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Report on the termination and after-care measures covered by collateral under the Mining Act

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Abstract

This report analyses the concrete criteria for determining the collaterals under the Mining Act that are composed of the measures based on obligations imposed under the Mining Act. Four different types of mines are used as examples to study the regulation of mining collaterals. Based on these case studies, a concrete and clear account is given on the individual factors to be taken into account in determining mining collaterals, and development proposals are also presented.

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I utredningen specificeras de konkreta grunderna för fastställande av de säkerheter som avses i gruvlagen och som består av åtgärder enligt de förpliktelser som ålagts med stöd av gruvlagen. Bestämmelserna om säkerhet med avseende på gruvor granskas med hjälp av fyra olika exempelgruvor. Utifrån fallstudien presenteras en enkel och konkret bild av de enskilda faktorer som ska beaktas vid bestämmandet av säkerheter för gruvdrift samt presenteras utvecklingsförslag.

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Contents

1 ASSIGNMENT

The assignment is to draw up an analysis on the adequacy of and criteria for determining collateral under the Mining Act in the context of termination and after-care measures. The analysis identifies the concrete criteria for determining collateral under the Mining Act, which consist of measures in keeping with the obligations imposed by virtue of the Mining Act. The analysis examines the regulatory framework for mining collateral with the aid of case studies of four mines, without either assessing the adequacy of the collateral rulings made in final decisions that have gained legal force, or taking a stand on the amounts of collateral. The analysis is used as a basis to form a clear and concrete picture of the individual factors to consider when determining mining collateral.

2 JUDICIAL REVIEW OF THE MINING ACT

2.1.1 Scope of application

2.1.1 General scope of application

Under the old Mining Act (503/1965), a mining right conferred the right to exploit mining minerals and a mining concession regulation was comparable to a 'redemption permit', which established possession executed in proceedings establishing a mining concession ('redemption proceedings'). A mining right was a concession-type right and the Act did not specifically define its scope of application.

Similar to other laws, the current Mining Act (621/2011) replaced rights with permits, laying down specific provisions (section 2) on its scope of application as follows:

1. exploration of a deposit containing mining minerals[1];
2. exploitation of a deposit containing mining minerals;
3. gold panning in an area owned by the state;
4. **termination of operations related to exploiting a deposit containing mining minerals**; and
5. proceedings establishing a mining area.

In the context of this analysis, point 4 above is relevant. The scope of application of the new Mining Act does not include redemption permits for mining areas, which confer the right to utilise an area in the possession of another party as a mining area. It was previously included in a mining right, but gaining possession of a usage area now requires

1 Under the old Mining Act (503/1965), exploration of mining minerals (draining, digging, test excavation, core drilling, sampling, etc., as well as analysis, ore dressing and smelting tests, exploration equipment and constructions) required a claim. The new Act provides for exploitation of mining minerals, which are divided into chemical elements, minerals, and rock types.

a specific redemption permit granted by the government, while a limited right of use and other rights to a mine's auxiliary area require a permit from the Finnish Safety and Chemicals Agency (Tukes). Obtaining a redemption permit or some other right of use is a prerequisite to proceedings establishing a mining area, but they are not included in such proceedings ('cadastral survey procedure'). However, the Mining Act also lays down provisions on redemption.

2.1.2 Authorising provisions in the Mining Act

The Mining Act applies a section-specific authorising mechanism, which complicates the process of drafting decrees because it limits the scope of application of instruments such as the Government Decree on Mining Activities (the 'Mining Decree' 391/2012). The alternatives are one separate authorising provision or chapter-specific provisions.

By virtue of Mining Act section 34, subsection 7, further provisions on permit applications may be issued by government decree, including termination of activities and related measures, alongside after-care measures, under subsection 2, paragraph 7 of the same section.

Mining Act section 143 (Restoring of the area) requires the mining operator to restore the mining area and the auxiliary area to the mine to a condition required for public safety; ensure their rehabilitation, cleaning, and landscaping; and perform the measures specified in the mining permit and mining safety permit no later than within two years of the termination of mining activity. A mining operator is required to remove any mining minerals excavated from the mine and the buildings and other constructions on the ground within two years of termination of mining activity, except with the landowner's consent (section 144).

Further provisions on the notification procedure (section 145) of rehabilitation and removal measures (sections 143–144), as well as on removal (section 144), may be issued by government decree. It would not be possible to issue provisions on cleaning, landscaping and restoring the area to a condition required for public safety (section 143) by government decree. Under Mining Act section 144, subsection 3, further provisions on the removal of excavated mining minerals, buildings and other constructions may be issued by government decree. This authorisation does not apply to machinery and equipment, which are mostly considered to belong to the mining safety permit. Further provisions on the final inspection may be issued by government decree (section 146).

Section 119 on the mine map (applies to the mine and the mining area, but not to the auxiliary area) does not mention termination of mining activities, which suggests that it would not be possible to give guidance on marking termination and after-care areas on

the mine map by government decree. Under Mining Act section 136, further provisions may also be issued by government decree on the placement of mining machinery and equipment, but not on their retention or removal upon termination of mining activities. Furthermore, under Mining Act section 139, the duties of an inspection body include commissioning and periodic inspections, but not termination reviews.

No further provisions on decisions to terminate mining activity and on the orders to be given in such decisions may be issued by government decree (sections 147–148). While no further provisions may be issued by decree on monitoring the mining area and auxiliary area to the mine in compliance with the orders issued in the termination decision, nor on any necessary corrective measures and their costs, Tukes may issue orders on corrective measures (section 150). No further provisions on taking account of the termination of mining activity in a mining safety permit may be issued by government decree (section 125, subsection 1, paragraph 5). Since periodic supervision of mining safety (section 154) does not apply to the time following termination of mining activity, no provisions on post-termination monitoring may be given by decree.

The current Mining Decree (391/2012) includes additional requirements on exploration reports and exploration data: these must include an estimate of the mineral resources in the area (based on a widely used standard) and an estimate of the ore potential of the area. This would increase opportunities to anticipate termination and after-care measures, should collateral requirements be based on modelling estimates. The most recent case law has demanded anticipation. Collateral decisions are based on measures in keeping with financially feasible investment decisions, which provide the grounds for revising rehabilitation and termination measures and collateral to keep these up to date.

Further provisions *may be issued* by government decree on:

1. the termination of activities and related measures, alongside after-care measures, to be reported in the permit application;
2. removal measures, i.e. the removal of excavated mining minerals, buildings and other constructions (within two years, except with the landowner's consent);
3. the notification procedure of the rehabilitation and removal measures.

Further provisions *may not be issued* by government decree on:

1. rehabilitation measures, i.e. landscaping, cleaning and restoring the area to a condition required for public safety;

2. the removal of mining machinery and equipment upon termination of mining activities, included in rehabilitation measures (cleaning, restoration to a condition required for public safety);
3. marking the sites requiring rehabilitation and removal measures related to mine closure on the mine map;
4. decisions to terminate mining activity and the orders to be issued in such decisions;
5. post-termination monitoring of the mining area and auxiliary area to the mine, alongside the necessary corrective measures;
6. taking account of the termination of mining activity in a mining safety permit;
7. periodic supervision of mining safety after termination.

2.1.3 Relation to other legislation

The old Mining Act (503/1965) only mentioned compliance with the Nature Conservation Act, but it did not mean that there were no other provisions to observe in other procedures and when making decisions on related matters.

The following laws are *applicable* when making decisions on matters under and other activities in accordance with the Mining Act (621/2011), falling within the administrative branch of the Ministry of Economic Affairs and Employment: the Nature Conservation Act (1096/1996), the Environmental Protection Act (527/2014), the Act on the Protection of Wilderness Reserves (62/1991), the Land Use and Building Act (132/1999), the Water Act (587/2011) and the Off-Road Traffic Act (1710/1995) within the Ministry of the Environment's branch; the Nuclear Energy Act (990/1987) within the Ministry of Economic Affairs and Employment's branch; the Antiquities Act (295/1963) within the Ministry of Education and Culture's branch; the Radiation Act (859/2018) within the Ministry of Social Affairs and Health's branch; and the Reindeer Husbandry Act (848/1990) and the Dam Safety Act (494/2009) within the Ministry of Agriculture and Forestry's branch. No reference is made to the Occupational Safety and Health Act (738/2002), falling within the administrative branch of the Ministry of Social Affairs and Health.

The regulatory framework places exceptional requirements on the knowledge of different legislative sectors, obscuring the powers of public authorities. While Tukes may resort to the statement procedure to review the delimitation of the scopes of application, it cannot set out to interpret the content of other laws or initiate any authorisation and supervision procedures provided under these. Section 2 of the Act on the Finnish Safety and Chemicals Agency (1261/2010) provides that official duties related to chemicals safety and mining activities are included in its duties. No further provisions on the division of work within its operating sectors are included in the relevant Government Decree

(1266/2010). Official duties under other laws in sectors such as environmental protection, waste management and occupational safety fall outside Tukes's duties.

By way of derogation from the language of the Mining Act, some of the above-mentioned laws (Act on the Protection of Wilderness Reserves, Reindeer Husbandry Act, Off-Road Traffic Act) are applied to matters under the Mining Act while also complying with the Nature Conservation Act ('mainstreaming effect'); however, others are applied in separate procedures under other competent authorities (Environmental Protection Act, Land Use and Building Act, Water Act, Radiation Act, Nuclear Energy Act, Dam Safety Act), where competence has not been provided for any other authorities. Under Mining Act section 3, the above-mentioned laws and decisions made by competent authorities must be taken into account in matters falling within its scope of application under section 2, such as termination of activities. The Mining Act does not exclude other laws even if these might not be applied by Tukes itself. Among other laws, the Land Extraction Act (555/1981) excludes earth and bedrock materials extracted by virtue of the Mining Act. In the context of this analysis, the relevant aspect is the relation of the Mining Act with the Land Use and Building Act, the Environmental Protection Act, the Waste Act (646/2011), the Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives (the 'Chemicals Safety Act' 390/2005), the Water Act and the Dam Safety Act, as well as the regulatory framework governing explosives and electrical installations and equipment.

2.1.3.1 Land Use and Building Act (132/1999)

A mining permit may only be granted if the relationship of the mining area and any auxiliary area to other usage of land has been explained and mining activity is based on a legally binding plan (regional land use plan, local master plan, or local detailed plan) in accordance with the Land Use and Building Act (132/1999), or, in view of the impacts of mining activity, the matter must be otherwise sufficiently explored in cooperation with the local authority, Regional Council and Centre for Economic Development, Transport and the Environment (ELY Centre). Based on the definition of 'mining activity' under Mining Act section 5, a legally binding plan would not be taken into account when terminating mining activities. Nevertheless, any planned alteration of intended use following termination will have a bearing on the ways in which a mining company can use its own land and takes the new intended use into account upon termination of activities on land in the possession of another party.

In industrial activities, the operator has been liable for soil contamination referred to in the Environmental Protection Act in keeping with the voluntary use of land reserved for industrial use in a local plan, for example, but not insofar as the soil treatment need is based on stricter requirements specified in the plan for the previous or new intended use. The assumption in the Mining Act is, however, that termination and after-care measures

should lead to a rehabilitated and cleaned area being returned in a condition required for public safety in keeping with its previous intended use, as applicable, because the area was expropriated from the owner. However, the fact that Tukes can prohibit the removal of aboveground buildings and constructions (Mining Act section 144) means that the potential for using the mine through to closure should be retained.

The Land Use and Building Act lays down provisions on the planning, development and use of land areas and buildings (section 2). Land use plans must be taken into account when planning and deciding on the use of the environment by virtue of other legislation, including the Mining Act (section 3). Construction of a building requires a building permit and construction of a structure requires an action permit (sections 125–126), whereas demolition of a building requires a demolition permit[2] in an area covered by a local detailed plan and any action altering the landscape requires a landscape work permit (sections 127–128). Where the legal relationship between the property and its components and accessories under real property law is broken, however, any waste resulting from demolition falls within the scope of application of the Waste Act. The buildings under the Mining Act are the same as those referred to in the Land Use and Building Act, which may also be underground. However, the concept of 'construction' under the Mining Act is interpreted in broader terms than exclusively in reference to constructions listed in an action permit (numerus clausus).

The definition of 'on the ground' under Mining Act section 144, subsection 1, can be interpreted in one of two ways: either underground buildings and constructions do not have to be demolished at all (only cleared away as applicable), or the obligation also applies to underground buildings and constructions, which should not even be left in place for the maximum period of two years. The rationale for the provision in the relevant Government Proposal suggests that, as a general rule, the obligation only applies to aboveground buildings and constructions.[3] In other words, underground constructions fall within the scope of Mining Act section 143, even if these were constructions under the Land Use and Building Act.

2 Reference to a demolition notification or permit under Land Use and Building Act section 127; also included in Government Proposal No. 273/2009, p. 150.

3 Ehdotus uudeksi kaivoslaiksi ja eräiden siihen liittyvien lakien muuttamisesta [Proposal for a new Mining Act and on amending certain related Acts]. Kaivoslain uudistamista valmistelleen työryhmän ehdotus [*Proposal of the preparatory working group for the reform of the Mining Act*]. TEM julkaisuja [*Publications of the Ministry of Economic Affairs and Employment*] 26/2008. Originally rationale for section 125, p. 134. Government Proposal No. 273/2009, p. 150. Based on section 51, subsection 1, of the Mining Act (503/1965).

2.1.3.2 Environmental Protection Act (527/2014)

The laws applicable to decisions on matters under the Mining Act include the Environmental Protection Act (Mining Act section 3). However, the Environmental Protection Act does not provide the mining authority with powers over matters under the Act. The Environmental Protection Act lays down provisions on preventing the pollution caused by emissions and on waste treatment. The Act is applicable to mining and related industrial activities because these will or may cause environmental pollution and generate waste (see section 2). By virtue of Annex 1, Table 2, points 7 a), b) and c), an environmental permit is required for mining, ore or mineral processing plants, and crushing of excavated waste rock based on a mining permit. Rather than EU law, these permit requirements flow from national decisions.

The Environmental Protection Act requires drawing up a preparedness plan based on risk assessment, unless a 'corresponding plan' has been drawn up under the Chemicals Safety Act (390/2005), the Rescue Act (379/2011), the Mining Act (621/2011) or another act. The Mining Act (section 115) provides for an internal rescue plan for a mine as part of a mining safety permit, which may also substitute for the plan referred to in Environmental Protection Act section 15. Under section 12 of the Dam Safety Act (494/2009), to establish the hazard caused by a dam, the owner of a class 1 dam must prepare a dam break hazard analysis (also applicable to owners of non-class 1 dams if the dam safety authority so decides), which replaces a preparedness plan for tailings ponds subject to a dam safety permit. Any large-scale storage and handling of chemicals (subject to permit) require at least an internal rescue plan (Chemicals Safety Act section 28).

As the Environmental Protection Act lays down provisions on preventing the pollution caused by emissions, its scope of application is not identical with that of the Mining Act, although mining safety may have an indirect effect on emissions. The scope of application of the Environmental Protection Act overlaps with those of the Chemicals and Dam Safety Acts.

Mining Act section 108 requires depositing collateral, for the purposes of termination and after-care measures of mining operations, that is sufficient in view of collateral demanded by virtue of other legislation. In this context, 'in view of' implies subsidiarity in relation to the overlapping scopes of application of different laws, considering the requirement of the necessity of measures and collateral. The termination and after-care measures under the Mining Act cannot be extended into the scope of application of the Environmental Protection Act because it does not fall within the scope of the Mining Act and, consequently, within Tukes's competence.

Section 59 of the Environmental Protection Act requires operators engaged in waste treatment to provide a financial guarantee to ensure appropriate waste management, monitoring and control, as well as for the following purposes:

1. to ensure actions needed for the cessation of operations or thereafter:
    a. The general obligation following cessation of operations under Environmental Protection Act section 94 is not included in such guarantee, with the exception of waste.
    b. Under section 14 of the Government Decree on Extractive Waste (the 'Extractive Waste Decree' 190/2013), provisions on the closure of a waste facility for extractive waste and the after-care following closure are laid down in the environmental permit or the decision issued under section 94, subsection 3, of the Environmental Protection Act[4].

The financial guarantee for a landfill and a waste facility for extractive waste must also cover the costs for the following purposes for a minimum period of 30 years (unless the operator demonstrates that other measures are sufficient):

2. post-closure monitoring and control;
3. treatment of leachate and gases; and
4. other after-care;
5. restoring to a 'satisfactory state' a land area located within the area of impact of the waste facility and defined in more detail in the waste management plan for extractive waste, where reference data can be derived from the Government Decree on the Assessment of Soil Contamination and Remediation Needs (214/2007) and the provisions of the Waste Act (646/2011) on littering.

Among the measures, the best available technique (BAT)[5] falls within the scopes of the Environmental Protection Act and Waste Act. The chemical and physical stability, ecological effects, water treatment and waste facility landscaping fall within the scope of the financial guarantee for waste treatment operations. An environmental permit will only be issued if the activity also fulfils the requirements of the provisions given in the Waste Act and under the Act, such as the Extractive Waste Decree (190/2013) (Environmental Protection Act section 48, subsection 2). The Extractive Waste Decree, issued by virtue of the Environmental Protection Act and Waste Act, defines the structures of an extractive waste facility as 'structures needed to manage its environmental load' and also requires ensuring its 'physical stability' (190/2013, section 7, subsection 3, and section 14, subsection 2). Landscaping does not fall within the scope of the Environmental Protection

4 An example of an estimate and the measures involved is included in Northern Finland Regional State Administrative Agency Decision No. 74/2017/1 of 19 September 2017, p. 47–49.

5 The underlying BAT reference document is entitled 'Reference Document for the Management of Waste from Extractive Industries (2018)'.

Act, but it is included in those of the Waste Act and Extractive Waste Decree (section 14, subsection 3).

The amount of financial guarantee for waste treatment operations must at all times correspond, as well as possible, to the costs of ceasing operations and the after-care at the time of assessment (Environmental Protection Act section 60). In addition, the following must be taken into account when determining the amount of financial guarantee for a waste facility for extractive waste:

1. the classification of the waste facility;
2. the properties of the waste being deposited;
3. the future use of the area (waste facility);
4. other factors referred to in Annex 5:
    a. the likely impacts on human health and on the environment,
    b. the need for rehabilitation of the waste facility, including its future use,
    c. the environmental standards and objectives, including physical stability, the minimum requirements for soil and water quality, and the maximum concentrations of contaminants to be released,
    d. the technical measures necessary to achieve the environmental objectives, in particular, measures to ensure the stability of the waste facility and to limit environmental damage,
    e. the necessary measures to achieve the objectives during and after closure of the waste facility, including, as necessary, soil rehabilitation, after-care and monitoring, and measures taken to restore biological diversity,
    f. the estimated duration of the impacts and measures to mitigate them,
    g. an independent and qualified assessment of the costs incurred by the measures necessary for soil rehabilitation as well as for closure and after-care of the waste facility;
5. an independent assessment of the measures to be covered by the guarantee.

Under section 14 of the Extractive Waste Decree (190/2013), a waste facility for extractive waste is considered to be closed when the competent ELY Centre has inspected the waste facility and approved the closure, after verifying that the waste facility and the land affected by it have been restored to a satisfactory state and that the permit regulations issued have been complied with. Environmental Protection Act section 94 requires issuing the necessary orders for cessation of operations related to environmental impacts and their monitoring, which are also linked to explosives and other chemicals safety and waste.

In legal terms, slopes, fences and any structures not related to extractive waste management would fall within the scope of application of the Mining Act, insofar as these are not included in ensuring physical stability under the Extractive Waste Decree. Stability prevents issues such as collapse, while slopes and fences allow safe movement around the area. Environmental protection structures, such as noise protection walls, fall within the scope of the Environmental Protection Act, as these are not required under the Mining Act. Environmental permits also cover aspects such as the slopes and physical stability of noise protection walls.[6] On a case-by-case basis, these may also be related to public safety or the landscaping obligation. From the perspective of Land Use and Building Act section 128, these are not constructions but, rather, earth works exceptionally requiring a landscape work permit (such permits are not generally required in mining areas).

The Environmental Protection Act includes some overlapping provisions on chemicals (sections 7–9, 15–19, 112, and 114, implicitly also sections 48–49, 52–53, and 94, etc.). Neither the Chemicals Safety Act nor the Environmental Protection Act require collateral for risks arising from the storage and use of chemical products during or after operations. Chemical products are considered movable property with a net asset value that can be used or sold elsewhere. If the area is owned by a mining company, the company may continue activities such as storage in compliance with other legislation, where the new intended use of the area permits this.

Environmental Protection Act section 68 provides for the right to convey wastewater on another party's land or water area. Granting a right to use another party's property has applied to areas outside the mining concession, currently also outside the auxiliary area, where the owner has declined to give consent to a ditch or sewer pipe. Construction and maintenance of a ditch or sewer pipe ordered in an environmental permit are subject to Water Act chapter 5, section 13 (Environmental Protection Act sections 68–69). Pipes based on the right of use granted in an environmental or water permit cannot be ordered to be dismantled by virtue of the Mining Act.

A ditch or pipe constructed by agreement is governed by the agreement, which may constitute a special right (of fixed-term nature) granted to mining companies, or an easement-type right (generally permanent) serving a mining concession or a mining area and its auxiliary area (property). The right to usage, mining and auxiliary areas under the Mining Act is separate from those under the Environmental Protection Act and based on agreement. Neither mine termination measures nor any orders to be issued on these apply to ditches and sewers in areas outside those established for the purpose of exercising

6 Decisions by the Environmental Permit Authority for Western Finland and the Vaasa Administrative Court, ending with Supreme Administrative Court Decision of 31 December 2007, record no. 3448.

the rights laid down in the Mining Act. As part of the environmental permit procedure, the competent Regional State Administrative Agency examines matters such as the boundaries of the mining concession, in order to determine what aspects in the area require an agreement or a regulation under Environmental Protection Act section 69.

Discounting is no longer accepted in determining the amount of collateral because liabilities may be realised at any time in the event of insolvency. Value added tax must be added to the amount of collateral in accordance with a split ruling of the Supreme Administrative Court included in its Yearbook Decisions (Supreme Administrative Court Decision KHO:2017:24 of 15 February 2017, record no. 603). While no index is applied to collateral, the amounts of collateral may be raised when reviewing a permit matter, so as to correspond to the costs that can be estimated at the time of processing. Environmental Protection Act section 71 on periodic inspections has been repealed and, as approval of a termination plan does not allow for providing or raising any amount of financial guarantee for waste treatment operations, ELY Centres have called for expansion of the scope of application of collateral under the Mining Act to cover the scope of financial guarantees for waste treatment operations.

