IV established with membrane. Area III is also referred to as a skidding area (Skidding area).
- Ship ramp sloping area: Bed area on the dock where ships are picked up scrapping, designated area II, with concrete coating.
- Hinterland: Area designated area V established with membrane.
- Storage area: Storage specific area designated area VI.
- Waste, warehouse area: Waste and warehouse area incl. concrete-covered area and tank pit. This area is named VII.

The company will use existing buildings on the area and have not planned any new construction, apart from bollards and winch anchorages. The existing buildings will be used for warehouses (buildings A and B) as well as office/welfare purposes (buildings G and H). Possibly, nearby buildings located outside of the site area will be used for main office purposes and storage area for valuables. A mobile container will be placed at the fence to act as a guard/ door room (F).

A scales (weighbridge) (E) is established near the warehouses. A concrete area will be established, area (C) for the storage of tanks for waste products and outdoors storage of containers before these can be transported. A diesel tank of 50,000 liters (D) for fuel for the machine is placed in concrete tank pit. Water treatment plant with heavy metal felling (I) and buffer tank for surface water (J) are placed on the site area.

Water tank for dust control (K) is placed on the storage area. Tanks for oxygen and propane for flame cutting (flame burning) will be established in a number of fenced areas.

The company's main entrance will be at the end of the existing road (Sandholm), where the guard/gate container is located. There will be no public access to the company site areas, as the entire area will be fenced. There will be a 24/7 surveillance with camera surveillance at selected locations of the company. Access to warehouses, central waste facilities for loading and

unloading and office facilities will be in the immediate vicinity of the access road, thus reducing internal transport to and from the site.

Operations

The activities will involve a workforce of 60-200 employees in the outdoors areas and 16-18 people in the office. The number will depend on the year's operating variations. The company's normal operating hours will be Monday to Friday at. 07.00-17.00 and Saturdays 07.00-14.00. Occasionally, operations may occur on weekends.

It is expected that the company will scrap approx. 15 ships annually corresponding to approx. 150,000 tons of steel. In addition, scrapping of 4-5 platforms corresponding to 50,000 tonnes of steel is expected per year. Thus, it is expected to be handled in total approx. 200,000 tonnes steel a year. 90-95 % of scrap metal will be transported by means of ship, 5-10% will be transported by trucks. There will be a maximum of 20,000 tonnes of scrap metal stored on the areas in piles with a maximum height of 10 meters.

Occasionally, ships and platforms will be moored in the port or outside the port before scrapping. It is expected that one ship will be moored at a time a maximum of one week before each ship recycling is performed.

The items to be scrapped are transported to the company by sea. On the quay area, there are two large cranes that are used to bring the items on land. On the quayside the company will have a large crane (Manitowoc 31000), with a lifting capacity of 2,300 tons. On the waterfront at the quayside, a barge (Pacific Shore) with a lifting capacity of 900 tons is stationed.

The majority of the materials generated during scrapping/ship breaking will be recycled. Valuables and parts taken on land will be sold for recycling. Steel, metals, etc. are disposed of for recycling.

Appendix B shows a flowcharts of the company's processes in relation to ship breaking and scrapping of platforms/oil rigs respectively.

Before ships, platforms and oil-rigs arrive in Frederikshavn, a review has been made with an overview of the type and amount of dangerous materials and other materials on board. This is done by the owner. The company's procedure for handling ships and platforms/oil-rigs differ. Hence, they are outlined separately in the following.

Preparation of ships for scrapping/breaking

Ships will usually brought to Frederikshavn (POF) by their own steam, or they may be towed. The ship is moored by the dock. Upon arrival of a ship for scrapping it is initially ensured that the ship is sufficiently safe to board. After that, the ship will undergo a review for scrapping and the disposal of materials and hazardous materials and waste, including PCB and asbestos. M.A.R.S and Fortum Waste Solution A/S (Formerly Kommune Kemi) that perform this review based on a thorough on-site examination.

The ship's list of hazardous materials and waste will be forwarded to the authorities (Municipality of Frederikshavn) prior to scrapping of the ship.

Around all ships a boom is placed prior to scrapping, including emptying is performed. Attention will be on proper placement of this boom as to confine any possible spillage. Any spill will be collected quickly.

Hazardous materials and waste are removed from the ship while on berth. Valuables and waste is brought on to the quay area where it is packed for subsequent placing in warehouse in specified containers in warehouses A and B or brought to warehouse for registration. It is Fortum Waste Solution A/S, who is responsible for this work.

When the ship is emptied of hazardous substances and liquids, the ship is cut down and disassembled. Larger fractions are lifted on to the quay areas. Valuables, for example Engines, winches, pumps etc. are lifted up and placed in storage for resale. The ship's stability will be ensured through the period during which the ship is emptied and by cutting material from the ship.

After removal of the interior of the ship, it is taken on land via the shop ramp where the hull it is subdivided by cutting and shearing operations, after which larger fractions are lifted to the hinterland area for further fractioning.

Preparation of platforms/oil rigs for scrapping

Platforms and oil-rigs that can-not sail by own steam or be tugged are transported to Frederikshavn (POF) by barge that moor at the quayside.

Upon arrival, the platform undergoes a review of dangerous substances and materials not recyclable, steel scrap/metals, valuables etc. and a plan for scrapping is prepared. It is M.A.R.S and Fortum Waste Solution A/S, which accounts for this review.

A review of occurrence of NORM and compliance to current limit values (isotope test etc,) will be undertaken. If present, Fortum Waste Solution A/S will remove any parts containing NORM and clean these and allow NORM scale to be placed temporarily until the material can be disposed of to appropriate recipient.

Potential areas with oil spill risk will be identified, and preventive and remedial Measures for collecting any oil spill will be prepared.

The items are lifted on to the quay areas by means of barge by skidding. Hence, large members will by skid on land via the skidding area. If the members are too large for the crane capacity, they are subdivided by flame cutting/shearing before being landed. Recyclable components such as pumps, compressors, cranes, etc. are gently removed and placed in the warehouse untill resale. All other parts will be included in the general recycling process.

When the members for scrapping are lifted on land, hazardous waste is handled. If NORM waste is present Fortum Waste Solutions A/S will remove this NORM waste and store it temporarily untill it can be disposed of correctly. The handling including removal of hazardous waste will be carried out by Fortum Waste Solution A/S. There will be absorbent material as well as necessary

tools present so that any fluids in the items can be collected. When members for scrapping are checked free of hazardous waste, scrapping will proceed.

High pressure jet cleaning

High pressure jet cleaning is carried out in connection with:

- a. Cleaning of equipment in the washing area
- b. Removing paint containing harmful substances from platforms, rigs or ships while quayed, on quay area or on the ship ramp
- c. Removing barnacles/fouling materials from rigs, platforms or ships while quayed, on quay area or on the ship ramp
- d. Cleaning of tanks in intact hulls while quayed.

Re a. Wastewater is led to the public sewage system with diversion to municipalities WWTP.

Re b. The waste water is led to water treatment plants with heavy metal felling.

Re c. Wastewater is led to water treatment plants with heavy metal felling.

Waste of fouling is stored in a closed container, until it is disposed of.

Re d. Waste water, which can contain oil, is collected and stored in tank before recycling (purification) in facility outside the company area.

Scrapping methods

The members will be subdivided by means of flame cutting and shearing methods on quay areas, after which parts can be hauled to the membraned hinterland cutting area. The hauling takes place with cranes, front loaders and magnets. At the cutting area, the topics will be further divided by flame cutters and shearing. Smaller segments are then sorted in relation to type, shape and size for the ideal transportation from the company to steel mill and resale.

The materials will be stored temporarily on the storage area before loaded on to ships and transportation for recycling.

Further actions

Measures will be taken to eliminate or minimize damage to the work ground, damage to equipment and risk of environmental impact. An Emergency preparedness plan will be present in relation to minimizing of impacts oil spill.

The activities may give rise to the following environmental impacts:

Environmental impact	Activity
Noise	<ul style="list-style-type: none"> • Transport to and from the site • Internal transport • Handling and mooring of ships / oil-rigs / platforms • Handling of materials, waste and raw materials • High pressure jet cleaning (removal of paint and fouling) • Crapping by flame cutting and shearing • Wastewater handling (pumps)
Air pollution	<ul style="list-style-type: none"> • Dust from reception, sorting, storage, scrapping, cutting and other handling activities • Internal transport • Odor and aerosols from operation and during filling and emptying of tanks.
Risk of impact on soil	<ul style="list-style-type: none"> • Leaking coatings and membranes • Accidents with spillage and oil spill from machinery, including filling and handling
Impacts on groundwater, recipients and surface water	<ul style="list-style-type: none"> • Discharge of pollutants or waste from storage • Surface water from coatings and drainage water from membraned areas • Wastewater from washing of trucks, containers, mobile cranes and other equipment
Waste	<ul style="list-style-type: none"> • Waste and hazardous waste • NORM waste • Oil waste, hydraulic oil for treatment / recycling • Wastewater containing organic substances (oil) or inorganic substances (metals, heavy metals and dangerous substances, tributyltin, etc.) • Fouling from members

Table 6: Activities and their potential environmental impacts.

The environmental impacts are elucidated in the following.

Noise

Applicant has submitted a calculation of the company's expected noise contribution according to the Danish Environmental Protection Agency's approval system for external noise:

"Environmental measurement - external noise". The calculation is based on noise data for machines that correspond to those expected to be used during activities on site. Since it has not been possible to procure detailed noise data (frequency analyzes) on all machines, the calculations are based on a frequency spectrum of a general wheel loader where the source strength has been adjusted to correspond to the source-strength of the specified machine.

The following noise sources will be used on site during activities:

- 2 pcs. CAT 980 front loader
- 2 pcs. Kolebo 850 W / 1500 Genesis shearer
- 3 pieces. CAT 352 W / 72 magnet
- 1 piece. CAT 385 W / 96 magnet for loading barge
- 1 piece. Manitotow 4000 crane (capacity 150 tons)
- 1 piece. Manitotow 31000 crane (capacity 2300 tonnes)
- 1 piece. Derrick cranes (capacity 900 tons)
- 4 pcs. trucks for internal transport

- Miscellaneous (to take into account additional noise sources, such as cutting torque)
- 1 piece. vehicle / truck
- 3 pieces. wheel loader (diesel, gas and electric drive)
- 1 piece. Dozer
- Loading ship with steel
- Ship located by the dock

The operating hours of noise sources are day, evening and night periods, respectively. Furthermore, it has been determined on which areas the operation of the individual sources will take place.

11 calculation points have been established, of which 5 are in the nearest residential area, 4 in nearest center area and 2 in the nearest business areas. The noise calculation shows, that the activities will comply with the indicative noise limits for company noise given by the Danish Environmental Protection Agency during operation.

Air pollution

The site areas are fortified with a top layer of broken rubble (granite). To reduce dust impact from transportation and other activities on the areas, they are watered or humidified during periods with risk of dust. A water tank on the hinterland area will likely be established for collection of surface/rain water for dust control purposes. The water in the buffer tank at the water treatment plant with heavy metal felling may also be used for dust control purposes.

The company's outdoor activities, such as flame cutting, high-pressure jet cleaning and, to a lesser extent shearing etc. may cause airborne fume gas and dust emissions containing harmful substances, metals, etc. as well as odor.

Applicant does not expect these fugitive/diffuse sources may give rise to significant impacts outside the site area. This is justified by the level of activities as well as the company's large area.

Flame cutting

Cutting of metal constructions is done by means of shearing and by flame cutting (Propane/oxygen). Shearing is used when feasible but cannot be used on large structures, hence flame cutting must be used. Flame cutting is typically applied in connection with the following operations:

- subdividing the ships above deck,
- accommodation parts, etc. at the dock before collection,
- during pulling of vessels on the ship ramp, where the hull is divided into 20-25 meters long sections moved to hinterland areas for further subdivision by cutting and shearing, as well as
- during scrapping of platform and rigs on the skidding area before these parts can be moved to the hinterland area for further shearing and cutting to a size that can be marketed.

