Newfoundland Labrador

GOVERNMENT OF
NEWFOUNDLAND AND LABRADOR
Department of Environment and Climate Change

CERTIFICATE OF APPROVAL

Pursuant to the Environmental Protection Act, SNL 2002 c E-14.2 Section 83

Issue Date: ***May 5, 2020*** Approval No. AA20-055659C
Amendment Date: ***April 12, 2023***
Expiration: ***December 31, 2023*** File No. 731.550

Proponent:	**Vale Newfoundland & Labrador Limited** KMK Place, 2nd Floor 18 Hebron Way St. John's, NL A1A 0L9
Attention:	Mr. Jared Saunders, Environment Superintendent, Labrador Operations
Re:	**Voisey's Bay Mine/Mill Project Site**

Approval is hereby given for the operation of: open pit mines (Ovoid and Discovery Hill); ore crusher; concentrator; effluent treatment system; tailings management facility; explosives manufacturing plant; and port unloading, storage and reclaim facilities; underground mines at Reid Brook and Eastern Deeps and the necessary infrastructure to operate and facilitate such activities as required at the Voisey's Bay Project Site.

This Certificate of Approval does not release the proponent from the obligation to obtain appropriate approvals from other concerned provincial, federal and municipal agencies. Nothing in this Certificate of Approval negates any regulatory requirement placed on the proponent. Where there is a conflict between conditions in this Certificate of Approval and a regulation, the condition in the regulation shall take precedence. Approval from the Department of Environment and Climate Change shall be obtained prior to any significant change in the design, construction, installation, or operation of the Voisey's Bay Project Site, including any future expansion of the Voisey's Bay Mine/Mill. This Certificate of Approval shall not be sold, assigned, transferred, leased, mortgaged, sublet or otherwise alienated by the proponent without obtaining prior approval from the Minister.

This Certificate of Approval is subject to the terms and conditions as contained therein, as may be revised from time to time by the Department. Failure to comply with any of the terms and conditions may render this Certificate of Approval null and void, may require the proponent to cease all activities associated with this Certificate of Approval, may place the proponent and its agent(s) in violation of the *Environmental Protection Act*, and will make the proponent responsible for taking such remedial measures as may be prescribed by the Department. The Department reserves the right to add, delete or modify conditions to correct errors in the Certificate of Approval or to address significant environmental or health concerns.

For **MINISTER**

TERMS AND CONDITIONS FOR APPROVAL No. AA20-055659C
April 12, 2023

General

1. This Certificate of Approval is for the operation of:

- open pit mines (Ovoid and Discovery Hill);
- underground mines (Reid Brook and Eastern Deeps)
- ore crusher;
- concentrator;
- effluent treatment system;
- tailings management facility;
- explosives manufacturing plant;
- port unloading, storage and reclaim facilities;
- temporary accommodation facilities and expansions (South Camp);
- temporary construction warehouse and mine maintenance shops (surface and underground);
- temporary construction and mining laydown areas and trailers;
- mine access portals and surface facilities (including associated conveyors, ventilation systems and power centres);
- underground mine raise bores, escapeways and refuge stations (including pump houses and electrical houses located at the surface);
- associated clearing and grubbing of the project areas including the incinerator area;
- drainage structures (including sumps);
- paste backfill plant, booster station, and binder storage silos at the port site;
- service roads; and
- surface-run and buried utilities (including fuel storage tanks and pipelines) and power lines

as required at the **Voisey's Bay Project Site** (**VBPS**) as per plans and specifications supplied by **Vale Newfoundland & Labrador Limited** (**VNL**) for this Certificate of Approval. Extensive future expansion or alteration of activities will require a separate Certificate of Approval.

2. Any inquiries concerning this Approval shall be directed to the St. John's office of the Pollution Prevention Division (telephone: (709) 729-2556; or facsimile: (709) 729-6969).

3. In this Certificate of Approval:

- **accredited** means the formal recognition of the competence of a laboratory to carry out specific functions;

- **acutely lethal**, in respect of an effluent, means that the effluent at 100 per cent concentration kills more than 50 per cent of the

(a) rainbow trout subjected to it for a period of 96 hours, when tested in accordance with Reference Method EPS 1/RM/13; or

(b) Daphnia magna subjected to it for a period of 48 hours, when tested in accordance Reference Method EPS 1/RM/14;

- **air contaminant** means any discharge, release, or other propagation into the air and includes dust, fumes, mist, smoke, particulate matter, vapours, gases, odorous substances, acids, soot, grime or any combination of them;
- **ALT (acute lethality test)** means a test conducted to determine whether an effluent is acutely lethal;
- **associated product** means petroleum or a derivative of it, except gasoline, which is in a liquid state at ambient temperature and pressure;
- **binder** means a material consisting of a 90:10 mixture of binder slag to Portland cement;
- **CO** means carbon monoxide;
- **CO_2** means carbon dioxide;
- **composite sample** means a quantity of undiluted effluent collected continually at an equal rate or at a rate proportionate to flow over a designated sampling period;
- **Department** means the Department of Environment and Climate Change and its successors;
- **DGSNL** means Digital Government and Service NL and its successors;
- **DOC** means dissolved organic carbon;
- **EDMS** means Environmental Data Management System;
- **effluent discharge criteria** (EDC) means the maximum allowable levels for the parameters listed in Table 3;
- **GAP** means *Storage and Handling of Gasoline and Associated Products Regulations, 2003*;
- **grab sample** means a quantity of undiluted sample collected at any given time. In this Approval it refers to used oil and effluent;
- **hazardous waste** means a product, substance or organism that is intended for disposal or recycling, including storage prior to disposal or recycling, and that:

  (a) is listed in Schedule III of the *Export and Import of Hazardous Waste Regulations under the Canadian Environmental Protection Act, 1999*;

(b) is included in any of Classes 2 to 6, and 8 and 9 of the *Transportation of Dangerous Goods Regulations* under the *Transportation of Dangerous Goods Act, 1992*; or

(c) exhibits a hazard classification of a gas, a flammable liquid, an oxidizer, or a substance that is dangerously reactive, toxic, infectious, corrosive or environmentally hazardous;

- **Headwater Pond** is a multi-purpose storage facility which is used:

  (a) for the current and future storage of mine inflows to the Ovoid open pit mine and underground mines from direct precipitation, pit wall runoff, groundwater seepage, and surface runoff from the mine access portals which are collected in sumps and pumped to the mill, from where they are sent to Headwater Pond;

  (b) as a tailings impoundment area for storage of tailings generated from the milling of Voisey's Bay ore; and

  (c) to provide surge capacity and retention time for site water management and act as a source of process water for the mill.