Measures under the Environmental Protection Act and within the scope of its financial guarantee for waste treatment operations cannot be considered to constitute measures necessary to secure private and public interests under the Mining Act. There has been some ambiguity in terms of the delimitation of the scopes of the Mining Act and Environmental Protection Act and, consequently, that of the Waste Act.[7]

2.1.3.3 Waste Act (646/2011)

The Waste Act is not explicitly applied when making decisions on matters under the Mining Act. All discarded chemicals, construction and demolition waste, explosive waste, extractive waste, etc., are included in the scope of application of the Waste Act (646/2011). In mining activities, the Waste Act is generally applied by way of the Environmental Protection Act, as all mines have an environmental permit.

Section 1 of the Government Decree on Waste (179/2012) defines 'demolition waste' as waste from demolition of buildings or other fixed structures, which are governed by further provisions laid down in its sections 15–16. Annex 4 to the Decree provides a list of waste, with Chapter 01 including wastes resulting from exploration, mining, quarrying,

7 Government Proposal No. 273/2009: 'The obligation would supplement the provisions laid down in section 90 of the Environmental Protection Act on the obligations following termination, which apply, inter alia, to mine waste facilities and tailings ponds.' Environmental Committee Statement No. 7/2010 and Supreme Administrative Court Decision KHO:2017:177 of 22 November 2017, record no. 6028.

and physical and chemical treatment of minerals.[8] As its waste list must not derogate from Commission Decision 2014/955/EU on the list of waste, the Annex is informative by nature (compendium) and not related to implementation. Permits for waste placed in mine tunnels are granted without any collateral by virtue of the Environmental Protection Act and Waste Act.[9] Procedures for removal of unauthorised waste are administrative enforcement proceedings laid down in the Environmental Protection Act.

The Government Decree on Extractive Waste (190/2013) was issued by virtue of the Environmental Protection Act and Waste Act. Its provisions do not apply to termination measures under the Mining Act. The Environmental Protection Act also includes provisions on a financial guarantee for treatment of extractive waste. The Mining Act does not apply. However, the boundary between its cleaning measures and the prohibition on littering under the Waste Act is unclear, as littering and cleanliness are also addressed in environmental supervision of industrial areas. Since provisions on the matter are already laid down in the Waste Act, the provisions included in the Mining Act can probably be considered necessary to secure public and private interests, alongside the prohibition on littering under the Waste Act, should there also be litter in a mining or auxiliary area at the time of terminating the activities.

The prohibition on littering in section 72 of the current Waste Act – based on chapter 4 of the previous Waste Act (1072/1993; Government Proposal No. 77/1993) – provides that no waste or discarded machine, device, vehicle, vessel or other object may be abandoned in the environment, and no substance may be emitted in a manner which may cause unclean conditions, disfigurement of the landscape, a decline in amenities, risk of injury to humans or animals, or any other comparable hazard or harm. As a general rule, the prohibition on littering is not applicable to fixed structures which have not been demolished; nor are these considered to be demolition waste. As such, they do not cause consequences in contravention of the prohibition on littering (landscape, amenities, hazard, etc.). A person responsible for littering – and, secondarily, certain other parties such as the area holder – must remove the object or substance from the environment and otherwise clean up the littered area (sections 73–74).

8 Wastes from mineral excavation, including mineral metalliferous excavation, and from physical and chemical processing of metalliferous minerals, etc.

9 E.g. Northern Finland Environmental Permit Authority Decision No. 85/07/02 of 18 September 2007 and related Northern Finland Regional State Administrative Agency Decision No. 74/2017/1. Any non-hazardous waste placed in a mine should fulfil the requirements of sections 27–31 of the Government Decree on Landfills (the 'Landfill Decree' 331/2013) and those of Tables 4–6 in paragraph 2 of its Annex 3. Landfill Decree section 33 includes the criteria for acceptance of waste at an underground disposal site in accordance with Directive 1999/31/EC, Annex II, as amended by Directive (EU) 2018/850, and Council Decision 2003/33/EC, Appendix A requirements for underground storage. Provisions on landfill after-care and control are laid down in the Landfill Decree. Provisions on the control period and financial guarantees for landfills subject to environmental permit (capacity over 25,000 tonnes) are included in the Environmental Protection Act.

The relationship between the prohibition on littering under the Waste Act and the prohibition against soil contamination under the Environmental Protection Act is unclear in some respects. Any litter in the soil is waste; a mixture of a substance and earth mass in the soil (component of the property) may be waste.[10] Termination measures under the Mining Act concern the expiry of the right of use and, accordingly, the rehabilitation, cleaning and removal measures that allow a new intended use, which appear to overlap with the prohibition on littering. The powers of the supervisory authority referred to in the Waste Act do not end when mining activities are terminated.

As a general rule, machinery and equipment are not suitable for use by the landowner and would be considered as litter by a new owner, which means that it is justified to remove these from the land area by virtue of the cleaning obligation of the Mining Act prior to transfer of its possession. The delimitation is very unclear because malfunctioning machinery and equipment must either be repaired or discarded. If these are discarded before the area is returned to the owner, they are also waste for the mining operator (Waste Act section 5). The competent authorities would be the supervisory authority under Waste Act section 126 (the ELY Centre in mining activities) and the Finnish Safety and Chemicals Agency (Tukes) as the mining authority under Mining Act section 156. The scope of application of Waste Act sections 2–3 and its delimitation would appear to prevent any overlapping application of the Mining Act to waste, although this has not been the case in practical terms. Any machinery and equipment discarded prior to termination of activities have already fallen within the scope of the Waste Act; otherwise these are also included in the scope of the Mining Act. The cleaning obligation of the Mining Act precludes situations in contravention of the prohibition on littering, where the holder of the area could face secondary liability.

2.1.3.4 Dam Safety Act (494/2009)

Under section 57 of the old Mining Act (503/1965), a mining operator must, while complying with mining and occupational safety provisions, especially ensure that any dams related to mining and mineral processing activities are continuously kept in appropriate condition and look after the structure, quality and operation of these. At the time, the old Dam Safety Act (413/1984) was in force up until 1 October 2009, but it did not apply to the types of dams governed by the provisions of the old Mining Act (503/1965). However, the new Dam Safety Act (494/2009) was applied in parallel to the safety provisions of the Mining Act. The Government Decree on Extractive Waste (379/2008) entered into force on 13 June 2008 (subsequently repealed by Government Decree on Extractive Waste 190/2013) and it also applied to waste dams.

10 Judgment of 7 September 2004 of the Court of Justice of the EC in Case C-1/2003.

While the current Dam Safety Act (494/2009) makes no reference to a mining authority, the Act would also be applied – i.e. not just complied with – when making decisions on matters under the Mining Act. A dam referred to in the Dam Safety Act may also be a watercourse dam under the Water Act (for purposes such as a drainage project for a mine) or a waste dam of a tailings pond governed by the Environmental Protection Act and Waste Act. The Dam Safety Act applies to dams and the structures and equipment which belong to these. A dam may require a permit under the Land Use and Building Act. According to Dam Safety Act section 3, the provisions of the Mining Act also apply to mine safety, but the Mining Act does not apply to waste dams and the mining authority (Tukes) does not have to take the provisions of the Dam Safety Act into account when making decisions.

An inspection may establish that a dam structure has been pulled down or a dam has been decommissioned in such a way that it can no longer cause hazard when the obligations relating to pulling down the dam structure or dam decommissioning under other law have been fulfilled. As this does not apply to the Mining Act, Tukes cannot supervise the matter on behalf of the dam safety authority. The obligations concerning the dam cease to be valid when the dam has been recorded as removed from service. The orders issued in a mining safety permit under Mining Act section 125 that are necessary to secure public and private interests, such as slopes, fences, or removal of poles and masts, are not included in dam safety.

2.1.3.5 Water Act (587/2011)

The laws applicable to decisions on matters under the Mining Act also include the Water Act (Mining Act section 3), under which the mining authority has no competence. Sections 2 and 3 of Water Act chapter 3 provide for water resources management projects subject to a permit. From the perspective of mines, these often concern draining a lake or pond and a variety of damming, water-regulation and water-conducting arrangements. According to procedures included in Water Act chapter 17, it is also possible to claim or grant rights of use by virtue of the Water Act. These rights complement the rights under the Mining Act. Where a water permit is granted for both rights and measures, rehabilitation and removal measures are also included in the Water Act. Provisions on rights of use are laid down in Water Act chapter 2, sections 12–13. The measures based on the rights to use mining, usage or auxiliary areas under the Mining Act – which still require a water permit – are included in termination measures (rehabilitation, cleaning and removal measures) laid down in the Mining Act and ordered in the permit as required.

As a general rule, any water conducted from an industrial area involving a risk of environmental contamination (environmental permit) is considered sewage, even if it were stormwater and rainwater. Drainage water is governed by the provisions on ditch

drainage laid down in Water Act chapter 5. However, environmental permit provisions require separating clean water flowing from external sources and wastewater from industrial areas (e.g. tailings ponds) by means such as orders to dig perimeter ditches. Decisions on digging a non-wastewater ditch on another party's land are made by the municipal environmental protection authority. Any pipe not ordered in the environmental permit may be placed on another party's water area by notifying the owner of the water area (Water Act chapter 2, section 5). As no separate rights are required in the mining concession and mining and auxiliary areas, termination measures (rehabilitation and removal) may be ordered by virtue of the Mining Act.

Sections 8 and 9 of Water Act chapter 3 provide for the validity and expiry of a permit. Section 9 of Water Act chapter 2 includes provisions on removal of a structure. A structure that affects the water level or flow of water must not be removed without the consent of the competent Regional State Administrative Agency[11]. Consequently, this also applies to usage, mining and auxiliary areas. A permit may be granted on condition that the removal of the structure does not significantly infringe a public or private interest. Provisions necessary to secure a public or private interest must be appended to the decision on removing a structure. No compensation will be imposed for removal. It may not necessarily be allowed to remove a structure in all cases, even if the water permit and the mining permit were to expire.

Under the Water Act, the rights of use are separate rights and other rights are supplementary rights. An exception is removal of a structure that affects the water level or flow of water, which cannot be ordered by virtue of the Mining Act alone. Public and private interests have a bearing on consideration.

2.1.3.6 Chemicals Safety Act 390/2005

The laws applicable to decisions on matters under the Mining Act also include the Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives (390/2005), also known as the 'Chemicals Safety Act', under which the mining authority has no competence. The Chemicals Safety Act provides for personal injuries and environmental and property damage caused by the manufacturing, use, transfer, storage, keeping and other handling of chemicals and explosives. All discarded chemicals and explosives are included in the scope of application of the Waste Act (646/2011). Provisions on the

11 In other words, the scope of the provision would cover all types of structures of all sizes, from small jetties to large power plant dams. Government Proposal No. 277/2009, p. 52. Water pipes were not mentioned as structures. The new Act would not identify minor structures, but this did not intend to change the scope of application of the provision. The provision would continue to be applicable to establishing rights to use any dams, bridges, jetties, pumping installations, pipes and cables that may be considered minor. Government Proposal No. 277/2009, p. 55. A 'structure' also refers to pipe and duct structures.

transfer, holding, storage, keeping, disposal, etc., of explosives are laid down in the Chemicals Safety Act. The Chemicals Safety Act does not include any provisions on collateral for chemical or explosive products during or after operations.

The operator must have an expert with training that provides information such as how to dispose of pyrotechnic products (section 82 a). As a general rule, all discarded explosives and those to be discarded are considered hazardous waste (Commission Decision on the list of waste, code 16 04 03* other waste explosives). Chemicals Safety Act section 133 lays down provisions on termination of the operations of a production plant, which may also apply to mineral processing plants, for example. Any large-scale storage and handling of chemicals requires a permit; where such operations are low-scale, a notification will suffice (sections 23–24). Further provisions on permit and notification thresholds are issued in Government Decree 685/2015, but permit decisions issued under the Decree do not include any provisions on termination measures.

The Chemicals Safety Act alone requires the operator to transfer any explosives and chemicals in storage. Nevertheless, this obligation overlaps with the cleaning measures related to the termination measures under the Mining Act. As the right to store dangerous chemicals and explosives in an area ceases based on the Mining Act's termination measures, transfer and storage elsewhere must comply with the Chemicals Safety Act. The administrative enforcement measures under Chemicals Safety Act section 123 will primarily apply in the event that an area is restored to a condition required for public safety by removing dangerous chemicals from the property or by 'cleaning', where the mining authority (Tukes) does not have the expertise of the chemicals safety authority (the rescue authority or Tukes) to supervise the transfer and storage of chemicals. As the possession of the property is returned, the possession of movable assets changes, or even if the mining company owned the area, the storage of chemicals by the operator on the basis of a permit or notification would no longer be for the purposes of mining activities.

From the perspective of the Mining Act, its cleaning measures are more general obligations and, based on its wording, would not apply to products but would instead overlap with the prohibition on littering under the Waste Act. The Mining Act provides for obligations relating to the expiry of property rights (mining rights or mining and mining safety permits) and commencement of the exercise of other rights (termination measures) in general terms, without describing the measures and methods involved, whereas the Chemicals Safety Act lays down provisions on who should discharge the obligations in a technically safe manner and how (method). The powers of public authorities over the same matter cannot be distributed in an ambiguously overlapping manner, although these may have been distributed in regional terms (e.g. under the Waste Act, a local authority has been able to retain some of its competence without transferring it to a regionally operating joint municipal authority). Under the Mining Act, additional

provisions can probably not be considered necessary to secure public and private interests, where provisions on these matters are already laid down in another law.

From the perspective of the overlapping scope of application of the Environmental Protection Act (emissions and contamination), chemicals safety has been considered to constitute a minimum requirement, which is not necessarily sufficient for an environmental permit (Supreme Administrative Court). Consequently, the environmental permit authority should primarily issue the necessary cessation orders (unguaranteed except for waste treatment) related to environmental impacts and monitoring of these by virtue of Environmental Protection Act section 94. Chemicals and explosives are related to environmental impacts (including endangerment under Chemicals Safety Act section 2) outside a mining concession and mining area, which means that there is some overlap with restoration of the area to a condition required for public safety under the Mining Act. However, in the absence of a specific proposal by the operator, it is not necessary to issue a specific order on transfer of chemical assets or individual chemical packages and other such products to secure public and private interests, let alone provide collateral, except for exceptional circumstances, should the operator's actions or inspections of the area justify this.

2.1.3.7 Occupational Safety and Health Act (738/2002)

Sections 56 and 57 of the old Mining Act (503/1965) required compliance with mining and occupational safety provisions and regulations. The Occupational Safety and Health Act, which is also especially related to the use of explosives, would not explicitly apply when making decisions on matters under the current Mining Act (621/2011). Alongside chemicals safety provisions, the Occupational Safety and Health Act (738/2002), including its sections 37–45, apply to mining areas and the usage areas of mining concessions and, to some extent, in auxiliary areas under the old Mining Act, as long as mining and related work is performed in such areas. As environmental authorities have extended the scope of application into industrial areas (beyond groundwater, soil and waste) on a case-by-case basis, it has been possible to exclude application of the Environmental Protection Act for the sake of clarity by means of restrictions on movement.[12] By virtue of the Occupational Safety and Health Act, the employer must organise the working environment in a manner suitable for an industrial area. The legal statutes issued under the Occupational Safety and Health Act include the Government Decree on the Safety of Blasting and Excavation

12 Section 8 of chapter 9 of the new Police Act (872/2011) grants the same right to the current Ministry of the Interior. The Ministry of the Interior has issued Decree 1104/2013 on restrictions on movement and stay by virtue of the new Police Act, including Annex 4 providing a list of industrial areas where movement is prohibited, such as the Talvivaara and Lampivaara mines.

Works (644/2011). Its scope of application is related to the period preceding termination of activities.

The Occupational Safety and Health Act, falling within the administrative branch of the Ministry of Social Affairs and Health, includes no provisions on machinery, equipment, etc., after activities and work have ceased. In this respect, the Mining Act may become applicable as a temporal continuum to assessment of safety, rehabilitation, cleanliness and removal measures in the usage area of a mining concession or a mining area after termination of mining activities (as the rights expire). Subject to restrictions on the transfer of machinery, equipment and installations under other laws that would confuse the scopes of application, and unless required for the use intended by the new owner after termination of mining activities, their removal from the land area to be returned to the landowner may be included in the obligations under the Mining Act as orders necessary to secure public and private interests. Any orders on the matter and the need for collateral would be clarified on a case-by-case basis, taking account of the agreements between the mining company and the landowner, as well as the periodic and final inspections of the area. As a general rule, there would be no need to issue separate orders or provide collateral for transfers of serviceable and saleable assets.

2.1.3.8 Regulatory framework for explosives

Under section 57 of the old Mining Act (503/1965), a mining operator was, while complying with mining and occupational safety provisions (section 56), especially required to ensure compliance with any regulations issued on explosives as well as any other regulations to secure human life and property, so as not to endanger the safety or property of employees and other people.

Explosives are related to occupational safety during and to chemicals safety after mining work, the latter of which is applicable to decisions on matters under the Mining Act, however, without the powers provided in the Chemicals Safety Act for notification, permit and supervisory authorities. Provisions laid down in the Government Decree on the Safety of Blasting and Excavation Works (644/2011) by virtue of the Occupational Safety and Health Act (738/2002) cover matters such as safety and blasting plans and storage of explosives in the workplace. These are supervised by occupational safety and health authorities (Occupational Health and Safety Divisions of the Regional State Administrative Agencies) through site and blasting inspections. The Ministry of Economic Affairs and Employment has issued safety regulations. Instructions for safe blasting work are included in the RIL 253-2010 guideline on vibrations caused by construction.

Handling and storage are governed by Decrees 1101/2015 and 856/2012, issued by virtue of the Chemicals Safety Act, which include no provisions on discarding, with the exception

of ammonium nitrate in Decree 856/2012 (disposal is included in its scope of application). Decree 819/2015 chapter 15 includes provisions on disposal and section 50 provides for transfer of explosives. Permit decisions on large-scale storage (subject to permit) do not include any provisions on termination measures (Government Decree 685/2015 section 10). These provisions are independent of the Mining Act.

Anyone performing blasting work has strict liability under the Act on Compensation for Environmental Damage (737/1994). Notifications of rock blasting works under the Chemicals Safety Act (390/2005, sections 79 and 115) are supervised by the police. Emissions from explosions (vibration, type, noise) are also included in the scope of application of the Environmental Protection Act (527/2014). Discarded explosives fall within the scope of application of the Waste Act (646/2011).

Should explosives not be removed upon termination of mining activities and should these instead be left to the property owner, these would, as the possession of the property changes, be transferred in contravention of transfer restrictions (Government Decree 819/2015, section 50) to a party not entitled to receive and store them. Explosives are movable assets, which means that presumption of their ownership is determined through possession. The primary remedy in this respect would be the administrative enforcement measures under Chemicals Safety Act section 123. However, removal of explosives is related to restoring the area to a condition required for public safety under the Mining Act. The only orders issued by virtue of the Mining Act are those necessary to secure public and private interests. The scope of application should probably be interpreted such that, under the Mining Act, this would also be required to take place in compliance with the Chemicals Safety Act.

2.1.3.9 Electrical equipment and installations

The Electrical Safety Act (1135/2016) and related Government Decrees (e.g. 1434/2016 and 1437/2016) apply to electrical equipment and installations used for the generation, transmission, distribution or use of electricity, the electrical or electromagnetic characteristics of which may be hazardous or cause disturbance. Section 4 of the Act provides definitions for 'electrical equipment' and 'electrical installation'. Any disturbance or danger caused by electrical installations and equipment must be eliminated and electric damage must be prevented. The Electrical Safety Act lays down provisions on the parties liable under the Act, which are also accountable to the mining company in accordance with the electrical contract. However, the mining company and its main contractor cannot supervise compliance with the Electrical Safety Act by the electrical contractor. The Electrical Safety Act includes no provisions on physical removal of installations.

Fixed electrical installations and equipment that do not present any danger of electric damage are removed, where necessary, as part of aboveground buildings and constructions, in keeping with the Mining Act. Movable electrical installations and equipment are part of their holder's movable assets. Serviceable electrical installations and equipment as well as machines are used in other mines or sold. Since these involve value under property law (ownership rights), it would neither be sensible to include their removal in the cleaning obligation similar to the prohibition on littering, nor to impose collateral to ensure removal. However, subject to restrictions on the transfer of electrical installations and equipment under other laws that would confuse the scopes of application, and unless required for the use intended by the new owner after termination of mining activities, their removal from the land area to be returned to the landowner could still be judicially included in the obligations under the Mining Act.

Waste electrical and electronic equipment (WEEE) is governed by WEEE Directive 2012/19/EU and by the Government Decree on WEEE (519/2014), issued by virtue of the Waste Act and Environmental Protection Act. The waste holder has an obligation to deliver discarded electrical installations and equipment to the manufacturer's reception point or some other appropriate waste treatment point. Under the Waste Act, this applies to small amounts of industrial WEEE. The cleaning obligation under the Mining Act may overlap with the provisions of the Waste Act on the supervisory authority. Orders necessary to secure public and private interests are issued by virtue of the Mining Act.

Restoring an area to a condition required for public safety under the Mining Act means that the operator must first eliminate any electrical danger in keeping with the Electrical Safety Act. By virtue of the cleaning obligation, electrical equipment and installations that do not cause electrical danger must be removed to be used elsewhere and discarded WEEE must be delivered to an appropriate waste treatment point in keeping with waste legislation (the Waste Act is not mentioned in Mining Act section 3).

2.1.4 Relationship with EU law

By virtue of Article 191 TFEU[13], EU policy on the environment will contribute to pursuit of objectives such as prudent and rational utilisation of natural resources. Environmental policy is based on the subsidiarity principle. Unanimity is required for matters such as taxation, town and country planning, and land use with the exception of waste management (Article 192). The European Union published a raw materials initiative[14] in

13 Treaty on the Functioning of the European Union. OJ C 326, 26.10.2012, p. 47–390.

14 Communication from the Commission to the European Parliament and the Council – The raw materials initiative: meeting our critical needs for growth and jobs in Europe, 4.11.2008, COM(2008) 699 final. On implementation, see COM/2012/082 final, COM(2013) 442 final, SWD/2014/0171 final and COM(2014) 297.

