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August 2019

Tailings Dam Management

Introduction



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- The information contained in this presentation has been prepared in response to a questionnaire received from the Church of England Pensions Board and Swedish Council on Ethics for the AP Funds and backed by the UN-supported Principles for Responsible Investment (PRI). The communication issued was on behalf of 96 investors in the mining sector, who together represent over \$10.3 trillion in assets under management.
 - Tailings are an inevitable by-product of gold ore mining.
 - ZAO Trevozhnoye Zavevo ('TZ'), a wholly owned subsidiary of Trans-Siberian Gold plc ('TSG') places a high emphasis on the safe operation of its tailings facilities. To date, TZ has not had any safety or environmental incidents.
 - Under Russian law, before a tailings project can be initiated it is subject to mandatory state environmental appraisal and appraisal from the federal autonomous institution, the Main Department for State Appraisals (Glavgosexpertiza).
 - The operational monitoring and control system at the reported Waterwork Facilities (WF) is comprised of a series of monitoring and response layers, including:
 1. The Tailings Facility Supervisory Department, which acts in compliance with the Tailingspond Operation Guidelines.
 2. The compliance with industrial health and safety regulations is maintained through regular inspections by local Health & Safety, Civil Defence & Emergency Situations Engineer (H&S, CD&ES Engineer).
 3. Scheduled inspections by the Federal Environmental, Industrial and Nuclear Supervision Service of Russia (Rostekhnadzor) which supervises waterwork facilities operation, monitoring and procedures.
 - TZ undertakes extraordinary safety inspections to check up damn stability and ensure the integrity of the WF. Our approach to WF monitoring and control methods has not been formally changed. No amendment was made in the federal safety regulations ("Rules and Regulations in the Field of Safety in Mining and Processing of Solid Minerals") and Federal Law ("On Waterworks Safety").

Asacha Gold Mine – Tailings Dam Management

Question		Response														
1	“Tailings Dam” Name / Identifier	Tailings storage facility for the Asacha Gold Mine Registered number: 18-18(01)0021-19-ГОП.														
2	Location	<p>The Asacha Gold Mine is located in Kamchatka, Far East Russia Geographic Co-ordinates:</p> <table border="1"> <thead> <tr> <th>North</th> <th>East</th> </tr> </thead> <tbody> <tr> <td>5796863.906</td> <td>27446863.91</td> </tr> <tr> <td>5797070.066</td> <td>27447070.07</td> </tr> <tr> <td>5797178.2</td> <td>27447178.2</td> </tr> <tr> <td>5797378.71</td> <td>27447378.71</td> </tr> <tr> <td>5797268.88</td> <td>27447268.88</td> </tr> <tr> <td>5796757.322</td> <td>27446757.32</td> </tr> </tbody> </table>	North	East	5796863.906	27446863.91	5797070.066	27447070.07	5797178.2	27447178.2	5797378.71	27447378.71	5797268.88	27447268.88	5796757.322	27446757.32
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3	Ownership	Owned and operated by ZAO Trevozhnoye Zavevo ('TZ'), a wholly owned subsidiary of Trans-Siberian Gold plc ('TSG')														
4	Status	Active														
5	Date of initial operation	September 2011														
6	Is the Dam currently operated or closed as per currently approved design?	Yes, the damn is operated in accordance with approved design.														

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7	Raising Method	Upstream. The embankment (which limits the basin on three sides) is a rock-fill type dam cut in sloping banks.																
8	Current Maximum Height (to date).	19.5m.																
9	Current Tailings Storage Impoundment Volume.	<p>As of 22 June 2019:</p> <table border="1"> <thead> <tr> <th>Dam #</th> <th>Basin Volume k m³</th> <th>Basin Operating Capacity k m³</th> <th>Basin Flood-Control Storage Capacity k m³</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>960</td> <td>824</td> <td>136</td> </tr> <tr> <td>2</td> <td>820</td> <td>268</td> <td>552</td> </tr> <tr> <td>Total</td> <td>1780</td> <td>1092</td> <td>688</td> </tr> </tbody> </table>	Dam #	Basin Volume k m ³	Basin Operating Capacity k m ³	Basin Flood-Control Storage Capacity k m ³	1	960	824	136	2	820	268	552	Total	1780	1092	688
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10	Planned Tailings Storage Impoundment Volume in 5 years time	Projected total storage capacity of both basins in the period 22 June 2019 to 01 January 2024 is 698,064 m ³ . Indicated volume of total storage capacity assumes that designed growing rates of crest elevations for both dams will be adhered to.																