The flame cutting takes place outdoors on ship/platform, on the quayside, ship ramp, skidding area and hinterland area (areas I-V, cf. Annex A). All these areas are provided with a seal coating in the form of concrete or membrane. The flame cutting activities will be largest in the hinterland

areas and to a lesser extent at and on the quay areas. Flame cutting on vessels and platforms located at the quay will only be performed in closed hull.

The site area is very large (approx 30 ha), where it is expected that on average there will be 25 simultaneous handheld flame cutting units spread over a large area where flame cutting can be used. During maximum operating condition, there may be up to 100 flame cutting units in use simultaneously.

The flame cutting operations give rise to a certain fume gas emission, which is spread out over the larger area. No gas extraction from this activity has been established for the actual activities as this is not practically possible. The fume gas may contain different substances, but a dispersion calculation shows that it is the smoke itself, which is dimension-giving to air emissions from flame.

To form the basis for an assessment of the significance of fume gas emission, the applicant has in response to the municipality, performed an indicative OML calculation for discharge of fume gas from the flame cutting activities. The calculations show that flame cutting in a normal and maximum operating conditions of 25 and 100 persons under the given conditions, respectively does not have a significant impact on the nearest residential areas as well as industry of sensitive nature, such as the fish processing industry etc. In industrial areas with no sensitive industry activities there will be exceedances of the limit value.

Waste

Waste will be handled in accordance with the IMO Resolution on Ship recycling, the Hong Kong Resolution and the municipal waste management regulations.

Hazardous waste will be stored indoors in special containers in warehouses A and B. These buildings have (seal coating) impermeable floors that can ensure the retention of waste from the largest container placed in the building.

The following tanks for waste collection and handling will be established:

- sludge from the water treatment plant (10 m³),
- liquid oil waste (90 m³) and
- liquid chemical waste (100 m³).
- tank for water from high pressure cleaning of tanks in vessel hulls.

All tanks are placed outdoors on concrete flooring.

The waste fractions and amounts received by the Company as well as maximum storage of waste, including hazardous waste is given in Appendix D. There will be a maximum of approx. 540 tonnes of hazardous waste on the company. In addition to the recyclable part of the waste, there will be stored approx. 150 tonnes of non-hazardous waste (wood, glass, plastic, etc.) on site.

NORM-waste

In the subsoil there may be natural content of radioactivity, depending on the actual location. When drilling in the subsoil, drilling equipment, including pipe systems, valves etc. could deposit low-radioactive material in the form of deposits from the drilling mud (scale). Therefore, when decommissioning platforms and oil-rigs, fractions of low level radioactive materials may require

handling. This waste is called NORM (Naturally Occurring Radioactive Materials). The potential content of NORM in scale from platforms and oil-rigs depends greatly on where the platform/rig has operated. Generally, there is no or very little NORM in drilling mud and scale from platforms and rigs that originate from Danish sectors.

The National Board of Health (**SIS**) is the authority for handling radioactive material in Denmark. National Board of Health's Order on the Use of Radioactive Substances sets out the rules for companies handling radioactive substances, including when notification and permission is required from the National Board of Health. By February 2018 new rules have entered into force. The interpretation of these rules and the following implementation is currently underway.

As a basis for the company to conclude agreements on acquisition of platforms and oils-rigs, a thorough review of the object will be undertaken in order to determine the content of hazardous substances, including NORM etc. The potential radiation level of the relevant matters of the object is determined. It is possible to measure radiation offshore, but it is not possible to determine specific isotopes. The survey therefore will indicate an expected level, which is determined onshore upon investigation of the object before scrapping in Frederikshavn.

Fortum Waste Solution A/S will perform the handling of hazardous and NORM for the company. Through the cooperation with Fortum Waste Solution A/S it is ensured, that the company's operations and procedures with respect to NORM are always consistent with and in compliance to the Danish National Board of Health's applicable rules.

Upon arrival to Frederikshavn a further thorough review of the platform or oil-rig, will be conducted. This will be done to ensure a proper and rule correct decommissioning process. Fortum governs the management of all hazardous waste for MARS. This will also include NORM. If a platform or oil-rig contains NORM, the specific constructs are cleaned by high pressure jet in a closed system. Water used for this purge is subsequently filtered so that scale containing NORM is separated and the water is recycled to the system. The system is a mobile facility which is placed on the berth area and removed after use. There will be quite small amounts of NORM as a result of each cleaning process.

Scale containing NORM below the exemption limits (as described in the order mentioned above), is labeled and collected in barrels in the MARS warehouse stating radiation level, amount, date and origin. The barrels are stored in the company warehouse for a maximum of one year before shipping to Fortum Waste Solution A/S treatment plant in Nyborg, which is authorized to receive this type of waste. The waste is handled in accordance with applicable rules and Fortum Waste Solution A/S's procedures. Fortum Waste Solution A/S has permission to burn NORM with radiation levels below exemption limits. Residual waste fraction (slag and fly ash) from the incineration process is deposited on Langøya in Norway.

Applicant does not expect that the company will receive NORM exceeding the exemption limits. If it happens, it will involve small quantities.

NORM waste originating from Danish sectors that exceeds the exemption levels, by the same methods as described above will be stored in the facility. There are no methods for disposal of

this fraction. The waste will be transferred for temporary storage at an approved facility in accordance with current regulations. It is the private operators (Mærsk, Orsted, Total) that are authorized for the series of smaller sites for temporary storage of NORM, which are located in Denmark. The National Board of Health (SIS) is the authority for approval and supervision of these facilities.

NORM waste, which originates from non-Danish sectors and which exceeds the exemption levels, will not be accepted for storage or deposition in Denmark. Directive 2011/70 / Euratom⁵ states, that radioactive waste in principle must be deposited in the state where it is produced (country of origin), unless there is are formal agreements between the countries concerned stating otherwise. Therefore, it is currently not possible to export the waste to landfill in countries outside Denmark. This handling of this waste will be included in the purchase contracts MARS enters with the platform owners so that this fraction is either removed before arriving at Frederikshavn which, as described above, may be difficult, or subject to a return agreement to the country of origin of the platform owner after removal and temporary storage on site in Frederikshavn.

Waste water

There will be a washing area on area VII, where trucks containers, mobile cranes and other equipment are washed with water using high pressure jet cleaners. This wastewater is cleaned in sand trap and oil separator before being discharged to public purification WWTP.

Sanitary wastewater from welfare buildings is also led to public WWTP.

Discharge to the sea

Table 7 shows the types of water discharged to the sea as well as the planned treatment thereof. As the precise design is not detailed at the time of approval, changes may occur.

Area (seal/fortified area)	Area no. and size, re Annex A	Waste water content	Water treatment
Quay areas with membrane, skidding area, concrete ship-ramp (sealed surface)	I, II, III and IV 79,200 m ²	Surface water and drainage water*) Water from high-pressure cleaning	Sand trap and oil separator and water treatment with heavy metal felling Buffer tank Bypass
Hinterland areas with membrane (flame cutting, shearing and skidding area, concrete ship-ramp (sealed surface)	V 89,000 m ²	Surface water and drainage water*)	Sand trap and oil separator and pre treatment. If necessary water treatment with heavy metal felling Impoundment Bypass

⁵ Council Directive 2011/70 / EURATOM of 19 July 2011 establishing a Community framework for responsible and safe handling of spent nuclear fuel and radioactive waste. Article 4 section 4.

Storage area without membrane (only storage) (Fortified area)	VI 109,100 m ²	Surface water	Sand trap and oil separator. If necessary pretreatment inc. impoundment and bypass
Waste and storage building (sealed surface)	VII 17,500 m ²	Surface water and roof water	None
Concrete area and tank pit (sealed surface)	Part of VII	Surface water	Sand trap and oil separator

Table 7: Scheduled cleaning of the different types of water discharges to the sea.

*) Collected water from drain located immediately above the membrane

Amounts

Surface water from the quay areas is approx. 35,000 m³/year and from other areas approx. 165,000 m³/year. That is, a total of 200,000 m³ / year. Evaporation will, however, reduce this amount so that the discharge to the harbor basin will be about 100,000-150,000 m³/year. The maximum amount discharged to the recipient per. 24 hours from the entire business area (290,000 m²) will be 7,900 m³.

Water treatment plant with heavy metal felling

A water treatment plant with heavy metal felling technology is established for the purification of water from the quay areas. The plant is designed to retain organic substances / tributyltin, heavy metals, metals, oils and particles through the processes used (felling end seepage).

The drainage system in the quay areas is subdivided to ensure the possibility of cut off certain sections in case of a possible spill of hazardous substances, as to ensure, that these are not led to the water treatment plant but collected and handled separately.

In addition, pipes from the drainage of the hinterland areas are established to the water treatment plant so that surface water from these areas may be cleaned in the plant if cleaning in the pre-treatment plant is insufficient. If the water treatment plant capacity is not sufficient in this situation, there may be further cleaning modules installed.

Surface water is led via well, sand trap, oil separator, buffer tank and on to water treatment plant with subsequent measuring well. The buffer tank will be sized so that first-flush from the quay areas can be collected and ensure optimal operation of the water treatment plant. The tank is dimensioned so that it can accommodate water run-off from the quay areas. An estimate calculation of required tank capacity yields approx. 1,100 m³ for collection of minimum 10 minutes dimensional rainfall.

In addition to buffering, the buffer tank will also serve as a water tank for dust control. As sedimentation will occur in the buffer tank, it will be emptied at intervals.

To accommodate large rainfall exceeding dimensioning criteria there will be a bypass option that can operate following buffering of first-flush on quay areas. This ensures that first-flush, which could potentially contain particles or higher concentrations of environmentally hazardous substances, do not discharge without purification.

Drain water collected immediately above the membranes from quay areas is directed via collecting well to buffer tank and from there to the water treatment plant.

Surface water from concrete areas and tank pit is led via oil separator to the water treatment plant.

Concentration measurement on the water treatment plant's inlet water will be a prerequisite for the operation, as the chemicals responsible for the felling process will be dosed in relation to inlet concentration.

Pretreatment

A pre-treatment system will be established for the purification of rainwater from the membraned part of the hinterland area. The system will be designed for removing metals, heavy metals, particles and to some degree also nutrients. The system will be a simple filter system that contains a composition of filter media and substrate that ensures a very high degree of adsorption and absorption of substances before discharge to the sea.

The hinterland areas are established with gradient against collection drainage system. During larger rainfalls the drainage system and areas construction will allow for a significant short term impoundment in terrain. This is possible as activities on the areas may be halted during heavy rain periods.

To accommodate large rainfalls exceeding dimensioning criteria there will be a bypass option that can operate following buffering of first-flush on these areas.

The drainage from the hinterland areas is subdivided to ensure the possibility of cutting off certain sections in case of possible spills of hazardous substances so that they are not led directly to pre-treatment system but collected on site.

Discharge of water from the pre-treatment system will happen via a measuring well. If measurements show that the pre-cleaning does not ensure compliance with the set limits, the surface water from the hinterland areas may be led to the water treatment plant with heavy metal felling.

Discharge of water from the storage areas takes place via sand trap, coalescence oil separator and measuring well. If measurements show that the discharge of water from the storage areas is not in compliance with the set limit values, the water may be cleaned in the pre-treatment system.

2.2 Environmental assessment and justification for the stipulated conditions

The municipality's reasons for granting the approval in relation to Chapter 10 of the Order of Authorization on "Decision on approval" is described in the following section.

Part of the terms stipulated in this environmental approval has been prepared in accordance with The Danish Environmental Protection Agency's guidelines on air pollution, noise, etc. The terms are based on the Order of Approval⁶ and the Order of Standard Terms for list companies⁷.

There are no standard terms for the company's main activity K210 (Ship recycling). The Municipality of Frederikshavn has found inspiration for the wording of specific terms in standard terms for the K203 list points (temporary storage facility hazardous waste prior to recovery or disposal, etc.) and K212 (facility for temporary storage of non-hazardous waste).

Utilization of the approval

General terms have been set for the use of the approval in accordance with terms that the Municipality of Frederikshavn normally stipulate in environmental approvals (terms 1 and 3). The requirement for utilization within a 2 year period is related to execution of operations. There is no time requirement for full use of the approval.