  At the time that Headwater Pond reaches its permitted storage capacity tailings will subsequently be diverted to the depleted Ovoid open pit mine. At that point references to Headwater Pond, as it pertains to tailings, should be considered to refer to the Ovoid open pit mine.

- **licensed** means has a Certificate of Approval issued by the Minister to conduct an activity;

- **malfunction** means any sudden, infrequent and not reasonably preventable failure of air pollution control equipment, wastewater treatment equipment, process equipment, or a process to operate in a normal or usual manner. Failures, caused in part by poor maintenance or careless operation, are not malfunctions;

- **MDMER** means the federal Metal and Diamond Mining Effluent Regulations;

- **Minister** means the Minister of the Department;

- **NAG** means non-acid generating waste rock;

- **NO_x** means oxides of nitrogen;

- **NO_2** means nitrogen dioxide;

- **oil separator** means a device used to separate and remove oily wastes from oil and water mixtures;

- **open pit mines** means the Ovoid open pit mine and the Discovery Hill open pit mine;

- **PAG** means potentially acid generating rock;

- **paste** means a mixture of dewatered tailings from the concentrator plant with binder to create a material that will be used as backfill in mined-out stopes of the underground mines;

- **Plan** means the specific plan as identified in the section of this Approval within which it is used. For example, in the *Waste Management Plan* section it refers to the Waste Management Plan;

- **$PM_{2.5}$** means particulate matter with a diameter of 2.5 µm or less;

- **proficiency testing** means the use of inter-laboratory comparisons to determine the performance of individual laboratories for specific tests or measurements;

- **Province** means Province of Newfoundland and Labrador;

- **QA/QC** means Quality Assurance/Quality Control;

- **register(ed)**, in the context of:
  - storage tanks, means that information regarding the storage tank system has been submitted to a DGSNL office and a registration number has been assigned to the storage tank system;
  - dispersion modelling, means submitted to and approved by the Department in accordance with departmental policy and guidelines; and
  - environmental site assessment and impacted site management work, means approved by the Department in accordance with departmental policy and guidelines;

- **regulated substance** means a substance subject to discharge limit(s) under the *Environmental Control Water and Sewage Regulations, 2003*;

- **site plan** means the drawings in the documentation submitted on ***February 28, 2023,*** for this Approval;

- **Site Professional** means an individual who is registered with the Department to oversee environmental site assessment, remediation and contaminated site management work in Newfoundland and Labrador

- **SO_2** means sulphur dioxide;

- **SOP** means Standard Operating Procedure;

- **stack** means a chimney, flue, conduit or duct arranged to conduct an air contaminant into the air;

- **storage tank system** means a tank and all vent, fill and withdrawal piping associated with it installed in a fixed location and includes a temporary arrangement;

- **TDS** means total dissolved solids;

- **toxic pass** means a mortality rate of no more than 50 per cent during the ALT;

- **TPH** means total petroleum hydrocarbons, as measured by the Atlantic PIRI method;
- **TPM** means total particulate matter with diameters less than 100µm;
- **TSS** means total suspended solids;
- **used glycol** means glycol that, through use, storage or handling, can no longer be used for its original purpose;
- **used oil** means oil that, through use, storage or handling, can no longer be used for its original purpose;
- **VBPS** means Voisey's Bay Project Site; and
- **VNL** means Vale Newfoundland & Labrador Limited.

4. All necessary measures shall be taken to ensure compliance with all applicable acts, regulations, orders, policies, guidance documents and guidelines, including the following, or their successors:
   - *Environmental Protection Act;*
   - *Water Resources Act;*
   - *Air Pollution Control Regulations, 2022;*
   - *Environmental Control Water and Sewage Regulations, 2003;*
   - *Halocarbon Regulations;*
   - *Storage and Handling of Gasoline and Associated Products Regulations, 2003;*
   - *Used Oil and Used Glycol Control Regulations;*
   - *Heating Oil Storage Tank System Regulations, 2003;*
   - *Voisey's Bay Nickel Company Limited Mine and Mill Undertaking Order;*
   - *Ambient Air Monitoring Guidance Document;*
   - *Sampling of Water and Wastewater - Industrial Effluent Applications Guidance Document;*
   - *Accredited Laboratory Policy;*
   - *Effluent Schedule Determination Policy for Industries*
   - *Compliance Determination Guidance Document;*
   - *Source Emission Testing Guidance Document;*
   - *Plume Dispersion Modelling Guidance Document;*
   - *Precipitation Drainage of Dyke Areas Guidance Document;*
   - *Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Aboveground Storage Tanks; and*
   - *Guidance Document for the Management of Impacted Sites.*

   This Approval provides terms and conditions to satisfy various requirements of the above listed acts, regulations, order, policies, guidance documents and guidelines. If

it appears that any of the pertinent requirements of these acts, regulations, order, policies, guidance documents and guidelines are not being met, then a further review of the works shall be conducted, and suitable pollution control measures may be required by the Minister.

5. All reasonable efforts shall be taken to minimize the impact of the operation on the environment. Such efforts include:
   - minimizing the area disturbed by the operation,
   - minimizing air, water or soil pollution,
   - finding alternative uses, acceptable to the Department, for waste or rejected materials,
   - removing equipment or structures when they no longer have further use, and
   - considering the requirement for the eventual rehabilitation of disturbed areas when planning the development of any area on the facility property.

6. **VNL** shall provide to the Department, within a reasonable time, any information, records, reports or access to data requested or specified by the Department.

7. **VNL** shall keep all records or other documents required by this Approval at the **VBPS** location for a period of not less than three years, beginning the day they were made. These records shall be made available for review by officials of the Department or DGSNL when requested.

8. Should **VNL** wish to deviate in any way from the terms and conditions of this Certificate of Approval, a written request detailing the proposed deviation shall be made to the Department. **VNL** shall comply with the most current terms and conditions until the Department has authorized otherwise. In the case of meeting a deadline requirement, the request shall be made at least 60 days ahead of the applicable date as specified in this Approval or elsewhere by the Department.