2008, pursuing an integrated raw materials strategy to secure the supply of critical metals and minerals. Regardless of strategies, the Member States decide independently on the use of their raw materials.

Treaty on the Functioning of the European Union (OJ 26.10.2012 C 326/172), Article 288:

> 'A regulation shall have general application. It shall be binding in its entirety and directly applicable in all Member States.
>
> 'A directive shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods.
>
> 'A decision shall be binding in its entirety. A decision which specifies those to whom it is addressed shall be binding only on them.
>
> 'Recommendations and opinions shall have no binding force.'

According to Directive 2010/75/EU on industrial emissions, mining activities and mineral processing are not included in activities subject to environmental permit. Seveso III Directive 2012/18/EU does not apply to the exploitation, namely the exploration, extraction and processing, of minerals in mines and quarries. Notwithstanding this point, the Directive applies to operational tailings disposal facilities, including tailings ponds or dams, containing dangerous substances.[15]

The primary objectives of the Sixth Community Environment Action Programme (Decision No 1600/2002/EC) included reducing the environmental impact of extractive industries. As a result, Directive 2006/21/EC on the management of waste from extractive industries[16] (the 'Extractive Waste Directive') released waste from mining activities from the scope of application of Landfill Directive 1999/31/EC because its application to tailings ponds, for example, was not possible in all respects (COM(2003) 319). The Directive defined the time and procedure for closure of a waste facility. It also specified an after-closure period

15 Finland has not transposed the Directive through the Mining Act. It has notified the Commission that it has transposed the Directive through the Chemicals Safety Act (390/2005), as well as through the Government Decree on the Safety Requirements of Manufacturing, Handling and Storage of Explosives (1101/2015) and Government Decree on the Monitoring of the Handling and Storage of Dangerous Chemicals (685/2015), etc.

16 Finland has notified the Commission of its implementing legislation, including the old Mining Act (503/1965) and Environmental Protection Act (86/2000), the Dam Safety Act (494/2009) and the Extractive Waste Decree (190/2013). Furthermore, provisions on waste management plans for extractive waste are laid down in sections 13, 25, 34, 51 and 54 of the new Mining Act (621/2011) and sections 3 and 8 of the Government Decree on Mining Activities (391/2012), which only apply to exploration and gold panning.

for monitoring and control of Category A waste facilities.[17] A financial guarantee must be lodged for measures, including rehabilitation of (polluted) soil on the land affected by the waste facility. Separate instructions are provided for inspections of extractive waste facilities by competent authorities, which are not related to the scope of the Mining Act.[18]

The Extractive Waste Directive is related to environmental protection and waste and, in some respects, to dam safety as well: the operator is required to notify the competent authority of any events likely to affect the stability of the waste facility within 48 hours. However, the Directive also lays down provisions on filling in excavation voids and the geological, seismic and geotechnical stability of waste facilities. Like landfills, waste facilities for extractive waste must also have a permit, unless the waste is inert waste. Waste Framework Directive 2008/98/EC is premised on permits from the competent authority, but Member States may exempt recovery of waste from the permit requirement (Articles 23 and 24).

Waste Framework Directive 2008/98/EC, as amended by Directive (EU) 2018/851, provides for the definition of 'waste'. Chapter 01 of the EU list of waste[19], binding in its entirety, includes wastes resulting from exploration, mining, quarrying, as well as physical and chemical treatment of minerals. These cover tailings and drilling muds, etc. Chapter 17 includes construction and demolition wastes. Waste treatment falls within the scope of application of the Waste Act and is not included in the Mining Act, but the scope overlaps with the cleaning measures under the Mining Act and removal of buildings and constructions (Land Use and Building Act, Waste Act).

The Environmental Impact Assessment (EIA) Directives are the only instruments of EU law transposed through the Mining Act (621/2011). The limit for open-cast mines subject to environmental permit and consultation within the European Union is set at 25 ha in EIA Directive 2011/92/EU (Annex I, paragraph 19). The same 25 ha surface area is also the limit for joining the Aarhus Convention (Annex I, paragraph 16). Quarry projects falling below that limit do not require an environmental permit or even consultation under EU and international law. The EIA procedure may, however, be applicable to smaller open-cast mines and for underground mines on a case-by-case basis. In the Mining Act, the EIA Directive has been taken into account, as part of enacting the EIA Act (Act on Environmental Impact Assessment Procedures 252/2017), in the order of priority, applications and decisions, including decisions to terminate mining activity (Mining Act sections 56 and 147).

17 In addition to dangerous substances or waste, a risk assessment indicates that a failure or incorrect operation, e.g. the collapse of a heap or the bursting of a dam, could give rise to a major accident (Annex III).

18 Commission Implementing Decision (EU) 2020/248 of 21 February 2020 laying down technical guidelines for inspections in accordance with Article 17 of Directive 2006/21/EC of the European Parliament and of the Council.

19 Commission Decision 2014/955/EU amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council.

2.2 Concepts

2.2.1 Public interest

The Mining Act does not define public or private interest. According to Mining Act section 52, subsection 3, paragraphs 6 and 9, the mining permit must include provisions necessary for public and private interests concerning obligations related to termination of mining activities and those after termination, including collateral. Consequently, restoring the area to a condition required for public safety, rehabilitation, cleaning, and landscaping under Mining Act section 143 are included in the provisions necessary in view of public and private interests, where these are specified in the mining permit. The same also applies to the removal of excavated mining minerals and aboveground buildings and constructions.

While public interest is not defined elsewhere in law either, there is some case law on its interpretation. Public interest can be approached through the concept of 'public need'. As defined in the Constitution and the Redemption Act (Act on the Redemption of Immovable Property and Special Rights 603/1977), 'public need' parallels 'public interest' rather than 'public use'. Legal literature suggests that public interest would be realised more easily than public need. The demands of public need vary at regional, local and business levels.[20]

Nevertheless, public need is considered to serve a large group or unspecified parties, rather than just certain parties. Public need does not depend on an applicant as a subject. The need concerns necessary performance or elimination of a shortcoming. Public interest is a more extensive and objective premise than public need. Public need is weighed unidirectionally from the perspective of project needs, whereas public interest involves bidirectional consideration of interests. Pursuit of private financial interest is not necessarily considered to conform to public interest, but the matter was assessed from a slightly different perspective by the Supreme Administrative Court in its Decision KHO 1981 A II 93. A private party's financial interest and public interest may also be aligned.

Provisions on public and private interests and assessment of public and private benefits and losses are also included in the Water Act (chapter 3, sections 6–7), but losses of benefits based on consideration of interests under the Water Act cannot be equated with securing of interests (prevention of losses) under the Mining Act. Delimitation between public and private interests is difficult and not even relevant.[21] When supervision guidelines were drafted, the water supply interests of one or two properties were included

20 Government Proposal No. 179/1975 II, p. 12.

21 Government Proposal No. 277/2009, p. 169.

in private interests, whereas those of three or more properties were considered to belong to public interests.[22] Due to the concept of or prohibition on endangerment, the concept of 'public interest' is broader and more abstract from the perspectives of environmental and water protection and safety. The Mining Act's rehabilitation, cleaning and other such measures are generally related to both private and public interests, whereas removal of buildings and constructions is primarily associated with the private interests of the owner of the land being returned to private use.

Paragraph 2 of Article 1 of Protocol 1 to the European Convention on Human Rights[23] (e.g. protection of property) allows laws deemed necessary to control the use of property in accordance with the general interest. Rather than denying the public and private interests involved in mining activities, the Mining Act provides for coordinating public and private interests.[24] Exhaustive provisions are not possible because different conflicts between public and private interests can be complex and specific circumstances and interest configurations can vary on a case-by-case basis.[25] The public and private interests involved in mining activities are counterbalanced by public and private interests in permit and termination regulations. The public interests derived from the objectives of Mining Act section 1 include social, economic and ecological interests; in other words, interests are generally assessed in keeping with overall consideration of sustainable development.

The majority of public and private interests are also included in other laws (Environmental Protection Act, Waste Act, Land Use and Building Act, Occupational Safety and Health Act, Chemicals Safety Act, Nature Conservation Act, etc.). In termination of activities, public and private interests focus on post-closure conditions in the mining and auxiliary areas. As the area is returned to the owner, it needs to be handed over in a safe and healthy condition. The area must be suitable for the owner's previous uses to the extent that it is still possible in mining and usage areas, taking account of land use planning. The area may also return to the scope of public rights of access, as applicable, which means that neighbours, tourists, hunters, anglers, etc. must not slip into shafts and cave-ins, fall from steeps, or sustain poisoning or injury.

22 Valvontaohje [*Supervision guidelines*] 17 October 1989 no. 59. Vesi- ja ympäristöhallitus [*National Board of Waters and the Environment*], p. 5.

23 European Convention for the Protection of Human Rights and Fundamental Freedoms (Council of Europe 1950).

24 Government Proposal No. 273/2009, p. 48.

25 Ibid. p. 53.

2.2.2 Mine and mining activities

According to Mining Act section 5, subsection 1, paragraph 3, 'mine' refers to an open-cast mine and an underground stope, where mining minerals are excavated, and the constructions, equipment, and instruments directly connected to excavation. In addition to open-cast mines and underground stopes, mines would also be considered to include aboveground and underground constructions, equipment and instruments directly connected to excavation, such as ventilation and drainage equipment, hoisting installations and shafts, terraces, as well as vehicle ramps, routes and roads.[26] Buildings (subject to building permit) would not be explicitly included in a mine, whereas constructions would. Constructions relating to mineral processing would not, however, be included in a mine because these are not directly connected to excavation.

Mining machinery and equipment would be included in a mine, irrespective of whether these are movable assets or considered a part of the mine equated to immovable property on the basis of its legal relationship with components or accessories.[27] 'Mining machinery and equipment' refers to the hoisting installations; the equipment and machinery necessary in the mine for the purposes of mining activity; and machines, machinery, and equipment on the ground, immediately connected to the operations of the mine, and combinations thereof. Equipment and machinery necessary in the mine for the purposes of mining activity include conveyors, earthmovers, etc. Machines, machinery, and equipment on the ground immediately connected to the operations of the mine include surface constructions of ventilation and hoisting equipment.[28]

Under section 57 of the old Mining Act, a mining operator was, while complying with mining and occupational safety provisions, especially required to ensure continuous maintenance of machinery, equipment, medical and other necessary devices in an appropriate condition[29] and compliance with any regulations issued on their structure, quality and operation as well as on explosives, so as not to endanger the safety or

26 Ehdotus uudeksi kaivoslaiksi ja eräiden siihen liittyvien lakien muuttamisesta [*Proposal for a new Mining Act and on amending certain related Acts*]. Kaivoslain uudistamista valmistelleen työryhmän ehdotus [*Proposal of the preparatory working group for the reform of the Mining Act*]. TEM julkaisuja [*Publications of the Ministry of Economic Affairs and Employment*] 26/2008, p. 74. Used as the basis for drafting the rationale for Government Proposal No. 273/2009 section 4, p. 74.

27 The Act on the Taxation of Business Income (360/1968) defines depreciable types of fixed assets and the Act on Valuation of Assets for Taxation (1142/2005) defines the value of the fixed assets that must be removed, irrespective of value, by virtue of the Mining Act.

28 Government Proposal No. 273/2009, p. 146. Ehdotus uudeksi kaivoslaiksi ja eräiden siihen liittyvien lakien muuttamisesta [*Proposal for a new Mining Act and on amending certain related Acts*]. Kaivoslain uudistamista valmistelleen työryhmän ehdotus [Proposal of the preparatory working group for the reform of the Mining Act]. TEM julkaisuja [*Publications of the Ministry of Economic Affairs and Employment*] 26/2008, p. 130.

29 See Ministry of Trade and Industry Decision No. 921/75 of 28 November 1975 on the safety regulations of mines and the guidelines of 5 March 1985 issued by the Finnish Mining Board and Mining Safety Board for inspecting vehicles and mobile machinery used in mines.

property of employees and other people. The holder of the mining right was, upon loss of the mining right or transfer of the mining concession, obliged to restore the area to a condition required for public safety without delay (section 51, subsection 4) and to comply with the provisions of section 59 of the Mining Act, section 22 of the Mining Decree (663/1965), and sections 128–130 of Decision 921/75 of the Ministry of Trade and Industry.

Among movable fixed assets, machinery would be included in mines under the Mining Act, whereas equipment would not. Minor purchases and substances, such as explosives, chemicals, stocks of supplies and materials, would not fall within the definition of a mine, even where used for mining activities. Nevertheless, collateral is provided for termination and after-care measures of *mining activities*, rather than a mine. Restoring a mining area to a condition complying with public safety requires that, at the time of termination, movable assets will not cause unclean conditions or endanger public safety any more than the new intended use of the mining area allows for its owner.

According to Mining Act section 5, subsection 1, paragraph 4, 'mining activity' refers to the excavation of mining minerals in a mine, the related transfer and hoisting of aggregate, ore dressing, and any other processing of mining minerals carried out immediately in connection with excavation as are necessary for the exploitation of mining minerals alongside preparatory measures and other supporting measures immediately related to the excavation of mining minerals. Storage and use of supplies and materials may probably be interpreted as being part of mining activities. Collateral is to be deposited for termination and after-care measures of mining activities, which must comply with the obligations concerning termination and after-care measures.[30] As private interests, termination and after-care measures are likewise related to returning the possession of a mining area (section 149), where using another party's land to store movable assets can also be considered in terms of criminal trespass under the Criminal Code of Finland (39/1889).

The old Mining Act (503/1965) did not provide definitions. Mining activities were implicit in the rights to use mining concession and auxiliary areas, which have not been reduced as such by the new Mining Act. A mine may probably be interpreted to constitute a mining concession made up of usage and auxiliary areas, in which exploitation of mining minerals was allowed in keeping with the mining right granted as a result of the mining concession regulation and proceedings as well as the award of the mining concession certificate. A mining concession was determined for the purpose of performing mining work (section 4, subsection 3). Ore dressing was nevertheless considered further processing related to mining activity, rather than mining activity. The Mining Act was premised on a right,

30 Government Proposal No. 273/2009, p. 158–159, 235.

which was linked to liability for damages and payment and safety obligations. Under the new Mining Act, 'mining activity' also refers to ore dressing and any other processing of mining minerals carried out immediately in connection with excavation. The distinction is not clear. Provisions on explosives and the safety of dams relating to ore dressing were included in the old Mining Act as references (section 57). The old Mining Act also allowed a mineral processing plant to continue operations, extend the mining concession and redeem additional areas, even if the mine originally associated with the plant had terminated its activities. A broad interpretation is possible under section 181, subsection 4, of the current Mining Act. Based on this provision, the termination measures of old mines and their processing plants can be taken into account in accordance with section 125, subsection 1, paragraph 5, and section 52, subsection 3, paragraph 6, of the Mining Act to the same extent as those of mines established by virtue of the new Act.

2.2.3 Mining area, usage area and auxiliary areas

'Mining area' and 'auxiliary area to a mine' are defined in section 19 of the Mining Act (621/2011). 'Mining area' refers to a continuous area necessary in terms of the quality and extent of the deposit, of a size and shape that satisfy the requirements concerning safety, location of mining activities, and mining technology. 'Auxiliary area to a mine' is an area located in the vicinity of the mining area, indispensable as regards mining activity and necessary for the purposes of road access, transport equipment, power lines or water pipes, sewers, treatment of waters, or a transport route to be excavated to a sufficient depth below the surface.

'Mining area' is a more limited concept than the definition of 'mining activity', while 'auxiliary area' is separate from mining activity. Rather than being included in the auxiliary area, a mineral processing plant is now part of the mining area. 'Mine' is a more limited concept than the definitions of 'mining activity' or 'mining area'. A mining area is established by a redemption permit issued by the government, whereas an auxiliary area is formed through a mining permit issued by Tukes as a limited right of use or some other right. The boundaries of a mining area are presented in the appendices to a mining permit application more specifically than the boundaries of an auxiliary area (sections 16–17 of Mining Decree 391/2012). Exploiting materials in the bedrock and soil in the mining area is allowed by virtue of the *mining permit*, to the extent that their use is necessary for carrying out mining activities in the mining area. Exploitation of materials in the auxiliary area is not permitted, nor is that of materials in the mining area to the extent that these would be needed in the auxiliary area. Materials such as waste rock in a mining area owned by the mining company or subject to agreement may also be used elsewhere, such as for the bed of a motorway.

A mining concession established in concession proceedings by virtue of a mining right and mining concession regulation granted under the old Mining Act (503/1965) includes a usage area and, in many cases, some auxiliary area. Most of Finland's mines are mining concessions established under the old Mining Act. Usage areas correspond to a mining area, with the exception that a mineral processing plant and other industrial areas and waste facilities can no longer be located in an auxiliary area and must instead be in the mining area. Auxiliary areas under the new Mining Act only cover those of the old Mining Act to the extent that the right of possession of the holder of the mining concession has been limited. The new Mining Act did not alter the usage and auxiliary areas of mining concessions or related rights.

2.2.4 Termination measures

Section 51, subsection 4, of the old Mining Act imposed an obligation on the holder of a mining right to perform measures related to closing the mine appropriately under the Mining Act (section 59) by making a notification under section 22 of the Mining Decree (663/1965), taking account of sections 128–130 of Decision 921/1975 on the safety regulations of mines issued by the Ministry of Trade and Industry by virtue of Mining Decree section 29. These provisions governing mines established under the old Mining Act have been updated by regulations necessary to secure public and private interests under the transitional provisions in section 181, subsection 4, of the new Mining Act (621/2011).

Mining activity ends when the mining permit expires (section 68) or is cancelled (section 70). The same applies to decreasing the size of the area (section 69, subsection 4) or reducing the content of rights of use and other special rights pertaining to the auxiliary area. The mining operator is required to rehabilitate the area and remove any mining minerals excavated from the mine and the buildings and other constructions on the ground within two years of termination of mining activity (sections 143–144). Provisions necessary to secure public or private interests are specified in concrete terms in a mining permit (section 52). The requirement of necessity renders the Mining Act secondary to the extent that provisions on the matter have already been laid down elsewhere in legislation.

A mining safety permit also issues orders on taking account of the termination of mining activities that are necessary to secure public and private interests (Mining Act section 125). If mining work is terminated or the mining right expires, the mining operator will submit to Tukes a mine map reflecting the situation at the time of mine closure, including its legend, under Government Decree 1571/2011 on mining safety (the 'Mining Safety Decree'). Updates to old mining rights take account of the termination and closure of a mine (Mining Act section 181, subsection 4, and Mining Safety Decree section 21).

A. Safety, rehabilitation and removal measures (section 143):
    1. restoring the mining area and the auxiliary area to the mine to a condition complying with public safety;
    2. rehabilitating, cleaning and landscaping the mining area and the auxiliary area;
    3. performing the measures specified in the mining permit.

B. Removal measures (section 144):
    1. removing excavated mining minerals, including:
        a. crude ore heaps,
        b. mining minerals processed and stored in the usage or mining area;
    2. removing aboveground buildings and constructions.

Safety, rehabilitation, cleaning, landscaping and removal measures entail a wide variety of termination measures. Where necessary, any cables, pipes, failed equipment and other such items classified as waste (Waste Act), as well as any explosives, chemicals, movable storage cabins, vehicles, machinery and equipment, and any other movable assets owned by the holder of the mining right or mining and mine redemption permits, must be removed from open-cast and underground mines. If buildings or constructions need or must not be removed, any renovations of these to the extent necessary for public safety and landscaping or required by a permit regulation are included in rehabilitation measures, even if this also required building and action permits. The rehabilitation obligation also covers restoring any components left in the soil to a condition required for public safety, such as sloping, filling, fencing, cutting and plugging of bore tubing, etc.

In addition to excavated mining minerals, the actual removal obligation only covers permanent aboveground buildings and constructions, which have served mining activities. Permanent underground constructions need not be removed. Any installations built to maintain safety, as well as ladders and stairs, and any concrete headframes and other such fixed equipment built in the mining concession area, which can only be used appropriately as part of mining work, must be left in place. Likewise, any concrete and wooden structures of service and eating facilities are to be left in place, unless there is a specific reason for their removal.[31]

Once a decision to terminate mining activity has become legally valid, the mining operator's right of use and right of possession to the mining area will be terminated alongside the right of use and other rights to the auxiliary area to the mine (Mining

31 Kaivoksen sulkemisen käsikirja [*Handbook of mine closure*]. Outokumpu Oyj, TLL [Finnish Road Enterprise], M&V Oy, GTK [*Geological Survey of Finland], VTT [VTT Technical Research Centre of Finland Ltd*]. 2005. p. 48 & 85.

Act section 149). Components and accessories are defined in chapter 14, section 5, of the Code of Real Estate (540/1995), among other laws. Prior to removal, permanent buildings and constructions constitute part of the property being returned to the owner ('component relationship'). Buildings and constructions may include accessories such as fixed machinery, equipment and installations. Buildings and constructions, including accessories, are part of immovable assets during mining activities ('accessory relationship'). Removal entails breaking up the relationship between components and accessories with respect to the property being returned to the original owner.

Installed by humans, buildings and constructions constitute, due to a 'factual association', components of a property, i.e. an immovable object. A property is deemed to include constructions and equipment installed on the property to permanently serve its intended use.[32] Buildings and constructions – and, consequently, the property serving mining activities – include any fixed machinery and equipment on the basis of the 'accessory relationship' (section 144 applies to removal). Any other machines and equipment are movable objects or, once discarded, waste (public safety, cleaning; section 143 applies). The factual association does not break simply because the buildings and constructions no longer serve the intended use of the property once it is returned to the owner. The break-up of a factual association requires factual dissolution of the relationship between the soil and building or construction by means such as demolition (Supreme Court Decision KKO 1931 I 37).

At the end of the procedures under Mining Act sections 37 and 72, Tukes will make a decision to terminate mining activity in keeping with section 147 once the area has essentially been rehabilitated and any excavated mining minerals, buildings and constructions have been removed (measures under section 143 and section 144, subsection 1) in a manner necessary to protect public and private interests and as notified by the holder of the mining right or permit (section 145). An inspection report compiled on the final inspection (section 146) will be appended to the decision.

The orders issued in a decision to terminate mining activity (section 148) specify the impact area of the mine in which, for reasons of public safety or prevention of detrimental environmental impact, restrictions on land use may be necessary despite the termination measures. In a land use plan, such restrictions would be taken into account as a line symbol denoting a danger area under the Decree of the Ministry of the Environment on Keys to Symbols Used in Land Use Plans under the Land Use and Building Act (Notification 342/2000 of 31 March 2000), for example, which means that the special characteristics of the area would require land reservations and other decisions to include a risk assessment in keeping with the plan symbol.