When the company receives oil-rigs, there may be a NORM in scale in the deposits cleaned from pipes, pumps etc.. Fortum Waste Solution A/S will be responsible for this cleaning and further handling and disposal of the NORM waste. However, the company (M.A.R.S) is responsible for all operations on the site. Upon reception and handling the company must comply to rules set by the National Board of Health. The Municipality of Frederikshavn wish documentation for this. Conditions in term 2 are thus set to ensure that this is in place before the company receives NORM waste.

In the description of the company's operation, it is not described in full detail how handling of NORM will takes place. As previously mentioned, new regulation has into force in February 2018. The interpretation of these rules and thus the implementation is ongoing at the moment of approval. As the company first receives platforms and oil-rigs in mid/late 2019, there is enough time to determine procedures for handling.

General terms

Based on the standard terms for list points K212 and K203, term 4 sets requirement for the company to make the necessary arrangements to reduce environmental impact leave the site in a satisfactory upon termination of operations. A report stating these measures must be submitted. The Municipality of Frederikshavn has supplemented this terms with a specification that the report must contain a pollutant survey of the area.

⁶ Executive Order No. 1458 of 12 December 2017 on the approval of listed companies (approval list)

⁷ Executive Order No. 1474 of December 12, 2017 on Standard Terms for listed companies

Based on this study, the municipality will assess, whether preventive measures should be taken in the form of removal of material.

Term 5 is a standard condition that defines the terms "fortified area" and "sealed coating".

Layout and operation

Terms 6 states that the company must be organized and operated in accordance with the information in the application. Terms 10-12 regarding operating information, accidents etc. are terms that typically set in an environmental approvals.

In addition, The Municipality of Frederikshavn has stipulated requirements for the membrane in condition 7.

As the applicant is in the process of detailed planning of the construction of the areas, the system for collecting surface water and drainage water, as well as the cleaning thereof, the Municipality of Frederikshavn in term 8 has require that before establishment a detailed project plan must be sent to the municipality for prior acceptance.

In condition 9 The Municipality of Frederikshavn has stated that when vessels are at berth, there must be a boom laid around the vessel upon commence of scrapping and emptying. The reason for this is that hazardous waste is removed from the vessel when it is at the dock, cf. Annex B. Here it is stated that a floating boom will be laid out around all vessels upon arrival. The municipality has considered that this also should be the case when working on platforms or oil-rigs when there is a risk of oil spillage. According to Annex B there are no operations in relation to hazardous waste when platforms or oil rigs are located at the quayside, so there is only a requirement for floating boom there a risk of oil spillage occurs.

Air pollution

Terms 13 and 14 are standard terms, while Terms 15-16 specifically concern flame cutting.

Since flame cutting does not take place at a fixed location on site, but varies over a large outdoor area, emission from flame cutting are considered to be diffuse/fugitive emission. The Danish Environmental Protection Agency's air guidance (No. 2/2001) describes how companies' air emissions, distributed through specific outlets/chimneys, should be regulated. Diffuse/fugitive emissions are not covered by air guidance, but instead regulated by requirements for the company's operation and interior design.

The Municipality of Frederikshavn has contacted the Danish Environmental Protection Agency's reference Laboratory for measurement of emissions to the air (FORCE Technology) for advice on assessment and regulation of this activity.

It is the Reference Laboratory's view that it will not be practically possible to perform outdoor flame cutting operations of ship recycling under confinement (i.e. with a removable exhaust system with filter). The reference laboratory has proposed that the emission from flame cutting be assessed based on an indicative OML calculation based on the Reference Laboratory's report

no. 46⁸, and has made the municipality aware that there is no knowledge on particle size distribution for emissions from flame cutting. The reference laboratory however states, that a significant part of the particles are probably so large that they fall to earth well within the site area and that these particles should not be included in a calculation based on fume gas air spread (OML). It is thus only the mobile smoke volume that should to be included in calculations.

Applicant has completed a number of indicative OML calculations with different prerequisites. The calculations show that the B value of fume gas from flame cutting alloy steel is met in all residential areas. The B value is exceeded outside the company's area in the nearby business areas as well as in water bodies close to the company. In the part of the business area where the B value is exceeded lies shipbuilding, oil docks, yard, recycling and new ones business areas with the possibility of heavier industry.

It should be noted that B values are determined on the basis of an assumption of a constant impact (24 hours year-round), which is not applicable in business areas. It is therefore acceptable to exceed these levels in business areas, while B-values should not be exceeded in residential areas.

In any case, the operation of the company must not give rise to any material genes outside the area of the company, which is guaranteed by Terms 13. Term 15 has been set in view of the fact that shearing over flame cutting is considered BAT⁹.

As there is limited knowledge about the emission from flame cutting, it is the Municipality of Frederikshavns view that in case new information about e.g the mobility of fume gas, effect of intermittent operations, concentration or particle distribution of fume gas, there must be an opportunity to review the air emission conditions. This is the basis for the wording of term 16.

Since the bulk of the particles from flame cutting are so large that they fall down to the ground on the site area, the Municipality of Frederikshavn has assessed that the emission from flame cutting will not cause significant impact on nearby waters or aqueous nature areas.

The Municipality of Frederikshavn has assessment that the conditions stipulated provide a sufficient amount of certainty that the company's air emissions do not cause unacceptable impact in the surroundings.

Noise

Noise limits have been set for the relevant area types in the area corresponding to indicative noise limits in the Danish Environmental Protection Agency's Guideline No. 5/1984 on external noise from companies. The company is located in an industrial area. The nearest houses are located on Nordre Skanse approx. 850 m from the company's northeast boundaries. Noisy activities will take place longer in the company's area and thus further away from homes.

⁸ Reference Laboratory Report No. 46/2006 "Emission and relevant terms for filtering by laser cutting, plasma cutting and flame cutting".

⁹ Best Available Technology

Calculations have been made of the company's expected noise contribution according to Environmental Protection Agency's external noise approval methodology "Environmental measurement - external noise" as well according to the Danish Environmental Protection Agency's guidelines on external noise from companies (No. 5/1984, no. 6/1984 and 5/1993).

The calculation is based on noise data for equipment similar to those expected to be used on the company site area during operations.

The calculation show that the Danish Environmental Protection Agency's indicative noise limits for industry noise are complied with when the company is in full operation. This is the basis for determining terms 17 - 22.

It is estimated that transportation to and from the company (5-10 transports daily) will not cause nuisance in the environment as the company is located in an area for port related activities.

During the hearing, the company has supplied minor changes to the list of noise sources. Re. Tem 18 the authority can request documentation of compliance with the noise limit values if this is required.

Low frequency noise, infrasound and vibration

The set conditions for low frequency noise, infrasound and vibration are derived from Guideline from the Danish Environmental Protection Agency No. 9, 1997. The operation of the company is not considered to be given rise to this kind of impacts but the possibility for this can-not be excluded. That is why Terms 23 - 26 are included.

Waste

Term 27 on the maximum storage of the specific waste types is formulated based on standard terms. These maximum amounts are also the basis for the security provided in the application. Changes to the list may however, take place after Frederikshavn Municipality's written acceptance. This means that a change in the list does not necessitate a formal addendum to the approval. However, changes may mean alterations to the guarantee deposit amount.

Term 28 requires that the amounts of hazardous waste may only be allowed to be located at the company for a maximum of one year. The purpose is to ensure a certain flow so that the storage is not accumulated on site. According to § 68, pt. 3 in the waste order¹⁰, waste from companies (hazardous as well as non-hazardous fractions) suitable for reuse may be stored on site for a duration of maximum one year. According to section 24 of the Executive Order on the Use of radioactive substances, NORM must be stored at the company for a maximum duration of 1 year, which is included in the term also for reference. As there are requirements in the current legislation for a maximum duration of storage on site for one year for the named waste fractioned, it makes sense to set equivalent requirements for hazardous waste that is not suitable for recovery.

¹⁰ Order on waste no.1309 of 18. December 2012

Other requirements for hazardous waste regarding reception, packaging, labeling, etc. is listed in Terms 29-31. These terms are also formulated based on standard terms.

Term 32 is formulated based on standard term.

Furthermore there has been formulated terms related to hazardous waste tank systems. These terms (33-36) are based on standard terms also.

Protection of soil, groundwater and recipient

The area where the company is located does not cover areas with special drinking water interests or in recovery land for waterworks. There is thus no possibility of influencing groundwater interests in the area.

As the company is on the port area, it is essential to ensure that the recipient is not affected by the company's activities. The Municipality of Frederikshavn has focused on the importance of the standard terms of List K212 concerning respectively "fortified area" and "seal coating" must be observed or that it must be able to achieve an equivalent level of safety in the choice of coatings on the areas.

By "fortified area" a solid coating that allows for the collection of waste and controlled discharge of rainfall is understood. "Sealed coating" is a solid coating that, in the duration of exposure is imporous to the pollutants that are handled on the area. This is defined in term 5, which is a standard term.

The standard terms require that there be a seal coating wherever shearing or cutting of steel and metal scrap is performed. This is also true for areas where hazardous waste is handled and stored and where steel and metal scrap is stored containing oils.

Conversely, only fortified area is required on the following areas:

- where steel and metal scrap is stored from which metal dust can emit
- where only inert waste is stored,
- wash area
- where hazardous waste is transported.

Applicant is challenged by the fact that the machines to be used on the areas are very heavy and require that the surface can absorb these loads while retaining density. Therefore, a concrete surface construction will not be a possible solution as this will crack and only briefly constitute a close coating. Applicant has large experience with similar operations in US. In addition, it will be very difficult to maintain the density of the joints between traditional concrete slabs over time.

Applicant has therefore chosen a solution, where all areas are built with a layer of broken gravel at the top and including a membrane below. This material is compressed hard and further using heavy equipment during the operating period. It is the applicants perception, based on experience, that over time this will be comparable to a seal coating. The Municipality of Frederikshavn However estimates that this may only be considered a "fortified area". It will not be

a close coating, as it is not 100% tight during the entire exposure period. The total thickness of this layer will be approx. 1 meter.

In the quay areas where hazardous waste is handled and on the hinterland areas where cutting and shearing of steel and metal scrap, a membrane and drainage system under the layer of compressed gravel must be established. The membrane will be established to be close towards the adjacent areas (edge to terrain) and ensures that water can-not flow out of the area. The Municipality of Frederikshavn considers that this solution is in general is equivalent to a seal coating, since all rainwater affected by the activities on the areas may be collected and led to purification. The part of the surface water that will precipitate through the top layer is collected in the drainage system above the membrane. Hence, no possibility of leakage of contaminated surface water to the recipient exist.

Drain traps/drainage ditches are established for the collection of rainwater on the entire site area..

The activities on the area as well as the seepage of contaminated surface water through these drains as well as seepage through the top layer of compressed gravel in the opinion of the Municipality of Frederikshavn will cause the coating material to be contaminated to a certain extent. Attention to this is ensured through the formulation of term 4, in which the company must, at the time of termination, prepare an investigation of site pollution status. The Municipality of Frederikshavn then takes position on the necessary preventive measures.

Based on standard terms, The Municipality of Frederikshavn has made demands on site area coatings in terms 5 and 41-47.

Terms 37 and 38 concerning the handling and storage of hazardous waste are formulated with reference to standard terms. In addition, inspiration has been found in § 31, article 5 of the Machinery Works Order. The terms also ensures compliance of the requirement in Article 13, section gi of the Ship recycling Regulation¹¹ on impermeable floors with an efficient drainage system where hazardous waste is handled.

The Municipality of Frederikshavn has also found it relevant to require that the transport of hazardous waste must take place on fortified areas and that drainage from here to be fitted with shut-off valve. These shut-off valves must be closed when handling hazardous waste on the areas or in case of fire. This is formulated in terms 39-40 and terms 48, corresponding to standard terms.

Water rises and flooding

In section 7.5.2 "Future storm flood and flood risk" of the EIA report and environmental report of the extension of Frederikshavn Harbor of May 2014, an assessment here off has been made. It was concluded that the design of the port area to a top level of +2.5 m, the risk of flooding will be very small. This assessment has taken into consideration sea water levels during storm surges, climatic induced increasing sea levels and land upheaval.

¹¹ Regulation (EU) No. 1257/2013 of November 20, 2013 on scrapping by vessels and amending Regulation (EC) No 1013/2006 and Directive 2009/16 / EC

Hence, the Municipality of Frederikshavn does not find it necessary to set terms to minimize the risk of contamination of the recipient in connection with water rises and storm surges etc.