Activities Affecting Bodies of Water

9. Any work that must be performed in a body of water below the high water mark shall be carried out during a period of low water levels, unless otherwise permitted in writing by the Department.

10. All construction operations shall be carried out in a manner that minimizes damage to land, vegetation, and watercourses, and which prevents the discharge of substances, to bodies of water, in excess of applicable regulatory limits.

11. The use of heavy equipment shall be confined to dry stable areas and shall not be carried out in streams or bodies of water, unless otherwise permitted in writing by the Department.

12. All vehicles and equipment shall be in good repair, and shall be free of leaks of oil or other harmful substances that could impair water quality.

13. During the construction of concrete components, formwork shall be properly constructed to prevent any fresh concrete from entering a body of water. Dumping of concrete or washing of tools and equipment in any body of water is prohibited.

14. Waste hardened concrete shall not be disposed as unsuitable material at the project site. Waste hardened concrete shall be put to beneficial use on site as fill material, or it shall be sent to an approved waste disposal site.

15. All areas affected by this project shall be restored to a state that resembles local, natural conditions. Further remedial measures to mitigate environmental impacts on water resources can and will be specified, if necessary in the opinion of this Department.

16. Prior written permission is required from the Department for all work that takes place within 15 metres of a body of water, including but not limited to bridges, culverts, fording, stream modifications, infilling and dredging.

Environmental Protection Plan

17. **VNL** shall implement the most recent version of the Voisey's Bay Environmental Protection Plan. This plan shall be reviewed annually by **VNL** and revised as necessary, accounting for expansion or alteration of activities. All proposed revisions shall be submitted to the Department for review.

Waste Management

18. The management of waste generated at the facility is subject to compliance with the ***Environmental Protection Act***. All non-industrial waste shall be stored in a manner acceptable to the Department and, on at least a weekly basis, be disposed of:

- at an authorized waste disposal site, with the permission of the owner/operator of the site; or
- by some other means acceptable to the Department.

If required, industrial waste shall be disposed of by a licensed operator.

19. **VNL** shall ensure that all volatile chemical and solvent wastes, if they cannot be reused, are placed in suitable covered containers for disposal in a manner acceptable to the Department. Disposal of liquid wastes at waste disposal sites in the Province is not permitted.

20. Disposal of hazardous waste in a municipal or regional waste disposal site in this Province is prohibited. Transporters of hazardous waste shall have an Approval issued by the Minister. Those generating hazardous waste shall have a waste generator's number issued by the Department and shall also complete the required information outlined in the Waste Manifest Form.

Waste Management Plan

21. **VNL** shall continue to implement the Voisey's Bay Waste Management Plan (***July 17, 2022***) for the **VBPS**, including all revisions. Every year the Plan shall be reviewed by **VNL** and revised as necessary, accounting for expansion or alteration of activities. All proposed revisions shall be submitted to the Department for review.

Burning Prohibition

22. Materials listed in **Table 1** shall not be burned in a fire, unless the burning of the material is recommended, in writing, by the Office of the Fire Commissioner or the burning occurs in combustion process equipment that has been approved, in writing, by the Department or DGSNL for that purpose.

Table 1 - Materials Prohibited from Burning in a Fire	
(a) tires	(k) manure
(b) plastics	(l) rubber
(c) treated lumber	(m) tar paper
(d) asphalt and asphalt products	(n) railway ties
(e) drywall	(o) paint and paint products
(f) demolition waste	(p) fuel and lubricant containers
(g) hazardous waste	(q) used oil
(h) biomedical waste	(r) animal cadavers
(i) domestic waste	(s) hazardous substances
(j) trash, garbage, or other waste from commercial, industrial or municipal operations	(t) materials disposed of as part of the removal or decontamination of equipment, buildings or other structures

23. The Department shall be notified prior to the burning of any materials not listed in **Table 1** except where authorized in **VNL**'s Waste Management System Approval No. LB-WMS22-01024O, as renewed or amended.

Noise

24. Efforts shall be made to minimize and control noise resulting from the **VBPS**'s operations and maintenance activities. All vehicles operating within the facility shall have exhaust and muffling devices in good working order.

Dust Suppression

25. **VNL** shall control dusting resulting from construction and operational activities at the site. Use of dust suppressants other than water or calcium chloride shall require approval of the Department. **VNL** are encouraged to use best management practices when applying calcium chloride or any other approved dust suppressant.

Chemical Operations

26. All chemical loading and blending shall be done inside the facility, with no chemical containers being opened outside. All vessels will be blanketed to eliminate vapour or odorous substance releases.

27. Empty chemical drums, totes or packaging shall be either sent:

- back to the original equipment manufacturer for re-use;
- to a recognized disposal company, or;
- to a recognized re-cycling facility.

When deemed necessary, waste material from drums, totes or packaging will be retained on-site for collection and disposal by a recognized waste treatment company according to provincial and federal regulations.

Spill and Leak Prevention and Containment

28. Areas in which chemicals are used or stored shall have spill and leak containment systems constructed with impermeable floors, walls, dykes or curbs as applicable and be configured, maintained, inspected and repaired as follows:

- they shall not discharge to the environment;
- they shall have an effective secondary containment capacity of at least 110 per cent of the chemical storage tank capacity, in the case of a single storage container;
- if there is more than one storage container, they shall have an effective secondary containment capacity of at least 110 per cent of the capacity of the largest container, or 100 per cent of the capacity of the largest container plus 10 per cent of the aggregate capacity of all additional containers, whichever is greater;
- they shall be kept clear of material that may compromise the containment capacity;
- they may include a floor drain system provided that the floor drains, and the place or device to which they drain, are configured in such a manner that the required effective secondary containment capacity is maintained;
- every year they shall be visually inspected for their liquid containing integrity, and repairs shall be made when required; and
- once every 10 years, spill and leak containment systems shall be inspected, by a means other than visual inspection, for their liquid containing integrity, and repairs shall be made when required.

29. All on site storage of petroleum shall comply with the ***Storage and Handling of Gasoline and Associated Products Regulations, 2003***, or its successor. Storage tank systems shall be registered with DGSNL.