32 Government Proposal No. 120/1994, rationale for the Code of Real Estate, chapter 14, section 4.

2.2.5 After-care measures

After-care measures are indicated in the mining permit application (section 34, subsection 2, paragraph 7) and in mining permit regulations (section 52, subsection 3, paragraph 6, on obligations after termination). While the Mining Act does not provide a general definition, its termination measures do not include continuous control and monitoring, unlike those relating to waste facilities and environmental impacts. Nevertheless, the mining permit holder is still responsible for monitoring the mine and implementing the necessary corrective and maintenance measures in compliance with the orders issued in the mining permit and termination decision under section 150, as well as for their costs (i.e. collateral for after-care measures under section 108). Aspects such as the condition of fencing and prevention of risks of collapse and falling must be checked regularly and updated as required.

2.2.6 Definition of collateral and financial guarantees in other laws

The definitions provided in Mining Act section 5 do not include a definition for 'collateral'. Mining Act chapter 10 explains the purpose of collateral, proceedings establishing collateral, collateral for termination of mining activity, costs to be paid from collateral, etc. The types of collateral and the eligibility of the collateral provider are not defined.[33] The Government Decree on Mining Activities (391/2012) does not include any specifications. By definition, collateral imposed by a public authority therefore corresponds to equivalent types of collateral in general terms.

While 'collateral' is included in the concept of 'insurance', it is not the same as contractor's all-risk insurance and other types of non-life insurance or liability insurance taken out as a precaution against extraordinary situations, which are governed by laws such as the Insurance Contracts Act (543/1994). According to section 2 of the Act on Guaranties and Third-Party Pledges (the 'Guaranties Act' 361/1999), 'guaranty' is defined as an undertaking where the undertaking party (guarantor) promises to answer for the repayment of another person's (debtor) obligation (principal debt) to a creditor; 'surety' is defined as a guaranty where the guarantor is liable for the principal debt as if it were the guarantor's own; and 'general guaranty' is defined as a guaranty that also covers debts other than a specified principal debt. Section 14 of the Act on the Recovery of Assets to Bankruptcy Estates (758/1991) provides for reversal of collateral.

Collateral is divided into personal securities, real securities, security deposits and other securities. Real securities and security deposits are not covered by collateral (financial

33 Government Proposal No. 273/2009, p. 134 (section 109): By way of example, collateral may be a bank deposit or bank guarantee, or insurance (mostly suretyship insurance).

guarantee) under the Mining Act. Personal securities cover absolute bank guarantees[34] and *first-demand guarantees* (see Supreme Administrative Court Decision of 28 December 2010, record no. 3907). A guaranty is tied to the decision defining collateral and replaced with a new guaranty when collateral is adjusted by a new decision, or released upon fulfilment of obligations. Real securities also cover pledging cash at bank, where Tukes as the pledgee has, in keeping with the pledge notification, the right to draw funds from the account, including interest. The bank will provide a certificate of waiving the right of set-off, by which it undertakes not to exercise its right of set-off. These commitments are identical to the financial guarantees in the Environmental Protection Act in terms of types and wording.

According to the Supreme Administrative Court's Yearbook Decision KHO:2017:177, collateral under the Mining Act is to be deposited for termination and after-care measures of mining activities as a precaution in the event that the operator neglects *their obligations*. Based on the decision, provision of adequate collateral in terms of type and amount must be ordered, regardless of the company's solvency, at the same time as orders on after-care measures are issued. If it is not initially necessary to issue orders, there would also be no need to provide collateral. Based on the Supreme Administrative Court Decision of 22 November 2017, record no. 6029, however, collateral should be ordered immediately in the first decision, even despite the fact that mining activities have not commenced in these mining concessions. The possibility to adjust collateral may have been overlooked; on the other hand, Mining Act section 108 does not link provision of collateral with commencement of activities (see Conclusions). As collateral must be sufficient to cover any costs, including value added tax, incurred in performing the measures, it includes value added tax, according to Yearbook Decision KHO:2017:24 (Supreme Administrative Court Decision of 15 February 2017, record no. 603).

Collateral is used to cover obligations. Rights in rem in movable property with a net asset value are not obligations. However, property must be used and looked after without violating the rights of any other party. This is the basis for demolition of buildings and constructions to enable owners other than a mining company to use their property. As a general rule, buildings on land owned by a mining company should be removed. Otherwise, the property owner may demand their removal at the mining company's expense. If the mining company owns the property, this consequence cannot occur, which means that a removal obligation as a precaution in the event of insolvency without a basis

34 The signatory bank undertakes an absolute guarantee, as referred to in section 108 of chapter 10 of the Mining Act and required in the permit regulation, for the purposes of termination and after-care measures of mining activities. The bank's total liability is limited to the maximum amount of collateral. The beneficiary is Tukes. Banks may have notices to mining companies, limiting their liability to a mining company in special circumstances outside the bank guarantee.

in returning the area under the Mining Act would place mining activities at a disadvantage relative to other industries. The situation is more complex with regard to movable objects. There is probably no need to provide collateral for clearing expensive machinery, equipment and vehicles. The same applies to any saleable stocks of movable assets, although restoring the area to a safe condition may require their removal. Individual pieces of older equipment, parts detachable from constructions, chemicals and other such items may fall within the scope of the cleaning obligation, even if property removal measures did not require collateral. Provisions in other laws relevant to the Mining Act are discussed in Section 2.1.3 above in this report and property rights are addressed in Section 2.3.4 below.

If collateral is realised, it must be available for the purpose for which it was provided. No guaranty can be retained if principal debt enabling its realisation does not exist or has not become due (Act on Guaranties and Third-Party Pledges 361/1999). It is not always clear whether principal debt (obligations) is satisfied or whether it has become due. When collateral is retained, the obligated party may object to the grounds for retention to the collateral taker and may notify the financial institution of this. The collateral will still be assigned. Financial institutions do not assume contractual liability towards mining companies for any funds that may have been wrongly drawn by a pledgee. No such situation has been known to have occurred under the Mining Act.

Under section 28 of the Redemption Act (603/1977), it is possible to impose, on demand, collateral to ensure performance of work or measures required to prevent any inconvenience and damage and, likewise, any additional compensation under section 45, subsection 2 (cf. section 37 of the Contracts Act 228/1929). Section 19 of the Tenancy Act (258/1966) provides for collateral to be deposited in order to perform obligations (also section 7 of the Act on Commercial Leases 482/1995), while sections 40–41 include provisions on the effects of poor care on a mortgage holder's collateral. These have no effect on collateral for termination and after-care measures under the Mining Act.

Section 12 of the Land Extraction Act (555/1981) allows the permit authority to require the applicant to provide, prior to beginning extraction, acceptable surety for performance of measures included in the permit regulations issued under section 11. The measures include landscaping, protecting and clearing of the area during and after extraction. The surety could exceptionally be tied to the building cost index[35] because the amount of surety will not be adjusted during operations. Surety may be a bank's absolute guarantee or performance bond. If obligations are not satisfied, the authority may retain the surety to cover the performance of the requisite work. The surety may be released following verification of performance of obligations as part of the final review.

35 The Act on Limiting the Use of Index Clauses (1195/2000) only applies to agreements.

The collateral for termination measures laid down in the Mining Act is very similar to the surety under the Land Extraction Act section 12, but the former lacks a provision along the lines of 'prior to beginning extraction' and the discretion of the authority in imposing collateral. As a general rule, mining collateral must be deposited within three months of the time when the decision was issued. Mining collateral is not tied to the commencement of work, but rather the other way around (Mining Act section 168, subsection 2). Although surety in accordance with the Land Extraction Act has been imposed to a varying extent, its scope has never been known to have covered removal of movable assets from the area, such as equipment, machinery and explosives. Collateral is standardised in municipal regulations on the basis of surface area and quantities extracted, although the provisions governing collateral would allow individualised discretion. Many open-cast mines in mining concession areas owned by mining companies are very similar to aggregate extraction sites in terms of cleaning, safety and landscape. The measures are also similar – although the Mining Act does not include planting obligations – and the amounts of collateral are within the same range.

It is possible to require security for payment under section 48 of the Sale of Goods Act (355/1987), which applies to the sale of movable assets, unless otherwise agreed. Avoidance of sale is also possible if no assurance of performance is provided (section 62). This is not relevant in terms of mining collateral.

Section 59 of the Environmental Protection Act requires provision of a financial guarantee for waste treatment operations, as described in Section 2.1.3 above. The types of financial guarantees and eligibility requirements for the issuing the financial guarantee under section 61 of the Environmental Protection Act also apply, while not being limited at the EU level[36], to collateral under the Mining Act[37]:

> 'Acceptable financial guarantees are a guarantee, insurance or pledged deposit. The party issuing the financial guarantee shall be a credit or insurance institution, or another commercial financial institution, domiciled in a European Economic Area country.'[38]

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36 *Financial Provision*, 8.12.2016 IMPEL report No. 2016/20, p. 14. *Financial Provision for Environmental Liabilities. Practical Guide*. IMPEL 11.11.2017 report No. 2017/22, p. 27–44. Workshop on financial guarantees, EC Commission ENV.B.3, 26 January 2018 (with the extractive sector, insurance industry, banking sector and NGOs as stakeholders).

37 The acceptable types of financial guarantees were previously addressed in Supreme Administrative Court Decision of 28 December 2010, record no. 3907, which found that first-demand guarantees or suretyship insurance were not deemed illegal.

38 Act on Commercial Banks and Other Credit Institutions in the Form of a Limited Company (1501/2001), Savings Bank Act (1502/2001), Act on Cooperative Banks and Other Cooperative Credit Institutions (423/2013), Insurance Companies Act (521/2008), and Act on Insurance Distribution (234/2018). Foreign insurance companies have the right to undertake insurance business in Finland as prescribed in the Act on Foreign Insurance Companies (398/1995). A foreign EEA insurance company may undertake insurance business in Finland on the basis of right of establishment once the supervisory authority in the insurance company's head-office country has notified the Financial Supervisory Authority of this. See also Act on Insurance Mediation (570/2005), section 28. Insurance policies for contracts, for example, may involve jurisdiction clauses restricting their uses.

Environmental guarantees are divided into closure, restoration and after-care obligations, on the one hand, and unforeseen events, on the other. The type of financial guarantee should be such that it is: 1) secured from third parties; 2) adequate to cover all obligations; and 3) available to fulfil the obligations. A parent company's guarantee is suitable for most obligations, except for inevitable closure and after-care costs. Insurance is suitable for unforeseen events.[39] Adjustment of financial guarantees or equivalent is part of the technical guidelines for inspections of waste facilities. The appropriate amounts and forms of guarantees relative to the costs calculated to arise from the obligations, including arrangements for closure and after-care of a waste facility and restoring the land area of impact of the waste facility, must be verified.[40]

The European Union does not have jurisdiction over mining activities, except indirectly in the areas of environmental impacts and waste management. Competition law and free movement of capital and services nevertheless place requirements on the types of collateral provider that can be excluded. Competition legislation laid down and interpreted by EU institutions is based on the Treaty on the Functioning of the European Union (TFEU) and its Part One, Title VII, Chapter 1, Section 1. Competition law is laid down in instruments such as Regulation (EC) No 1/2003 implementing the rules of competition, while services in the internal market are governed by Services Directive 2006/123/EC.

By virtue of section 36 of the Nuclear Energy Act (990/1987), the party with a nuclear waste management obligation must furnish the state with collateral security as a precaution against insolvency. The Act's section 44 provides that collateral security must be supplied before commencing nuclear waste-generating operations and the amount of collateral may be raised by 10%. Should collateral security not be provided, an additional nuclear waste management fee corresponding to the outstanding amount will be payable. The Ministry of Economic Affairs and Employment will approve providers of collateral security in accordance with section 45 of the Act and the licensee with a nuclear waste management obligation will furnish the Ministry with a proposal for the securities in keeping with sections 91–94 of the Nuclear Energy Decree (161/1988). Provisions on assignment, adjustment, realisation and return of collateral securities are laid down in sections 95–98 of the Nuclear Energy Decree.

39 Financial Provision for Environmental Liabilities. Stephen McCarthy, EPA. Law and the Environment 2018. UCC, 26.4.2018.

40 Commission Decision 2009/335/EC of 20 April 2009 on technical guidelines for the establishment of the financial guarantee and Commission Implementing Decision (EU) 2020/248 of 21 February 2020.

2.2.7 Measures covered by collateral

Sufficient collateral is deposited with Tukes (section 109, subsection 3) and the termination and after-care measures of mining activities are ordered taking account of (section 108):

1. the nature and extent of mining activity;
2. the permit regulations issued for the activity; and
3. collateral demanded by virtue of other legislation.

The type and quantity of collateral are determined in the mining permit. The amount of collateral must be adjusted, if necessary, when the mining permit is reviewed or altered (sections 62, 69 and 109). The collateral can be used to pay for the costs necessary for performance of the obligations laid down in the Mining Act or ordered in the mining permit. Correspondingly, obligations are measures necessary to secure public or private interests.

The only relevant type of collateral to be provided by virtue of other legislation is the financial guarantee for waste treatment operations under the Environmental Protection Act, which applies to all waste facilities for extractive waste.

2.3 Rights under the Mining Act

2.3.1 Claim and exploration permit

Most of the claim areas under the old Mining Act have already been transformed into the exploration areas referred to in the new Mining Act. An exploration permit grants the holder the right to explore the structures and composition of geological formations and to conduct other exploration in order to prepare for mining activity and other exploration in order to locate a deposit and to investigate its quality, extent and degree of exploitation in the exploration area located on the holder's own land and that owned by another party, as well as to build, or transfer to the exploration area, temporary constructions and equipment necessary for exploration activity. The rights are assigned in the exploration permit. The deposit must not yet be exploited, nor is the right related to the termination of mining activity.

2.3.2 Mining right and mining permit

Under the old Mining Act (503/1965), a mining right conferred the right to exploit mining minerals within the area of a mining concession. At the same time, the mining right was also a redemption permit and granting a mining concession regulation was followed by redemption proceedings. The mining right conferred the right to exploit mining minerals

within the mining concession, rather than only those within the usage area. However, open-cast extraction required extending the usage area if the usage and auxiliary areas had been separated in the mining concession. Most of the currently existing mines are mining concessions established under the old Mining Act, with related mining rights, which have been updated by the regulations necessary to secure public and private interests issued under the new Mining Act.

A mining permit under the current Mining Act (621/2011) is granted for establishing a mine and undertaking mining activity. A mining permit entitles the holder to exploit the mining minerals found in the mining area and the by-products of mining activity (however, not those of ore dressing), as well as any other materials in the bedrock and soil in the mining area, to the extent that their use is necessary for the purposes of mining operations in the mining area. A mining permit does not include rights to redeem a mining area or use an auxiliary area, or the determination of elements of mining safety. The mining permit includes orders necessary to secure public and private interests.

2.3.3 Mining safety permit

Under section 57 of the old Mining Act, the mining operator was required to ensure mining and occupational safety; under section 51, subsection 4, the holder of the mining right was, upon loss of the mining right or transfer of a mining concession, obliged to restore the area to a condition required for public safety without delay in compliance with the provisions of section 59 of the Mining Act, section 22 of the Mining Decree (663/1965), and sections 128–130 of Decision 921/75 of the Ministry of Trade and Industry. Mines that had already been constructed and were in productive operation upon entry into force of the new Mining Act were not required to obtain a mining safety permit.

Under section 121 of the new Mining Act, the construction of a mine and its productive operations are subject to a mining safety permit granted by Tukes. Rather than a 'right of mining safety', a mining safety permit involves safety obligations tied to the mining permit. A mining safety permit also issues orders on construction and productive operations that are necessary to secure public and private interests (section 125). However, these include orders on taking account of the termination of mining activity from the perspective of mining safety as well. Expiration of a mining safety permit is decided on in the event that the mining safety permit expires or is cancelled, or due to a specific application.

2.3.4 Rights of possession and use

General information obtained in the course of exploration work is protected as undisclosed business information within the limits of the Trade Secrets Directive (EU)

2016/943 [41]and the Trade Secrets Act (595/2018). As rights under the Mining Act, these become transferable rights in rem.

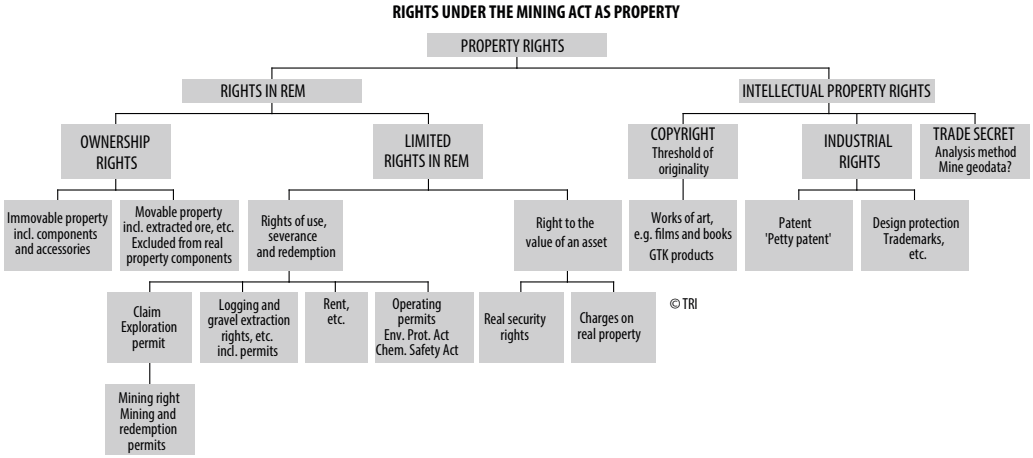


Figure 2-1. Rights under the Mining Act in the Finnish property regime.

Rights in rem in movable and immovable property involve obligations that limit their exercise, which must be dealt with when terminating activities. Under the old Mining Act, granting a mining concession regulation was followed by redemption proceedings, conferring possession over the usage and auxiliary areas within the mining concession. Possession rights are limited rights in rem almost on a par with ownership rights. The mining right under the old Mining Act included the following possession rights:

1. 1. Complete and unrestricted right of possession:
   - usage area in full,
   - of auxiliary areas, industrial, storage, waste and accommodation areas;
2. Limited right of possession:
   - of auxiliary areas, those used for water and sewer piping and power lines, roads and other transport routes;
3. Areas with no aboveground right of possession:
   - mining concession areas outside the usage area, which are not generally subject to compensation, typically including a field or forest located above an underground mine and not affected by activities below ground.

Under the new Mining Act (621/2011), a mining permit is granted for a mining area, often as an extension of an old mining concession. A mining permit entitles the holder to exploit

41 Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure.

the mining minerals found in the mining area, the by-products of mining activity, as well as any other materials in the bedrock and soil in the mining area necessary for carrying out mining activities. A mining area and an auxiliary area to a mine are defined above. By a redemption permit for a mining area, the government grants the right to use an area in the possession of another party as a mining area to the extent that the mining company has not acquired ownership of such area. In a mining permit, Tukes may grant a limited right of use or another right to an auxiliary area to a mine, provided that functions cannot be placed otherwise in a satisfactory manner and at a moderate cost.

Mining Act section 21 provides that the mining area and auxiliary area to a mine may only be used for the purpose for which the right of use or another right was granted. Even the holder of a redemption permit for a mining area does not have unlimited rights in rem and of use (ownership rights), although these are exclusive relative to other rights of use. This is due to the landowner's secondary right in rem. The right of use applies to the use of the mining area for purposes in keeping with the redemption permit for the mining area, the mining permit and the mining safety permit. The rights to the auxiliary area partially resemble both rights of use and easements. Rights of use serve individuals, while easements serve the dominant property and its use.

Mining rights and permits also entitle exploration in a mining area without separate permits. Rights of possession and related rights of use enable all of those measures during mining activities that must be taken into account in termination and after-care measures upon closing a mine. Collateral is used to ensure the termination and after-care measures.

2.4 Collateral under the Mining Act

2.4.1 Gold panning and exploration

An exploration permit must include the provisions on collateral necessary to secure public and private interests in accordance with Mining Act chapter 10 (section 52). A corresponding obligation is included in gold panning permits (section 54). These permits will expire at the end of a fixed period (section 67). If a permit holder applies for an extension to the validity of a permit, collateral provided under section 107 will remain valid until a final decision has been issued.

Collateral must be deposited for the purpose of offsetting potential damage and inconvenience and performing after-care measures, unless this can be deemed unnecessary in view of the quality and extent of operations, the special characteristics of the operating area, permit regulations issued for the operations, and the applicant's solvency. The collateral can be used to pay for the costs necessary for performance of

the obligations laid down in the Mining Act or ordered in the relevant permit. Since exploration is also allowed in a mining area, corresponding costs may be included in terminating mining activities.

Collateral may not necessarily be required, but if it is, it must be ordered specifically for each exploration area. Following a vote, the Supreme Administrative Court ruled in its Yearbook Decision KHO:2018:46 of 9 April 2018 (record no. 1629), in derogation of the existing collateral framework, that the purpose of collateral proceedings would be to order collateral to be deposited for each individual exploration permit and area, rather than for each permit holder. While this does not affect final decisions, collateral has been provided on an area basis when extending the validity of exploration permits and granting new permits.

2.4.2 Terminating mining activities

A mining permit must include the provisions *necessary* to secure public and private interests on collateral associated with mine closure alongside other obligations related to termination of mining activities and those following termination in accordance with chapter 10 (section 52). The mining permit holder will deposit collateral, for the purposes of termination and after-care measures of mining operations, that is sufficient in view of the nature and extent of mining activity, the permit regulations issued for the activity, and collateral demanded by virtue of other legislation (section 108).

Collateral will be deposited for (sections 125, 143–144; see also section 148):

1. restoring the mining area and the auxiliary area to the mine to a condition complying with public safety in order to rehabilitate the mining area and the auxiliary area to the mine;
2. cleaning the mining area and the auxiliary area to the mine;
3. landscaping the mining area and the auxiliary area to the mine;
4. performing the measures specified in the mining permit and the mining safety permit;
5. emoving the mining minerals excavated from the mine;
6. removing buildings and constructions on the ground.

