

KHUMA EFF BRANCH COMMANDING TEAM EXECUTIVE

Date: 24/02/2020

Attention: Anelle Lotter

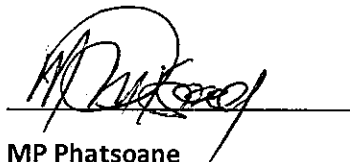
Morning

Please find attachments of our comment regarding Kareerand TSF proposed expansion, and wish to reiterate that we believe in honest and truthful constructive engagement in order to reach peaceful settlements.

We also urge that since company directors have fiduciary duties to act in good faith, must not place themselves in positions in which there is conflict between their duties to the company and their own interests, nor be arrogant or hide their heads in the sand, thinking some problems will just fade away will be at one's peril, and we the EFF have nothing to lose in protecting our communities, but if kareerand issue is properly handled, we all shall come out winners.

So we give you seven days to respond the way forward and hope you will find it in order.

Kind regards



MP Phatsoane
(Chairperson)

Comprehensive Reasons for Tailings Dam Failures Based on Case History

The kareerand tailing storage facility near Khuma T/ship was built without community engagement, and the FIU proposed it to be built north-east of Stilfontein and later it was recommended to be built 15 km south-east of Stilfontein, resulting to be about one km closer to the residents leaves much to be desired hence our community was not consulted.

These mine dumps are spewing poisonous materials into the atmosphere and people living close to them have presented with a range of serious illness that have been linked to these toxic waste. There are about 6.000 abandoned and derelict mines which are mostly gold, uranium and coal across the country, and their dust particles blow into people's homes and over water sources during the rainy and windy seasons, as well as open sewage pipes flowing into our dams.

The dust contains a mixture of chemicals like arsenic and cyanide, which could expose children bathing in toxic water to all manner of health issues, from brain damage to skin cancers. The heavy metals in these waters consist of uranium, zinc, arsenic, selenium, sulphur and lithium traces, and the levels of these elements when compared with the WHO's safety standards, all the tailing mine's water exceeded far allowable margins.

Khuma Township is one of the contaminated area outside Stilfontein, if you travel through on a winter's day you will probably have to stop at times, waiting for the blustering wind to abate somewhat as the dust in the air makes it impossible to continue driving. This situation is caused by the tailings in our area including all relics from the old mines.

One of the lead researchers David van Wyk said: on windy days dust from mine dumps blow across our locations, people are then exposed to the heavy metals which enter their systems through inhalation, water and open pores. And when the chemical substances are inside the systems they have the ability to change the people's DNA, which could be the reason for the high number of children born with disabilities in such areas, because their parents have been exposed to these chemicals for years.

Heavy metal exposure in childhood can result in cognitive and behavioral deficits in children. Neurotoxin disorders such as autism, attention deficit disorder, mental retardation, and cerebral palsy are common and cause lifelong disability. Precious Biyela, an environmental engineer from the Wits University . warned that toxic water could lead to skin and stomach problems, and in more severe cases, cancers or lead poisoning from mine drainage seeping into the water.

No one feels such pain more than one lady called Pontso Madona, who founded the Ellen Glen Special Needs Center after battling for years to come to terms with her own son's mental disorder, nor could many of the other residents in the area, who could not understand why their children were blighted. In some cases, this resulted in the children being abused and rejected by families and the community.

The center is home to more than 20 children living with different disabilities who most of them suffer from cerebral palsy, which effects the normal movement of the body and vision, down syndrome, fits and mental health problems. Most of these children are born to young mothers and mostly don't have time to look after these children with disabilities that consume lot of their time. It is also estimated that taking care of one child living with such disabilities costs about R14,000 per month, and the caretaker only depends on the children's social grants which is so little, and as such the high number of these children are dying.

So the rapid growth of mining activities has led to an increase in the number of tailings which are often stored in tailing ponds, tailings which are waste product in the beneficiation process which generally stored in a slurry form. The purpose of establishing a tailing dam is said to be safely storing these tailings to protect the natural environment from damage, but once a tailing pond leaks, it has a major negative impact on the economy, surrounding properties and the people's lives.

Tailing dams are some of the largest structures built by geotechnical engineers, nevertheless incidents of the tailing dam failures have often occurred, and in addition relevant departments have no sufficient understanding of the mechanisms associated with tailings dam failures, which results in serious environmental pollution and casualties.

The likelihood of tailing dam failures is several times higher than other conventional water retaining dams. Keeping the tailings ponds safe and stable is the most challenging task in the entire mining process, and the following points are some of the reasons why tailings dams are more susceptible to damage than other types of water storage structures:

- 1) Embankments constructed with soil, coarse waste, and residual materials from the mining operations.
- 2) The number of waste water increases as the height of the tailings dam increases.
- 3) Lack of reasonable regulations on design standards.
- 4) The cost of monitoring the tailings dam is high during mine operation and after closure.
- 5) And the safety and stability of these structures are not guaranteed all over the world.