Self-monitoring

All terms for self-monitoring (terms 49 - 54) are standard terms that will ensure that the company regularly monitors various fixed installations as well as amounts of waste and waste types at the company.

Terms 55 on journal is a default terms to ensure that documentation is available that the self-monitoring has been completed. In addition, the condition includes registration of accidents as well possible reception and handling of waste types not covered by environmental approval.

Discharge to the sea

Applicant has applied for discharge all surface water from the site to the sea. The amount of surface water that is potentially the most polluted originates from the quay areas. Here removal of oil, chemicals, asbestos, NORM waste, etc. takes place. The hazardous waste is handled so that it can be transported from the quay areas to temporary storage in Building A or B, see Annex A.

Surface water from the quay areas is cleaned in sand trap, coalescence type oil separator as well as in a water treatment facility with heavy metal felling and subsequent filtration. The Municipality of Frederikshavn has experience with similar facilities and an equivalent activity at the company Stena Recycling A/S at Nordre Kaj 47 at Frederikshavn Harbor, where the surface water of this company is cleaned before discharge to the port basin. Experience with this plant has shown that the purification ensures compliance with them limit values laid down in this approval.

From the hinterland area, the applicant does not expect the surface water to be contaminated to the same extent, as oils, chemicals and hazardous waste are not handled in this area. Therefore, the environmental impact from the hinterland areas will be significantly lower than that of the quay areas. The applicant has therefore chosen a solution where the surface water is cleaned in sand traps, coalescence oil separator as well as in a pre-treatment system. There is a possibility of water sampling so that it can be determined whether this purification ensures compliance with the limit values. If this is not the case, diversion piping has been laid so that the water can be diverted to water treatment plants with heavy metal felling for further purification upon discharge.

Applicants do not expect surface water from the storage areas to be contaminated to an extent, that requires purification before discharge. Hence, this water is discharged to the sea via sand trap, coalescence oil separator and measuring well. This allows for sampling to check that limit values are complied to. The drainage system is designed so that the water can be diverted to the pre-treatment purification system if it turns out to be necessary.

Applicant has not yet submitted the detailed design of the surface water handling system. This is the background for the formulation of Terms 8 about the detailed project material to be accepted by the Municipality of Frederikshavn.

The overall drainage from the areas is shown in the sewer plan in Annex E.

Discharge seen in relation to wastewater planning, etc.

The discharge of surface water from the company's areas to the harbor basin will happen via the port of Frederikshavn (POF) rainwater outlets. The Municipality of Frederikshavn has announced a discharge permit for Frederikshavn Port via 9 rainfall outflows from Port expansion Stage 1 of July 20. 2017. The prerequisite of this permission is that discharge of pure rainwater with a content of $BOD_5 = 5 \text{ g/m}^3$, $\text{Total-N} = 2 \text{ g/m}^3$ and $\text{Total-P} = 0.5 \text{ g/m}^3$. By establishing activities on the harbor areas, that give rise to discharge of surface water that is more polluted than usual rainwater, a specific permit is required. This is the reason why a separate license is granted for the discharge of surface water from ship recycling and scrapping as well as scrap storage.

The Municipality of Frederikshavn has decided that the necessary permission is a discharge permit (pursuant to § 28 of the Environmental Protection Act) and not a permit for connection to an existing sewage system (pursuant to § 27 of the Environmental Protection Act), despite the discharge via existing piping system as described in the permit given to POF in 2017. The company's connection to the port's system happens close to the discharge point, so the outlet can be compared to a direct discharge. Flowingly it is not regarded necessary to adjust the discharge permit given to POF.

Discharge permits are normally given separately with reference to § 28 of the Environmental Protection Act, but in situations where environmental approval is also granted under the Environmental Protection Act § 33, the discharge permit shall be granted in accordance with this paragraph.

Surface water from the company is derived from outlet points 8 and 10, cf. port discharge permit. Surface water from storage areas is expected to be discharged through the outlet point 8 and the remaining surface water will be discharged via outlet point 10. The details of the discharge points and discharge load is shown in Table 8.

Discharge	X-coordinate (UTM)	Y-coordinate (UTM)	Area (m2)	Max. flow (l/s)	Amount (m2/y)
8	593.627	6.367.135	126,600	1,462	46,715
10	593.314	6.367.455	168,200	2,590	82,754

Table 8: Discharge Details.

The drainage project belonging to the port extension, Stage 1, has been incorporated into an addendum no. 8 to the wastewater plan 2012-2016 for The Municipality of Frederikshavn.

The emission seen in relation to water area plans

The direct discharge takes place at sea in connection with Frederikshavn Harbor. The recipient is included in the Water Framework Plan 2015-2021 for Water District District 1, Jutland and Funen, June 2016 more specifically mainland 1.1 Northern Kattegat, Skagerrak, area number 225.

The environmental objectives for coastal waters in relation to pollutants concern the priority substances and certain other pollutants with environmental quality requirements (chemical state)

given by EU legislation and pollutants with quality requirements (ecological condition) given by national environmental regulations. The marine waters in main waterways Northern Kattegat and Skagerrak were set with the environmental "good ecological condition" and "Good chemical condition".

The current ecological state in the mainland Northern Kattegat, Skagerrak is poor ecological condition (overall). The condition covers the condition of several quality elements under any involvement of physicochemical support parameters. The quality element that has the lowest condition is decisive to the overall condition. For the individual quality elements, there are the following conditions:

- Eelgrass, *Zostera marina*- poor state of the art
- Chlorophyll - Good ocular condition
- DKI, index for bottom fauna - moderate inorganic state
- Condition based on environmentally hazardous pollutants (MFS) with established National Environmental Quality Requirements - Unknown Ocular Condition

The current chemical state is *unknown*. The chemical state is assessed for substances taken on the EU's list of priority substances.

In order to bring the coastal waters in good condition, efforts in the watercourse plan are focused on the reduction on the nitrogen supply to coastal waters. The predominant source of the diffuse nitrogen transport is the loss of nitrogen from the cultivated areas.

In the watercourse plan, the following measures have been set for environmentally hazardous pollutants substances:

- Deputy environmental authorities shall conduct a search within their area sources of pollutants that hinder the achievement of environmental targets.
- If necessary, the Authority shall, if authorized in sector laws, revise announced approvals and permits so environmental quality requirements can be met
- Projects were initiated with intent to obtain further knowledge of environmentally hazardous pollutants in the aquatic environment.
- Substances, added to the EU's list of priority substances in 2013, are covered by a Provisional action program from the end of 2018 - the end of 2021

Due to the lack of measurements of background concentration in the recipient, the Municipality of Frederikshavn is not aware of whether there are environmental quantities for environmentally polluting substances that are not met. Thus, no efforts have been made in relation to the detection of sources.

In relation to ports and sailing-related activities, the watercourse plan does not presuppose changes to the current administration of the authorities.

There are no designated mixing or activity zones in the coastal waters around Frederikshavn, *i.e.* mixing zones in connection with sewage pipelines as or activity zones in connection with *e.g.* port and sailing activities.

Environmentally hazardous substances seen in relation to environmental quality requirements and discharge requirements

Environmental quality requirements for surface water are laid down in the Executive Order on Determination of environmental objectives etc.¹² (hereinafter referred to as Order no. 1625). Requirement for application for discharge of environmentally harmful substances as well as determination of terms are laid down in the Executive Order on Requirements discharge of pollutants into watercourses, lakes or the sea¹³ (hereinafter referred to as Order no. 1433).

According to Order no. 1433, § 6 article 3 a discharge permit shall include terms on:

1. The maximum permissible concentration of any pollutant in the discharge measured at any given time to ensure that a maximum concentration is complied with, if this has been set,
2. the average permissible concentration of any pollutant in the discharge, where discharge happens to the water environment, to ensure that general quality requirements are met, and
3. The maximum authorized amount of the substance in the discharge or a permitted discharge water amount

It is the opinion of The Municipality of Frederikshavn that it does not make sense to demand the largest permissible quantity of the substance in the discharge as well as to discharged water hazards, as discharge amounts depend directly on the amount of rainwater fall in the area, as no water is added from the activities. Therefore, restrictions have not been set in term 69.

The general quality requirements and maximum concentration appear from Table 3 (arsenic, chromium, copper and zinc) and Table 5 (lead, cadmium, nickel, mercury, tributyltin and benz(a)pyrene) in Governmental Order no. 1625.

According to § 10 of Order 1433, the Environmental Protection Agency shall, in the determination of terms in permits for pollutants in Table 5 make reservations that the terms will be revised, if necessary for compliance with Denmark's EU legal obligations, including obligations under the Water Framework Directive (2000/60 / EC) and the Directive on environmental quality requirements (2008/105 / EC). This is the basis of term 57.

In coastal waters, dilution is dependent on the specific conditions surrounding the discharge site. Typically, dilution may be expected 10-50 times in coastal waters. Ports are partially enclosed watercourses with limited water change. The water change in the harbor is controlled of overall water variations in the Kattegat, which is composed of a weak tides and water changes caused by the wind. The Municipality of Frederikshavn has assessed that the dilution factor in Frederikshavn Harbor may be assumed to lie in the range 10-20. When discharging to the sea on the outside of the pier/breakwater, dilution factor may be set to 20-50.

¹² Executive Order No. 1625 of 19 December 2017 on the determination of the environmental value for watercourses, transitional waters, coastal waters and groundwater.

¹³ Executive Order No. 1433 of 21 November 2017 concerning requirements for discharge of pollutants to watercourses, soar waters, coastal waters and sea areas.

As the company is located in the outer part of the harbor basin. Overall, the dilution factor can be estimated at 20 upon discharge to harbor basin or the sea.

The following table shows the general quality requirements as well as the maximum concentration for the environmentally-harmful substances covered by the application. Following each parameter it is stated whether quality requirements in Table 3 or Table 5 of Order no. 1625 are stated. The discharge limit value, set by the Municipality as either maximum value or a medium value is stated in the far right column of the table. All requirements are given in µg/l.

Parameter	Discharge limit (mean)	Discharge limit (max.)
Lead*	26 µg/l	280 µg/l
Cadmium*	4.0 µg/l	9 µg/l (<50mg COCO ₃ /l) 12 µg/l 50-(<100mg COCO ₃ /l) 18 µg/l (100-<200mg COCO ₃ /l) 30 µg/l (>200mg COCO ₃ /l)**
Chromium VI*	68 µg/l	340 µg/l
Chromium III*	68 µg/l	2,480 µg/l
Copper*	20 µg/l	40 µg/l
Nickel*	172 µg/l	680 µg/l
Zinck*	156 µg/l	168 µg/l
Mercury*	-	1.4 µg/l
Arsenic*	2.2 µg/l	22 µg/l
Tributyltin, TBT*	0.004 µg/l	0.03 µg/l
Benz(a)pyren*	0.0034 µg/l	0.54 µg/l
Calcium carbonate (CaCO ₃) – (mg/l-hardness)*	-	-
Suspended solids*	50 mg/l	-
Mineral oil*	10 mg/l	20 mg/l
pH*		6.0-9.5

Table 9: General water quality requirements, maximum concentration as well as discharge requirements. All numbers are given in µg/l, where not otherwise stated.

* The quality requirement is this concentration of the substance added to the natural background concentration in the recipient.

** The quality requirement indicates the upper concentration of the substance regardless of the natural background concentration in the recipient.

*** The quality requirement depends on the hardness of the discharge water, ie. the content of CaCO₃.

The general quality requirements are formulated as a derivative requirement (means), corresponding to one average concentration of the substance to be observed in a calendar year. The maximum concentration is formulated as a discharge requirement (max) corresponding to its maximum permissible concentration of the substance measured at any time. This is specified in Term 70.

For copper, zinc and arsenic, the discharge requirement is determined based on the added value. The Municipality of Frederikshavn is not aware of the background value of these three parameters in the harbor basin, hence is not aware of whether the natural background value has been exceeded. By setting discharge requirements of 20 µg copper/l (medium), 40 µg copper/l (max), 156 µg zinc /l (agent), 168 µg zinc/l (max), 2.2 µg arsenic/l (medium) and 22 µg arsenic/l (max), it is considered unlikely that the discharge from the company activities can be crucial in relation to the upper value for these parameters.