While the wording indicates that collateral for the measures referred to in points 1–3 and 5–6 above would be provided directly by virtue of the Mining Act, in practical terms, all of the provisions to specify and, where necessary, implement these must be included in permits in keeping with point 4. Permits specify the necessary measures, which the collateral must cover in full. Based on the Supreme Administrative Court's Yearbook Decision KHO:2017:177 of 22 November 2017 (record no. 6028), Tukes should always

require collateral if it issues orders on termination and after-care measures of mining activities. In such cases, the grounds for requiring collateral would not fall within its discretion. Solvency and other such criteria will only have a bearing on the amount of collateral, although no specific guidance on this exists.

The mining operator will submit notification of mine-closure measures, providing grounds to organise a final inspection. The inspection will be documented in a record, which will form the basis for making a decision to terminate mining activity. The termination decision must include the orders *necessary* in terms of public and private interests concerning: completion of termination measures within the given time limit; monitoring of the mining area and auxiliary area to the mine; buildings and other constructions referred to in section 144, subsection 2; and other elements the consideration of which is *necessary* in terms of protecting public and private interests (section 148).

Tukes will release the collateral when the permit holder has fulfilled the obligations laid down in the Mining Act or issued in the mining permit. There is no reference to fulfilling the obligations of the mining safety permit, but these are included in the termination decision. Collateral may be released in full or in part (section 110). Responsibility for corrective measures and monitoring will continue beyond termination of mining activities (section 150).

2.4.3 Relevance of the net asset value of movable assets to collateral

In order to place mining activities as an industry on an equal footing with other industries, and to avoid additional costs that would create restrictive barriers to trade and property rights for products used in mining activities, collateral would only be required to cover measures necessary to remove movable property with a net asset value if the costs of the measures do not exceed the asset value of such property (at which point the right to movable property becomes an obligation). The costs of removing valuable machinery and equipment as well as stocks of chemicals and explosives do not need to be covered by collateral, which is especially provided as a precaution against insolvency.

Rather than an obligation, movable property is part of a company's assets and rights in rem. The costs of transferring movable assets are agreed upon their sale as part of the purchase price, unless the mining company itself plans to use them in another mining area. In general terms, further uses are only described in connection with termination measures.

Even if collateral were not required, it may still be necessary to issue orders on measures to restore the area to a condition required for public safety and cleanliness. This is not always

necessary either. The mining company may keep and store movable assets in its own area, if this constitutes planned further use of the area and is in compliance with other laws and permits.

In some cases, there may be rental buildings (e.g. site huts, which will be retrieved), leased machinery or supplier's stocks (e.g. explosives, contractor's stock). Under the provisions of the Mining Act and the orders issued by the mining permit and the mining safety permit, the mining company will be responsible for ensuring that this property is also removed. However, costs for transferring containers, for example, are included in collateral, even though the hirer is entitled and obliged to remove them immediately upon expiry of the contract. As mining companies may have dozens of contracts with contractors and suppliers, they will need to take the obligations in place during operations and upon closure into account in the contracts.

However, there are no known cases where the costs of transferring the property of hirers and contractors would have been priced into contracts as risk. According to section 37 of the Contracts Act (228/1929), concerning legal action governed by private law, a term under which property pledged as security for an obligation would be forfeited if the obligation is not discharged is void.

2.4.4 Relevance of the mining safety permit to collateral

A mining safety permit will only have a bearing on collateral for termination of activities where termination is also taken into account in its provisions (Mining Act section 125). While a mining safety permit concerns mine construction and productive operations rather than the after-closure period, termination must still be taken into account in the permit.

2.4.5 Limit to application to other financial guarantees

The collateral deposited for the purposes of termination and after-care measures of mining operations must be sufficient in view of collateral demanded by virtue of other legislation (section 108). The only relevant types of collateral in this respect are the financial guarantees for waste treatment operations and waste facilities for extractive waste under the Environmental Protection Act. This provision of law must be interpreted in the sense that no overlapping collateral should exist. This interpretation is backed up by the fact that the measures to be covered by the collateral should be necessary. Measures are not necessary if they are governed by another law.

2.4.6 Horizontal, vertical, temporal and competence delimitations

Collateral is used to cover obligations and measures within the mining concession area, the mining area and its auxiliary area (horizontal delimitation). As a general rule, the vertical dimension has no limitations, but removal obligations apply to aboveground buildings and constructions. In practical terms, rehabilitation, cleaning and landscaping obligations only apply to aboveground measures; however, situations such as a risk of a mining tunnel collapsing or soil subsidence may also require other measures.

In temporal terms, obligations to carry out the measures will begin from the mining permit and, based on the Supreme Administrative Court's Decision of 22 November 2017, record no. 6029, these should even be anticipated[42] regardless of any revisions. The decision is conducive to leading to a situation of excessive or extraneous collateral, if the forecast is not developed for a short time span. During mining activities, it is generally possible to forecast continuity for a few years at a time. The forecast is influenced by mineral price developments and continuous explorations, which means that revisiting the measures and collateral is justified. Once the fundamental bulk of the obligations laid down in the Mining Act or issued in the mining permit have been fulfilled, the collateral must be released. The scopes of application of legal statutes and the powers of public authorities will also set limitations.

The Mining Act applies to measures necessary to secure private and public interests, not to those falling within the scopes of other laws and the competences of other permit and supervisory authorities. Likewise, collateral is to be deposited for measures necessary under the Mining Act, not for those laid down in the Environmental Protection Act, Waste Act, Chemicals Safety Act, Dam Safety Act, Water Act, or some other law. There have been calls for measures and collateral under the Mining Act to be extended into the scope of the financial guarantees under the Environmental Protection Act, especially where the financial guarantee laid down in the latter for waste treatment operations has been considered inadequate. There have also been demands to extend the Mining Act's collateral to ensure protection of water bodies, groundwater, etc.

42 Tukes should have required sufficient collateral in terms of type and quantity on the basis of the assessment criteria referred to in Mining Act section 108, even though mining activities had not commenced in these mining concessions. The need for collateral arising from the intended future termination and after-care measures of mining activities also had to be taken into account in assessment.

3 TERMINATION AND AFTER-CARE MEASURES BY SITE

3.1 Open-cast mines

3.1.1 Removing buildings and constructions

Once a decision to terminate mining activity has become legally valid, the mining operator's right of use and right of possession to the mining area will be terminated alongside the right of use and other rights to the auxiliary area to the mine (Mining Act section 149). Buildings and constructions will be removed by relocating, selling or demolishing and treating as demolition waste. The buildings and constructions to be removed under Mining Act section 144 include all buildings subject to building permit under the Land Use and Building Act (132/1999) and constructions, whether subject to action permit or not; however, not all works subject to action permit, such as storage fields. Buildings and constructions need not be removed from an area owned by the mining company holding the mining permit, or in the event that another owner does not wish these to be removed.[43]

Instead of being located in an underground stope being closed down, buildings and constructions to be removed are aboveground in its vicinity, in the usage or auxiliary area, or in an auxiliary area of an old mining concession. Buildings to be removed include:

- the mineral processing plant and any other production buildings;
- outbuildings and storage, office and residential buildings.

43 A mining company's risk of insolvency in its own area is the same in all business operations, including any buildings.

Examples of constructions include:

- container site huts, shelters, installations;
- chimneys, poles, lighting columns;
- tanks, fuel distribution points, liquid fuel distribution stations[44];
- large fixed and mobile platforms;
- aboveground pipelines;
- wastewater systems not included in building permits for production, office and other such facilities (separate construction requires an action permit);
- electricity supply connections, including cabinets, substations and oils;
- open-cast mine pumping plants, electrics and lighting, etc.;
- conveyors;
- rail tracks within the mining concession area.

Section 17 of the Government Decree on the Environmental Protection Requirements for Stations Distributing Liquid Fuels (444/2010), issued by virtue of the Environmental Protection Act, requires the operator to notify the municipal environmental protection authority of termination of distribution station operations and submit a plan for removing its structures and establishing potential soil and groundwater contamination. The Government Decree does not apply to distribution stations with total tank volume below 10 m^3, nor to larger old distribution stations, unless their environmental permits are altered (sections 1 and 18). While removal of distribution station structures is also included in the Mining Act's scope of application, in certain cases operators are required to submit a plan to the competent ELY Centre as well.

Buildings and constructions are not considered to include roads and subsurface infrastructure (heating, water, air-conditioning, electricity, data communications), even though property-specific wastewater systems, for example, require an action permit. While demolition of road structures has been included in some notifications of termination measures (section 144), this has referred to landscaping (a thin layer of topsoil and planting, falling within section 143). It is probably not always necessary to

44 Liquid fuel distribution stations require a local detailed plan or a placement permit under the Health Protection Act (763/1994), possibly an environmental permit for those built since the old Environmental Protection Act and currently registration outside groundwater areas. See also the Government Decree on the Environmental Protection Requirements for Stations Distributing Liquid Fuels (444/2010), considering the Chemicals Safety Act (390/2005) and Government Decree on the Monitoring of the Handling and Storage of Dangerous Chemicals (855/2012), as well as Ministry of Trade and Industry Decision 415/1998 on distribution stations. Section 17 of Government Decree 444/2010 requires submission of a plan on demolition of structures and a report on soil contamination.

remove subsurface foundations of buildings and constructions if these are harmless and can be considered as part of the soil (the same practice also applies to items such as concrete foundations for power transmission line supports in all areas). On the other hand, foundations form part of buildings and constructions serving the property during – but not after – mining activities.

Decisions on mining, mining safety and termination permits include orders on the necessary measures so as to ensure that the collateral can be allocated properly and the measures can ultimately be implemented through administrative enforcement proceedings. Collateral cannot be ordered to ensure compliance with obligations under any other laws.

3.1.2 Other measures in the mining area and auxiliary area

Corrective measures in the mining area and auxiliary area to the mine:

1. restoring the areas to a condition required for public safety and rehabilitation:
    a. fencing the open-cast mine, warning signage and closing down road access,
    b. flattening earth slopes/rock walls,
    c. backfilling open-cast mines and trenches as required;
2. cleaning:
    a. removing excess material from the mine,
    b. restoring the area to a condition required for public safety;
3. landscaping (other than landscaping included in the waste guarantees under the Environmental Protection Act):
    a. shaping the ground and filling in pits[45],
    b. adding plants, planting, covering roads with a soil layer;
4. removing excavated mining minerals from both below and above ground level, including any processed minerals:
    a. Essentially applies to those excavated from the mine in question.
    b. Some mineral processing plants within currently valid Finnish mining concessions bring in some or all of the minerals from other locations, but mining minerals must, analogously, also be removed from these.

45 Kaivoksen sulkemisen käsikirja [Handbook of mine closure]. Outokumpu Oyj, TLL [*Finnish Road Enterprise*], M&V Oy, GTK [*Geological Survey of Finland*], VTT [*VTT Technical Research Centre of Finland Ltd*]. 2005. p. 86.

The necessary measures are specified in the mining permit and mining safety permit. Measures to transfer movable assets as part of cleaning and restoring the area to a safe condition will probably not require collateral where their value exceeds the transfer costs, even if the measures were generally included in the scope of the Mining Act as well.

3.2 Underground mines

3.2.1 Buildings and constructions

What is noted in Section 3.1.1 above also applies to buildings and constructions related to underground mines. If a building or permanent construction is located in a mining tunnel or on its working levels, it will not be removed.

Decisions on mining, mining safety and termination permits include orders on measures so as to ensure that the collateral can be allocated properly and the measures can ultimately be implemented through administrative enforcement proceedings.

3.2.2 Other measures in the mining area and auxiliary area to the mine

Corrective measures in the mining area and auxiliary area to the mine:

1. restoring the areas to a condition required for public safety and rehabilitation:
    a. areas at risk of cave-in or depression:
        i. blocking access with fencing,
        ii. placing building restrictions for future land use,
        iii. preventing and managing cave-ins with reinforcement and support measures as well as waste rock backfills[46],
        iv. preserving, inspecting and repairing mine safety structures,[47]
        v. monitoring, reviewing and measuring cave-ins and depressions,

46 Kaivoksen sulkemisen käsikirja [Handbook of mine closure]. Outokumpu Oyj, TLL [*Finnish Road Enterprise*], M&V Oy, GTK [*Geological Survey of Finland*], VTT [*VTT Technical Research Centre of Finland Ltd*]. 2005. p. 86.

47 Deeper into the mine, cave-ins will compact quickly on a few levels and will not create a chain effect that would reach the surface. The closer to the surface that a cave-in takes place, the higher the risk of soil depression or collapse.

   b. preventing access to the mine and cutting off other connections:
      i. blocking entrances to mine shafts and declines with boulders or concrete,
      ii. blocking and plugging air ducts and boreholes,
   c. dismantling underground mining technology:
      i. removing machinery, equipment and installations, including any oils,
      ii. dismantling and removing electrical, water and ventilation technology,
   d. ending pumping and filling the mine to the extent that this affects the public and private interests laid down in the Mining Act;
2. cleaning:
   a. removing machinery and equipment from the mine (also relevant to public safety), selling or disposal for treatment in keeping with the Waste Act,
   b. removing superfluous movable items and material (other than wooden or concrete materials) from the mine;
3. landscaping:
   a. shaping the ground and filling in pits,
   b. covering roads with a soil layer and adding plants;
4. removing excavated mining minerals from both below and above ground level, including any processed minerals.

The necessary measures are specified in the mining permit and mining safety permit. As a general rule, measures to transfer movable assets will probably not require collateral, even if the measures were generally included in the scope of the Mining Act as well.

3.3 Ground and waters

The post-termination structural safety of mine tunnels, open-cast mines and the property falls within the scope of application of the Mining Act. The Mining Act also requires taking account of tunnels filling with water if this can affect safety. Any risk of tunnel cave-in and soil subsidence and any ground topography that may endanger safe movement, as well as the structural safety of the ground in any other respect, fall within the scope of the Mining Act, except for waste facilities.

The structural stability and safety of facilities for waste rock, tailings and other waste fall within the scopes of application of the Environmental Protection Act and Waste Act. In

practical terms, the interface has been taken into account such that no acid-generating waste rock or tailings generating harmful emissions are used in backfilling operations. Likewise, noise protection walls or dust control structures fall within the scope of the Environmental Protection Act, while their construction is regulated and supervised by virtue of the same Act. The scope of the Environmental Protection Act also covers soil contamination within mining areas and waste facilities for extractive waste. Any construction and other such waste in the soil is governed by the Waste Act.

Termination of drainage pumping in a mine and its filling with water, as well as water collection, control and treatment, are primarily included in mine water circulation and management under the Environmental Protection Act.[48] Water management is part of emissions management and pollution prevention. As a general rule, waters from mining areas and waste facilities are considered wastewater when these are conveyed from an operating area subject to environmental permit (Environmental Protection Act section 5, subsection 1, paragraph 13)[49]. Any clean surface waters generated within a mining area are to be isolated from the (waste)waters from the mine and its mineral processing facilities by means of perimeter ditches.

3.4 Waste facilities and rock waste areas under the Mining Act

3.4.1 Waste facilities for extractive waste

Provisions on extractive waste, after-care and control are laid down in the Extractive Waste Decree (190/2013), which is based on the Extractive Waste Directive (2006/21/EC). The financial guarantee for waste treatment operations, assessed by an independent expert, to be provided for measures in keeping with the Environmental Protection Act (527/2014) and the Waste Act (646/2011), as well as the Extractive Waste Decree (190/2013) issued by virtue of these two Acts, is separate from the collateral under the Mining Act (621/2011). The collateral under the Mining Act is not intended to complement the waste guarantee to the extent that it has temporarily or permanently omitted something. If this were otherwise, the final responsibility for the adequacy of all of the collateral would fall on the mining authority, even if mistakes had been made when ordering closure measures or waste guarantees, or in related inspections performed by authorities, etc. Tukes neither has the competence nor formal qualifications to assess waste guarantees.

48 Vaasa Administrative Court Decision No. 16/0096/2 of 2 May 2016 and Supreme Administrative Court Decision of 11 July 2017, record no. 3508.

49 As amended by Act 588/2011 amending the old Environmental Protection Act (86/2000), which entered into force on 1 January 2012.

However, the collateral provided under the Mining Act for measures to be performed in an extractive waste facility may include removal of machinery, equipment and constructions from the waste facility, removal of conveyor pipes and other structures between the tailings pond and the mineral processing plant, fencing of the tailings storage area, sloping unrelated to stability, closing of access routes, etc.

3.4.2 Rock waste areas

Extractive waste also covers waste or country rock, as well as topsoil, overburden and tailings. Its characteristics as waste were already unclear prior to the Extractive Waste Directive.[50] Waste rock is included in extractive waste and financial guarantees for waste facilities for extractive waste governed by the Environmental Protection Act and the Extractive Waste Decree (190/2013). Among other things, any potentially acid-generating waste rock areas must be covered as required and neutralised in keeping with regulations issued by virtue of environmental protection legislation.

Nevertheless, the Mining Act requires the operator to remove structures other than those used for extractive waste (e.g. lighting columns, masts) from waste rock areas, make slopes and fences to enable safe movement, prevent dangerous access, etc. The measures ordered by virtue of the Mining Act enable safe access and use of the area, whereas the financial guarantees for extractive waste cover appropriate waste management (incl. rehabilitation of polluted or littered areas) and related after-care, as well as environmental impacts of extractive waste.

3.5 After-care measures

The measures in keeping with post-termination obligations indicated in the mining permit application and appended to mining permit regulations are after-care measures (Mining Act section 34, subsection 2, paragraph 7, and section 52, subsection 3, paragraph 6). Measures may also be specified in the mining safety permit applicable to more recently established mines (section 125). The mining permit holder is responsible for monitoring the mine and implementing the necessary corrective (incl. maintenance) measures in compliance with the orders issued in the mining permit and termination decision under Mining Act section 150, as well as for their costs. The permit holder will provide collateral for after-care measures under Mining Act section 108.

50 ECJ Case C-9/00 Palin Granit Oy and Vehmassalon kansanterveystyön kuntayhtymän hallitus of 18 April 2002; Case C-114/01 Outokumpu Chrome Oy, subsequently AvestaPolarit Chrome Oy, of 11 September 2003; and Supreme Administrative Court Decision of 29 April 2004, record no. 922, Outokumpu Mining Oy/Polar Mining Oy.

After-care measures will start once the decision to terminate mining activities has become legally valid. At that point, the mining operator's right of use and right of possession to the mining area will be terminated alongside the right of use and other rights to the auxiliary area to the mine (Mining Act section 149). After-care measures are divided into different stages, which involve waiting for the open-cast or underground mine to fill up. The monitoring obligation applies to all of the obligations listed in Sections 3.1 and 3.2 of this report above, whereas active after-care measures are specified in Tukes's decisions and secured by collateral. Furthermore, an obligation to perform repairs also exists, even if no specific orders were issued on these or related collateral.

3.6 Release of collateral

Tukes will release the collateral when the permit holder has fulfilled the obligations (covered by the collateral) laid down in the Mining Act or issued in the mining permit. While the wording of section 125 on fulfilling the obligations of the mining safety permit would no longer have an effect on the release of collateral, these have been taken into account in the decision to terminate activities (section 150). Collateral may be released in full or in part (section 110). A termination decision may impose obligations that are yet to be implemented and may require collateral to ensure implementation. The release of collateral laid down in the Mining Act is not affected by any obligations and related financial guarantees under other laws.

4 CASE ANALYSIS

The Ministry of Economic Affairs and Employment has selected the following four mines for case analysis: Karnukka and Kylylahti mines in Polvijärvi, Suurikuusikko mine in Kittilä, and Ihalainen mine in Lappeenranta. In addition, termination decisions issued to 37 mines for securing public and private interests were examined.

Before the first collateral decisions were issued, it was expected that collateral of over EUR 50,000 would be ordered for about a tenth of the approximately 130 mines existing at the time. The magnitudes of collateral were assessed to be divided into three groups as follows:

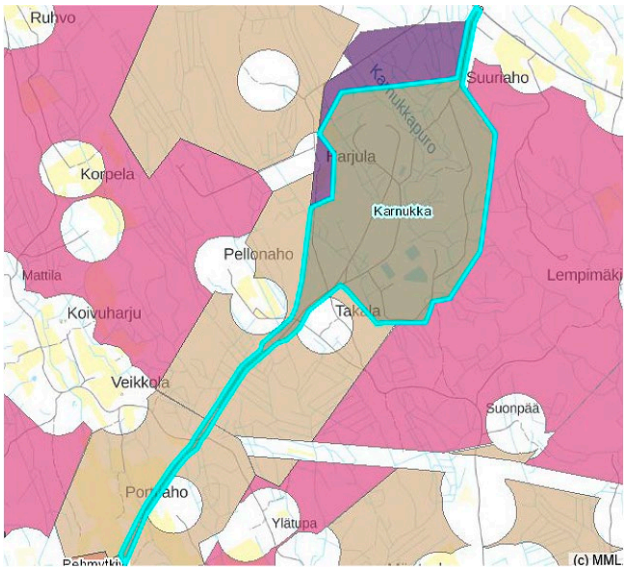
1. Metal ore mines: EUR 25,000–1,600,000
2. Carbonate and industrial mineral mines as well as industrial rock mines: EUR 5,000–300,000
3. Mining concessions with no or only occasional excavation: EUR 0–50,000 (cannot be zero according to the Supreme Administrative Court's interpretation)

The volume of operations is higher in metal ore mines. From the Mining Act's perspectives of safety, cleaning and removal, termination of their activities is not as such more dangerous; instead, the amount of collateral depends on the termination measures and their costs.

4.1 Karnukka mine in Polvijärvi

4.1.1 Rights and permits

Karnukka (KaivNro K7953, extension KL2018:0005) talc and nickel mine (Ni, TALC) in Polvijärvi. The Karnukka mining concession covers about 106.1 ha. The proceedings establishing the Karnukka mining concession were completed on 10 June 2014 and the mining concession certificate was registered on 21 November 2014.



Map 4-1. Karnukka mining concession (brown) and extension (violet) (GTK [Geological Survey of Finland] 2020).

The Vuonos plant processes nickel and manufacturers talc products. The Karnukka mine is operated by Mondo Minerals B.V. (Elementis Minerals B.V.). Its Finnish branch was granted an environmental permit by Eastern Finland Regional State Administrative Agency Decision No. 13/2013/1 of 8 February 2013, including orders on the financial guarantee for waste treatment operations, which are taken into account in the collateral under the Mining Act. Under Permit Regulation No. 5 issued by the Finnish Safety and Chemicals Agency (Tukes) on 27 April 2016, the mining permit holder must deposit an absolute bank guarantee of EUR 15,000 with Tukes for the purposes of termination and after-care measures of mining operations (Mining Act sections 108, 109 and 181). According to its rationale, the mining collateral will cover, in keeping with the Mining Act, termination and after-care work related to mine closure as follows:

1. fencing the open-cast mine of approximately 6 ha (just over a kilometre);
2. installing warning signs in the area;
3. other small-scale overheads for restoring the area to a condition required for public safety: removing any unnecessary structures from the mine, such as pumping plants, electrics and lighting.