30. Where applicable, all tanks and fuel delivery systems shall be inspected to appropriate American Petroleum Institute or Underwriters' Laboratories of Canada standards, or any other standards acceptable to this Department. The required frequency of inspections may be changed at the discretion of the Department.

31. **VNL** shall maintain an inventory of all petroleum and chemical storage tanks. This inventory shall include the following information:

- site plan showing tank location,
- registration number (where applicable),
- identification number,
- material stored,
- capacity,
- annual throughput,
- tank material,
- tank type,
- tank diameter,
- tank height,
- tank colour,
- roof type,
- year of manufacture,
- date of installation,
- date of last inspection,
- failure history,
- maintenance history,
- effective secondary containment capacity, and
- date of next planned inspection.

An update of the complete storage tank inventory including any changes to it shall be submitted to the Department within three months of the change having occurred.

32. Refuelling and maintenance of vehicles and equipment shall, whenever possible, be undertaken on a prepared impermeable surface with a containment or collection system for spills or leaks of fluids (e.g. hydrocarbons, coolants and other associated fluids). When this is not possible, due care shall be taken to prevent spills or leaks on the ground and to the surrounding environment, particularly streams and other water bodies. The Emergency Response (Contingency) Plan for **VBPS** shall detail the specific response actions in the event of a spill or leak from refuelling or maintenance activities.

33. **VNL** shall continue to implement the maintenance program for the prevention of leaks/spills of fluids (e.g. hydrocarbons, coolants and other associated fluids) from mobile equipment (i.e. from the hydraulic hoses and/or motors from the machine houses of the drills, excavators and trucks).

Emergency Response (Contingency) Plan

34. **VNL** shall continue to implement the most recent version (***May 10, 2022***) of the Voisey's Bay Emergency Response (Contingency) Plan, including all revisions, for the **VBPS**. This Plan describes the actions to be taken in the event of a spill or leak of a toxic or hazardous material. Copies of the Plan shall be placed in convenient areas

throughout the facility so that employees can easily refer to it when needed. **VNL** shall ensure that all employees are aware of the Plan and understand the procedures and the reporting protocol to be followed in the event of an emergency. An annual response exercise is recommended for response personnel. Every year, as a minimum, the Plan shall be reviewed by **VNL** and revised as necessary. Any proposed significant revisions shall be submitted to the Department for review. Changes which are not considered significant include minor variations in equipment or personnel characteristics which do not affect the implementation of the Plan.

35. Every time **VNL** implements the Plan, information shall be recorded for future reference. This will assist in reviewing and updating the Plan. The record is to consist of all incidents with environmental implications, and include such details as:

- date;
- time of day;
- type of incident (i.e. liquid leak/spill, gas leak, granular chemical leak/spill, equipment malfunction, etc.);
- actions taken;
- problems encountered; and
- other relevant information that would aid in later review of the Plan performance.

Each incident report shall be submitted to the Department as per the ***Reporting*** section.

Rehabilitation and Closure

36. A Rehabilitation and Closure Plan detailing the actions to be taken to restore areas disturbed by the operation has been submitted to the Department (***January 21, 2022***). The Plan shall be implemented progressively as required and completed upon site closure.

37. As part of the site decommissioning and restoration process, **VNL** shall employ a registered Site Professional to complete a site-wide environmental site assessment, as defined in the ***Guidance Document for the Management of Impacted Sites***. Should impacts be identified, **VNL** shall proceed through the process outlined in the Guidance Document to achieve regulatory site closure.

Ore, Concentrate and Binder Storage, Handling and Transport

38. Spills of ore, concentrate and binder shall be promptly cleaned up. Spilled ore and concentrate shall be returned to an operationally acceptable stage of the process. Spilled binder shall be disposed, be placed into silo storage or be delivered to the paste plant for use.

39. All concentrate haul trucks shall have concentrate loads fully enclosed while transferring concentrate from the concentrator load-out facility at the Mine/Mill to the concentrate receiving station at the Port Unloading, Storage and Reclaim Facility.

40. Concentrate deposits on the exterior surfaces of the concentrate haul trucks and dedicated concentrate handling equipment shall be removed before the equipment leaves the concentrate load-out area.

41. Concentrate-contaminated equipment at the Port Unloading, Storage and Reclaim Facility shall be cleaned inside the building before leaving the concentrate storage facility.

42. Concentrate deposits on exterior surfaces of mobile equipment used in ship loading shall be removed before the equipment is hoisted from the ship.

43. Collected concentrate from haul truck and equipment cleaning activities shall be removed as necessary and returned to the process or discharged to the tailings management area.

44. Run of mine (ROM) ore shall not be permitted to be stored on the former ROM ore storage pad area west of the primary crusher.

45. The primary crusher shall not be operated without the primary crusher dust collector being operational. Limited periods of dust collector downtime associated with routine dust collector maintenance activities are acceptable. Collected dust shall report to the crushed ore stockpile conveyor.

46. Storage of crushed ore shall be limited to the coarse ore storage building. However, in order to allow the mill to sustain ore feed when the gyratory crusher is unavailable the use of a temporary ore transfer pad (TOTP) is acceptable. Implementation of the TOTP shall adhere to the terms and conditions as specified in the Labrador Operations Alternative Ore Supply to the Coarse Ore Storage Facility Procedure (SOP-M31, ***July 18, 2018*** or as later revised).

VNL shall provide notification to the Department of the:

- implementation date of the TOTP's construction and use;
- expected duration of the TOTP's use;
- expected maximum throughput - tonnage - of ore at the TOTP;
- actual throughput - tonnage - of ore at the TOTP; and
- restoration date of the TOTP area after its use.

47. The Port Unloading, Storage and Reclaim Facilities shall be used to store and load copper and nickel concentrates that are to be transported from site. Concentrate shall be conveyed from the concentrate storage building via the conveyors to the ship loader. Binder shall be transported from the dock to the storage silos at the Port Facilities via a pneumatic line. Binder shall be further transported by truck from a truck loading facility at the Port Facilities to a silo at the Paste Backfill Plant. **VNL** shall employ and maintain measures (i.e. filters, mechanical dust collector, collection stacks, fully

enclosed shiploader) to contain fugitive dust emissions and concentrate or binder spillage during loading and unloading operations wherever such activities occur at the site.