For the polyaromatic hydrocarbons (PAHs), the general quality requirements in water apply to the concentration of benz(a)pyrene, considered as a marker for the other PAHs, hence the toxicity is based on this substance. Therefore only benz(a)pyrene needs to be monitored for comparison with the general quality requirements in water.

Suspended substance, oil and pH.

I approvals for discharge from public purification plants (WWTP) no limit value for suspended substance is stipulated in the order of wastewater permits¹⁴. Based on concrete experience from a corresponding treatment facility the Municipality of Frederikshavn requires max. 50 mg/l suspended solids in the discharge water, as a mean as there is no acute effect due to higher single values. The level is slightly higher than the practice of the Municipality of Frederikshavn where a limit value of 30 mg/l is normally set. The reason for the level being a little higher from this type of water purification is due to residues of flocculant, that is added in the cleaning process. Upon discharge to the harbor basin and/or the sea the Municipality of Frederikshavn does not consider this level to be of importance.

Coalescence separators are "Class I" oil separators in the European Standard for separators, EN 858. "Class I" is a quality term for separators who perform exspiratory concentrations below 5 mg oil/l by test. A coalescence separator is to consider BAT in relation to a discharge of surface water with an oil content from ship recycling/crapping activities. It is the assessment of the Municipality of Frederikshavn that the company must at least comply with 10 mg oil/l as a mean and 20 mg oil/l as maximum value. The extractor requirement corresponds to normal practice for oil content in discharges to recipients in Frederikshavn Municipality.

It is Frederikshavn Municipality's experience from Stena Recycling A/S that optimally precipitation of metals occur at pH 9.2 - 9.3. Typically, a pH is required between 6.0-9.0 in discharge permits. At a pH limit of 9.5, precipitation take place considerably easier.

¹⁴ Order no. 1469 of 12 December 2017 on wastewater permits, etc. after Chapter 3 and 4 of the Environmental Protection Act.

Based on a dilution of 20 to the harbor basin the Municipality of Frederikshavn considers that discharge of wastewater with a pH of 9.5 will not give rise to impacts in the aquatic environment. Thus, in term 69 pH limits is set to 6.0-9.5.

Requirements for sampling

The Municipality of Frederikshavn has established the control program from the Danish Environmental Protection Agency Guidance No. 2/2006¹⁵ and from the municipality's experience with environmental approval requirements companies with scrap storage and their discharge of contaminated surface water.

The guidelines categorize the companies based on the types of substances that are discharged as well as the discharged amount of water. Based on this the categorization in this specific case means that an annual, continuous, intensive control of 8-12 samples or more is recommended.

Based on this, the municipality has estimated that it is necessary to take out 8 samples the first three years for each of the three types of discharged surface water (water from water treatment plant with heavy metal felling, water from pre-treatment system and water from storage area with coalescence separator). There is a possibility that the number of samples may be reduced after agreement with the supervisory authority. This is reflected in the wording of terms 72.

The Municipality of Frederikshavn does not see a need for the samples to be taken as flow proportional daily samples, as concentration and flow are not expected to vary significantly throughout the day. The samples can therefore be taken either as time proportional or as flow proportional daily examinations, as described in terms 72.

Condition 75 requires that analysis results be reported to the public discharge data database PULS. This is done in the light of § 66, article 2 in the Waste Water Licensing Order:

§ 66. *Terms may be laid down granting permission, including terms for self-monitoring.*
Article 2. Companies approved under Chapter 5 of the Environmental Protection Act with permission to direct discharge to streams, lakes or the sea, must report no later than 8 weeks after sampling approved and controlled results in accordance to terms- or order stipulated control programs of wastewater discharge, including analysis data, in a format set by the supervisory authority to the common public database PULS.

Overall assessment in relation to the discharge

Purification of surface water from ship recycling and scrap storage using heavy metal felling is considered the best available technology by the Municipality of Frederikshavn based on the municipality's experience with Stena Recycling A/S, where the environmental quality requirements stated in this approval are met. Applicant has furthermore argued that the discharge of Surface water from the hinterland areas through the pre-treatment plant will ensure that water quality requirements can be met from these areas also. If it does not prove to be the case, then the water from these areas may be passed through heavy metal water treatment facility. The drainage system will be established for this purpose ensuring that this switchover can be done with no delay.

¹⁵ Danish Environmental Protection Agency Guidance No. 2/2006 on Connection of industrial waste water to public sector wastewater treatment plant (WWTP)

Purification of surface water from the storage areas is carried out using sand trap and oil separates. If the quality criteria can-not be met, this surface water may be led for cleaning in the pre-treatment system. The drainage system will be established for this purpose ensuring that this switchover can be done with no delay.

The Municipality of Frederikshavn thus considers that the solutions for handling of surface water ensures that the emissions of the priority hazardous substances that are determined environmental objectives of the harbor and sea are reduced as much as possible. It is also the overall assessment of the Municipality of Frederikshavn that the discharge of surface water from the company will not cause deterioration of the current state of the surface water body, including the individual quality elements or affect the set objectives for the Water Area Plan.

The company's airborne emissions in the form of smoke from flame cutting does not give cause significant impact on nearby water bodies, with the majority of particles so large that they fall to the ground on the company's area. Hence this is not included in the municipality's assessments regarding the aquatic environment.

The above estimates are the basis of the set terms (56-76) for the discharge to the se (recipient).

Nature

Approximately 1,000 meters northeast of the site area the habitat area SAC4, bird protection area SPA11 and Ramsar area 8 are found. The boundaries of these coincide. In addition, there is a national conservation around 1,000 meters east of facility. These conservation/landscaping protection aim at protecting the nature around Hirsholmene, including Deget, which lie approx. 1.5 km from the facility site area.

The site and activities is considered not to be able to affect protected landscapes and/or protected species or habitats, as environmentally hazardous substances will be handled according to existing rules with in orders, which ensure protection of the surrounding environment. Permitted discharge limits for hazardous substances from purified surface water are consistent with applicable environmental quality requirements.

Porpoise are considered to be the only relevant Annex IV species in the area. It has been estimated, that no red listed species are present around the site area itself. The site and activities is not considered to affect conditions for Porpoise, as the activities do not affect the amount of available feed.

Best Available Technology (BAT)

The assessment of BAT has been based on the Annex 5 of the approval order (criteria for determining BAT).

No BAT Reference Documents (BREF) has been prepared for Ship recycling (K210), but a

cross-reference BAT reference document (BREF) on "Emissions from storage"¹⁶ exists. The company has filled in BAT in the application checklist for emissions from storage (final version 2008).

According to the Danish EPA, the reasoning underlying the standard terms mean that these are regarded BAT. The Danish EPA has not prepared Standard Terms for the main activity, K210 (Ship recycling). There however exist standard conditions for K203 (hazardous waste recovery and storage) and K212 (recovery and storage of non-hazardous waste) which covers activities taking place on site as ancillary activities. Therefore, in stating the terms of this environmental approval, inspiration in relevant standard terms from K203 and K212 have been found. Many of the terms hence, have origin in standard terms and as such, are to be regarded BAT.

Applicant points out that the following conditions on the company are BAT or should be considered as BAT:

1. Suitable fixed installations for environmentally sound recycling of vessels and ships structures.
2. Environmental and occupational health and safety certification.
3. Mapping of hazardous substances for each vessel to be scrapped.
4. Use of surface water for irrigation to counteract dust.
5. Use of Fortum Waste Solution A/S (as partner) for hazardous handling waste.

The first three items cover the requirements of the Ship recycling Regulation¹⁷, as to be admitted to the European list. The purpose of the regulation is to facilitate the rapid ratification of the Hong Kong Convention. In the Hong Kong Convention it is stated that the parties must introduce stricter measures in accordance with international law as regards safe and environmentally sound scrapping of vessels with the purpose of preventing, reducing or minimizing any negative effects on human health and the environment. It has been the Municipalities Consideration that the implementation of the Hong Kong Convention is an important part of ensuring environmentally sound Ship recycling.

The use of surface water for dust control instead of groundwater is BAT, as this saves the groundwater resource.

The Municipality of Frederikshavn has an expectation that Fortum Waste Solution A/S will ensure proper and environmentally sound handling of hazardous waste, as this Company has many years of experience with this.

In general, reference is made to the introduction of environmental management system. It is the municipality perception that a well-functioning environmental management system is a good tool for ensuring an environmentally sound operation of the activities of the company.

¹⁶ BAT (best available technology) reference document for storage issued January 2005

¹⁷ Council Regulation (EU) No 1257/2013 of 20 November 2013 on vessel dismantling and modification of Regulation (EC) No 1013/2006 and Directive 2009/16 / EC

Based on the above as well as

- that It is a new company which production is to recycle vessels and platforms for the greatest possible recycling of materials,
- generally used methods for scrapping vessels and platforms are used including flame cutting and shearing. As shearing with respect to reducing airborne emissions is BAT compared to flame cutting, shearing is encouraged whenever possible. This is the background for terms 15,
- a dedicated system for NORM waste handling. In relation to this, terms 2 is set,
- use of boom to prevent oil spills in the harbor. In relation to this, terms 9 is set
- many of the terms of the environmental approval are based on standard terms

The Municipality of Frederikshavn finds that the company has been sufficiently and seriously involved BAT and that the conditions of environmental approval ensure the use of BAT as necessary.

Guarantee deposit amount/sum

The Municipality of Frederikshavn has assessed that the company is covered by Section 39a of the Environmental Protection Act, which reads:

List companies that

1. *extracts metals from cables,*
2. *Rinse or clean drums for storage of chemicals or chemical waste*
3. ***operates scrapping equipment, including car recycling,***
4. *take hard mechanical objects or the like of e.g. appliances, machines, motors, etc. for resale or*
5. ***conducts mechanical fragmentation of metal waste,***
must establish a security against the approval authority. The security shall cover the costs of the transport by the Authority and destruction or other handling of the waste by a self-help act, cf. §69 and §70.

The Municipality of Frederikshavn has received a calculation of the size of the guarantee deposit amount from the applicant. This has given rise to a guarantee deposit amount on 2.36 million. The guarantee deposit amount is subject to a maximum amount of waste fractions listed in Annex D and where the disposal is simultaneously linked with costs.

In connection with the change of list in Annex D cf. Terms 27, the amount of the guarantee deposit amount may be regulated.

In connection with the approval of the company, terms for guarantee deposit amount must be included. The guarantee deposit amount must be available to The Municipality of Frederikshavn before the company is commissioned. This is the background for the wording of terms 77.

Regulation on vessel scrapping

Cf. the Ship recycling Order¹⁸ the Municipality of Frederikshavn is the competent authority as regards the provisions of the ship recycling Regulation relating to environmental protection.

Ship recycling facilities that wish to be registered on the European list, as referred to in Article 13 of the ship recycling regulation, shall send a request to that authority, that has issued the plant's environmental approval, that is the Municipality of Frederikshavn re. M.A.R.S, Frederikshavn.

Together with the request, a ship recycling plant plan must include documentation that the facility complies with the other requirements of article 13 of the Regulation section 1. Information must also include:

- scrapping method,
- the nature and size of the vessels that can be scrapped, and
- the maximum annual amount of shipwreck expressed in tonnes of steel per year.

The ship recycling facility must also enclose a declaration to accept compliance with the requirements of Article 13, section 2 of the Regulation.

There are no terms in this environmental approval to ensure compliance with the ship recycling Regulation, as the rules formulated in the ship recycling Regulation take effect regardless the terms of the environmental approval.

During environmental supervision of the company, the rules in the regulation concerning environmental protection will also be observed.

When the company requests to enter the European list, the municipality will make concrete assessment of compliance with relevant requirements of the regulation.

2.3 Planning conditions

The site is placed on the area covered by the Local Plan FRE.H.14.08.02 Extension of Frederikshavn Harbor and Local Plan H.14.08.03 Extension of Frederikshavn - Stage 1. The quay areas (the first about 50 meters from the dock and into the area) are covered by Local plan H.14.08.03. The remaining area is covered by the Local Plan FRE.H.14.08.02. Local plan FRE.H.14.08.03 adjusts the areas in the former local plan with no changes to the possible activities within the area.