4.1.2 Review of regulations and collateral

In keeping with Tukes's decision of 27 April 2016, the permit regulations will be reviewed on 1 June 2024. The mining company applied for a mining permit (initiated on 23 August 2018) under section 34 of the current Mining Act to extend the current Karnukka mining

concession (KaivNro K7953). In the 2018 permit application and its supplement, the mining company proposed an overall amount of EUR 45,000 in post-review collateral for all operations in order to cover the termination and after-care measures listed below, with the primary purpose of making the area of the open-cast mine safe during and after mining activities.

There are no permanent buildings in the area. Tukes issued a public notice of application (KaivNro KL2018:0005-01) on 9 November 2018 and issued a decision on 21 January 2020.

4.1.3 Concrete termination and after-care measures

Tukes's Permit Regulation No. 5 of 27 April 2016, EUR 15,000:

1. fencing the open-cast mine of approximately 6 ha (just over a kilometre);
2. installing warning signs in the area;
3. other small-scale overheads for restoring the area to a condition required for public safety: removing any unnecessary structures from the mine, such as pumping plants, electrics and lighting.

The mining company's 2018 application to extend the mining concession:

1. During mining activities:
    a. supporting stopes with waste rock backfills in areas no longer relevant to mining activities;
    b. shaping the edges of stripping areas to ensure safety.
2. After termination of mining activities:
    a. ensuring the shaping of edges;
    b. fencing parts involving a risk of falling into the stope as required;
    c. preventing access to ramps by means such as large boulders;
    d. removing any unnecessary structures from the mine, such pumping plants, electrics and lighting;
    e. allowing any open-cast mines or their parts not backfilled with waste rock to fill up with water.

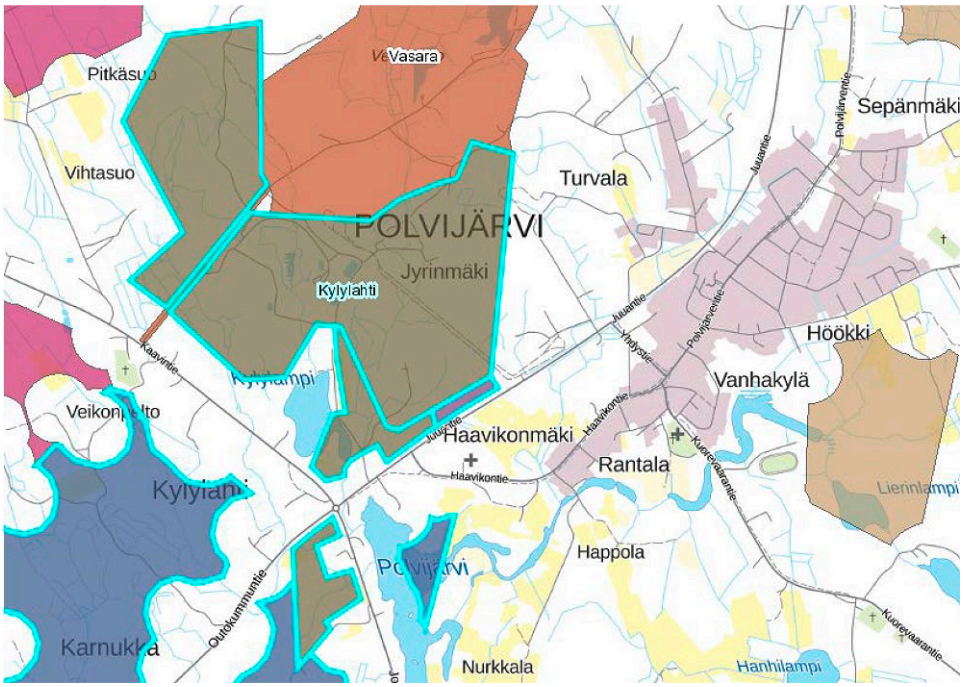
The collateral proposed for the extension was EUR 30,000. The areas are shown on the map in Appendix 1.

On 21 January 2020, the collateral for the old mining concession area was raised to EUR 25,000 as follows: EUR 22,000 for fencing of 1,400 m and warning signs, restoring the area to a condition required for public safety; EUR 3,000 for removing any unnecessary structures from the mine, such as pumping plants, electrics and lighting.

4.2 Kylylahti mine

4.2.1 Rights and permits

Boliden Kylylahti Oy, a subsidiary of Boliden AB, operates the Kylylahti mining concession (KaivNro 3593) in Polvijärvi (Cu, Zn, Ni, Co). The original mining concession regulation for area 3593A was issued on 4 December 1992, while the regulations for its northwestern extension and extension 3593B were issued on 4 December 1992 and 27 June 2003, respectively. The Kylylahti underground copper mine (Cu, Ni, Co, Zn, Au) is about 800 metres deep and located in the Municipality of Polvijärvi and the copper, gold and zinc processing plant is situated in Luikonlahti, in the Municipality of Kaavi, about 43 kilometres from the mine. The Kylylahti underground mine has produced ore at about 550,000–800,000 t/a. According to its operation plan, excavation and mining activities would end around the turn of 2020 and 2021.



Map 4-2. Kylylahti mining concession 3593 (brown), northern sections 3593A, southern sections 3593B (GTK [Geological Survey of Finland] 2020).

On 17 May 2013, Boliden Kylylahti Oy applied to Tukes for a permit to extend the mining concession (auxiliary area) by submitting a mining permit application. The mining minerals exploited are Cu, Ni, Zn, Au and, in practice, Co. No place could be found in the mining concession area for intermediate storage of cobalt-nickel concentrate and sulphur concentrate. Tukes approved the extension as an auxiliary area on 15 October 2013 (KL2013:0003).

In connection with issuing a public notice of Boliden Kylylahti Oy's extension permit application, Tukes announced that collateral for performance of termination and after-care

measures of mining activities would be established at the same time in keeping with the transition provision in Mining Act section 181. As advance notice, Tukes announced that it would order the amount of collateral separately from the mining permit decision. The mining authority referred to the permit orders issued to the Kylylahti mining concession (Permit Regulation No. 6) as follows: Permit regulations will be reviewed on 1 June 2018. The mining authority has started consideration of the matter on 4 December 2018.

Tukes issued a decision (KaivNro 3593 of 29 March 2019) on orders necessary to secure a public or private interest to be issued in the mining permit (Mining Act sections 52, 125 and 181).

4.2.2 Review of regulations and collateral

The mine is expected to close in the autumn of 2020. 'Any facilities built underground and service and electrical distribution points, for example, and the aboveground ore field will be demolished. Any mine entrances will be closed.' Boliden FinnEx Oy has several exploration areas around the mine. In its report on the mine's life cycle, the company stated that excavation and mining activities would end in December 2020, although the final excavations might diverge a few months in either direction, while the mine after-care measures would probably commence during 2021. Based on the above, the company suggested that there would be no need to set a fixed term for submission of reports relating to review of permit regulations.

The permit regulations of mining collateral decision KaivNro 3593 replaced those issued on 24 June 2014. Activities carried out by virtue of the mining right are governed by the provisions of sections 6, 17, 18, 97, 108–111, chapters 11 and 13–15, and sections 171 and 172 of the Mining Act (621/2011).

The above-mentioned mining collateral decision includes Permit Regulation 1, which determines the amount of collateral under the Mining Act and specifies its coverage in its rationale. Permit Regulation 1 orders the mining permit holder to deposit an absolute bank guarantee of EUR 543,000 with Tukes for the purposes of termination and after-care measures under the Mining Act. The mining collateral must be provided no later than within three (3) months of issue of the decision (29 March 2019).

4.2.3 Concrete termination and after-care measures

In its decision on mining collateral, Tukes justified the coverage and amount of collateral by specifying the measures to be performed by the mining permit holder as termination and after-care measures of mining activities. The mining permit holder was required to deposit an absolute bank guarantee of EUR 543,000 with Tukes for the purposes of termination and after-care measures under the Mining Act as follows:

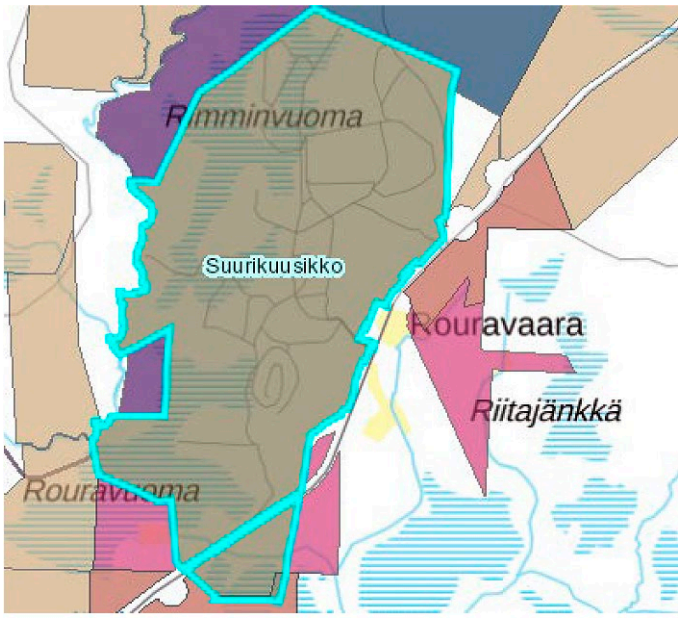
1. Restoring the decline, air shafts and underground facilities to a safe condition at EUR 95,000
2. Demolishing the foundation structures of waste rock and ore storage areas at EUR 30,000 for the ore storage area
3. Removing the structures of liquid fuel distribution stations and cleaning the land areas as required at EUR 6,500
4. Dismantling fences at EUR 11,000
5. Dismantling electricity supply connections at EUR 18,000
6. Demolishing/relocating buildings and rehabilitating the ground at EUR 106,000
7. Demolishing any unnecessary roads at EUR 6,000
8. Landscaping water collection lines, wells and pools at EUR 270,500

The map in Appendix 2 indicates the termination and after-care measures the performance of which is secured by the collateral.

4.3 Suurikuusikko mine in Kittilä

4.3.1 Current rights and permits

The Municipality of Kittilä is home to the Suurikuusikko mining concession (KaivNro 5965), which was established by a regulation issued on 15 January 2002 (Au). The mining concession's usage areas were established in the mining concession proceedings.



Map 4-3. Suurikuusikko mining concession (brown) and extension (violet) (GTK [Geological Survey of Finland] 2020).

On 4 March 2016, by virtue of Mining Act sections 108–109 and 181, Tukes ordered EUR 1,568,700 in collateral for termination and after-care measures as follows:

- removing from the open-cast mine and underground mine any unnecessary:
  - structures,
  - chemicals,
  - explosives,
  - electrical equipment,
  - mobile machinery,
  - waste;
- leaving in place any structures useful for safety during the after-care phase;
- sloping and shaping the ridges of the open-cast mine;
- closing up vehicle ramps into the open-cast mine with boulders;
- fencing the open-cast mine where it was not already fenced during operations;
- preventing unauthorised access to mining facilities by closing up the following entrances to the underground mine:
  - declines,
  - air shafts,
  - access roads to the mine;
- delimiting and marking areas at risk of cave-in or depression in the terrain with warning signs;
- demolishing roads within the area to the extent that the roads are not needed in its further use or environmental monitoring as part of after-care;
- dismantling the mine's power transmission line or, if operations to be located in the area will require it, leaving it in place.

An auxiliary area to the gold mine was established by Tukes's decision of 5 April 2018 (KL2017:0002), by which Tukes granted, by virtue of Mining Act sections 84 and 19, the company a limited right to use land and water areas under the pipeline and support road network, build a transmission line and service road network, and install a pipe to conduct waters into a new discharge site, which would also require an environmental permit. The company submitted a report on termination and after-care of activities as part of the documentation for a hearing held on 31 October 2017. The company proposed EUR 250,000 in collateral for after-care measures of the 19-kilometre discharge pipe (auxiliary area) as follows:

- dismantling the visible parts of the discharge pipe, such as pumping plants and valves;
- removing all aboveground parts along the pipeline;

- leaving the PEH plastic pipe in the soil;
- removing the pipe and its weights from the river bottom;
- leaving the directionally drilled pipe under the riverbed;
- removing the pipe discharge parts, including structures and concrete weights, from the River Loukinen after termination of mining activities and plugging pipe ends.

In its extension decision issued on 5 April 2018, Tukes ordered collateral and measures as proposed, with the exception of removing the pipe and weights that might be dug into the riverbed. This will probably be added to the decision due for review on 1 June 2024 on the basis of a report to be submitted no later than 1 April 2024, should the pipe be dug into the riverbed. Tukes issued a notice to the effect that, should the environmental authorities decide that the discharge pipe must not be left in place, Tukes would reconsider the adequacy of the mining collateral. The decision probably refers to a decision by the Regional State Administrative Agency, rather than a joint decision or a decision or request by the Lapland ELY Centre or the municipal environmental protection authority.

On 8 June 2017, Agnico Eagle Finland Oy applied for establishment of a mining area in order to set up a new NP4 tailings pond (extension of a mining concession under Mining Act section 34). Tukes limited its decision of 15 October 2018 (permit no. KL2017:003) to apply to the area of mine section 4 and would issue a separate decision for the other sections (1, 2, 3 and 5).

Tukes's decision of 15 October 2018 (permit no. KL2017:003) orders separate collateral under the Mining Act for fencing the NP4 tailings pond. In its application, the mining company assessed that, regardless of the mining area extension, the collateral under the Mining Act would remain unchanged. The company estimated that the financial guarantees for the tailings disposal site (NP4) under the Environmental Protection Act would cover the costs of its closure.

Permit Regulation No. 6 of Tukes's decision of 15 October 2018 orders the mining permit holder to deposit an absolute bank guarantee of EUR 50,000 with Tukes for the purposes of termination and after-care measures under the Mining Act (new separate collateral for fencing the NP4 tailings pond). The collateral was to be deposited before starting construction or no later than within a year of the decision becoming legally valid. The collateral was to cover fencing the NP4 pool over a 6 km stretch (Mining Act sections 108, 109 and 181).

On 4 October 2019, Agnico Eagle Finland Oy submitted an updated application for extension permit (KL2019:0008-01) under the new Mining Act. The update was drawn

up in a manner referred to in Tukes's permit decision of 15 October 2018 concerning mine sections 1, 2, 3 and 5. Tukes approved extension of the mining concession within the mining area under the new Mining Act on 21 February 2020 (KL2019:0008). The decision recognised the previously deposited amounts of collateral at EUR 1,568,700 of 24 June 2014, EUR 250,000 of 4 March 2016, and EUR 50,000 of 15 October 2018. The mining authority had requested the company to reassess the need for mining collateral concerning mine section 3. The company submitted its assessment on 13 November 2019, proposing the amount of collateral for mine section 3 at EUR 50,000. The collateral would cover the costs of dismantling underground mining technology extending into the area of mine section 3. With regard to mine sections 1 and 2, orders on financial guarantees would be issued in an environmental permit under the Environmental Protection Act.

Permit Regulation No. 8 of Tukes's decision KL2019:0008 of 21 February 2020 orders an absolute bank guarantee of EUR 50,000 to be deposited for the purposes of termination and after-care measures under the Mining Act (new separate collateral for mine section 3). The mining collateral will cover dismantling underground mining technology within mine section 3.

4.3.2 Review of regulations and collateral

In keeping with Tukes's decision of 5 April 2018 (KL2017:0002), the permit regulations will be reviewed on 1 June 2024. The permit regulations issued in the permit decision of 15 October 2018 (KL2017:003) to secure public and private interests will be reviewed on 24 June 2024, while the regulations included in Tukes's decision of 21 February 2020 (KL2019:0008) will be reviewed on 1 June 2024. The mining company is required to submit an up-to-date report on the mine's termination and after-care measures to secure public and private interests no later than 1 April 2024 for the purpose of reviewing the necessary regulations.

4.3.3 Concrete termination and after-care measures

The sections above discussed the following four decisions including provisions on mining collateral necessary to secure public and private interests:

- Tukes decision of 24 June 2014, mining collateral at EUR 1,568,700
- Tukes decision of 5 April 2018, mining collateral at EUR 250,000
- Tukes decision of 15 October 2018, mining collateral at EUR 50,000
- Tukes decision of 21 February 2020, mining collateral at EUR 50,000

- **Total collateral at EUR 1,917,700, review scheduled for 1 June 2024**

Mining collateral is used to cover termination and after-care measures under the Mining Act. The above-mentioned collateral ordered for the Suurikuusikko mine in Kittilä was to cover the following concrete termination and after-care measures:

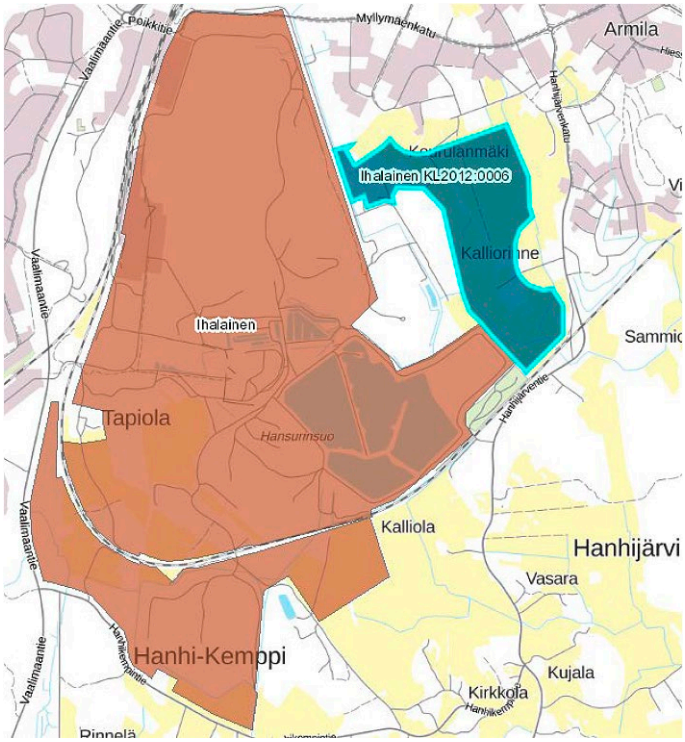
- Decision of 24 June 2014 at EUR 1,568,700: measures to restore the open-cast and underground mines to a safe condition in keeping with the Mining Act, to demolish unnecessary structures and roads, and to make the necessary fencing and markings;
- Decision of 5 April 2018 at EUR 250,000: after-care and restoration measures for the 19 km discharge pipe;
- Decision of 15 October 2018 at EUR 50,000: fencing the NP4 pool over a 6 km stretch;
- Decision of 21 February 2020 at EUR 50,000: dismantling underground mining technology in mine section 3.

The map in Appendix 3 indicates the termination and after-care measures the performance of which is secured by the above-mentioned mining collateral.

4.4 Ihalainen lime mine

4.4.1 Rights and permits

The Ihalainen mining concession (KaivNro 2005) in Lappeenranta was established on 4 November 1968 for the purpose of excavating calcite (CALC), dolomite (DOL) and wollastonite (WOLL). Nordkalk Oy Ab's Ihalainen lime mine (CALC, WOLL) was granted a mining permit for an extension by decision KL2012:0006-001 of 26 February 2014. The auxiliary area to the Ihalainen mining concession was extended by the permit. The mining permit was granted for an indefinite period as of the date of its becoming legally valid. The interval for review of the mining permit is 10 years.



Map 4-4. Ihalainen mining concession (brown) and extension (turquoise) (GTK [Geological Survey of Finland] 2020).

The above-mentioned mining permit issued by Tukes decided that the mining authority would determine the amount of collateral for the Ihalainen mining concession by a separate decision to be issued in addition to the mining permit decision. The mining authority would also issue regulations for the Ihalainen mining concession (including the extension) to secure public and private interests by a separate decision to be issued in addition to the mining permit decision. Both decisions would be issued no later than 30 June 2014.

Tukes issued the above-mentioned regulations on 24 June 2014. Permit Regulation No. 5 orders an absolute bank guarantee of EUR 40,000 to be deposited with Tukes for the purposes of termination and after-care measures under the Mining Act within a year of the time when the decision was issued.

The collateral covers costs incurred during mine closure and represents part of the total costs for restoring the mining area to a condition required for public safety. More specifically, the Regulation states that the collateral will be used to maintain fencing and warning signage. It further states that any unnecessary machinery and equipment will be removed from the area and work related to mine closure will be carried out during mining activities as it becomes possible (Mining Act sections 108, 109 and 181).

Review of regulations and collateral

Issued after the above-mentioned decision KL2012:0006, Permit Regulation No. 6 of the mining authority's decision of 24 June 2014 states that the permit regulations will be reviewed on 1 June 2017. The latter decision of 24 June 2014 required the mining permit holder to deposit an amount of EUR 40,000 in collateral with Tukes for the purposes of termination and after-care measures under the Mining Act. The permit holder has deposited the required collateral in the form of an absolute bank guarantee.

The mining authority reviewed the permit regulations in its decision of 29 June 2018. Based on a site review and hearings, the above-mentioned decision states that no such changes had taken place in the mining concession's operations that would give rise to adjusting the previously ordered amount of collateral.

According to the currently valid decision, *the deposited collateral of EUR 40,000 covers the termination and after-care measures related to mine closure in keeping with the Mining Act*.

4.4.2 Concrete termination and after-care measures

The regulations discussed above for securing public and private interests under the Mining Act (621/2011) refer to the mine's termination and after-care measures. The decisions apply to the mining permit under the Mining Act issued by decision KL2012:0006 of 26 February 2014. In practical terms, the measures covered by the collateral include maintenance of fencing and warning signage. The previously issued collateral decision of 24 June 2014 also states that any unnecessary machinery and equipment will be removed from the area and work related to mine closure will be carried out during mining activities as it becomes possible.

The currently valid review decision of 29 June 2018 on permit regulations concerning provision of collateral determines fencing the area (about 1 km) and machine work necessary to restore the area to a level required for public safety as concrete termination and after-care measures. As the buildings within the mining concession are located on land owned by the mining company, no collateral is ordered for their demolition.