Used Oil and Used Glycol

48. Used oil and used glycol shall not be mixed and shall be stored in separate:
    - closed containers;
    - registered tanks; or
    - tanks that have an active Approval from DGSNL.

49. Where greater than 205 litres of used oil or used glycol is stored in one or more containers, the storage shall require approval from the Department or DGSNL.

50. Used oil and used glycol shall be disposed of by a company licensed for the handling and disposal of such products.

51. Information on used oil and used glycol that is generated at the facility each year shall be submitted to the Department by ***January 31*** of the following year for review. This shall include a description of the:
    - type(s) of oil and/or glycol used;
    - approximate total volume of used oil and/or used glycol generated during the year; and
    - method of disposal for the used oil and/or used glycol.

52. The use or operation of an oil separator requires registration under the ***Used Oil and Used Glycol Control Regulations***. Applications for registration shall be submitted to, and registration numbers are assigned by, DGSNL.

Site Water Management

53. Mine inflows to the Ovoid open pit mine from direct precipitation, pit wall runoff, groundwater seepage, paste backfill line flushing, and surface runoff from the local area watershed, including the temporary surface maintenance shop area, the temporary PAG stockpile, paste backfill plant area, underground mine portal areas, Eastern Deeps Surface Facilities, water collected in Discovery Hill open pit mine through a dewatering pump and line and mine haul and pit access roads, shall be collected in the Ovoid open pit mine sump and pumped to the mill, from where they shall be sent to Headwater Pond.

54. The Plant Site Sedimentation Pond (PSSP) shall collect surface runoff from the plant site area. PSSP Cell A shall provide storage and sediment control for surface runoff from the south side of the plant site including the northern part of the temporary accommodations construction area and from the Discovery Hill open pit mine access/haul road. PSSP Cell B shall provide storage and sediment control for surface runoff from the northern portion of the plant site. Runoff collected in PSSP Cell B

shall be pumped to PSSP Cell A, then to the mill and sent to Headwater Pond.

55. The North Sedimentation Pond provides storage and sediment control for surface runoff from the Clean Rock Dump drainage area, and the temporary warehouse area. Runoff accumulated in the North Sedimentation Pond shall be pumped to the Plant Site Sedimentation Pond or used as process water supply by the underground mines.

56. The South Sedimentation Pond shall be utilized to temporarily store runoff from the overburden and topsoil stockpile areas, and temporary underground mine maintenance shop area. Runoff collected shall be sent to the North Sedimentation Pond or directly to the mill.

57. Runoff from the new Sewage Treatment Plant area is collected locally and pumped directly to the mill.

58. The Port Site Sedimentation Pond shall be utilized to provide storage and sedimentation control for runoff and snowmelt from the port site prior to discharge into Anaktalak Bay.

59. The Mine Water Surge Pond shall be utilized for surge capacity by providing storage of inflows from other single lined or unlined site sedimentation ponds. The Mine Water Surge Pond shall not be used to collect mine inflows without prior written authorization from the Department.

60. The single geomembrane liner systems associated with the Mine Water Surge Pond, the Plant Site Sedimentation Pond (Cell A and Cell B), the North Sedimentation Pond and the Port Site Sedimentation Pond shall be periodically evaluated for leakage using methodology acceptable to the Department. The results of the leak detection survey shall be recorded and kept on file for review upon request by officials of the Department or DGSNL. The occurrence of any adverse event that impacts the integrity of a liner shall require immediate repair and testing of any damaged or leaking areas of the liner. **VNL** shall immediately notify the Department of any issues.

61. All external berms for the Mine Water Surge Pond, the Plant Site Sedimentation Pond (Cell A and Cell B), the North Sedimentation Pond, the South Sedimentation Pond and the Port Site Sedimentation Pond shall be visually inspected for signs of leakage or erosion that might affect the integrity of the structures. The visual inspections shall be conducted at least ***monthly***, and the date and results of each inspection shall be recorded and kept on file for review upon request by officials of the Department or DGSNL.

62. Discharge of the Port Site Sedimentation Pond shall only occur, on an as needed basis, if the water meets discharge requirements. Discharge shall only occur using a pump. The flow rate, duration and quantity of water discharged shall be recorded. During periods when no discharge occurs, these daily values shall be recorded as zero. Monthly total flow volume shall be submitted as per the ***Reporting*** section.

63. Water from the underground mines, including used process water, groundwater inflow and bleed and flush water from the paste backfill system will be filtered underground to remove most solids (solids to be disposed underground) and recycled to the extent practical with any excess water pumped to the Ovoid open pit mine and, from there, pumped to the mill and onward to Headwater Pond.

Tailings and Effluent Management

64. Headwater Pond is a tailings impoundment area for storage of tailings generated from the milling of Voisey's Bay ore. Headwater Pond shall also be utilized to provide surge capacity and retention time for site water management and act as a source of process water for the mill. Excess water from Headwater Pond shall be treated in the effluent treatment plant prior to discharge. Treated effluent shall be discharged into Edward's Cove via the treated effluent line and submarine diffuser.

65. All tailings shall be placed under water in Headwater Pond. The maximum elevation of placed tailings shall be maintained a minimum of 0.5 metres below the water surface at all times. Sediment removed from sedimentation ponds shall be collected as required and disposed of in Headwater Pond or as otherwise authorized by the Department.

66. Operation of the tailings, effluent and reclaim water pipelines shall be governed by the *PGS-005849 - Pipeline Leak Detection and Response* document (***November 30, 2022*** or as later revised).

67. Only NAG shall be reused on the surface. If waste rock is identified as PAG or metal leaching, it shall be disposed of in Headwater Pond.

68. All PAG, once removed from the confines of the open pit mines, shall be disposed of in Headwater Pond. Once the Ovoid open pit mine is mined out, PAG will be stored there. PAG and NAG can also be stored in mined out underground areas or as backfill material for cut-and-fill stopes. With the exception of the top safe working surface of the PAG infill area at Headwater Pond, all PAG there shall be fully immersed in the water.

