1. "Tailings Dam" Name/identifier	Gillervattnet TMF (Boliden Area)	Hötjärn TMF (Boliden Area)	Kristineberg TMF (Boliden Area)	Aitik TMF	Tara TMF	Kevitsa TMF (two diffrent impoundment)	Luikonlahti TMF (three diffrent impoundment) Kylylahti	Harjavalta TMF (three diffrent impoundment)	Stekenjokk TMF	Ryllshytte TMF (Garpenberg)
2. Location (WGS 84, degrees)	Lat 64.86; Long 20.31	Lat 64.85; Long 20.32	Lat 65.08; Long 18.60	Lat 67.07; Long 20.80	Lat 53.68; Long -6.71	Lat 67.68; Long 26.93	Lat 62.93; Long 28.72	Lat 61.32; Long 22.09	Lat 65.10; Long 14.46	Lat. 60.31 Long. 16.15
3. Ownership	Owned and Operated	Owned and Operated	Owned and Operated	Owned and Operated	Owned and Operated	Owned and Operated	Owned and Operated	Owned and Operated	Owned and Operated	Owned and Operated
4. Status	Closed	Active	Care and maintenance	Active	Active	Active	Active, but one impoundment are under care and maintenance	Active, but one impoundment are under care and maintenance (partly closed) and one is closed.	Closed	Active
5. Date of initial operation	1974	2011	1952	1968	1976	2012	1967.	1967	1974	1963
6. Is the Dam currently operated or closed as per currently approved design?	Yes	Yes, in operation according to current permit	Yes	Yes, in operation according to current permit	Yes, in operation according to current permit	Yes, in operation according to current permit	Yes	Yes, in operation according to current permit	Yes, in operation according to current permit	Yes, in operation according to current permit
7. Raising method	The highest dam with the highest consequences have used the raising metod downstream, but there are some lower dams with centerline.	Downstream	The last uplift were made using the downstream method (till). The starter dam (till) were raised downstream, but in between the last uplift and the starter dam the uplifts where made with upstream method (till).	The TMF are currently raised upstream (tailings). Starterdam downstream (till).	The starter dam is raised with the downstream method (till). The uplift is made with upstream method (till).	One impoundment is raised downstream. One impoundment the starterdam (till) is raised downstream and uplifts are currently raised upstream (rockfill).	Two impoundment downstream and one impoundment upstream	Upstream	Centerline	Starterdam downstream (till). Dam currently raised upstream (tailings).
8. Current Maximum Height	14 m	20 m	20 m	67 m	30 m	26 m (the highest is TMF-A and its raising method is upstream)	30 m (the highest is Martikkala and its raising method is downstream)	24 m	13 m	34 m
9. Current Tailings Storage Impoundment Volume	25 Mm3	8 Mm3	10 Mm3	550 Mm3	31 Mm3	36 Mm^3	2,3 Mm3	1,9 Mm3	Ca 2,5 Mm^3	30 Mm^3

10. Planned Tailings Storage Impoundment Volume in 5 years time.	25 Mm3. Closed TMF. No more tailings will be added.	13 Mm3	10 Mm3. Closed TMF. No more tailings will be added. The TMF is only used for sedimentation of lime sludge from water treatment plant.	770 Mm3	36 Mm3	67 Mm3	3 Mm3	3 Mm3	2,5 Mm3. Closed TMF. No more tailings will be added.	37,5 Mm^3
11.Most recent Independent Expert Review	2016	2018	2017	2017	2018	2018	2018	2019	2008	2017
12. Do you have full and complete relevant engineering records including design, construction, operation, maintenance and/or closure.	Yes. Data concerning the TMF compiled or referred to in the OMS-manual.	Yes. Data concerning the TMF compiled or referred to in the OMS-manual.	Yes. Data concerning the TMF compiled or referred to in the OMS-manual.	Yes. Data concerning the TMF compiled or referred to in the OMS-manual.	Yes. Data concerning the TMF compiled or referred to in the OMS-manual.	Yes. Data concerning the TMF complied or reffered to in the OMS-manual.	Yes	Yes	Yes. Data concerning the TMF complied or reffered to in OMS-manual.	Yes. Data concerning the TMF complied or reffered to in the OMS-manual.
13. What is your hazard categorisation of this facility, based on consequence of failure?	Category A (EU-directive) Dam safety class B (highest A and lowest C in the Swedish classification system).	Category A (EU-directive) Dam safety class B (highest A and lowest C in the Swedish classification system).	Category A (EU-directive) Dam safety class B (highest A and lowest C in the Swedish classification system).	Category A (EU-directive) Dam safety class B (highest A and lowest C in the Swedish classification system).	Category A (EU-directive)	Category A (EU-directive) Class 1 (highest 1 and lowest 3 in the Finnish classification system).	Category A (EU-directive) Class 2 (highest 1 and lowest 3 in the Finnish classification system).	Category A (EU-directive) Class 2 (highest 1 and lowest 3 in the Finnish classification system).	Category A (EU-directive) Dam safety class C (highest A and lowest C in the Swedish classification system).	Category A (EU-directive) Dam safety class B (highest A and lowest C in the Swedish classification system).