On a global scale, there have been many sever accidents related to tailings dams. The data of more than 300 events that have been collected and categorized the reasons for tailings dam breakages into four root causes, where key examples of tailings dam failures have been summarized, including basic information about the tailings dam failures, dam heights, dam types, and fatalities.

The failure of tailings dams is often caused by multiple factors and, in essence, is due to the influence of the external environment, for example, through increased loading of the tailing dam, earthquakes, mine tremors, rainfall, floods, and dam foundation subsidence. The stress field and the seepage field in tailings reservoir changes leading to the instability of the dam.

The information collected forms only part of the actual number of tailings dam accidents in the world as small accidents tend to occur frequently. In addition, many accidents are not correctly reported or reported in time to the government because managers are afraid of taking legal responsibility. E.g. "Cyclone Dineo" 21/02/17 with regard to (kareerand TSF) the communities have never been made aware and was only raised by (FF Plus) at national assembly: 23 March 2018.

The then acting general manager Duran Archery in his medium to long term action plan report, listed plans that will prevent the risk of spillages and recurrence, but we can confirm and have proof that the spillages still occurs frequently from the pipelines, polluting our areas by spreading these toxic chemicals through storm waters, especially now in rainy seasons. And imagine such pollution happening till 2042 from these pipelines how will the grass and our plants look like? Including the health effects to the domestic animals grazing nearby, which may later slaughtered and people get sick resulting to loss of lives.

Water a National Crisis

Mining giants abuse department's failure to act, the industry is a major polluter and repeatedly ignores environmental laws. Water quality and supply has become a national crisis and little is been done to stop the pollution and poisoning of water sources or wastage.

According to a report on the crisis by the Center for Environmental Rights (CER) given to the department of water and sanitation, the department itself is in a state of complete institutional and regulatory breakdown.

The report focused on the mining industry as a major polluter and an industry repeatedly ignoring environmental laws: 60% of SA's river ecosystems are threatened and more than 24% are critically endangered, while about 65% of all wetlands are threatened and also 48% are critically endangered.

In conclusion

We are living in an unpredictable climate change and what guarantee our community shall have on the Kareerand TSF Dam? And when there are fatalities tomorrow caused by any of the basic "Tailing Impoundment Failures", who shall be blamed? Except to say is a disaster, so we cannot allow gambling with the people lives and health which cannot be priced.

On a global scale, a majority (85%) of tailings dam failures have occurred in dams of less than 45 meters high which most of them occurred in the most developing countries, and upstream dams have a high probability of about (60%) for damage. The research have shown that since 1928 most tailing dam failures are of the upstream types, mostly caused by seepages, overtopping, foundation failures, earthquakes and heights as highlighted on the attached table.

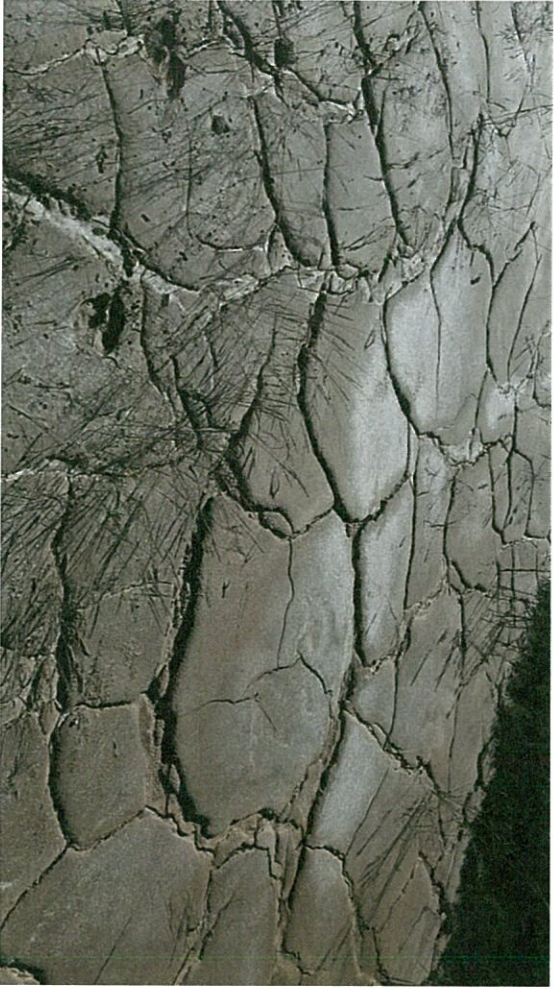
In South Africa, 1974 at Bafokeng in the North West, the tailing dam was a 20 meter height when it failed and the cause thereof was seepage, whilst also at Merriespruit 1994 in the Free State, its tailing dam was a 31 meter height and cause of the failure was overtopping. And recently in Brazil 2015, the dam type was also an upstream with the height of 90 meters, the highest in the history and was built by the world's best geotechnical engineers, but has also failed due to seepage and caused fatalities.