69. Drainage from the treated effluent line may be discharged to the environment from the low point drains to perform extended periods of routine maintenance and to prevent freezing during periods when the line is not active. Prior to discharge, the effluent remaining in the line shall be tested to ensure it meets the discharge criteria as listed in **Table 3**. ALT is not required when discharging to land. Drainage activities shall be conducted in a manner that does not disturb the ground surface or create suspended sediment flows.

70. Surface water seepage from Tailings Dams H1 and H2 shall be returned to Headwater Pond or otherwise treated. If seepage water quality meets the discharge criteria specified in **Table 3** it may be discharged to the environment.

Effluent Monitoring and Discharge

71. **VNL** shall perform an Effluent Monitoring Program as per **Table 2**. Refer to **Table 3** for the effluent discharge criteria. Analytical results shall be submitted to the Department as per the ***Reporting*** section.

Table 2 - Effluent Monitoring Program

Location	EDMS Location Code	Parameters	Frequency
Effluent Treatment System Discharge	00196	EDC (except ALT)	Weekly if outflow (at least 24 hours apart)
		ALT & TPH	Monthly (at least 15 days apart)
		Flow Rate	Continuous/Estimate During Sample Collection
Port Site Sedimentation Pond Discharge	00197	EDC (except ALT)	Weekly if outflow (at least 24 hours apart)
		ALT & TPH	Monthly (at least 15 days apart)
		Flow Rate	Continuous/Estimate During Sample Collection
Tailings Dam H1 Seepage Water	00198	EDC (except ALT)	Weekly if outflow (at least 24 hours apart)
		ALT & TPH	Monthly (at least 15 days apart)
		Flow Rate	Continuous/Estimate During Sample Collection
Tailings Dam H2 Seepage Water	00199	EDC (except ALT)	Weekly if outflow (at least 24 hours apart)
		ALT & TPH	Monthly (at least 15 days apart)
		Flow Rate	Continuous/Estimate During Sample Collection
Note: ALT includes both rainbow trout and Daphnia magna testing.			

Table 3 – Effluent Discharge Criteria (EDC)

Parameter	Maximum Authorized Monthly Mean Concentration	Maximum Authorized Concentration in a Composite Sample	Maximum Authorized Concentration in a Grab Sample
Arsenic	0.30 mg/L	0.45 mg/L	0.60 mg/L
Copper	0.30 mg/L	0.45 mg/L	0.60 mg/L
Lead	0.10 mg/L	0.15 mg/L	0.20 mg/L
Nickel	0.50 mg/L	0.75 mg/L	1.00 mg/L
Zinc	0.50 mg/L	0.75 mg/L	1.00 mg/L
TSS	15.00 mg/L	22.50 mg/L	30.00 mg/L
Radium 226	0.37 Bq/L	0.74 Bq/L	1.11 Bq/L
Un-ionized ammonia	0.50 mg/L expressed as nitrogen (N)	Not applicable	1.00 mg/L expressed as nitrogen (N)
Acute Lethality	Toxic Pass		
pH	5.5 to 9 pH units		

72. **VNL** may reduce the frequency of testing for a parameter that is set out in the EDC with the exception of pH, TSS, ALT and Radium 226 to not less than once in each calendar quarter, at least 30 days apart, if that parameter's monthly mean concentration

in the effluent is less than 10 percent of the maximum authorized monthly mean concentration for the 12 months immediately preceding the most recent test. **VNL** shall notify the Department in writing, at least 30 days in advance of a reduction in the frequency of testing.

73. **VNL** may reduce the frequency of testing for Radium 226 to not less than once in each calendar quarter, at least 30 days apart, if that substance's concentration in the effluent is less than 0.037Bq/L in 10 consecutive tests. **VNL** shall notify the Department in writing, at least 30 days in advance of a reduction in the frequency of testing.

74. **VNL** shall increase the frequency of testing to the originally prescribed frequency for a parameter that is set out in the EDC with the exception of pH, TSS and ALT, if the parameter's monthly mean concentration is equal to or greater than 10 per cent of the maximum authorized monthly mean concentration.

75. **VNL** may reduce the frequency of conducting ALTs to once in each calendar quarter, at least 30 days apart, if the effluent is determined not to be acutely lethal over a period of 12 consecutive months. **VNL** shall notify the Department in writing, at least 30 days in advance of a reduction in the frequency of testing.

76. If a sample is determined to be acutely lethal, an aliquot of the failing sample shall be analyzed for the parameters outlined in **Table 4** without delay.

77. If a sample is determined to be acutely lethal, **VNL** shall collect from the final discharge point of the failing site a grab sample twice a month and conduct an ALT in accordance with Section 6 of the Reference Method. Samples shall be collected twice per month, not less than seven days apart, and an ALT shall be conducted on each sample, until it is determined that the effluent is not acutely lethal for three consecutive tests. Following the third consecutive non-acutely lethal test, **VNL** shall conduct ALTs as per the original prescribed frequency outlined in **Table 2**.

78. If effluent is determined to be acutely lethal for three consecutive ALTs, **VNL** shall implement a Toxicity Identification Evaluation (TIE) to identify the toxin, and from this develop measures to prevent or reduce the toxin. The report, written as a result of these identification activities, shall be submitted to the Department for review, within 60 days of the third consecutive failed ALT result. After review of the report, the Department may place additional requirements upon the proponent for treatment of effluent prior to discharge.

79. Reports submitted under section 31 of **MDMER** as a result of a deposit out of the normal course of events shall be provided to the Department.

Water Chemistry Analysis

80. Four times per year and not less than 30 days apart, **VNL** shall perform a Water Chemistry Analysis as per **Table 4**. Analytical results shall be submitted to the Department as per the ***Reporting*** section.