4.5 Summary of interviews with mining companies

Broadly speaking, the mining companies were not able to specify in concrete terms what each of the measures in keeping with the proposal and regulation entailed. The measures had not been planned precisely and concretely, but there was some variation in this respect as well. Their proposals had mainly been approved as such, but they were only

able to specify their proposals to a moderate degree. Wordings did not always match measures. By way of example, 'demolition of roads' mostly meant landscaping the surface. The regulations were of a general nature in keeping with the proposals. The more deeply the respondent was familiar with the matter, the more unclear the interfaces between measures and collateral governed by different laws. Some overlaps had been identified between scopes of application. There were even some misunderstandings of the scope of application of the Mining Act. Attention was also drawn to misunderstandings by ELY Centres. The treatment of movable property in the measures and collateral was not quite clear.

4.6 Other mines

The following passages discuss Tukes's new and review decisions concerning termination and after-care measures. There is no need to explore the decisions issued on 24 June 2014 and 30 June 2014, which are mostly included in review decisions. The regulations of the decisions being analysed provide quite a comprehensive list of termination and after-care measures.

> By its review decision KaivNro K7739 of 3 April 2020, Tukes ordered EUR 5,000 in collateral, in line with the mining company's proposal, for cutting the casings of drill holes in the area to ground level and capping open pipe ends. At that point, the decision only concerned drilling operations carried out to delineate the deposit.
>
> In its review decision KaivNro 2989 of 13 March 2020, Tukes upheld the EUR 4,000 in collateral to cover maintenance of the existing fence and replacement of warning signs as required. Signs warning of risk of falling had been attached to animal fencing. Stones or other barriers to falling were placed at stope ridges and along the roads as required. The circumference of the stope enclosed by animal fencing is 967 m and its surface area is about 3.0 ha. The company aimed to carry out landscaping measures in the area during mining activities, as far as possible. Following termination of activities, the stope will be filled up to the groundwater level, forming a pond.
>
> By its decision KaivNro 7364 of 24 June 2014, Tukes ordered EUR 3,000 in collateral for termination and after-care measures. The decision covered fencing the stope and installing warning signs. Review scheduled for 1 June 2019. The mining company proposed EUR 3,000 in costs of machine work for backfilling the 15x30x10-metre open-cast mine with aggregate and topsoil and in the exploration area (landscaping). The collateral was not adjusted by decision KaivNro 7364 of

28 February 2020. The collateral now covered filling the open-cast mine and trench with adjacent aggregate and soil (fencing and signage unnecessary). Review scheduled for 1 June 2026.

By its decision KaivNro 3481 of 30 June 2014, Tukes ordered EUR 1,000 in collateral for fencing of the stope breast (20 m) and removal of a compressor, press and tractor from the area. The collateral was upheld on 28 February 2020.

By its decision KaivNro 3164 of 28 February 2020, Tukes ordered EUR 2,000 in collateral for fencing the steepest parts of small excavation pits and installing warning signs.

By its review decision KaivNro 1897 of 27 February 2020, Tukes upheld the EUR 10,000 in collateral for maintaining existing fencing and warning signs and for partial sloping of stope walls.

By its decision KaivNro 2019 of 30 June 2014, Tukes ordered an absolute bank guarantee of EUR 80,000 for termination and after-care measures. The collateral covered maintaining the mining area and the metallic test processing plant built in the 1970s in a condition required for public safety. Most of the trenches had already been landscaped, a few had been fenced and the marked trench was yet to be landscaped.

By its decision KaivNro K8474 of 13 February 2020, Tukes ordered EUR 3,500 in collateral for fencing the planned open-cast mine (200 m), installing warning signs, preventing access to the area and removing a transmission line support.

By its decision KaivNro 6804 of 31 January 2020, Tukes upheld the absolute bank guarantee of EUR 10,000 for the mining concession and the mining permit area. The collateral covered relocation of the fence around the open-cast mine and the necessary rehabilitation (EUR 5,000), installing warning signs and cleaning the area (EUR 2,000), as well as dismantling the clarifier piping and power line (EUR 3,000). The total fencing need of the open-cast mine amounts to about 2,035 m; half had already been fenced and some fence will be relocated from the edges of the mining area to the unfenced section.

By its decision KaivNro K7835 of 10 January 2020, Tukes ordered EUR 100,000 in collateral for fencing the planned area and installing warning signs (EUR 30,000), as well as for demolition of the planned buildings (EUR 70,000). Review scheduled for 1 August 2023, additional report two months earlier.

By its review decision KaivNro 5523 of 10 January 2020, Tukes ordered EUR 10,000 in collateral for shaping the ridges of the open-cast mine, fencing to prevent risk of falling into the stope, preventing ramp access by means such as large boulders, and removing unnecessary structures (pumping plants, electrics and lighting) from the mine. The collateral will be reviewed prior to commencement of mining activities.

By its review decision KaivNro 2299/KaivNro 2354 of 10 January 2020, Tukes ordered a total of EUR 30,000 in collateral in the form of an absolute bank guarantee. The measures included fencing, placing warning signs and closing up vehicle ramps to stopes by means such as boulders. The mine office had already been demolished. Review scheduled for 1 December 2024.

By its decision KaivNro K7363 of 10 January 2020, Tukes ordered EUR 9,500 in collateral for fencing the test excavation (950 m), installing prohibition and warning signs, and restoring the mining concession area to a condition required for public safety. No such buildings and constructions were located in the mining concession area that should have been taken into account in the amount of collateral. Review scheduled for 1 December 2024.

By its decision KaivNro 2058 of 7 January 2020, Tukes upheld the EUR 10,000 in collateral for repairing the existing fence, replacing warning signs, fencing the open-cast mine (300 m), and installing the necessary warning signs. The areas of the mine involving a risk of falling had already been fenced and marked with warning signs. In places, the risk of falling has also been prevented by means of a protective barrier and boulders. New fencing needs will emerge in 2028 when the second level of the mine will be opened. Review scheduled for 1 June 2028.

By its review decision of KaivNro 7025 of 7 January 2020, Tukes ordered EUR 30,000 in collateral in the form of an absolute bank guarantee for fencing the planned open-cast mine (1,200 m) and installing warning signs, removing the modular site huts required for mining activities from the area and, upon termination of mining activities, restoring the area to a condition not endangering human health or public safety by means of closing measures. The collateral was to be deposited within three months of issue of the decision.

By its review decision KaivNro 6746 of 19 September 2019, Tukes ordered EUR 7,000 in collateral in the form of an absolute bank guarantee. The measures included 400 metres of fencing (EUR 6,000) and installing warning signs (EUR 1,000). The mine environment has been cleaned and the stope has been allowed to fill up with water. There are no structures to be demolished in the area. Operations had been suspended; review scheduled for 31 March 2021.

By its review decision KaivNro 6685 of 3 June 2019, Tukes upheld the EUR 6,000 in collateral for the following termination and after-care measures: fencing the stope (200 m), repairing the existing fencing, installing warning signs to the open-cast mine fencing and in the mining concession area, sloping the end of the stope, building rock-fill barriers and closing up vehicle ramps. Review scheduled for 1 June 2029, or earlier in the event of material changes in operations.

By its review decision KaivNro 1852 of 11 April 2019, relating to Supreme Administrative Court Decision of 22 November 2017, Tukes ordered EUR 80,000 in collateral. The mining company proposed the following amounts of collateral: EUR 40,000 in collateral for removing the pumping plant and aeration and discharge wells (11 in total); EUR 10,000 in collateral for dismantling vehicle scales; and EUR 10,000 in collateral for restoring buildings and access routes to a condition required for public safety. It proposed closing up pipelines dug into the soil, but did not propose removal. The collateral proposed amounted to a total of EUR 60,000 in the form of an absolute bank guarantee. Tukes added another EUR 20,000 in collateral for the railway section of the Finnish Transport Agency, as proposed by the Agency and approved by the mining company (the Finnish Transport Agency owned the area and rails and maintained these in the mining concession area). Review scheduled for no later than 1 January 2029. The ELY Centre proposed collateral for preventing dust effects and impacts on water bodies, soil contamination (if any), as well as for removing water and wastewater pipelines.

Review decision KaivNro 1317 of 10 April 2019 involved operations that were about to cease during 2019. The mining company had previously deposited an absolute bank guarantee of EUR 989,000 and proposed that this collateral not be adjusted. The collateral was not adjusted. The termination measures included:

1. Underground mine:
    - removing machinery and equipment and dismantling underground mining technology
    - as applicable;
    - preventing access to the underground mine, i.e. blocking the decline and shafts.
2. Open-cast mines:
    - delimiting and marking open-cast mines with warning signs.
3. Areas at risk of depression and cave-in:
    - fencing and marking areas at risk of depression and cave-in with warning signs.

4. Buildings, pipelines and power lines:
    - As the buildings and headframes related to mining and mineral processing activities, as well as pipelines and power lines, are located on land owned by the mining company, no collateral is ordered to be deposited for demolishing these. However, they need to be in a condition required for public safety. Any unnecessary and dilapidated buildings will be demolished as reported by the company.

By its review decision KaivNro 6595 of 13 February 2019, Tukes ordered EUR 10,000 in collateral for termination and after-care measures, which included machine work necessary to restore the mining and disposal areas to a condition required for public safety (3–4 days), fencing open-cast mines (about 600 m), placing gates and access barriers on the mining area's road and the open-cast mine's slope, placing warning signs (about 10 in total) at the boundaries; sloping the open-cast mine: as the stopes fill up with water, slopes will be placed at appropriate points to allow climbing up. Buildings were located on the mining company's land. Review scheduled for 12 February 2029, report due by 12 December 2018.

EUR 100,000 in collateral was upheld by review decision KaivNro 4847 and KL2011:0003 of 19 December 2018, even though the company proposed collateral of EUR 75,000, because the sale of the substations, cables and other such items to be dismantled would produce proceeds at about EUR 25,000. No proceeds of sales were taken into account. The ELY Centre demanded collateral for demolition of the mineral processing plant and aboveground substation field on land owned by the company. The termination and after-care measures included:

1. Dismantling underground mining technology:
    - Any electrical, water and ventilation technology will be dismantled.
2. Demolishing structures on the ground:
    - Any aboveground structures that might cause a safety risk will be demolished, at least those on top of the air shaft.
3. The existing open-cast mine and the planned open-cast mine in the extension (mining area):
    - The open-cast mines will be allowed to fill up with water and fenced for the duration of filling up.
    - The ridge areas that are considerably above the final water level will be sloped.
    - To ensure safety, warning signs will be placed in the area and some areas will be fenced.
    - In addition, any potential traffic into the areas will be restricted.

By its review decision KaivNro 2568 of 11 December 2018, Tukes ordered collateral of EUR 10,000 in the form of an absolute bank guarantee for restoring the area to a condition required for public safety under the Mining Act, with measures including shaping the ridges of the existing open-cast mines, preventing ramp access to the mines, and removing any unnecessary structures (pumping plants, electrics and lighting) from the mine. There are no buildings in the area.

By its review decision KaivNro 3482 of 29 November 2018, Tukes ordered a bank deposit of EUR 12,000 in collateral for sloping the open-cast mine (as the stope fills up with water, a slope will be placed at an appropriate point to allow climbing up); fencing the open-cast mine (about 600 m); placing gates and access barriers on the mining area's road and the open-cast mine's slope; restoring the disposal area, protective embankment and open-cast mine to a condition required for public safety (5 days of machine work); and placing 10 warning signs along the boundaries.

By its review decision KaivNro K8194 of 19 October 2018, Tukes ordered a bank deposit of EUR 50,000 in collateral for fencing (about 1,000 m) and cleaning the open-cast mine (EUR 15,000); dismantling underground mining technology and blocking access to the mine (EUR 30,000); and restoring the area and buildings to a condition required for public safety and placing warning signs and booms (EUR 5,000). Tukes required underground mining technology to be dismantled as it becomes possible. The buildings were on land owned by a mining company. Review scheduled for 23 November 2023.

By its review decision KaivNro 2005 of 29 June 2018, Tukes upheld the EUR 40,000 in collateral for termination and after-care measures, including fencing the area (about 1 km) and machine work necessary to restore the area to a level required for public safety. The buildings within the mining concession are located on land owned by the mining company. Review scheduled for 1 February 2024.

By its review decision KaivNro 4338 of 14 September 2017, Tukes upheld the EUR 6,000 in collateral for fencing the southern side of the stope and blocking road access to the bottom. The stope was encircled by earth banks. Review scheduled for 1 June 2022.

By its review decision KaivNro K7094 of 4 April 2018, Tukes ordered an absolute guarantee of EUR 50,000 for termination and after-care measures, which included fencing the open-cast mine (EUR 20,000 for a 2-metre galvanised steel wire-netting fence); office removal (EUR 3,000); electrics removal (EUR 20,000); cutting metallic underground pipes (EUR 3,000); removing underground pipes from clarifiers (EUR 3,000); and installing warning signs (EUR 1,000). Review scheduled for 1 June 2020, report due by 1 April 2020.

By its review decision KaivNro 6719 and 2844 of 23 March 2018, Tukes ordered a bank deposit of EUR 8,500 in collateral for termination and after-care measures, which included slopes in appropriate places to allow climbing up from an open-cast mine filled up with water; about 800 m of fencing for open-cast mines (also those already filled up with water as required); placing gates and access barriers on the mining area's road and the open-cast mine's slope; restoring the mining and disposal areas to a condition required for public safety (4–5 days of machine work); and placing 10 warning signs at appropriate points along the boundaries of the mining area. The road network was to be retained. Review scheduled for 1 June 2021.

The process of making decision KaivNro 1895 of 7 February 2018 involved a site review of the mine that was already closed. The tunnel entrance to the underground stope was equipped with a steel fence; a stretch of about 200 metres of the tunnel was accessible for the purpose of pumping water, while the rest of the tunnel was blocked with a concrete wall. As part of terminating the mining concession, the tunnel entrance was to be blocked with boulders or concrete. The company intended to backfill and landscape one of the open-cast mines; the other one had been backfilled with tailings and landscaped. Power lines were left in place for use by the properties; the process water pumping plant was on the mining company's land; pipeline removal was secured by collateral to the extent that it was not on company land; explosive and detonator storage facilities were on company land (no explosives). Access to the mine had been prevented and air shafts had been blocked. The open-cast mines within the area had been backfilled with tailings. The buildings related to mining concession operations were located on land owned by the mining company. Tukes upheld the EUR 10,000 in collateral for closing the 200-metre mine tunnel and dismantling the pipeline. Review scheduled for 1 October 2020.

By its decision KaivNro 2508 of 14 September 2017, Tukes upheld the EUR 2,000 in collateral for fencing the area and placing warning signs. The stope was encircled by stone barriers.

By its decision KaivNro 2763 of 14 September 2017, Tukes upheld the EUR 7,000 in collateral for partial fencing (2 x 0.3 km) and installing warning signs. The mining company owned the buildings. Review scheduled for 1 June 2022.

By its review decision of 14 December 2016 issued in connection with mining area extension KL2015:0005 relating to old mining concession KaivNro 7244, Tukes ordered an absolute bank guarantee of EUR 35,000 in collateral for fencing the 2 ha open-cast mine; installing warning signs; covering ventilation risers; blocking the

decline entrance; dismantling underground mining technology; disassembling container site huts and removing these from the mining area; and other overheads to restore the area to a condition required for public safety.

By its review decision KaivNro 2819 of 14 October 2016, Tukes ordered EUR 185,000 in collateral in the form of an absolute bank guarantee. Discharge pipes outside the mining concession, environmental and waste guarantees and buildings on company land were excluded from the mining collateral. EUR 35,000 of the collateral was to cover maintenance of warning signs and fencing of pools related to fluid circulation, adding double reflective cords and warning signs as well as fencing, while EUR 50,000 was allocated to fencing the 129 ha open-cast mine and another EUR 100,000 to restoring the exceptionally large mining area to a condition required for public safety.

By its review decision KaivNro 4487 of 9 September 2016, Tukes upheld the EUR 3,000 in collateral, mostly for fencing and warning signs.

By its review decision KaivNro 2676 of 5 April 2016, Tukes ordered EUR 110,000 in collateral for blocking ventilation risers and the decline entrance; disassembling and removing container site huts; dismantling the power line; marking the area with warning signs; dismantling underground mining technology (electrical, water and ventilation technology); and other overheads to restore the area to a condition required for public safety.

By its review decision KaivNro 6595 of 18 February 2015, Tukes upheld the EUR 6,000 in collateral for fencing the open-cast mine, installing warning signs, machine work necessary to restore the area to a level required for public safety, and the possible demolition of the crushing plant.

In its decision KL2013:0001 of 12 September 2013 granting a mining permit for mining concession KaivNro 3921, Tukes ordered EUR 5,000 in collateral, which covers dismantling the air shafts, power lines and water-pumping pipelines of excavated drifts.

The measures and their collateral have mostly been ordered by Tukes on two separate occasions, which means that they represent the legally final interpretation of the content of termination and after-care measures under the Mining Act.

5. CONCRETE TERMINATION AND AFTER-CARE MEASURES

5.1 Measures under Mining Act section 143

Language of Mining Act section 143:

> 'No later than within two years of the termination of mining activity, the mining operator shall restore the mining area and the auxiliary area to the mine to a condition complying with public safety; ensure their restoration, cleaning, and landscaping; and perform the measures specified in the mining permit.'

The concrete measures discussed in this chapter include all of those mentioned in Tukes's decisions.

5.1.1 Restoring the mining area and auxiliary area to the mine to a condition complying with public safety

The following measures have been concretely included in restoring the mining area and auxiliary area to the mine to a condition complying with public safety:

Open-cast mines

- fencing an open-cast mine (at least animal fencing and a 2-metre galvanised steel wire-netting fence deemed suitable); protective earth banks also possible;
- installing warning signs and reflective cords in the area, clearing vegetation around the edges;
- traffic restrictions required for future use, gates and access barriers for the mining area's roads and slopes of open-cast mines;

- sloping and shaping the ridges of the open-cast mine (to be filled up with water);
- backfilling the open-cast mine with tailings or topsoil, or equivalent (in lieu of sloping);
- closing up vehicle ramps into an open-cast mine with boulders, gates or booms;
- dismantling temporary fencing once the open-cast mine is backfilled with tailings, waste rock and/or topsoil, or filled up with water and sloped.

Underground mines

- covering ventilation risers (air shafts), blocking the decline entrance;
- restoring underground facilities to a safe condition:
  - dismantling underground mining technology,
  - dismantling IT, automation, electrical, ventilation and lighting technology as well as pumping plants (while leaving wooden and concrete structures and necessary safety structures in place);
- removing explosives and other chemicals from areas not owned by the company;
- measures to close up access to the underground mine:
  - blocking tunnels and declines with boulders or concrete walls,
  - covering or otherwise closing up ventilation risers/air shafts,
  - closing up access roads to an open-cast mine with boulders, gates or booms;
- delimiting and marking areas involving a danger of cave-in or depression in the terrain with warning signs;
- backfilling underground facilities at risk of cave-in with tailings (pasting) or waste rock.

All mines

- fencing the tailings area, tailings ponds and ponds related to fluid circulation;
- cutting the casings of drill holes to ground level and capping open pipe ends, as well as cutting and plugging/capping metal underground pipes;
- removing chemicals, explosives, electric equipment, mobile machinery and waste from underground areas in all cases and from aboveground areas if these are no longer included in the right of possession;
- preserving any structures useful for safety during the after-care phase;

- machine work necessary to restore the area to a condition required for public safety:
  - sloping,
  - ramps,
  - other soil preparation work required for public safety;
- overheads for restoring the area to a condition required for public safety.

5.1.2 Rehabilitating the mining area and the auxiliary area to the mine

The following concrete measures have been included in rehabilitating the areas in all mines:

- rehabilitating the ground under demolished aboveground buildings, unless on company land;
- rehabilitating the ground under demolished constructions, unless on company land;
- maintaining the buildings and constructions left in place in a condition suitable for new uses (buildings and constructions form part of the mining and auxiliary areas until separated);
- 'demolishing' the roads that serve mining activities (also includes landscaping) from areas other than those owned by the company, unless these will also serve future uses;
- rehabilitating and landscaping water collection lines, wells and pools;
- machine work to remove the traces of mining activities (levelling and sloping uneven and rocky terrain to enable movement).

In addition, rehabilitation of the areas may also be considered to cover the measures to restore open-cast and underground mines to a condition required for public safety.

In rehabilitation of areas, contaminated soil falls under the Environmental Protection Act, whereas littered soil is included in the scope of the Waste Act. Demolition work involves rehabilitating the soil structure so as not to prevent movement and use of the area.

5.1.3 Cleaning

The following concrete measures can be grouped under cleaning in all mines:

- cleaning land areas around demolished liquid fuel distribution stations;
- cleaning the ground under demolished buildings or constructions (not demolished on company land);

- removing movable assets:
  - proposed by a small proportion of companies, in which case this is included in regulations,
  - no official need for collateral,
  - may be stored on company land if not left in the environment, i.e. littered,
  - serviceable explosives and other chemicals (including safety),
  - serviceable electrical equipment,
  - serviceable mobile machinery;
- removing pieces of pipes, cables, packages, malfunctioning machinery and equipment, supplies and other waste and litter (overlaps with the Waste Act).

An order issued by virtue of the cleaning obligation to remove property or waste may prevent the emergence of a state in contravention of the prohibition on littering under the Waste Act as the possession of the area is transferred and, even without transfer of possession, as the intended use changes. No official orders are known to have been issued on this matter. Nevertheless, it may become relevant based on a mining company's proposal and the mining authority's inspection.

5.1.4 Landscaping

Measures in all mining concessions, mining areas and auxiliary areas:

- landscaping the roads becoming unnecessary, i.e. adding a layer of soil and plants in areas not owned by the company;
- machine work, i.e. shaping the ground, arranging loose rocks and filling in any pits, as well as adding plants where applicable, in areas other than waste facilities;
- landscaping the ground under demolished buildings or constructions not on company land, where required, as part of rehabilitation;
- landscaping water collection lines, wells and pools as part of removing constructions and rehabilitation;
- landscaping the roads within areas not owned by the company, which are not required for further uses or environmental monitoring as part of after-care (including rehabilitation and 'demolition' of roads).

5.1.5 Other measures specified in the mining permit and mining safety permit

Tukes has only issued orders on proposed measures. No mining permit or mining safety permit has included regulations that would have to be taken separately into account when terminating activities. These could include paying attention to areas involving a danger of cave-in and depression based on rock engineering properties (Q-classification system) upon termination.

