Sumitomo Electric U.K. Power Cables Ltd
Port of Nigg, Nigg, Tain, IV19 1QU

Permit Application

PPC/A/5010755

Contents

1 Non-Technical Summary of Determination

Provide a non-technical summary of the process and determination

The process which will be undertaken at the Sumitomo Electric Cable facility at Nigg Port is the manufacture of submarine (undersea) electrical cables.

The Sumitomo Electric Cable facility at Nigg Port will manufacture submarine electrical cables in a purpose-built 275-meter-long factory. The facility includes several key buildings:

Main Factory: This is where all the cable production takes place.
Vertical Cable Building (VCB): A tall building with a machine that helps strand the cables.
Warehouse: Stores raw materials and testing equipment.
Shielding Room: A small building used for high-voltage cable testing.
HGV Unloading Area: Where large shipments of materials are unloaded.

The process of making a submarine High Voltage Direct Current (HVDC) cable involves forming the conductor (the part that carries electricity), adding protective layers, and ensuring the cable is waterproof. The main steps include:

Conductor Formation: Copper or aluminium strands are used to make the conductor, which is then coated with semiconducting material.

Insulation: A special plastic is used to insulate the conductor, keeping it safe from high voltage.

Waterproofing & Armouring: The cable is coated with bitumen and protected with layers of polypropylene yarn and steel wire to ensure it can withstand conditions on the seabed.

There are also two molten lead furnaces to create a metal sheath for the cable, and a bitumen heating process for waterproofing. Both processes have safety measures in place to handle emissions.

Emissions:
The factory has two main sources of air emissions: from the lead melting furnaces and from the bitumen coating process. Both are filtered before being released into the air.
Minor emissions are also expected from the cable curing process, but these are controlled with carbon filters.

Noise:
Noise from the factory will be low, as most production is indoors. External equipment like HVAC systems will be enclosed to reduce noise. A noise survey was conducted, and while some noise may be heard at night, the overall impact is considered minimal.

This facility is in a rural area near the Port of Nigg, which already has industrial activities, so the overall environmental impact from this facility will be low.

The BAT documents related to the permitted installation are as follows:
- Best Available Techniques (BAT) Reference Document for the Non-Ferrous Metals Industries Industrial Emissions Directive 2010/75/EU 2017
- Monitoring of Emissions to Air and Water from IED Installations Industrial Emissions Directive 2010/75/EU 2018
- Reference Document on Best Available Techniques for Energy Efficiency, corrected version as of 09/2021)
- Reference Document on Best Available Techniques on Emissions from Storage July 2006
- Best Available Techniques to Industrial Cooling Systems December 2001
- Bitumen processes process guidance note PG 6/42 (2013)

• Best Available Techniques (BAT) Reference Document for the Refining of Mineral Oil and Gas Industrial Emissions Directive 2010/75/EU 2015
Glossary of Terms
BAT – Best Available Techniques BREF – Best Available Techniques Reference Document BAT-C – Best Available Technique Conclusions CCV – Catenary Continuous Vulcanization CO – Coordinating Officer DCP – Dicumyl peroxide ELV – Emission Limit Value NFM – Best Available Techniques (BAT) Reference Document for the Non-Ferrous Metals Industries Industrial Emissions Directive 2010/75/EU 2017 HEPA – High Efficiency Particulate Air HVAC – Heating, Ventilation, and Air Conditioning HVDC – High Voltage Direct Current PP – Polypropylene PP – Polypropylene MOG – Best Available Techniques (BAT) Reference Document for the Refining of Mineral Oil and Gas Industrial Emissions Directive 2010/75/EU 2015 XLPE – Cross-linked Polyethylene

2 External Consultation and SEPA's response		
Is Public Consultation Required? (if no delete rows below)		**Yes**
Advertisement Check:	**Date**	**Compliance with advertising requirements**
Edinburgh Gazette	**23 May 2025**	**Yes**
Ross-shire Journal	**30 May 2025**	**Yes**
Officer Checking advert: CO		
No of responses received	None	
Summary of responses and how they were taken into account during the determination:		
N/A No responses received.		
Summary of responses withheld from the public register on request and how they were taken into account during the determination:		
N/A No responses received.		
Is PPC Statutory Consultation Required? (if no delete rows below)		**Yes**
Food Standards Agency:	Response received 26 June 2025 Based on the application and provided that the applicant complies with the relevant SEPA Guidance and all other relevant PPC Guidance Notes and Regulations, Food Standards Scotland considers it unlikely that there will be any unacceptable effects on the human food chain from the emissions from this installation provided that all relevant environmental and food safety regulations are followed.	
Health Board:	NHS Highland: No response received	
Local Authority	Highland Council: Response received 30 May 25:	

	Thank you for consulting Environmental Health on the Part A Permit application for Sumitomo Electric UK Power Cables Ltd. regarding their site at Nigg. As you are aware, our Service has previously commented on the Planning Application for this development, our focus being principally on noise. With regard to the noise assessment, our conclusions were that the predicted noise levels did exceed nighttime background levels at some locations but that an external rating level of 35dB(A) would likely still be acceptable. It was also understood that under the Part A Permit, one of the requirements on the operator would be to ensure the best practicable means would be employed to reduce the impact of noise and that, as a result, additional mitigation might be identified. The matter is complicated by the fact that there is potential for a cumulative noise issue from activities enforced by SEPA and those enforced by Highland Council. It is hoped that complaints will not arise as a result of the development however, in such circumstances I would hope that a collaborative approach could be taken.
NatureScot	Response received 21 May 25: Thank you for consulting us on the above application. We have no comments to make in this case.