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11 Most recent Independent Expert Review	<p>On 04 April 2019 the WF at the Asacha Gold Mine were inspected in order to assess the readiness thereof for the flood waters receiving and passing through.</p> <p>The inspection was performed proceeding from the Protocol #02 (19.03.2019) by the State Committee for Matters Relating to Civil Defense, Emergency Situations and the Rectification of the Consequences of Natural Disasters, Kamchatka Division. Experts: Yakunin S.P.(Rostekhnadzor of Russia, Siberia & Far-East Division, Deputy Chairman), Zykov S.E. (Chief Directorate of the Ministry for Emergency Situations of Russia for Kamchatka Region, Deputy Chairman; Civil-Defense Engineering, Chemical, Biological, Radiological and Medical Defense Division, Supervisor; MES Major), and Klimenko A.S. (Government Agency “Mine Rescuers and Fire Brigades Training Center for Kamchatka Region” of the Ministry for Emergency Situations of Russia for Kamchatka Region; Civil-Defense Engineering, Chemical, Biological, Radiological and Medical Defense Division, Supervisor).</p>
12 Do you have full and complete relevant engineering records including designing, construction, operation, maintenance and/or closure.	Yes
13 What is your hazard categorisation of this facility, based on consequence of failure?	<p>The WF is a III Class facility (moderate hazard rating) upon actual classification of industrial facilities.</p> <p>Source: RF Government Decree #986 (November 2nd 2013) "On Waterworks Classification". There is no population in the flood zone</p> <p>There are no industrial objects or permanent workplaces in the flood zone</p>

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Question	Response
14 What guideline do you follow for the classification system?	All hazard ratings are within exclusive remit of Rostekhnadzor, which is governed by the governmental Decree #10 (04.02.2002) «On the Approval of the “Instructions on Waterworks and Liquid Industrial Waste Storage Ponds Safety Criteria Determination and Hazard Rating» and the Federal Law «On Waterworks Safety».
15 Has this facility, at any point in its history, failed to be confirmed 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
16 Do you have internal/in house engineering specialist oversight of this facility? Or do you have external engineering support for this purpose?	Yes. Internal engineering supervision is provided by: <ul style="list-style-type: none"> • Tailings Flow Control Technician; • Tailings Disposal Area Manager; and • H&S, CD&ES Engineer.
17 Has a formal analysis of the downstream impact on communities, ecosystems and critical infrastructure facilities in the event of catastrophic failure been undertaken and to reflect final conditions? If so, when did the this assessment take place?	Yes. In 2015, Rostekhnadzor determined the size of financial assurance for public liability in the amount of RUB 605,936,751.15 pursuant to the «Guidelines for Evaluation of Financial Assurance of Public Liability for Injury, Property Damage, or Financial Loss Caused by a WF Accident» approved by the RF governmental Decree #876 (18.12.2001), and based on the largest possible potential damage, which may be incurred by a WF failure. In accordance with the Federal Law #225 (27.07.2010), any company is liable to pay respective insurance payments to secure the public liability of the hazard object owner. (Declaration of Safety of the Waterwork Facilities, Reg.№18-18(01)0021-19-ГOP issued 27.11.2018).

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<p>18 Is there a) a closure plan for this dam and b) does it include long-term monitoring program?</p>	<p>No, Closure Plan is not so far available because the tailings ponds are in operation yet. Yes, Monitoring of the tailings dam post-reclamation will be conducted in compliance with Russian regulations. Monitoring wells will be used for a duration as determined by the environmental supervisory authorities.</p>
<p>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?</p>	<p>Yes, We perform regular assessments of our tailings ponds taking into account potential weather anomalies. Recalculation of the effects is not provided in the Russian legislation.</p>
<p>20 Any other related information and supporting records. Please, indicate if you took any other impact to the tailings facilities via any joint venture that you may have.</p>	<p>Additional information:</p> <ol style="list-style-type: none"> 1. Declaration of Safety of the Waterwork Facilities, Reg.#18-18(01)0021-19-ГOP issued 27.11.20182. 2. Expert conclusions to the Declaration of Safety of the WF made by Expert Center of Waterworks Safety, LTD., Reg. # 2504/17-3ЭK. 3. Act on Pre-Declaration Inspection of the WF (approved in 2016). 4. Evaluation of Maximal Damage in Case of a WF Accident (approved in 2015). 5. Findings by Ministry for Emergency Situations (MES) on the Readiness of the Operator to Localize and Liquidate Emergencies (approved 30.12.2015). 6. Safety Certificate of the WF (approved in 2018). 7. Certificate of Insurance of the WF #GAZX11992444802000, issued 25.01.2019 by SOGAZ INSURANCE. 8. Operation Permit for the WF #0033-19-ГOP issued 26.04.2019.

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