Table 4 - Water Chemistry Analysis Program

Location	EDMS Location Code	Parameters	Frequency
Effluent Treatment System Discharge	**00196**	**General Parameters** - must include the following: Temperature, dissolved oxygen (DO) nitrate + nitrite, nitrate, nitrite, ammonia, pH, TSS, colour, sodium, potassium, calcium, sulphide, magnesium, alkalinity, sulphate, chloride, turbidity, reactive silica, orthophosphate, phosphorous, DOC, conductance, TDS (calculated), phenolics, carbonate (CaCO3), hardness (CaCO3), bicarbonate (CaCO3). **Metals Scan** - must include the following: aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, mercury, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, zinc.	Four times per year (not less than 30 days apart)
Port Site Sedimentation Pond Discharge	**00197**		
Discharge End of Cutoff Ditch M1	**00200**		
Unnamed Stream - North Sedimentation Pond Area	**00201**		
ROM Pad Monitoring Well 1 (MW06-11)	**00202**		
ROM Pad Monitoring Well 2 (MW06-12)	**00203**		
South Sedimentation Pond Monitoring Well 1 (BH-8)	**00204**		
South Sedimentation Pond Monitoring Well 2 (BH-10)	**00205**		
North Sedimentation Pond - Wet Well	**00206**		
Plant Site Sedimentation Pond A - Wet Well	**00207**		
Plant Site Sedimentation Pond B - Wet Well	**00208**		
Headwater Pond Reclaim Barge	**00209**		
Tailings Dam H1 Seepage	**00198**		
Tailings Dam H2 Seepage	**00199**		
Tailings DamH1 Monitoring Well 1 (MW05-4)	**00210**		
Tailings DamH1 Monitoring Well 2 (MW05-5)	**00211**		
Tailings DamH2 Monitoring Well 1 (MW05-1A)	**00212**		
Tailings DamH2 Monitoring Well 2 (MW05-1B)	**00213**		
Tailings DamH2 Monitoring Well 3 (MW05-2A)	**00214**		
Tailings DamH2 Monitoring Well 4 (MW05-2B)	**00215**		
Tailings DamH2 Monitoring Well 5 (MW05-3A)	**00216**		
Tailings DamH2 Monitoring Well 6 (MW05-3B)	**00217**		
Explosives Plant Monitoring Well 1 (MW06-03)	**00218**		
Explosives Plant Monitoring Well 2 (MW06-04)	**00219**		
Camp Pond Brook Monitoring Well (MW06-01)	**00220**		
Camp Pond Brook Monitoring Well (MW06-02)	**00221**		
Diffuser Water Quality Site 1 - 'A' Bay	**00226**		

Reference Water Quality Site 2 - 'A' Bay	**00227**		
Camp Pond - Near the temporary underground maintenance shop - (C1)	**00228**		
Otter Pond	**00229**		
Reid Brook - Near western construction area for Reid Brook - (C2)	**00230**		
ROM Pad Drainage Pipe	**00222**	pH, copper, nickel	Monthly grab
Mine Water Surge Pond Wet Well	**00223**	arsenic, cobalt, copper, lead, nickel, zinc, TSS	
Mine Water Surge Pond - Leak Detection Sump	**00224**		
Mine Water Surge Pond Underdrain	**00225**		
North Sedimentation Pond - Wet Well	**00206**	arsenic, cobalt, copper, lead, nickel, zinc, ammonia	

81. **VNL** may discontinue testing for mercury if the mercury concentration in the effluent is less than 0.10 µg/L in 12 consecutive quarterly samples. **VNL** shall notify the Department in writing, at least 30 days in advance of a reduction in the frequency of testing.

Environmental Effects Monitoring

82. **MDMER** requires that **VNL** conduct Environmental Effects Monitoring (EEM) as part of the mine's authority to deposit effluent under the Fisheries Act. Copies of all EEM study designs and reports shall be submitted to the Department.

Ambient Air

83. **VNL** shall operate an ambient air monitoring program as per the conditions in this Approval and its amendments. Approval shall be obtained from the Department prior to purchase, installation or relocation of any monitoring equipment.

84. Parameters to be monitored and the monitoring locations are outlined in **Table 5**.

Table 5 - Ambient Air Monitoring Program

Location	EDMS Location Code	Number of Monitors	Parameter
Primary Crusher	**00231**	1	NO_x*
Accommodations	**00232**	1	NO_x*
Accommodations	**00232**	1	$PM_{2.5}$
Port Site	**00233**	1	TPM
* NO_x includes both NO_2 and Nitric Oxide (NO).			

85. Ambient air monitoring shall be done in accordance with the ***Ambient Air Monitoring Guidance Document (GD-PPD-065)***, or its successors.

86. **VNL** shall operate, calibrate and maintain a meteorological station at the VBPS in accordance with the guidelines specified in the United States EPA document "Quality Assurance Handbook for Air Pollution Measurement Systems - Volume IV: Meteorological Measurements Version 2.0 (Final)," EPA-454/B-08-002, or its successors. Parameters to be measured and recorded on an hourly basis shall include, as a minimum:

- wind speed,
- wind direction,
- ambient air temperature,
- relative humidity,
- barometric pressure, and
- precipitation.

All records shall be submitted to the Department, on a monthly basis, as per the ***Reporting*** section.

87. Information regarding calibrations, site visits and maintenance for all continuous ambient air monitors shall be recorded into the DR DAS electronic logbook.

88. The air quality standards specified in Schedule A of the ***Air Pollution Control Regulations, 2022*** shall apply to all points outside of **VNL**'s administrative boundary. The administrative boundary is defined as the area encompassed by the coordinates contained in Appendix A, a total area of approximately 56.1362 km^2. All coordinates are referenced to NAD83 UTM Zone 20.

Annual Air Emissions Reporting

89. **VNL** shall submit an annual Air Emissions Report to the Department by ***June 1*** of the subsequent year. This report shall include the:

- estimated annual emissions of the following flue gas constituents:
  (a) SO_2, NO_2, NO_X, CO_2, CO, TPM and $PM_{2.5}$; and
- the actual calculations including factors, formulae and/or assumptions used.

Fuel Consumption

90. **VNL** shall maintain, and submit to the Department, on a monthly basis as per the ***Reporting*** section, the following:

- supplier, date and volume of each shipment of fuel received at the **VBPS**;
- total monthly fuel consumption for all equipment (both mobile and stationary including, but not limited to, boilers, vehicles, mining equipment and incinerators) at the **VBPS**; and
- daily consumption of fuels combusted by each operating boiler at the existing powerhouse installation**.**

Pollution Control Equipment

91. All pollution control equipment shall be maintained and operated per the manufacturer's specifications for best performance.

92. All oil separators shall be checked routinely and maintained in accordance with manufacturer's instructions by **VNL** to ensure they are working properly. A log of these checks shall be maintained.