Discretionary Consultation required? (if yes provide justification and details below, otherwise delete row)	**No**
Enhanced SEPA Consultation required? (if yes provide justification and details below, otherwise delete row)	**No**
"Off site" consultation required (if yes provide justification and details below, otherwise delete row)	**No**
Transboundary Consultation required? (if yes provide justification and details below, otherwise delete row)	**No**
Is Public Participation Consultation Required? (if yes provide justification and details below, otherwise delete rows below)	**Yes**

STATEMENT ON THE PUBLIC PARTICIPATION PROCESS

The Pollution Prevention and Control (Public participation)(Scotland) Regulations 2005 requires that SEPA's draft determination of this application be placed on SEPA's website and public register and be subject to 28 days' public consultation. The dates between which this consultation took place, the number of representations received and SEPA's response to these are outlined below.

Date SEPA notified applicant of draft determination	02/09/2025
Date draft determination placed on SEPA's Website	02/09/2025
Details of any other 'appropriate means' used to advertise the draft. Seek advice from the communication department	
Date public consultation on draft permit opened	02/09/2025
Date public consultation on draft permit consultation closed	
Number of representations received to the consultation	
Date final determination placed on the SEPA's Website	

Summary of responses and how they were taken into account during the determination:

Summary of responses withheld from the public register on request and how they were taken into account during the determination:

REMOVE THIS BOX FROM ANY VERSION OF THIS DOCUMENT TO BE PLACED ON THE WEBSITE OR PUBLIC REGISTER. RETAIN IN THE VERSION FOR THE WORKING FILE.

3 Administrative determinations

Determination of the Schedule 1 Activity

The Schedule 1 activities to be permitted are:
Section 2.2 - Non-ferrous metals, PART A, (b), Melting, including making alloys, of non-ferrous metals, including recovered products, and the operation of non-ferrous metal foundries in an installation with a melting capacity exceeding— (i) 4 tonnes per day for lead
And
SECTION 6.3 - Tar and bitumen processes, PART B, (a), Heating (but not distilling) tar or bitumen in connection with any process of manufacture, where the carrying on of those activities by the person concerned at the location in question is likely to involve a qualifying amount. (>5 tonnes of bitumen used in any 12-month period).

Determination of the Stationary Technical Unit to be permitted

The key processes to be permitted at the Sumitomo facility installation will be:
The two molten lead furnaces. One furnace will act as a header furnace and will have a capacity of approximately 30 tonnes of molten lead.
The second furnace will have a capacity of 18 tonnes and provides the feed to the extruder.
and,
The bitumen process which uses three small coating units fed by an enclosed 300kg heating pot which feeds the liquid bitumen to each of the three coating heads. The bitumen process will use more than 5 tonnes of bitumen in any 12-month period.

Determination of Directly Associated Activities

The directly associated activities will be:
XLPE process, a thermal process using polymer and 2% (w/w) of dicumyl peroxide,
The handling of raw materials, and their storage.
The handling of waste materials from the cable manufacturing process.

Determination of Site Boundary

The site boundary will be as described within the application.

4 Introduction and Background

4.1 Historical Background to the activity

Sumitomo Electric Industries is a Japanese company based in Osaka. Founded in 1897, it started by making copper wire and now produces electric wire and optical fibre cables. The company operates across five main areas: Automotive, Communications, Electronics, Environment & Energy, and Industrial Materials, with growing interests in Life Sciences and Resources. It has over 400 subsidiaries and more than 280,000 employees worldwide.

With an increasing move to renewable energy the demand for power cables is rising, especially in Europe. The UK is investing heavily in offshore wind power to meet its Net Zero targets (2045 for Scotland, 2050 for the UK).

The facility Sumitomo Electric is building at Nigg Port in the Scottish Highlands will assist in meeting these demands. The facility will produce high-end power cables for offshore wind farms and grid connections across the UK. The project has received planning approval (application number 23/04662/FUL) from the Highland Council.

4.2 Description of activity

Undersea cable manufacturing involves creating robust, long-lasting cables designed to withstand deep-sea conditions and transmit data or power. The process includes materials selection, manufacturing the cable core, applying armour for protection, and loading the cable onto a vessel for deployment.
Applying the armour as protection comprises several stages and as described in the Non Technical summary utilises molten lead and bitumen which at the levels required in this process requires a PPC permit.

4.3 Outline details of the Permit applied for

The permit will authorise the following activities at the site as described in the Pollution Prevention and Control (Scotland) Regulations 2012 along with a number of Directly Associated Activities.
Section 2.2 - Non-ferrous metals, PART A, (b), Melting, including making alloys, of non-ferrous metals, including recovered products, and the operation of non-ferrous metal foundries in an installation with a melting capacity exceeding— (i) 4 tonnes per day for lead
And
SECTION 6.3 - Tar and bitumen processes, PART B, (a), Heating (but not distilling) tar or bitumen in connection with any process of manufacture, where the carrying on of those activities by the person concerned at the location in question is likely to involve a qualifying amount. (>5 tonnes of bitumen used in any 12-month period).