The local plans describe that the new port should be expanded to, among other things, be able to accommodate facilities for scrapping larger vessels and possibly offshore installations as well. Local plan provision 3.1 respectively. 3.3, which are similarly formulated in the two local plans,

¹⁸ Order of the Ministry of the Environment and Foodstuffs No. 526 of 21/05/2017 on the appointment of competent authorities and supplementary provisions pursuant to Regulation of the European Parliament and of the Council (EU) No 1257/2013 of 20 November 2013 on vessel dismantling and amending Regulation (EC) No. 1013/2006 and Directive 2009/16 / EC and delegation of certain powers of the Minister for the Environment and Food pursuant to the Act on the Protection of the Marine Environment to the Danish Maritime Authority as well as the expansion of the existing recycling and scraping industry.

indicate that companies in environmental class (business class) 4-7 can be established. Scrapping of offshore installations is specifically mentioned.

In the local plans provision 7.6 respectively. 7.5 states that moving contracts may be established on the undeveloped areas, including cranes, etc. with heights necessary for actual operations.

The establishment of the company and activities described in the application on the site, therefore is considered to be in accordance with planning.

The Municipality of Frederikshavn has also decided on September 13. 2017, that no environmental assessment is required. This decision has been taken pursuant to § 21 in Law no. 448 of 10. May 2017 on Environmental Assessment of Plans and Programs and of concrete projects (EIA).

During the approval process of the project, changes have been made to the company's layout and operation in relation to the material underlying the municipality's decision not to perform a full EIA.

These primarily involve the following three factors:

- Ship ramp and skidding areas have both been moved further south compared to the original project described in the EIA.
- Originally it was described that 25 cutting burners were to operate simultaneously. This has been changed to an average number of simultaneous handheld cutters is be about 25 pcs, but up to 100 pcs may be in operation during maximum operating conditions.
- Originally, it was expected that one ship would be stored at a time outside the port for a maximum duration of one week before each ship recycling process. This has been changed to ships and platforms will occasionally be stored in the port or outside the port before scrapping.

It is the opinion of the Municipality of Frederikshavn, that these changes to the project will not cause impact to the environment, hence are not covered by Annex 2, paragraph 13a of the EIA Order. The changes have therefore not given rise to a renewed EIA screening for EIA.

3. Relations to the Legislation

3.1 Legal basis

According to § 33 of the Environmental Protection Act, companies, installations or facilities, contained on the list of so-called “list companies” listed in section 35 of the Order, may not be initiated before approval has been granted. These list companies also must not be expanded or altered in terms of construction or operation in a manner that implies increased pollution before the extension or change is approved.

The provisions are contained in the Environmental Protection Act¹⁹ and in the approval order.

The Municipality of Frederikshavn has addressed the Danish Environmental Protection Agency as the municipality has been in doubt as to whether the size of the hazardous waste storage covered by the application (> 50 tonnes) could entail the company to be included in List article 5.5 of Annex 1 in the Approval Order. List article 5.5 is formulated as follows:

- 5.5.** Temporary storage of hazardous waste not included in List article 5.4, in awaiting one of the activities listed in List articles 5.1, 5.2, 5.4 and 5.6, where the total capacity is greater than 50 tonnes, except for temporary storage pending collection at the plant where the waste is produced.

The Danish EPA has stated that ship recycling is exclusively covered by list points K210. The ship recycling plant receives the vessel (the waste), treats it and produces some waste that is sent on. Operation about scrapping and ship breaking thus generates / produces the hazardous waste by which the company is except from list point 5.5.

Followingly The Municipality of Frederikshavn has assigned the company and applied activities to the following list point:

K210: Ship recycling.

The Danish EPA has also confirmed that it will be natural to acquire inspired by the standard terms set for the K212 and K203 list articles which include storage, sorting, pre-treatment and packaging in connection with waste management.

When a discharge permit is issued at the same time as an environmental approval, both approvals are to be authorized by the Environmental Protection Act § 33, cf. section 34 (1) of the article 5 herein.

3.2 Previously announced decisions

No decisions have been issued to the company before the Environmental Protection Act on this address.

¹⁹ Legislative Order No. 966 of 23 June 2017 on Environmental Protection with subsequent amendments.

3.3 Publicity and hearing of parties

A draft approval has been sent to the applicant and the Port of Frederikshavn before the approval has been issued.

Furthermore, a correction has been submitted to the parties to the section on NORM waste on 22. February 2018.

On 28 February 2018, the applicant submitted comments to the draft. Applicant has wished that term 9 covering the requirements for laying down boom around ships upon arrival at the quayside is specified so that this is only required, when there is risk of oil spill to the harbor basin. Frederikshavn Municipality has chosen to maintain the original draft term wording, except that it has been specified that the boom must only be laid down around the ship before commence of scrapping and emptying and not simply upon arrival of the ship. In procedures provided by the company it has been stated, that the company policy is to impose a boom (flood barrier) around ships when ships arrive at the plant. The Municipality of Frederikshavn has however assessed, that installing of a boom around the ship before scrapping commences is sufficiently safe and that the boom is a significant security measure even in situations where it is not immediately assessed that there is a risk of spill. The applicant's other comments have given rise to some adjustments, that have been incorporated in the final approval, but have not given rise to changes to the terms of the approval.

The Harbor administration of Frederikshavn Harbor has sent comments on the draft on 28. February 2018. These are incorporated in the final decision but have not given rise to changes to the terms of the approval.

3.4 Review

When 8 years have elapsed from the notification of an approval, the supervisory authority may review the approval.

3.5 Legal protection

By announcing new terms, the company's legal protection period is 8 years after the date of notification of this environmental approval. If environmental approval is appealed the legal protection period expires 8 years after the final decision of the complainant (Environmental Appeals Board).

As the permit for discharge of surface water is based on § 33 in the Environmental Protection Act, the conditions for discharge are subject to the same legal protection. Except for this are the conditions relating to the pollutants contained therein as listed in Table 5 of Annex 2 of Governmental Order no. 1625. This is stipulated in section 10 of Governmental Order no. 1433 and formulated in term 57.

Once the legal protection period has expired, the approval is still valid, but the supervisory authority may amend the terms of environmental approval by injunction.

Within the legal protection period, the supervisory authority, as a rule, cannot notify the company of any injunctions or prohibitions. However, the Authority must take the approval for review and, if necessary, issue injunctions or prohibitions if:

- 1) New information has been provided about the harmful effect of the pollution,
- 2) pollution causes environmental damage that could not be foreseen at the notice of approval,
- 3) Moreover, pollution goes beyond what was assumed approval notice,
- 4) Significant changes in best available technology make it possible for one significant reduction of emissions without causing it disproportionate costs,
- 5) for the sake of reliability - in connection with the process or The activity - is required to use other techniques, or
- 6) New security information has been provided companies subject to rules laid down pursuant to risk order.

The municipality may in exceptional cases revoke an approval or set special Terms in an existing approval, including terms of guarantee deposit sum.

3.6 Access to documents

There is access to the approval case documents as well as the results of the company self-monitoring data and of which the supervisory authority is in possession of. Access to documents, and the restrictions on access of these, follow the rules in the Public Procurement Act, the Public Administration Act and the Act on Public Access to Environmental Information.

3.7 Publication and complaints

The decision, issued under the Environmental Protection Act's rules, is published by announcement on the municipality's website (www.frederikshavn.dk) on the **9. March 2018**.

According to the Environmental Protection Act, the decision can be appealed to the Environment and Environmental Protection Agency Food Appeals Board by Applicant, by certain designated authorities and interest organizations (NGO's) and by anyone who has an individual, significant interest in the outcome of the case.

If you wish to appeal against this decision, you may appeal to the Environment and Food Complaints Board. You complain via the complaint portal, which you will find a link to on the front page of www.nmkn.dk. The complaint portal is located at www.borger.dk and www.virk.dk. You log in www.borger.dk or www.virk.dk, as usual, typically with NEM ID. The complaint sent through the complaint portal to the authority that has made the decision. A complaint has been submitted when it is available to the authority in the complaint portal. When you complain, you must pay a fee of 900 DKK as an individual. Companies and organizations must pay a fee of 1,800 DKK. You pay the fee with a payment card in Klageportalen.

The fee will be refunded if your complaint is partly or fully met.

In principle, the Environment and Food Appeals Board shall reject a complaint that is due outside of the complaint portal, if there are no special reasons for it. If you want to stay Exempt from using the complaint portal, you must send a reasoned request to it authority that has taken a decision on the matter. The authority then forwards the request to the Environment and Food Appeals Board, which decides whether your request can be met.

The deadline for appeal is 4 weeks from the public notice of the approval, hence expires midnight on **6. April 2018**.

Pursuant to § 96 of the Environmental Protection Act, a complaint about an approval does not gain suspensive effect, unless the Minister decides otherwise. The exploitation of the approval takes place on the applicant's own responsibility and does not imply any restrictions to the appeal authority's ability to amend or revoke an appealed decision.

Pursuant to §101 of the Environmental Protection Act, actions against the decision must be brought against. The lawsuit must be brought before the courts within 6 months of the decision of approval has been issued.

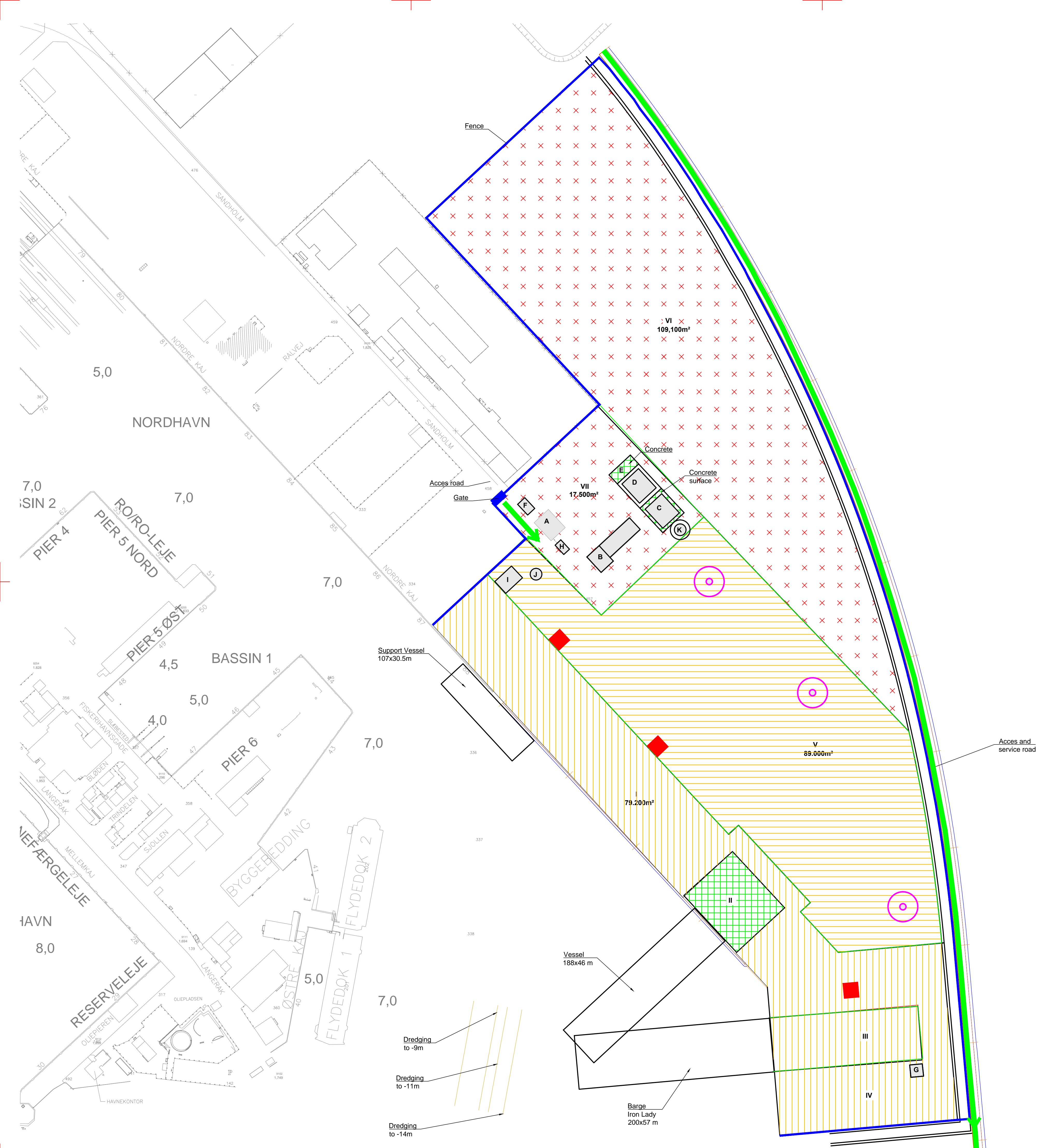
Yours sincerely

Jette Brønnum

Helle Müller

A copy of the approval has been sent to:

- Niras A/S, Torsten Ostenfeld tost@niras.dk, Lene Larsen lla@niras.dk
- Frederikshavn Havn, info@pof.dk
- Sundhedsstyrelsen, Embedslægeinstitutionen Nordjylland (senord@sst.dk)
- Danmarks Naturfredningsforening (dnfrederikshavn-sager@dn.dk)
- Danmarks Naturfredningsforening (dn@dn.dk)
- Danmarks Sportsfiskerforbund (post@sportsfiskerforbundet.dk)
- Danmarks Sportsfiskerforbund, miljøkoordinator Per Sonne (per.sonne@mail.tele.dk)
- Greenpeace (info.dk@greenpeace.org)
- Danmarks Fiskeriforening (mail@dkfisk.dk)
- Lystfiskerforeningen for Frederikshavn og Omegn, (formandlfo@gmail.com)
- Friluftsrådet, hovedkontoret; fr@friluftsradet.dk



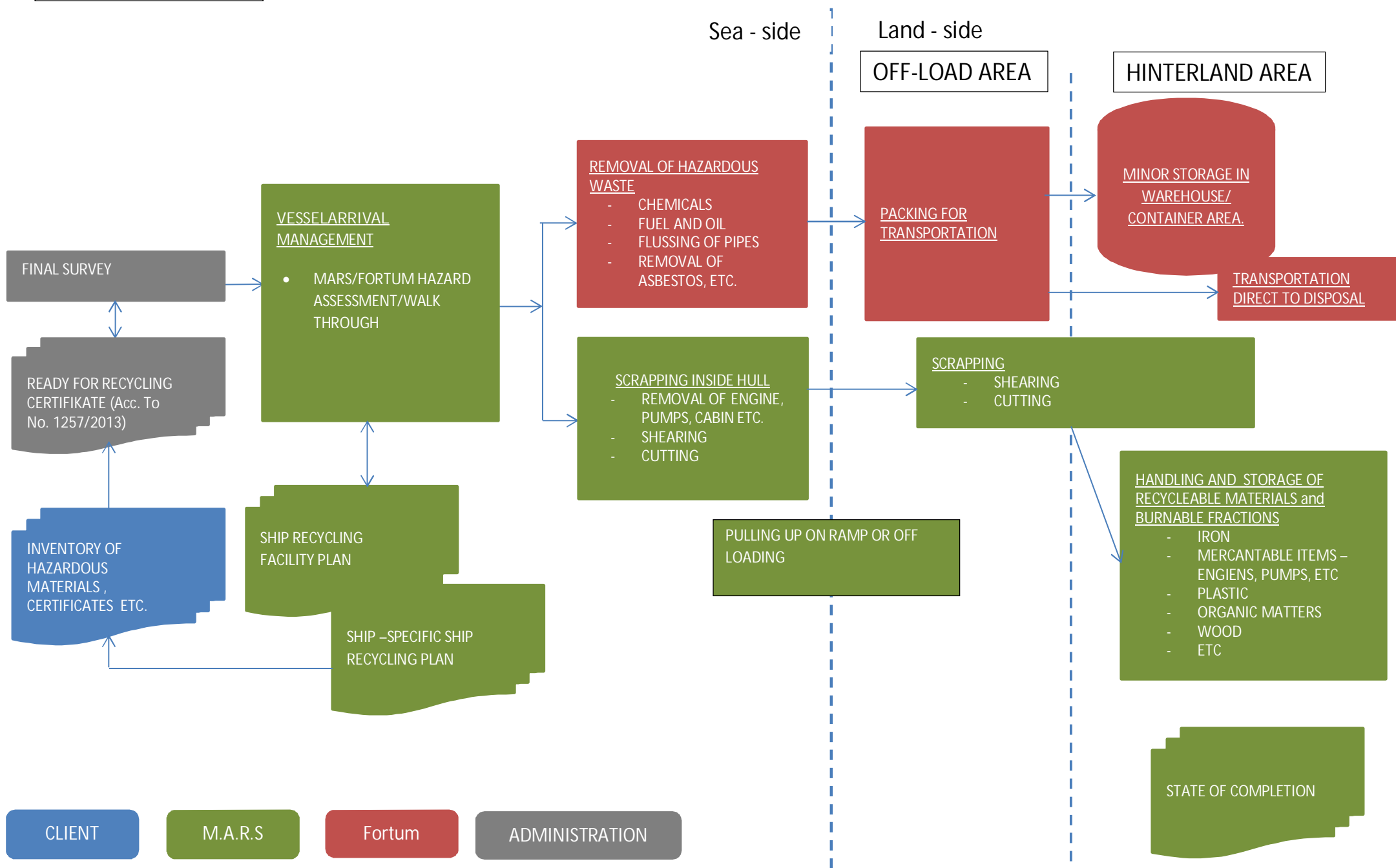
- Signaturer:
- Fence
 - Access road
 - Building
 - Firestation
 - O2/propanetank area for flame cutting, fences and secured
 - Crushed rock surface
 - Crushed rock surface including HDPE, membrane, Load off area
 - Crushed rock surface including HDPE, membrane, hinterland
 - Concrete surface
- Areas
- I Load in/load off area
 - II Ship ramp sloping area
 - III Skidding area
 - IV Heavy module offload area
 - V Scrapping area, hinterland
 - VI Storage area
 - VII Waste, warehouse area
- Buildings
- A Warehouse, 457 m²
 - B Warehouse, 1468 m², NORM
 - C Waste storage, outdoor, cement 30*30 m
 - D Fuel storage, secured
 - E Scale
 - F Gatekeeper
 - G Crew facility, sanitary, canteen
 - H Office Building, sanitary, canteen
 - I Surface water pretreatment facility
 - J Buffer tank, surface water
 - K Water tank for dust fighting

No.:	Revision:	Date:	Init.:	Check:	Approved:
Job:	THE PORT OF FREDERIKSHAVN		Job no.:	223318	
	MARS PROJEKT SITE		Date:	17.01.2018	
Title:		Dwg No.:		Rev.:	
Cad File:		Bilag Situationsplan - ANNEX 2.dwg	Init.:	HHL	Check: TOST
		Appr.:	Scale: 1:2000		841'594

PREPARATION FOR SHIPBREAKING

INSPECTION AND PLANNING

SHIPBREAKING AND WASTEHANDLING



PREPARATION FOR
DECOMMISSIONINSPECTION AND PLANNINGDECOMMISSIONING AND WASTE HANDLING/STORAGE

Sea - side

Land - side

OFF-LOAD AREAHINTERLAND AREA

REVIEW AND MAPPING OF
WASTE LIQUIDS AND
MATERIALS

TRANSPORTATION TO POF

PREPARATION FOR
TRANSPORTATION TO PORT OF
FREDERIKSHAVN

- REMOVAL OF CHEMICALS
etc.

OFF-SHORE PLATFORMS

- MARS/FORTUM HAZARDOUS
ASSESSMENT/WALK THROUGH

REMOVAL AND PACKING FOR
TRANSPORTATION HAZARDOUS
WASTE

- CHEMICALS
- OIL
- FLUSSING OF PIPES
- ASBESTOS, ETC.
- NORM

MINOR STORAGE IN
WAREHOUSE/CONTAINER AREA.

OBS NO NORM IS STORED

TRANSPORTATION DIRECT
TO DISPOSALSCRAPPING

- SHEARING
- CUTTING

OFF LOADING FROM BARGE OR
SKIDDING SYSTEM

HANDLING AND STORAGE OF
RECYCLEABLE MATERIALS and
BURNABLE FRACTIONS

- SCRAP
- MERCANTABLE ITEMS –
ENGIENS, PUMPS, ETC
- PLASTIC
- ORGANIC MATTERS
- WOOD
- ETC

DOCUMENTATION FOR
SCRAPPING, FRACTIONS
ETC.

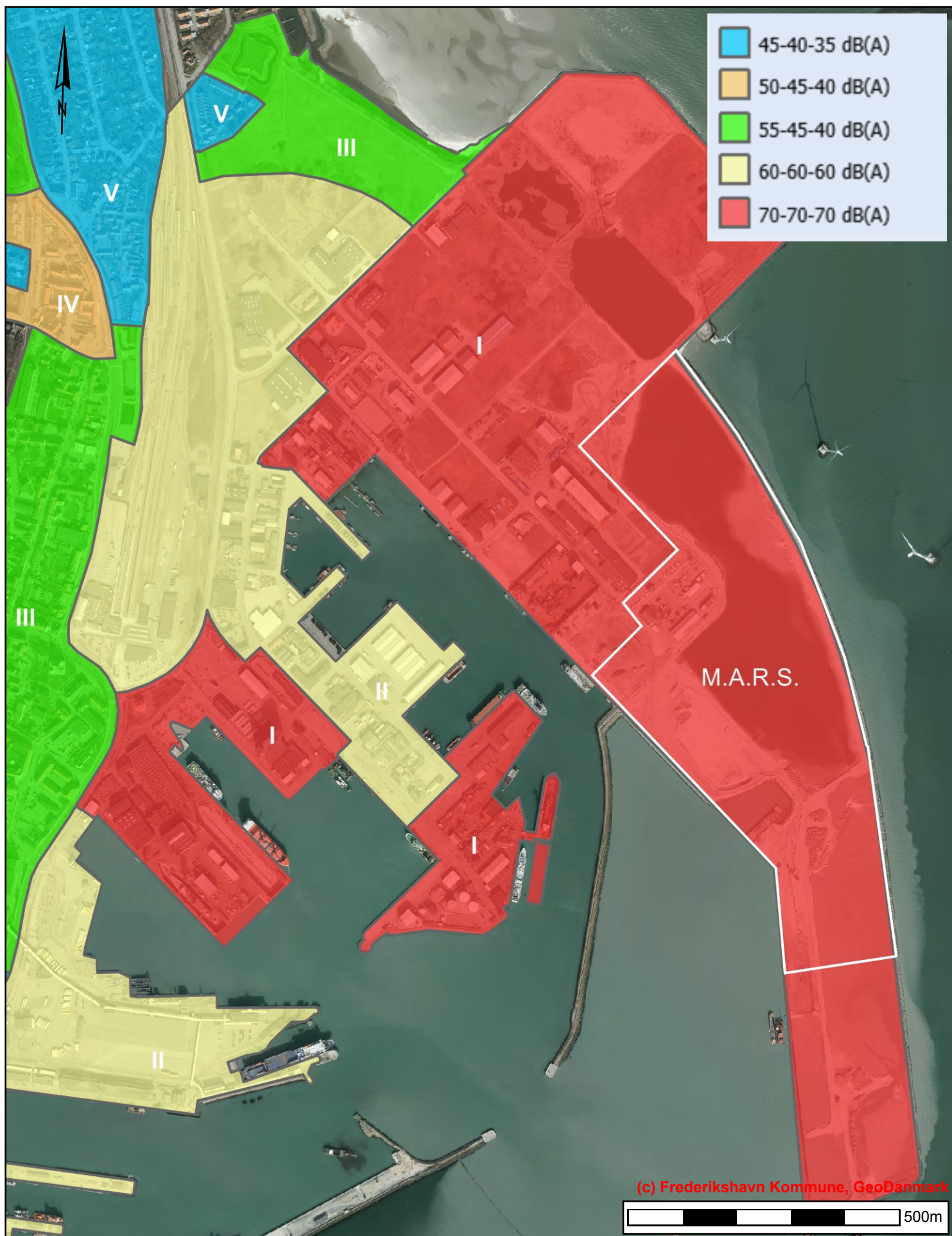
DECOMISSIONING PLAN

SCRAPPING PLAN

CLIENT

M.A.R.S

Fortum



Bilag C

Virksomhedens placering og områdetyper for støj

Tidspunkt: 09-02-2018 09:23:37

Udskrevet af: Jette Brønnum (jebn)