Source Emission Testing and Dispersion Modelling

93. Source emission testing shall be done in accordance with the ***Source Emission Testing Guidance Document (GD-PPD-016.1)***. Dispersion modelling shall be done in accordance with the ***Plume Dispersion Modelling Guidance Document (GD-PPD-019.2)***. Determination of frequency of source emission testing and dispersion modelling shall be done in accordance with the ***Compliance Determination Guidance Document (GD-PPD-009.4)***.

94. **VNL** shall be required to complete source emissions testing once every four years if it has been shown, via a registered dispersion model, that the operation is in compliance with section 3(2) and Schedule A of the ***Air Pollution Control Regulations, 2022***. If it has been shown, via a registered dispersion model, that the operation is not in compliance with section 3(2) and Schedule A of the ***Air Pollution Control Regulations, 2022***, then the facility shall complete source emission testing every two years.

95. Source emission testing results shall be submitted to the Department within ***75 days*** of completion of the sampling. In the event that source emission testing is conducted in more than one tranche the results of each tranche of source emission testing results shall be submitted to the Department within 75 days of the completion of each segment of the sampling.

96. Plume dispersion modelling results shall be submitted to the Department within ***120 days*** of approval of all segments of the source emission testing results by the Department.

97. If the results from the plume dispersion modelling indicate that **VNL** is not in compliance with section 3(2) and Schedule A of the ***Air Pollution Control Regulations, 2022***, then **VNL** shall submit to the Department, ***within 6 months*** from the date of submission of plume dispersion modelling results, an Action Plan to bring emissions of the parameters of concern into compliance. In addition to this, the Plan shall include information detailing the improvements to be implemented to the **VBPS**'s equipment and instruments, and a time frame for the improvements. By ***December 31*** of each year, a report shall be submitted to the Department outlining the progress made to date towards accomplishing the goals of the Plan.

Analysis and QA/QC

98. Unless otherwise stated herein, all solids and liquids analysis performed pursuant to this Approval shall be done by either a contracted commercial laboratory or an in-house laboratory. Contracted commercial laboratories shall have a recognized form of accreditation. In-house laboratories have the option of either obtaining accreditation or submitting to an annual inspection by a representative of the Department, for which **VNL** shall be billed for each laboratory inspection in accordance with Schedule 1 of the ***Accredited Laboratory Policy (PD:PP2001-01.2)***. Recommendations of the Department stemming from the annual inspections shall be addressed within ***six months***, otherwise further analytical results shall not be accepted by the Department.

99. If **VNL** wishes to perform in-house laboratory testing and submit to an annual inspection by the Department then a recognized form of proficiency testing recognition shall be obtained for compliance parameters for which this recognition exists. The compliance parameters are listed in the ***Effluent Monitoring and Discharge*** section. If using a commercial laboratory, **VNL** shall contact that commercial laboratory to determine and to implement the sampling and transportation QA/QC requirements for those activities.

100. The exact location of each sampling point shall remain consistent over the life of the monitoring programs, unless otherwise approved by the Department.

101. **VNL** shall bear all expenses incurred in carrying out the environmental monitoring and analysis required under conditions of this Approval.

Monitoring Alteration

102. The Department has the authority to alter monitoring programs or require additional testing at any time when:

- pollutants might be released to the surrounding environment without being detected;
- an adverse environmental effect may occur; or
- it is no longer necessary to maintain the current frequency of sampling and/or the monitoring of parameters.

103. **VNL** may, at any time, request that monitoring programs or requirements of this Approval be altered by:

- requesting the change in writing to the Department; and
- providing sufficient justification, as determined by the Department.

The requirements of this Approval shall remain in effect until altered, in writing, by the Department.

Reporting

104. Monthly reports containing the environmental compliance monitoring and sampling

information required in this Approval shall be received by the Department in digital format within 30 calendar days of the reporting month. All related laboratory reports shall be submitted with the monthly report in Extensible Markup Language (XML) format and Adobe Portable Document Format (PDF). Digital report submissions shall be uploaded through the EDMS web portal.

105. Each monthly report shall include a summary of all environmental monitoring components and shall include an explanation for the omission of any requisite data. The monthly summary reports shall be in Microsoft Word or Adobe PDF and shall be uploaded through the EDMS web portal with the data submissions.

106. All incidents of:

- *Emergency Response (Contingency) Plan* implementation; or
- non-conformance of any condition within this Approval; or
- a spill or leak of any amount of a regulated substance; or
- effluent discharge criteria being, or suspected of being, exceeded; or
- verbal or written complaints of an environmental nature received from the public by **VNL** and related to the **VBPS**, including complaints submitted anonymously;

shall be immediately reported, within one working day, to the Department.

A written comprehensive report, including a detailed description of the incident, a summary of contributing factors, and an Action Plan to prevent future incidents of a similar nature, shall be prepared. The report shall include a description of actions already taken and future actions to be implemented, and shall be submitted within 30 days of the date of the initial incident.

107. Any:

- spill of gasoline or associated product in excess of 70 litres from a storage tank system, pipeline, or vehicle; or
- leak of gasoline or associated product in any amount from a storage tank system, pipeline, tank car or tank vehicle, or
- spill of used oil or used glycol in excess of 70 litres from a storage tank system, or
- leak of used oil or used glycol in any amount from a storage tank system;

shall be reported immediately through the Environmental Emergencies 24-hour report line at 1-(800)-563-9089.

Expiration

108. This Certificate of Approval expires ***December 31, 2023***.

109. Should **VNL** wish to continue to operate the **VBPS** beyond this expiry date, a written request shall be submitted to the Department for the renewal of this Approval. Such request shall be made prior to ***June 30, 2023***.

Appendix A

Vale Voisey's Bay Site – Administrative Boundary Coordinates

Surface Lease

564000.00	6243500.00
564000.00	6241000.00
554500.00	6241000.00
554495.87	6242888.48
553014.00	6242888.39
553014.00	6243679.16
553750.00	6243679.10
553750.00	6244179.04
554500.00	6244179.04
554500.00	6247500.00
556006.44	6248519.86
556002.61	6251747.38
556308.81	6252237.50
556609.64	6252719.00
557271.01	6252700.51
558452.64	6253706.00
558805.20	6253304.00
557500.01	6252193.60
557500.01	6246500.00
564000.00	6243500.00

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