4.4 Guidance/directions issued to SEPA by the Scottish Ministers under Reg.60 or 61.

None

4.5 Identification of important and sensitive receptors

The following designated sites are within a 2km screening distance of the site:
Cromarty Firth, SSSI and SPA
Rosemarkie coast, SSSI
Moray Firth, SAC

With reference to the noise assessment the following sensitive receptors were identified:
Pitcalzean Hotel approx. 700m northeast of the site
Broomhill Cottage approx. 240m north of the site
Nigg Ferry Hotel approx 250m to the south of the site
Cromarty approx. 1700m southwest of the site

5 Key Environmental Issues

5.1 Summary of significant environmental impacts

The main air pollutants associated with the Sumitomo facility and linked to the cable manufacture development are:
• Lead associated with two lead melting furnaces with a combined melting capacity of around 30 tonnes and a likely throughput of around 40 tonnes a day when in use.
• Heating and casting of bitumen to form the bulk of the outer cable waterproofing and protection. The bitumen emission passes through a wet scrubber unit before discharge.

5.2 Emissions to Air

Point Source emission to air:

The installation has two main release points for permitted air emissions: one from the lead melting furnaces and one from the bitumen coating process.

Emissions from the cross-linked polyethylene process and cable curing/degassing have been excluded from formal assessment as the emission characteristics are deemed trivial.

Lead melting process

The lead melting furnaces operate at approx. 380ºC and have extraction points from the sealed furnaces that remove air from the sealed units. The filter unit uses an M-class filter, which meets the EN 60335-2-69 safety standard. This means it can trap at least 99.9% of dust particles sized between 0.1 and 0.5 micrometres, with dust emissions kept below 0.1 mg/m³. A HEPA cartridge module is also attached to the top for additional filtration before being released through a stack on the outside of the building. The stack height is 23 meters, which is above the eaves of the main processing building.

The air emission limits for the Part A lead process are as identified in NFM BAT 97.
In order to reduce dust and metal emissions to air from remelting, refining and casting in primary and secondary lead and/or tin production, BAT is to use the techniques given below:

Technique, a) For pyrometallurgical processes: maintain the temperature of the melt bath at the lowest possible level according to the process stage in combination with a bag filter.

The associated BAT AELs for the process are illustrated in Table 11.25:
BAT-associated emission levels for dust and lead emissions to air from remelting, refining and casting in primary and secondary lead and/or tin production:

Parameter	BAT-AEL (mg/Nm^3)
Dust	2–4 (1)(2)
Pb	≤ 1 (3)

(1) As a daily average or as an average over the sampling period.
(2) Dust emissions are expected to be towards the lower end of the range when emissions are above the following levels: 1 mg/Nm^3 for copper, 1 mg/Nm^3 for antimony, 0.05 mg/Nm^3 for arsenic, 0.05 mg/Nm^3 for cadmium.
(3) As an average over the sampling period.
The associated monitoring frequency is provided in BAT 10 as once per year.
Emission testing will be conducted on the extract stack from the lead melting furnaces during commissioning to demonstrate compliance with the BAT AEL's.

The emissions from the Lead process are compliant with the requirements of BAT and the associated monitoring requirements will be included within the permit conditions.

Bitumen heating process

The heating and casting of bitumen, which forms the main outer layer of the cable, is classed as a Part B activity under PPC Regulations. Emissions from the bitumen process will be extracted to a single stage external packed tower wet scrubber unit as a means of removing potential odour and emissions from the bitumen coating heads used to coat the cable and yarn and the capture hood above the lidded bitumen heating Pot.
Emission limits for this process are set by PG Note 6/42 (2013).

Table 4.1 - Emission limits, monitoring and other provisions					
Row	Substance	Source	Emission limits/provisions	Type of monitoring	Monitoring frequency
1	Bitumen fume	Processes involving the heating of bitumen or petroleum pitch but not for storage tanks	50mg/m^3	Extractive test	Annual
				Incinerators may comply with Table 4.1 row 6 instead	
2	Volatile organic compounds	Processes involving manufacture of, or in connection with, cutback bitumen or organic solvent based coatings	50mg/m^3	Extractive test 30 minute average	Annual
				Incinerators may comply with Table 4.1 row 6 instead	
	"Volatile organic compounds" includes organic solvents, and bitumen vapour after fume has been filtered out				
3	Total particulate matter	Exhausts from handling of dusty materials but not silo arrestment plant	50mg/m^3	For exhausts over 50m^3 / minute - indicative monitor and record; see note 1 - extractive test, see note 1	 Continuous Annual
4	Droplets, persistent visible emissions	All emissions to air	No droplets, No persistent visible emissions except condensed water vapour	Visual observations	*On start-up and on at least two more occasions during the working day*

Although applicable to larger scale production activities the BAT conclusions for the Refining of Mineral Oil and Gas also indicate that wet scrubbing is a suitable technique for the treatment of emissions from the bitumen heating process.

BAT 23. In order to prevent and reduce emissions to air from the bitumen production process, BAT is to treat the gaseous overhead by using one of the techniques given below.

Technique	Description	Applicability
ii. Wet scrubbing of gaseous overhead	See Section 5.20.3	Generally applicable for the bitumen blowing unit

Section 5.20.3

Technique	Description
Wet scrubbing	In the wet scrubbing process, gaseous compounds are dissolved in a suitable liquid (water or alkaline solution). Simultaneous removal of solid and gaseous compounds may be achieved. Downstream of the wet scrubber, the flue-gases are saturated with water and a separation of the droplets is required before discharging the flue-gases.