5.2 Removing excavated mining minerals, buildings and constructions

Language of Mining Act section 144:

> 'The mining operator may leave in place the mining minerals excavated from the mine, and the buildings and other constructions on the ground for up to two years after termination of mining activity. Thereafter, they shall be transferred, free of charge, to the landowner, who may demand their removal at the operator's cost.
>
> 'Contrary to subsection 1 above, the mining authority can temporarily prohibit the removal of buildings and other constructions related to mining activity if that would hamper or endanger the potential future usage of the mine, or excavation work. A temporary ban can remain valid no longer than until the decision concerning termination of mining activity has become legally valid.
>
> 'Further provisions on the removal of excavated mining minerals, buildings, and other constructions may be given by government decree.'

5.2.1 Removing the mining minerals excavated from the mine

All mining minerals are to be removed. There are no cases that would have involved ordering separate collateral or failure to remove minerals. In practical terms, the provision has neither been applied in regulations nor violated.

5.2.2 Removing buildings and constructions

All mines

- dismantling and removing any unnecessary structures, such as pumping plants, pumping pipelines and water pipes, power lines and lighting, from open-cast mines and elsewhere in aboveground mining areas – unless there is or will be activities requiring these (the mining area's connections can also serve a community);
- in practical terms, dismantling air ducts (ventilation technology), pumps and water pipelines, electrical, lighting and automation technology of excavated drifts also from mine tunnels by virtue of another provision (section 143) – leaving in place wooden and concrete structures as well as steel and other such structures necessary for the structural safety of the mine tunnel;
- demolishing buildings that serve mining activities, such as mineral processing plants, other industrial buildings, container site huts, hired site cabins, offices, etc., and transferring/removing from areas not owned by the company;
- dismantling substation cabinets, headframes, vehicle scales, pumping plants, fuel distribution stations, aeration and discharge wells and transferring/removing these from areas not owned by the company, unless these also need to be removed from company land for safety reasons as the intended use changes (based on another provision);
- removing pipelines (water, sewer and other such pipelines) from areas not owned by the company;
- dismantling rail tracks within the mining concession area (one case);
- demolishing the foundation structures of ore storage areas (one case);
- removing the structures of liquid fuel distribution stations;
- dismantling any fencing no longer necessary;
- dismantling and transferring electricity supply connections:
  - overhead line,
  - aboveground and – based on another provision – underground distribution substations,
  - transmission line supports and masts in the mining concession's usage and auxiliary areas, as well as mining areas and auxiliary areas, including those in waste facilities,
  - substation installations – substation oils are part of the installation, similar to any possible batteries, etc.;
- removing any other unnecessary structures from the open-cast mine and – based on another provision (section 143) – underground stope.

6 SUMMARY

Chapter 5 provides the most exhaustive list possible of the concrete measures under Mining Act sections 143 and 144, which Tukes has issued as part of its decisions as necessary regulations on termination of mining activities. Chapter 3 groups the measures by dividing mines into open-cast mines and underground mines. Mining companies have only been able to specify the regulations in concrete terms to a limited degree. The regulations have almost invariably followed the mining companies' proposals.

The proposals submitted by the mining companies have varied in terms of level of concrete details. Whereas most of their estimates are very generic, some include more specific details. From the perspective of decision-making, it might be appropriate to provide a consistent template for reports in keeping with collateral provisions and with further provisions issued by decree. The regulations do not break down after-care measures under headings or in chronological order. A template could include a chronological division of after-care measures into phases (e.g. intermediate measures for the phase of filling up the mine with water, measures concerning the final state, intervals for annual and other such inspections), complete with a brief explanation of the contents of inspections, a description of closure measures under other laws, and reporting.

It may be necessary to reconsider the adequacy of the Mining Act's authorising provisions (Section 2.1.2 of this report), insofar as further provisions on measures are issued by decree.

Measures to dismantle underground structures could also be specified in legislation because these are not necessarily included in cleaning, rehabilitation or restoring to a condition complying with public safety. In practical terms, these include dismantling electrical, water, ventilation, automation and other such technology, excluding, however, wooden and concrete structures and those necessary for mining safety.

Mining safety permits do not examine the significance of rock engineering properties and related safety structures as part of termination of mining activities (areas involving a danger of cave-in and depression). In view of danger of soil depression and cave-in, it

may be necessary to impose by decree an obligation to address the structural safety of the topmost working levels of underground mines, in particular, in mine-closure notifications, including a rock engineering analysis (Q classes) in connection with safety structures as well as the need for backfilling with waste rock, tailings, etc. This plays a role in terms of future land use.

After closure, it may be necessary to include line symbols (denoting danger) and related regulations in land use plans to indicate any possible special characteristics of former mining and tailings areas. The reservation of land for mining activity will only be applicable if mining activities could continue.

Buildings and constructions include their permanently attached equipment. It will be relocated, dismantled and removed by virtue of the provision on removal of buildings and constructions if the area is returned to another owner. There is no need to specify the dissolution of the relationship between property and its components and accessories relating to transfer of the right of possession on the basis of termination activities under the Mining Act.

While new post-termination land use plans, unrelated to mining activities and independent of the mining company, do not require altering the area to comply with new uses, this may sometimes be appropriate. As a general rule, the area should, whenever possible, be returned to the owner in a condition allowing its original use because the mining company cannot be responsible for any optional new uses. If the mining company owns the land, the land use plan must not treat it unreasonably (Land Use and Building Act sections 28, 39 and 54).

Extractive waste and waste facilities, including waste, structures and emissions, fall within the scope of waste guarantees under the Waste Act and Environmental Protection Act, with the exception of structures unrelated to extractive waste, such as masts, antennas, fences, etc. Emissions and their impacts on water bodies and other such effects fall under the Environmental Protection Act. There has been some confusion about this among environmental organisations, local authorities, ELY Centres, some operators and the general public.

Explosives, chemicals, machinery, equipment and other movable items, as well as discarded objects and other litter, are included in the scope of termination measures under the Mining Act, but there has been no need to issue official orders on their removal. The need to issue orders falling within the scope of collateral might only arise on a case-by-case basis in connection with inspections, especially when issuing a termination decision. As all of these are also governed by provisions laid down in other legislation, the relevant aspect from the perspective of the Mining Act is the situation at the time of termination (see Section 2.1.3 of this report).

Termination measures should be continuously taken into account during mining activities and, in many cases, this is also included in regulations. The situation can be verified as part of annual inspections and the site review or inspection relating to the termination decision.

A standard collateral model could at least be suitable for smaller open-cast mines involving no construction. In such a standard model, collateral would be determined on the basis of the open-cast mine's surface area and/or extraction volume. A similar procedure is used by local authorities for soil extraction areas (surface area of the *extraction* area and total extraction volume in solid cubic metres or tonnes). Accordingly, the decision would order the operator to submit an inspection application in the event that the area is extended or construction or tunnel excavation is planned for the area.

The term for depositing collateral could be tied to preparatory measures relating to commencement of mining activities, when the current practice is to order it to be deposited within three months of issue of the decision. In this case, collateral ordered for each specific site would also align temporally with the period preceding commencement, when collateral is not yet required. This would also respond to the interpretation according to which zero collateral for termination measures is not possible.

In order to specify collateral decisions in more concrete terms, presenting these on the map of the mine-closure plan would especially clarify the following points:

- boundaries and ownerships of properties;
- buildings and constructions on land owned by different parties;
- observation of areas involving a danger of cave-in or depression;
- coverage of collateral for mine termination measures from the perspective of mining legislation;
- inspections by public authorities;
- revention of potential overlaps between mining collateral and other financial guarantees;
- understanding of different forms of collateral among stakeholders;
- the need to review collateral based on timely map updates.

It is possible to use a single map for review. Nevertheless, it could be clearer to use two different map templates for collateral review as follows:

- a map of the mining concession, auxiliary areas as well as the boundaries and reference numbers of properties within these, identifying land not owned by the mining company;
- a mine layout map/plan, identifying different functions and concrete items to be covered by collateral.

RAMBOLL FINLAND LTD

Helsinki and Tampere, 15 May 2020

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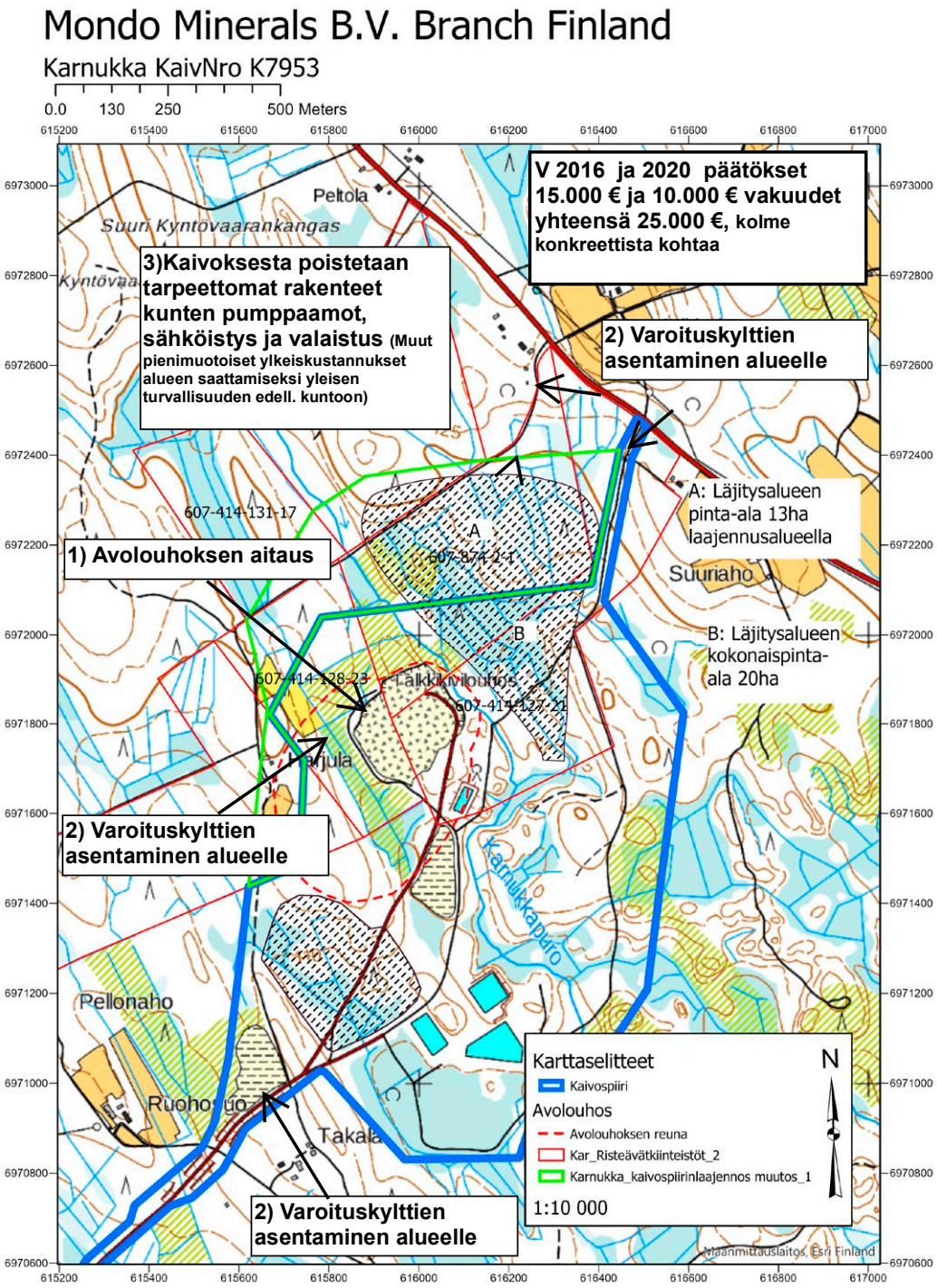
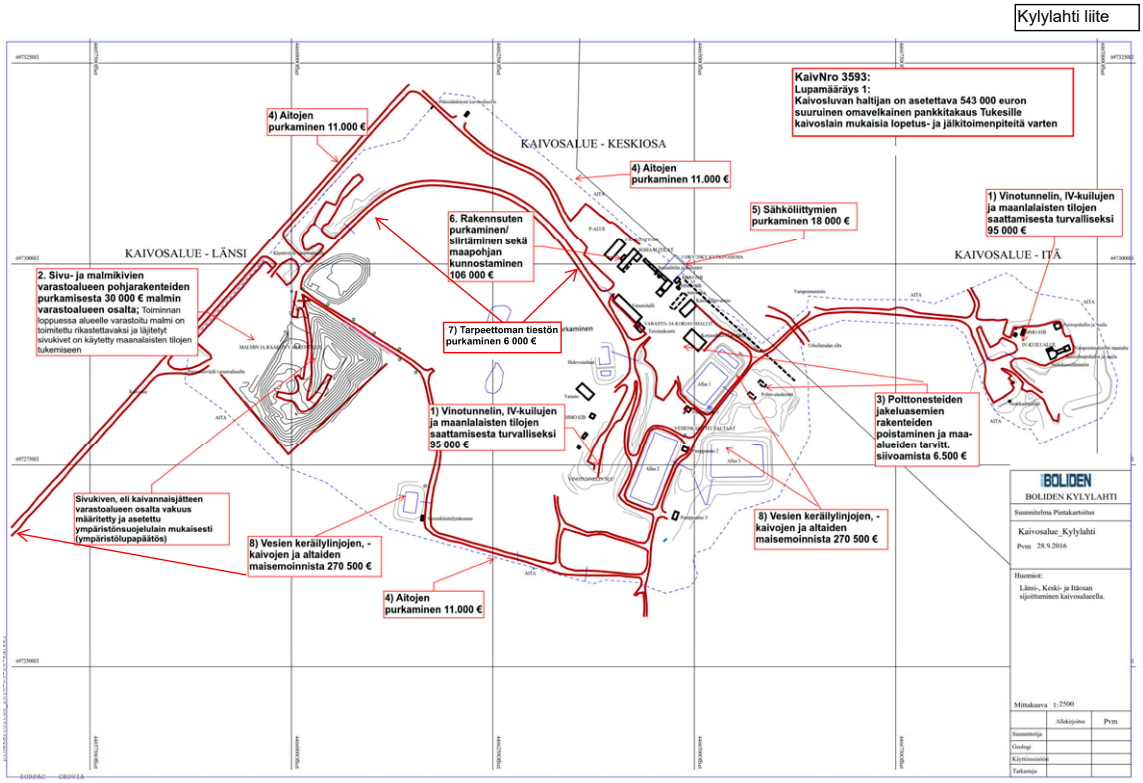
APPENDICES

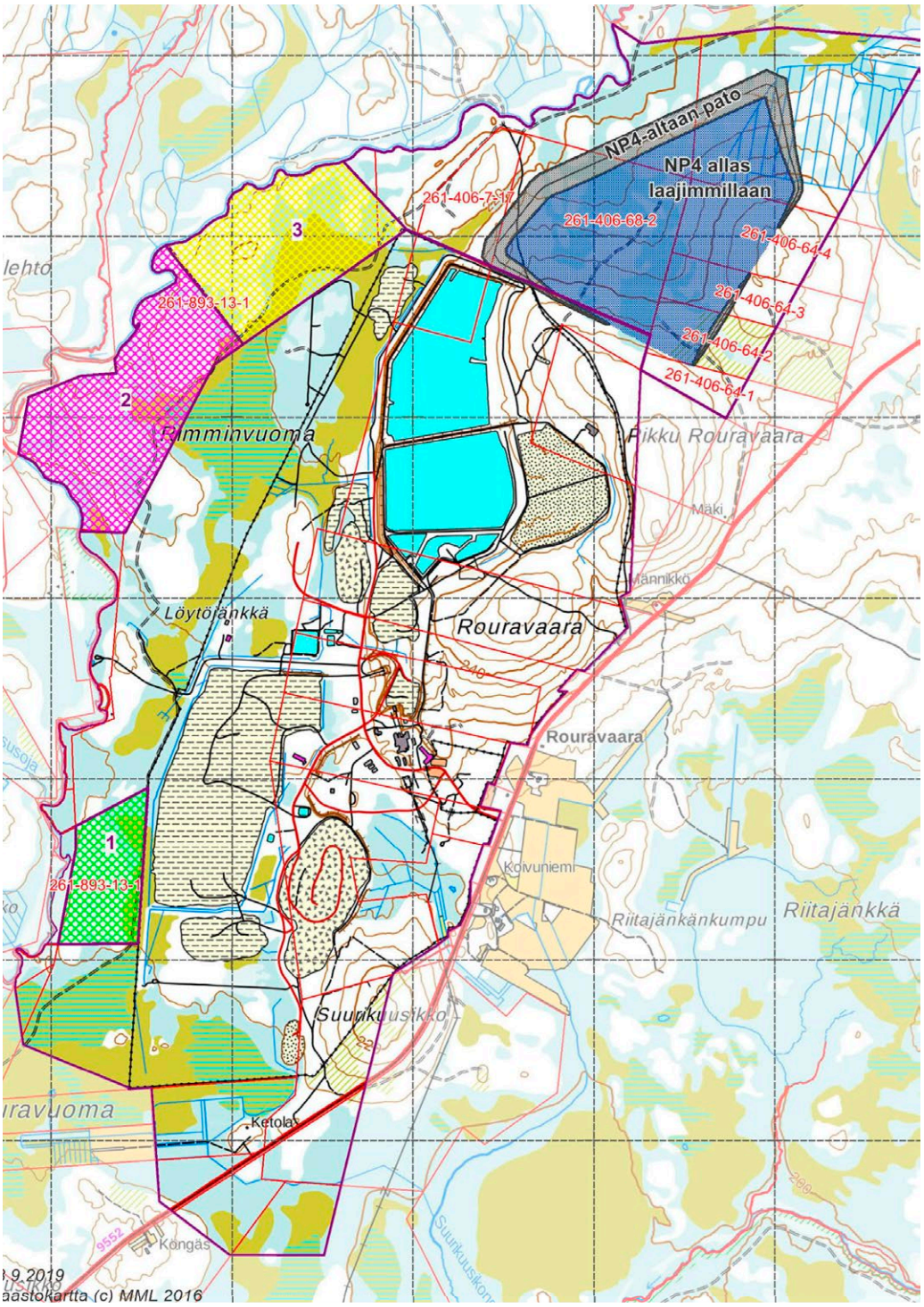
1 Map of Karnukka mine termination measures



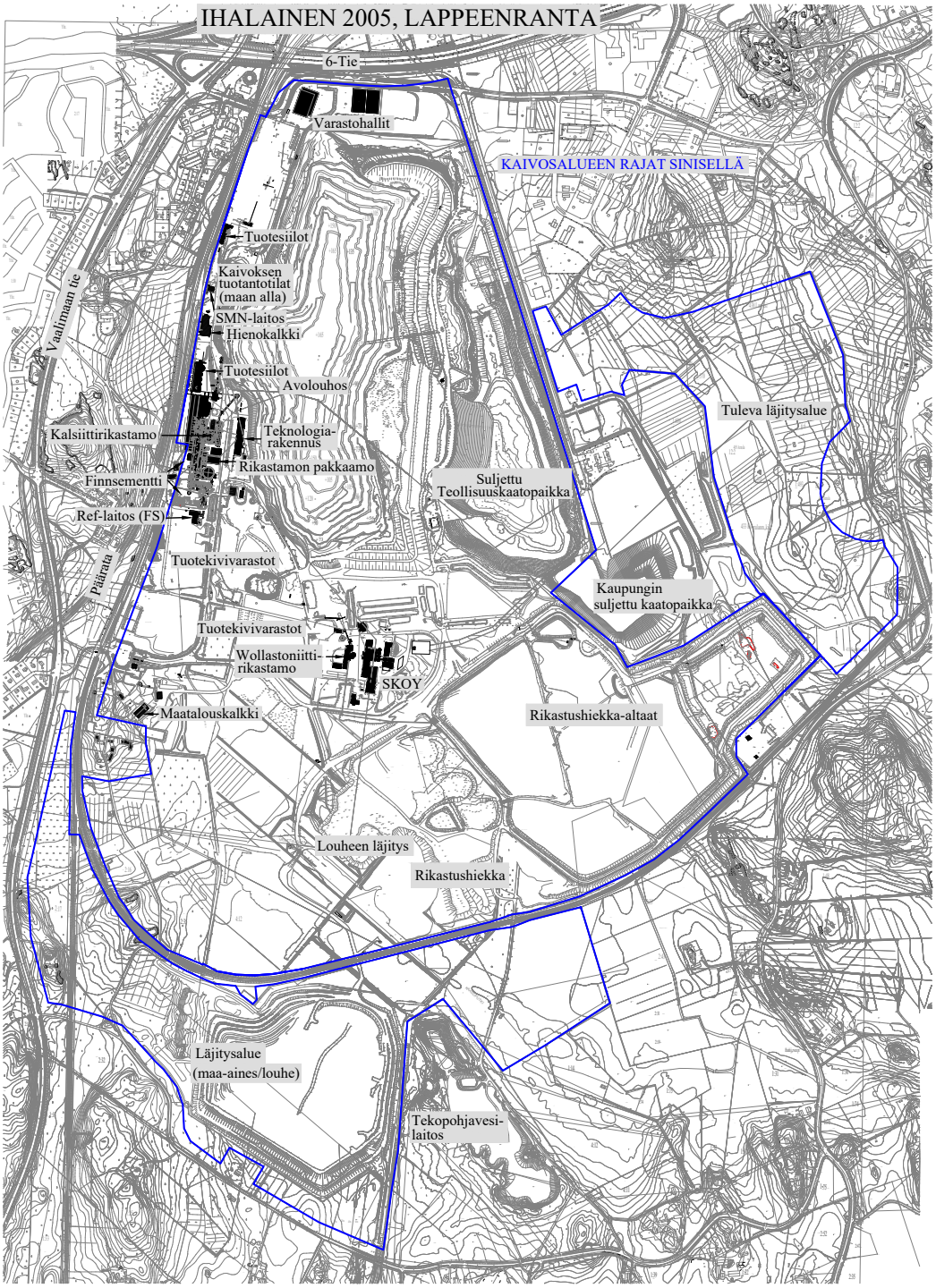
2 Map of Kylylahti mine termination measures



3 Map of Kittilä mine termination measures



4 Map of Ihalainen mine termination measures



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