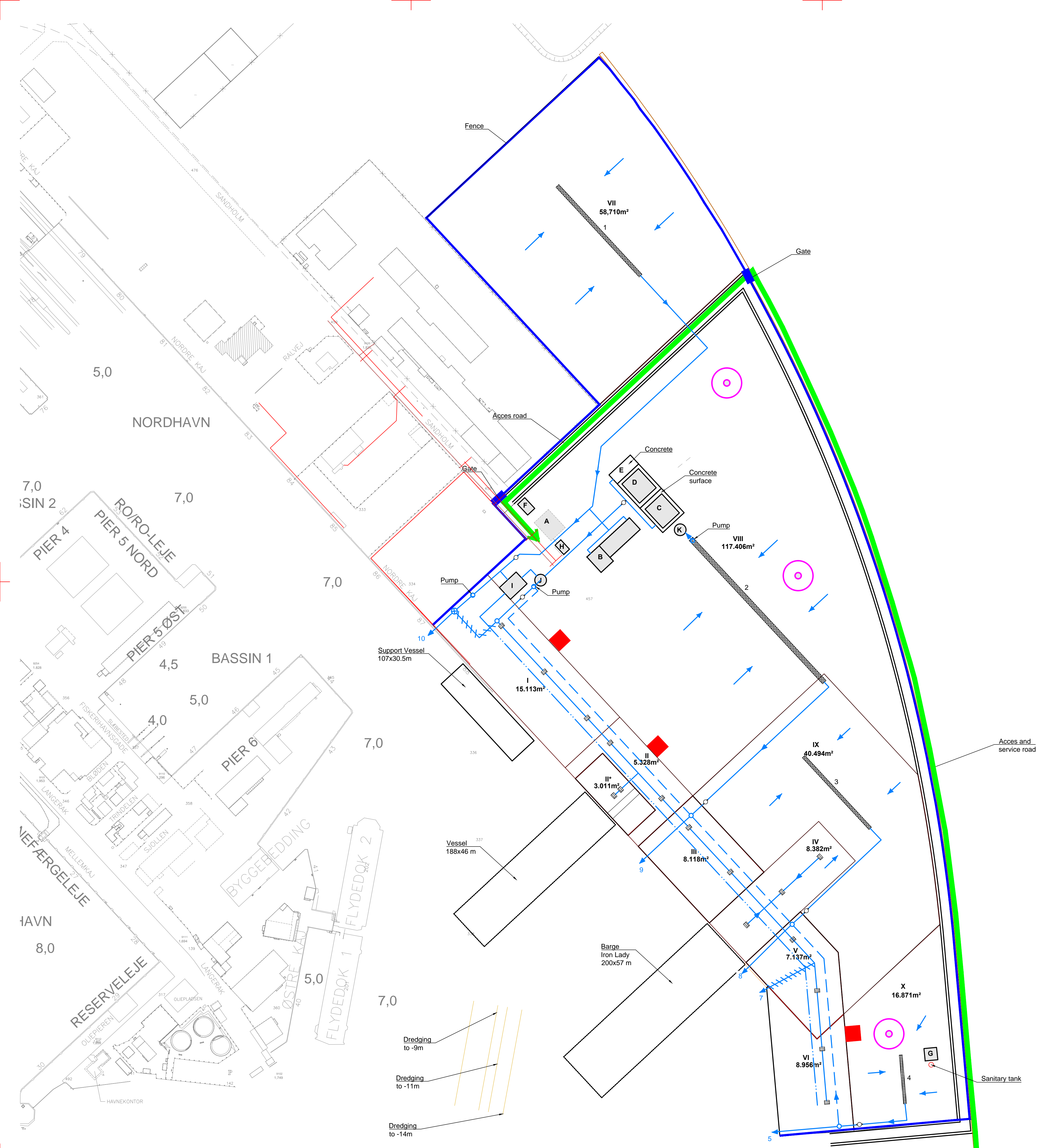
Målestoksforhold: 1:9000

Annex D: Annual waste amounts and maximum waste amounts

Waste type	EWC codes	Waste type	Amount /year (tonnes)	Max. Amounts (tonnes)	Waste handling Facility	Reuse potential
Hazardous waste fractions (Fortum)						
Drilling fluids and cuttings	01 05 05	Oil based drilling fluids	50	10	Nyborg	Reuse
	01 05 05	Cuttings with oil based drilling fluids	30	10	Nyborg	Reuse
	01 05 06	Water based drilling fluids containing dangerous substances	200	30	IBC - Nyborg	Dispose/ treatment
	01 05 06	Cuttings with water based drilling fluids containing dangerous substances	30	10	Nyborg	Dispose/ treatment
Reservoir fluids	13 08 99	Hydrocar,grease and oil	100	20	Barrels/IBC - Nyborg	Reuse
	13 04 03	Hydrocar,slop oil	2,000		Barrels/IBC - Nyborg	Reuse
Contaminated scale	No code	NORM	100	20	10 m ³ container-Landfill	Dispose
Production chemicals	16 05 08	Various	50	10	Small IBC/barrels – Nyborg	Dispose
Process chemicals	14 06 03	Methanol	10	2	Nyborg	Reuse
	14 06 03	Demulsifier	10	2	Nyborg	Dispose
	14 06 03	Corrosion inhibitor	10	2	Nyborg	Dispose
	14 06 03	H2S Scavenger	10	2	Nyborg	Dispose
	14 06 03	Scale Inhibitor	10	2	Nyborg	Dispose
	06 01 06	CIP acid	10	2	Nyborg	Dispose
	16 01 14	Glycol, TEG	10	2	Grenå	Dispose
	16 05 09	External chemicals	10	2	Nyborg	Dispose
	07 06 03	Aqueous film forming foam (AFFF)	50	10	Nyborg	Dispose
Oils and fuels	13 01 01 or 13 03 10	Waste oil, refundable	300	30	Barrel or IBC - Århus	Reuse
	13 0801	Oil emulsions from drill floor	10	2	Nyborg	Reuse/ treatment
	13 08 99	Waste consisting of , containing or contaminated with crude oil or condensate	50	10	Aarhus	Dispose
	13 01 10	Waste oil, non-refundable	50	10	Aarhus	Dispose
	13 01 01 or 13 03 10	Waste oil, refundable incl. Hydraulic oils	500	30	Aarhus	Reuse
	13 02 08	Oily and greasy waste	10	2	Nyborg	Dispose
	15 02 02	Oil contaminated waste	50	10	Nyborg	Dispose
	13 07 01	Waste fuel and fuel oils	800	30	Nyborg	Dispose
Radioactive sources	16 02 14	Smoke detectors	0,1	0,1	On site container	Dispose - Return to supplier/Risø
Hazardous fibres	17 06 05	Asbestos	400	30	Landfill	Dispose
Hazardous construction materials	17 06 05	Phtalates	200	10	10 m ³ container - Nyborg	Dispose
	17 09 03	Chlorparaffin	50	10	Nyborg	Dispose
	16 05 08	pFOS	100	30	IBC/bulk container - Nyborg	Dispose

Annex D: Annual waste amounts and maximum waste amounts

	16 11 05 or 17 06 03	Flame retardants	200	10	10 m ³ container -Nyborg	Dispose
	14 06 01 or 16 02 11	CFC, HCFC gases (cooling agents)	10	2	Pallets or container - Nyborg	Dispose
	17 06 03	CFC, HCFC in materials	50	5	Nyborg	Dispose
	16 05 04	Halon	100	5	Safe handling, - IBC or gasrack.	Dispose
	17 09 02	Window sealing PCB	100	30	Kumla	Dispose
	17 09 02, 17 08 01	Can be contaminated with PCB, isocyanates, heavy metals, asbestos etc	600	20	Metal tank - Nyborg	Dispose
	17 02 04	Impregnated wood	200	20	10 m ³ container	Dispose
Paint	08 01 11	Solid solvent based paint without PCB	600	20	Metal 1 m ³ or 10 m ³ container ADR classification not needed - Nyborg	Dispose
WEE	20 01 21	Fluorescent tubes	10	1	WEEE cages - Kumla	Dispose
Heavy metals	17 04 02 or 17 04 04	Anodes	3000	30	Stena	Dispose
	20 01 35	Light fittings (Hg)	0,5	0,1	RQR	Dispose
	16 02 15	Weight of light tubes	9	1	RQR	Dispose
	16 02 15	Level switches (Hg)	0,5	0,1	RQR	Dispose
	16 01 08, 16 02 15	Mercury - solid waste, fluorescent tubes	5	0,5		Dispose
	13 05 02	Mercury in scale	50	10	Solids packaged as regulated, sludges in barrels - Kumla/ RQR	Dispose
	16 06 01	Lead in batteries	200	10	Boliden	Dispose
	16 06 02	NiCd batteries	10	2	Boliden	Dispose
	07 01 01	Polluted waters after washing/flushing	3,000	30	IBC/bulkcont – Aarhus	Dispose
Total hazardous waste		Sum of above	8360,1	536,8		
Non-hazardous waste fractions (M.A.R.S)						
Dewatered sludge from surface water treatment (heavy metals, metals, oil)	-	Metals, Heavy metals, oils etc.	Ca. 6,000	50	Sludge tank/container 20-50 m ³ - Nyborg	Reuse/disposal
Other Waste (non- hazardous)	17 02 02	Glass	200	20	Pile, on site	Reuse
	17 02 01	Wood	500	50	Pile, on site	Incineration/ reuse
	16 01 03	Tires	20	2	Pile, on site	Reuse
	17 02 03	Plastics	200	20	Pile/container on site	Reuse
	17 04 11	Cables (not oil-filled cables)	100	10	Pile/container on site	Reuse
Electric/Electro nic waste	16 02 15/16 16 02 14	Discarded equipment, Transformers etc. - non PCB fraction	10	1	Container on site	Reuse
A maximum of 20,000 tonnes of waste will be stores on site in piles of a maximum height of 10 m						



- Signaturer:
- Fence
 - Access road
 - Building
 - Firestation
 - O2 tank for flame cutting
 - Sanitary string
 - String
 - Alternativ string
 - Drain
 - By pass string
 - Oil separator
 - Well
 - Measurement well
 - Pump
 - Filter

- Areas
- I General load in/load out area NV
 - II Ship ramp support area
 - II* Ship ramp sloping area
 - III Heavy module offload area NV
 - IV Skidding area
 - V Heavy module area SE
 - VI General Load in/load out area S
 - VII Storage area
 - VIII Scrapping area N
 - IX Heavy module support area
 - X Scrapping area S

- Buildings
- A Warehouse, 457 m²
 - B Warehouse, 1468 m², NORM
 - C Waste storage, outdoor, cement 30*30 m
 - D Fuel storage, secured
 - E Scale
 - F Gatekeeper
 - G Crew facility, sanitary, cantean
 - H Office Building, sanitary, cantean
 - I Surface water pretreatment facility
 - J Buffer tank, surface water, 250 m³
 - K Water tank for dust fighting, 250 m³

- Filters
- Approx (n=1)
- | no. | Dimension |
|-----|-------------------|
| 1 | 125 x 4 x 1,2 m |
| 2 | 200 x 5 x 1,2 m |
| 3 | 100 x 3,5 x 1,2 m |
| 4 | 50 x 3 x 1,2 m |

No.:	Revision:	Date:	Init.:	Check:	Approved:
Job:	THE PORT OF FREDERIKSHAVN	Job no.:	223318		
	MARS PROJEKT SITE	Date:	2017.06.28		
Title:	Ledningsplan	Dwg No.:		Rev.:	

Cad File:	Bilag Ledninger - MARS.dwg	Init.:	HHL	Check:	TOST	Appr.:	Scale:	1:2000	841'594
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