The design of scrubber used on site includes a mist separator as the final stage of treatment prior to discharge

The resulting liquid must be treated by a wastewater process and the insoluble matter is collected by sedimentation or filtration. In this case the effluent will be collected and sent off site for treatment and disposal

Catenary Continuous Vulcanisation

The CCV process, from the triple head extruder to the heating and cooling curing tube, operates as a mostly closed system. However, a small amount of air (about 30 m³ per hour) containing volatile organic compounds (VOCs) is released from the top of the CCV building.

Analysis of the process at the production facility in Japan, showed that the emissions had a mild organic smell, similar to acetone. As a precautionary measure, an activated carbon odour control unit will be installed at the exhaust point.

The emission flow rate is about 420 litres per minute (30 m³/hr). Each of the CCV extruder lines will have two activated carbon filter units, located inside the CCV building.

The adsorber is a deep-bed type filled with general-purpose activated carbon. The exhaust fan, made of mild steel, will draw gases through the carbon bed. It is designed for 30 m³/hr and uses a variable speed pressure drop sensor for control.

Each Activated Carbon Filter Unit will include:
carbon adsorber with an exhaust fan
nitrogen blanketing system
control system
Coal-based activated carbon (4 mm pellets, 3-second retention time)

Fire Safety:
Adsorbing VOCs like acetone can generate heat, which poses a fire risk. To prevent this, a nitrogen blanketing system has been included to reduce oxygen levels and minimize the risk of ignition, ensuring safe operation.

Appropriate emission limit values will be included within the permit to monitor the activities described above, these are described in full in Section 5.9 and Section 9 of this document and represent the requirements of the NFM BAT 97 and in process guidance note PG 6/42.

Fugitive emissions to air:

There potential for fugitive emissions from the production process, raw material handling, storage, finished cable storage and handling outdoors has been minimised as far as practical. Appropriate abatement technology has been utilised on processes to minimise the emission of potentially harmful pollutants from the lead melting and bitumen heating and the degassing process post CCV. Other emissions from the process buildings will be vented through the facilities Heating, Ventilation, and Air Conditioning (HVAC) system.
Conditions are included within the permit requiring that offensive odours from the authorised activities must not be emitted beyond the boundary of the permitted installation, this will be reviewed as part of routine regulatory effort at the site.

The materials used in undersea cable manufacturing do not produce dust or other emissions during handling or storage. The production process itself does not create dusty by-products or waste. All emissions from the production process are extracted and treated via their associated abatement equipment prior to discharge.
Any rejected cable or components will be stored in skips or containers for off-site recycling. These wastes are not dusty or odorous. Paper waste will be stored in lidded skips to prevent it from blowing away.

All site roadways and the areas around key buildings will be asphalted. Vehicle movement will be restricted to these asphalted areas, keeping airborne dust from unpaved surfaces to a minimum.

The processes described within the application are representative of BAT 5, 6, and 7 of the NFM BAT and in process guidance note PG 6/42.

Odour:

The operator/applicant has stated that on a site visit they did not notice any discernible odour from cable production at the Minato subsea cable facility in Japan confirmed no external odours from production. While some materials used in the process have localised odours, these are contained within the building and not released into the atmosphere in significant amounts.

The bitumen heating process does produce odours, but emissions are treated with a wet scrubber before being released. A small amount of curing air from the CCV building is also emitted, but it has a low flow rate and is filtered through activated carbon as a precaution.

The odour impact assessment provided in support of the application focused on bitumen emissions. Other sources, such as the CCV emissions and cable de-gassing, were ruled out due to their minimal impact. Odours from non-ferrous metal processes, like lead melting, are not expected to be significant as they do not use materials typically associated with strong odours.

Odour levels are measured in European Odour Units per cubic metre (OUE/m³). For reference:

1.5 OUE/m³: highly offensive odours
3.0 OUE/m³: moderately offensive odours
6.0 OUE/m³: less offensive odours

The benchmark for bitumen odour is 3.0 OUE/m³. Modelling results show predicted odour levels at nearby receptors are all well below this threshold. Full details are in the Air Quality Assessment attached to the application as Appendix 8.

The odour management proposals are representative of the measures outlined in BAT 19 of the NFM BREF and in process guidance note PG 6/42.

5.3 Emissions to Water

Point Source Emissions to Surface Water and Sewer:

There is no public foul sewer near the site. However, the Port of Nigg has its own wastewater treatment plant with confirmed capacity, which will treat foul water from the Sumitomo undersea cable factory (sanitary and welfare use only).

Because the water table at the site is high (about 3 meters below ground), using shallow pipe gradients would require deep sewers. To avoid this, two pumping stations will be installed:

Pump House 1 (north of the site) will send wastewater to Pump House 2 (south of the site), which will pump it to the Port of Nigg's treatment plant.

Foul drainage designs are shown in Appendix 7 of the application.

No wastewater is produced from the cable manufacturing process itself. Two closed-loop cooling systems (for the lead extruder and CCV line) and a wet scrubber use water, which is emptied once a year by vacuum tanker and sent to a licensed treatment facility.

Roughly 225 litres of bleed-off water from the lead extruder cooling system will be removed every quarter. This water may contain lead and will be classified as hazardous waste. It will be stored in sealed, bunded drums and taken away by a licensed waste carrier.