14. What guideline do you follow for the classification system?	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries. The Swedish national system from the Swedish environmental law and earlier a consequence class according to the Swedish Mining industry´s (SVEmin) dam safety guideline (GruvRIDAS). The dam safety class is approved by the Swedish authorities.	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries. The Swedish national system from the Swedish environmental law and earlier a consequence class according to the Swedish Mining industry´s (SVEmin) dam safety guideline (GruvRIDAS). The dam safety class is approved by the Swedish authorities.	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries. The Swedish national system from the Swedish environmental law and earlier a consequence class according to the Swedish Mining industry´s (SVEmin) dam safety guideline (GruvRIDAS). The dam safety class is approved by the Swedish authorities.	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries. The Swedish national system from the Swedish environmental law and earlier a consequence class according to the Swedish Mining industry´s (SVEmin) dam safety guideline (GruvRIDAS). The dam safety class is approved by the Swedish authorities.	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries.	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries. According to the Finnish dam classifications. The Finnish Dam Safety Guide (ELY Centres, 2012). Class is set by the authorities.	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries. According to the Finnish dam classifications. The Finnish Dam Safety Guide (ELY Centres, 2012). Class is set by the authorities.	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries. According to the Finnish dam classifications. The Finnish Dam Safety Guide (ELY Centres, 2012). Class is set by the authorities.	Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries. The Swedish national system from the Swedish environmental law and earlier a consequence class according to the Swedish Mining industry´s (SVEmin) dam safety guideline (GruvRIDAS). The dam safety class is approved by the Swedish authorities.	The Swedish national system from the Swedish environmental law and earlier a consequence class according to the Swedish Mining industry´s (SVEmin) dam safety guideline (GruvRIDAS). The dam safety class is approved by the Swedish authorities.

15. Has this facility, at any point in its history, failed to be confirmed or certified as stable, or experienced notable stability concerns, as identified by an independent engineer (even if later certified as stable by the same or a different firm).	No.	No	No.	In 2000 a dam failure took place in a section of the embankment separating the tailings pond from the downstream located clarification pond. Investigation after the dam failure showed two main theories, high pore pressures or internal erosion along a decant culvert. Full remediation measures taken. A new dam section were constructed during a construction time of 3 month. No environmental consequences have been recorded except for a temporary and limited rise of the suspended solids content in the river system downstream.	No.	No	No	Yes. In 1995 and 1998 the dam were overtopped and part of the dam collapsed due to insufficient freeboard. The collapse caused water and slag to leak out of the landfill mostly to ditches. These failures caused short-term environmental impacts mostly to ditch waters, cultivated land and vegetation.	No	Yes, in 1997 there was a piping failure caused heavy seepage in the damtoe, in the foundation of Dam A due to ancient mining waste not detected. Full remediation measures taken.
16. Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	Both.	Both.	Both.	Both.	Both.	Both, internal and external.	Both.	External	Both.	Both.
17. Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did this assessment take place?	Yes, consequence class is determined from any downstream impact. 1999 and partly updated 2012.	Yes, 2017.	Yes, 2013.	Yes, 2015.	Yes, 2016	Dam Breakout Study and Inundation Risk Assessment completed in 2011. Updated in 2013 for additional floodwave scenarios.	Yes, 2014	Yes, 2015.	Yes, 2016	Yes, 2016 and on-going update

18. Is there a) a closure plan in place for this dam, and b) does it include long term monitoring?	Yes, and closure carried out recently according to permit. Yes.	Yes, as part of the permit. Yes	Yes, as according to permit. Yes.	Yes, as apart of permit. Yes.	Yes, as a part of the permit. Yes.	Yes, there is a approved closure plan. And, the current closure plan is been updated (e.g. cover system is being reviewed). The revised plan is to be issued to the authorities by end of August 2019. Yes, the clouser plan include long term monitoring.	Yes, The closure plan is under rewiev and are goning to be updated. Yes, the clouser plan include long term monitoring.	Yes. Yes	Yes, closed according to permit. Yes.	Yes. Yes
19. Have you, or do you plan to assess your tailings facilities against the impact of more regular extreme weather events as a result of climate change, e.g. over the next two years?	This have been taken into account during the recently carried out reclamation, 2014. According to the Swedish design flood guidelines.	Taken into account during design of discharge capacity for the latest upplift and are done according to the Swedish design flood guideline. 2015	Has been done, 2014, as a part of the impact assessment (consequence classification). According to the Swedish design flood guideline.	Taken into account during design of discharge capacity for the latest upplift and are done according to the Swedish design flood guideline. 2014	Yes (1:10 000 years)	The facility design was reviewed for extreme storm events above that required according to the national classification e.g. the water balance have been calculated based on 1:5000 years event.	Yes	Risks are evaluated annually. The water level in the dam is kept in such level that even during heavy rains there are no risks for overtopping. Water is constantly pumped back to the industrial area and this ensures that freeboard is not exceeded. If necessary pumping of the final copper slag to the dam can be stopped during heavy rain.	Taken in to accont during design of discharge capacity according to the Swedish design flood guideline. 2012	Taken in to accont during design of discharge capacity according to the Swedish design flood guideline. 2017

20. Any other relevant information and supporting documentation. **Please state if you have omitted any other exposure to tailings facilities through any joint ventures you may have.**						The centre for Economic Development, Transport and the Enviroment for Lapland in Rovaniemi (LAPELY) and Kainuu in Kajaani (KAIELY) reports are available in a public domain by the respective ELY centres.				