Use of the Port's treatment plant will be arranged by formal contract between Sumitomo Electric (UK) Cable Ltd and Global Energy Group.
The wastewater treatment plant operates under SEPA Permit CAR/L/1108306 (issued in 2013).

Point Source Emissions to Groundwater:

There are no point source emissions to groundwater proposed at the site.

Fugitive Emissions to Water:

The site will have separate drainage systems for foul water and surface (storm) water.

Sustainable Urban Drainage Systems (SUDs) have been used to maintain the natural runoff levels of the greenfield site as much as possible. This will be done using features like swales, wetlands, and infiltration trenches to allow clean surface water to soak into the ground, keeping runoff rates similar to pre-development levels.

To prevent contamination of the SUDs:

No liquids or liquid waste will be stored outside.

The temporary waste storage area will have an impervious surface and be fitted with a drainage interceptor before water enters nearby wetlands.

Hard surfaces like roadways, the HGV offloading area, and car parks will also have interceptors to stop pollutants from reaching the drainage system.

The proposals described within the application are representative of the measures outlined in BAT 14 and 15 of the NFM BREF and in process guidance note PG 6/42.

5.4 Noise

The facility has been designed within the principles illustrated in BAT 18 of the NFM BAT. Most of the machinery is inside the main building. The wet scrubber and air-cooled condensers are outside, and acoustic barriers have been installed as required.

The HVAC systems is located on the roof and a perimeter acoustic wall has been installed at this location.

Noise impacts from the High-Voltage Cable Manufacturing Plant have been assessed for both daytime and nighttime operations. Sound measurements were taken at four locations near sensitive receptors (places that could be affected by noise). These measurements were used to predict whether noise levels would be acceptable.

During the day, the noise impact is expected to be negligible. However, at night, there may be significant noise issues for receptors located to the north and north-east of the plant. According to the Association of Noise Consultants, low background noise levels (under 30dB) and low rating levels (under 35dB) are acceptable for these areas. Additional assessments indicate that the noise impact at night will likely be neutral.

Further checks against noise standards for nighttime and low-frequency noise confirm that the plant's noise will not exceed acceptable levels. If the plant's noise remains within the predicted levels, the development can proceed without major noise-related issues.

The permit includes conditions requiring that within 3 months of completing commissioning, the operator must carry out an assessment of broadband and tonal noise at nearby sensitive receptors must be carried out in line with the requirements of BS 4142. If any negative impact is found, the operator must detail additional measures to be introduced to reduce the noise.
Further permit conditions require the operator to prepare, implement, and maintain, a noise and vibration management plan. the plan must be submitted to SEPA for review. The plan is required to be reviewed at least every 4 years and whenever there is a change in operation which could impact receptors.
The reports and assessments generated by the conditions described above must be submitted to SEPA for review.

The proposals described within the application are representative of the measures outlined in BAT 18 of the NFM BAT and in process guidance note PG 6/42.

5.5 Resource Utilisation

Water use

The cable production facility does not use water as a major raw material in its subsea cable manufacturing. Water use is limited to:

Closed-circuit cooling for CCV cable after XLPE extrusion:
The cooling system for the CCV/XLPE uses water stored in a closed loop. The CCV XLPE cable curing and cooling tube has a water-cooled jacket along its 130-meter length. The cooling circuit will include two 9m³ stainless steel tanks and two 6m³ water tanks, placed in a below-ground bund next to the cable curing tubes inside the main building.

Cooling for lead melting furnaces and extruder:
The cooling system for the lead furnace and extruder will be supported by GRP tanks outside the main building, with a total volume of around 9m³. These tanks will also be in a sealed bund, alongside the air-cooled condenser unit. The cooling water is not considered hazardous.

In both of the above systems the cooling circuits are topped up where evaporation occurs and the systems will be drained and refilled annually as part of maintenance.

Bitumen heating wet scrubber:
The water circulation system for the wet scrubber, which holds about 2900 liters, will be placed in a specially designed bunded area with the scrubber tower. The system uses small amounts of biocide or antifoaming agents to maintain water quality, with no acids or alkalis involved. The water is pumped through the scrubber tower, and once a year (or sooner if needed), the water will be fully emptied by a vacuum tanker.

Staff welfare needs (drinking, sanitation, showers, etc.)

The proposed building will house up to 150 people and operate 24/7. British Waters Code of Practice Flows and Loads 4 assumes 60 litres of water per person per day so daily water usage for staff is:

150 people × 60 litres = 9,000 litres/day

In addition, the factory itself will use about 500 litres/day for process-related cooling (mainly topping up evaporated water and annual refills).

Total estimated daily water usage: 9,500 litres/day

The facility will have a single metered water supply, and water use will be tracked through the facility's Environmental Management System (EMS).

The proposals described within the application are representative of the measures outlined in BAT 14 of the NFM BAT.

Energy use and generation

The main energy source for the facility will be electricity. No on-site renewable sources (like solar or wind) will be used, as the site lacks the necessary infrastructure and grid connection to export power. The facility will not use liquid or gas fuels and the onsite office facilities will be heated using natural gas heating or electric space heating.

Electricity usage will be tracked daily, weekly, monthly, and annually using energy monitoring software.

Once operations begin, the Sumitomo undersea cable facility will implement an Energy Efficiency Management Plan, which will include:

A formal energy efficiency policy led by top management

Setting objectives and targets for energy use

Procedures for staff roles, training, communication, documentation, process control, and maintenance

Monitoring, benchmarking, audits, and corrective actions

Regular reviews by management to ensure the system remains effective

Considering environmental impacts during design and decommissioning

Following developments in energy-efficient technologies

The energy management system will follow the Plan-Do-Check-Act (PDCA) cycle for continuous improvement.

Since the facility is still under construction, a detailed energy efficiency plan has not been supplied as part of the application. This will be developed once machinery and equipment are installed and full energy demands are known.

Permit conditions are included requiring the operator to record and report resource utilisation and efficiency in line with the guidance provided within SEPAs Energy Framework document. More specifically the operator must identify ways to reduce, where possible, raw materials, water used, energy utilised, emissions, and waste produced and to demonstrate that, where possible, resource utilisation is improving at the installation year-on-year.

The proposals described within the application are representative of the measures outlined in BAT 2 of the NFM BAT.

Raw Materials Selection and Use

The undersea cable manufacturing process uses various raw materials, including high-value metals like copper, aluminium, and lead, as well as specialized polymers for the XLPE process. Other key materials include bitumen, galvanized steel wire, butyl rubber, semiconductor tape, and polypropylene (PP) yarn. Additional items such as lubricants, oils, bottled gases, and fibre optic components support machinery and production.

All materials arrive by road and are weighed and checked at the site's weighbridge and security office. Deliveries then go to the warehouse for final inspection and unloading into designated areas.

Most raw materials are solid and inert, including copper and aluminium wire coils, steel wire coils, lead ingots, bitumen slabs, and polymer granules in large bags. Only small amounts of liquids—mainly machinery oils and lubricants—are used.

There is no bulk oil storage on-site, so the Water Environment (Oil Storage) (Scotland) Regulations 2006 do not apply.

5.6 Waste Management and Handling

Waste Minimisation

The waste minimisation proposals for the undersea cable production facility include a comprehensive approach to reducing, managing, and monitoring waste throughout the production process. Waste minimisation will be controlled through the site EMS and will develop site specific measures as the process becomes operational. The initial key measures include:

Waste Segregation and Storage:
Solid waste materials will be segregated and stored in skips, some of which will be fully enclosed to prevent windborne contamination and rain damage.

Skips will be placed on hard surfaces with an interceptor to protect against surface water pollution, with waste regularly collected as per the site plan. The proposed layout of the waste storage area of the site are illustrated in the document SUMI-PLAN-P5 supplied in support of this application.

Minimisation and Cost-Effectiveness:
The high value of raw materials (copper, steel, lead, polymers) makes waste costly, and efforts will focus on reducing waste at all stages of production to prevent non-conforming products.
Waste minimisation techniques from the Japan Minato facility will be applied, and production processes will be adjusted to meet site specific requirements once operational.
Dedicated HSE managers will be responsible for overseeing waste management and ensuring progress is tracked.

Efficient Inventory and Supplier Management:
Inventory management will be optimized to reduce waste through efficient stock forecasting and the use of reusable/recycled materials where possible.
As part of Sumitomo's environmental management system suppliers will be regularly audited for waste reduction practices and compliance with packaging waste regulations.

In summary, the facility aims to implement a holistic waste management system that incorporates efficient inventory, effective waste monitoring, employee engagement, and cutting-edge production technology to minimize waste and reduce costs across all operations.

The proposals described within the application are representative of the measures outlined in BAT 3 of the NFM BAT and within the principles of sustainable consumption and production described in PG 6/42.

Waste Handling

Waste Management Hierarchy:
The facility will apply the waste management hierarchy, focusing on waste prevention, followed by reuse and recycling, before moving to recovery and finally disposal as a last resort.

Waste Monitoring and Control:
The EMS will include clear waste handling, storage, and collection procedures, with staff trained in waste management and using appropriate equipment.
The facility will monitor waste quality and quantities regularly and ensure no waste accumulates on-site.

Liquid Waste Management:
Liquid waste will be stored in 225-liter drums or IBCs within the production building on bunded trays, to be collected by a licensed waste carrier once full. Only two drums of liquid waste will be stored at a time, primarily from the lead extruder cooling system.
Cooling water from the production processes will be extracted annually by a vacuum tanker and disposed of responsibly.

Waste Recovery or Disposal

The waste recovery measures focus on reusing, recycling, and recovering waste materials effectively. The key strategies used on site include:

Recycling & Reuse:
Materials such as metal, plastic, glass, paper, and cardboard will be segregated and collected for recycling in compliance with The Waste (Scotland) Regulations 2012. The facility will also prioritize the use of reusable or recycled materials in production, based on inventory and supplier management.

Waste Monitoring:
Waste streams and quantities will be monitored regularly, identifying opportunities for recovery and recycling of materials within the production process.

Minimisation & Cost-Effectiveness:

Efforts to minimize waste throughout production will directly contribute to waste recovery, as it reduces the volume of waste needing disposal. The high cost of raw materials (copper, steel, lead, polymers) further incentivizes recovery to avoid costly waste.

Efficient Inventory & Supplier Management:
Inventory management will ensure that recyclable or reusable materials are maximized to reduce overall waste production. Suppliers will be audited to ensure packaging and materials are optimized for recycling and recovery.

Waste recovery at the facility will prioritize the reuse and recycling of valuable materials, align with the waste management hierarchy, and engage employees in reducing waste through efficient practices and monitoring.

5.7 Management of the site

Environmental Management System

The Sumitomo Electric Cable subsea manufacturing facility will have an Environmental Management System (EMS) in place when the permit is issued. The company's Minato plant already uses an EMS based on the ISO 14001 standard, and the Nigg facility plans to certify its own EMS to ISO 14001 after production begins.

A draft EMS, based on the Minato facility's system, is included in Appendix 19 supplied in support of the application.

The proposals for the site EMS is in line with the requirements of BAT 1 of NFM.

Accidents and their Consequences

The draft EMS supplied in support of the application includes an accident plan that:

- Assesses the likelihood and impact of accidents
- Outlines actions to prevent and reduce the effects of accidents

There will also be written procedures for:

- Managing, investigating, reporting, and communicating any non-compliance with procedures or emission limits
- Handling environmental complaints and taking appropriate action
- Investigating incidents and near misses, identifying corrective actions, and following up

Closure

When the Sumitomo subsea cable manufacturing facility closes, steps will be taken to prevent pollution and return the site to a clean, safe condition. This includes design and construction measures where relevant.

As part of the permit application process, a Baseline Site Report (BSR) has been submitted. It documents the site's condition before operations began, identifying any existing pollution risks. When the site closes, a Closure Site Report (CSR) will be prepared to compare the site's final condition to the baseline. This helps determine if any pollution occurred during operations.

A site closure plan has been prepared and will be maintained throughout the facility's lifespan. The draft site closure plan supplied as Appendix 21 in support of this application. Identifies the steps Sumitomo will take in the event of closure and includes details on how they will:

Disconnect all services (water, electricity, etc.)

Empty and remove tanks, pipes, and containers using licensed contractors

Reuse, recycle, or responsibly dispose of plant and equipment

Dismantle structures and roads as needed, depending on future site use

Crush and recycle construction materials where possible

After decommissioning, a ground investigation will be carried out. Any contamination found will be cleaned up in accordance with regulatory requirements.

5.8 Site Condition report

SEPAs Contaminated Land team have reviewed the application and provided the following comments and recommendations:

Given the proposed PPC activities and volumes of chemicals (RHS) at this site, I agree that we could considered the PPC associated pollution risks to soil and groundwater to be low.

Nonetheless and for permit surrender in the future, it is important to have a baseline for the relevant hazardous substances (RHS) at this site. Unfortunately, the baseline requirement for this site has not been fulfilled as no baseline has been provided for total petroleum hydrocarbons, in specific I will refer to them as the TPHCWG aliphatic and aromatic fraction. Please see enclosed document.

The rationale for the site investigation undertaken at this site was to comply with foundations requirements and to determine suitability for use; it was not no comply with PPC requirements, nonetheless, some data is still useful.

I recommend that to address the baseline gap, the operator should estate under section 10 of their report that they apply for a waiver and accept a baseline of 0.0 (zero) mg/kg of TPHCWG aliphatic and aromatic fractions in soil and 0.0 (zero) ug/l of TPHCWG aliphatic and aromatic fractions in groundwater beneath the site. I make this recommendation given the historical use of the site and the current agricultural and grazing use.

Sumitomo have agreed to the proposals above and have agreed baseline values of 0.0 (zero) mg/kg of TPHCWG aliphatic and aromatic fractions in soil and 0.0 (zero) ug/l of TPHCWG aliphatic and aromatic fractions in groundwater beneath the site.

5.9 Monitoring

Air

Air monitoring requirements are included within the permit to cover the emissions from the non ferrous metals and bitumen activities on site.
The ELVs and monitoring requirements are based on the guidance documents Best Available Techniques (BAT) Reference Document for the Non-Ferrous Metals Industries Industrial Emissions Directive 2010/75/EU 2017 and Process Guidance Note 6/42(13) Statutory guidance for bitumen processes December 2013 and full details are included in Section 9 below.

Water

There are no direct discharges to the water environment and no monitoring is proposed.

Soil and Groundwater

SEPAs Contaminated Land team has reviewed the info provided and agreed that the proposed PPC activities and volumes of chemicals (RHS) at this site and agree that we can consider the PPC associated pollution risks to soil and groundwater to be low.

Permit conditions are included which require the operator to maintain accurate plans of the onsite drainage, maintain a record of any incidents that have, or might have, impacted on the condition of any soil or groundwater and to carry out systematic assessments of all measures used to prevent emissions from the Permitted Installation to soil and groundwater at least every 4 years.

The Operator is also required to submit a detailed soil and groundwater monitoring plan where any need for sampling has been identified and to review this document following each round of monitoring.

Waste

Conditions are included within the permit which require the operator to record annual data totals of waste produced within the installation, which must be recorded in the relevant section of the "Systematic assessment of resource use and efficiency template (IED-T-04)".

This data must be reviewed and submitted to SEPA every 4 years and include the annual totals and identification of measures to reduce, where possible, waste produced.

5.10 Consideration of BAT and compliance with BAT-Cs if appropriate

The application has been assessed in line with the principles identified in Best Available Techniques (BAT) Reference Document for the Non-Ferrous Metals Industries Industrial Emissions Directive 2010/75/EU 2017 and Process Guidance Note 6/42(13) Statutory guidance for bitumen processes December 2013.
References to the relevant sections of these documents have been included throughout this document.

6 Other Legislation Considered

Nature Conservation (Scotland) Act 2004 & Conservation (Natural Habitats &c.) Regulations 1994

Is there any possibility that the proposal will have any impact on site designated under the above legislation? If yes, provide information on the action and justification below:	**Yes**

The following designated sites are within a 2km screening distance of the site:
Cromarty Firth, SSSI and SPA
Rosemarkie coast, SSSI
Moray Firth, SAC

Nature Scot were consulted as statutory consultees as part of the determination process. Their response received 21 May 25 was as follows:
Thank you for consulting us on the above application. We have no comments to make in this case.

Screening distance(s) used	2km

Is there any other legislation that was considered during determination of the permit (for example installations that may be impacted by the requirements of legislation involving Animal By Products, Food Standards, Waste, WEEE regulations etc). If yes, provide information on the legislation, action and justification below:	**No**

N/A

7 Environmental Impact Assessment and COMAH

How has any relevant information obtained or conclusion arrived at pursuant to Articles 5, 6 and 7 of Council Directive 85/337/EEC on the assessment of the effects certain public and private projects on the environment been taken into account?

Articles 5, 6 and 7 of Council Directive 85/337/EEC do not apply to this application.

How has any information contained within a safety report within the meaning of Regulation 7 (safety report) of the Control of Major Accident Hazards Regulations 1999 been taken into account?
The Control of Major Accident Hazards Regulations 1999 regulations are not applicable to this application.

8 Details of the permit

Do you propose placing any non standard conditions in the Permit?	**No**
Do you propose making changes to existing text, tables or diagrams within the permit?	**No**

Outline the changes required and provide justification below:

Proposed Condition Number:	**Proposed Change:**	**Justification:**
	N/A, no changes, first issue of permit based on standard conditions	

9 Emission Limit Values or Equivalent Technical Parameters/Measures

Are you are dealing with either a permit application, or a permit variation which would involve a review of existing ELVs or equivalent technical parameters?	**Yes**

Outline the changes required and provide justification below:

The associated BAT AELs for the Lead melting process are illustrated in Table 11.25 of the Best Available Techniques (BAT) Reference Document for the Non-Ferrous Metals Industries Industrial Emissions Directive 2010/75/EU 2017.

BAT-associated emission levels for dust and lead emissions to air from remelting, refining and casting in primary and secondary lead and/or tin production:

Parameter	BAT-AEL (mg/Nm^3)
Dust	2–4 (1)(2)
Pb	≤ 1 (3)

(1) As a daily average or as an average over the sampling period.
(2) Dust emissions are expected to be towards the lower end of the range when emissions are above the following levels: 1 mg/Nm^3 for copper, 1 mg/Nm^3 for antimony, 0.05 mg/Nm^3 for arsenic, 0.05 mg/Nm^3 for cadmium.
(3) As an average over the sampling period.
The associated monitoring frequency is provided in BAT 10 as once per year.
Emission testing will be conducted on the extract stack from the lead melting furnaces during commissioning to demonstrate compliance with the BAT AEL's.

Based on the data provided in support of the application the emissions from the Lead process will be compliant with the requirements of BAT and the associated monitoring requirements will be included within the permit conditions to demonstrate this.

Emission limits for the Bitumen process are derived from the Bitumen processes process guidance note PG 6/42 (2013). Table 4.1 in this document details appropriate ELVs as illustrated below:

Table 4.1 - Emission limits, monitoring and other provisions					
Row	Substance	Source	Emission limits/provisions	Type of monitoring	Monitoring frequency
1	Bitumen fume	Processes involving the heating of bitumen or petroleum pitch but not for storage tanks	50mg/m^3	Extractive test	Annual
				Incinerators may comply with Table 4.1 row 6 instead	
2	Volatile organic compounds	Processes involving manufacture of, or in connection with, cutback bitumen or organic solvent based coatings	50mg/m^3	Extractive test 30 minute average	Annual
				Incinerators may comply with Table 4.1 row 6 instead	
	"Volatile organic compounds" includes organic solvents, and bitumen vapour after fume has been filtered out				
3	Total particulate matter	Exhausts from handling of dusty materials but not silo arrestment plant	50mg/m^3	For exhausts over 50m^3 / minute - indicative monitor and record; see note 1 - extractive test, see note 1	 Continuous Annual
4	Droplets, persistent visible emissions	All emissions to air	No droplets, No persistent visible emissions except condensed water vapour	Visual observations	*On start-up and on at least two more occasions during the working day*

In this instance the limits for Bitumen fume and Volatile Organic Compounds have been included as 50 mg/m^3 for each parameter determined by annual extractive testing.

The emissions from the CCV process have been considered as trivial and no monitoring is proposed for that activity.

10 Peer Review

Has the determination and draft permit been Peer Reviewed?	**Yes**
Comments made:	
Minor typographical changes	

11 Final Determination

Issue a Permit - Based on the information available at the time

Issue a Permit – Based on the information available at the time of the determination SEPA is satisfied that

- The applicant will be the person who will have control over the operation of the installation/mobile plant,
- The applicant will ensure that the installation/mobile plant is operated so as to comply with the conditions of the Permit,
- That the operator is in a position to use all appropriate preventative measures against pollution, in particular through the application of best available techniques.
- That no significant pollution should be caused.