And now we the stakeholders are expected to endorse Kareerand TSF expansion by a record height of 122 meters in the world history, is this not a death warrant of our community? Especially for the companies that have never developed our township, including socio-economic development of our people. Both MWS & VMR have received our emails since last year requesting to meet them regarding companies' social responsibilities but in-vain, you know why? Because of their guilty consciousness, and one irresponsible HR Manager from VMR said will only meet us through the Mayor and Lucky from LED department to discuss such.

These are the irresponsible and greedy companies that only looks after own interests above black human lives, and are now busy planning to kill further the very communities and societies which AGA have said "will be better off for it having been there" according to its values. This shall not happen under our radar, and Its chairman (Pityana) will sooner than later know as he too would not allow such pollution to take place in his areas, affecting the grazing farms let alone the health effects to his communities.

Basic Information Regarding Some of the Tailing Impoundment Failures

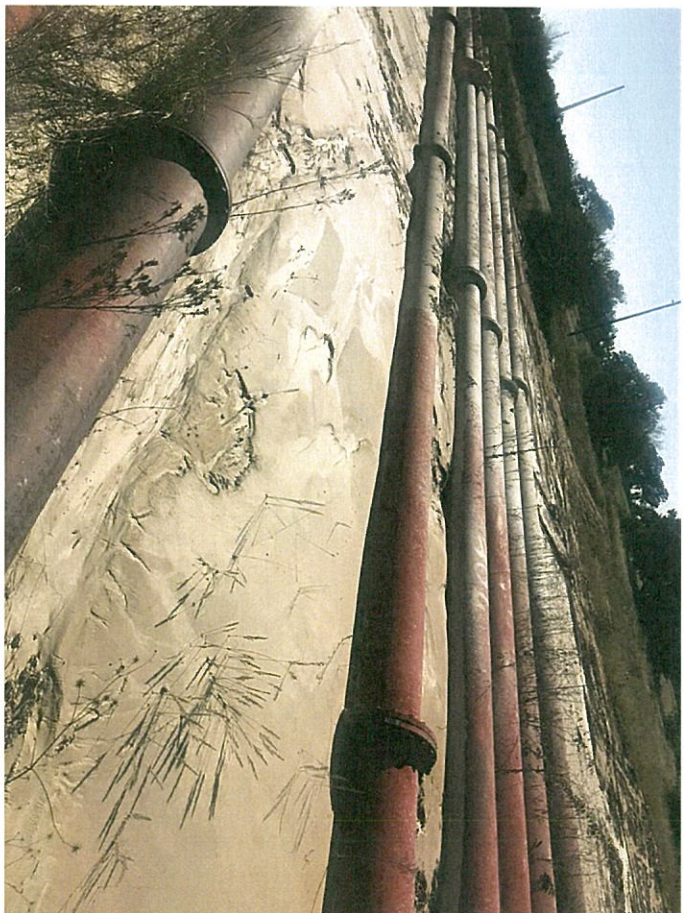
Year	Location	Dam height (m)	Dam type	Cause & fatalities
1928	Chile Barahona	61	Upstream	Earthquake (54)
1937	Mexico	UN	Upstream	Seepage (70)
1948	Canada	UN	Upstream	Seepage (UN)
1962	China Huagudu	UN	Upstream	Foundation failure (171)
1965	Chile El Cobre	36	Upstream	Earthquake (+= 300)
1966	Bulgaria	45	Unknown	Unknown (488)
1966	United Kingdom	UN	W/Retention	Seepage (144)
1970	Zambia	50	Unknown	Mine Subsidence (89)
1972	USA Buffalo Greek	14, 18	Upstream	Seepage (125)
1974	Bafokeng South Africa	20	Upstream	Seepage (14)
1974	Canada GCOS	61	Upstream	Seepage (UN)
1975	USA Mike Horse	18	Upstream	Overtopping (UN)
1976	China Dashihe	37	Upstream	Earthquake (UN)
1978	Canada Syncrude	UN	Centerline	Foundation Failure (UN)
1978	Japan Mochikoshi 1&2	28, 19	Upstream	Earthquake (1)
1978	Zimbabwe Arcturus	25	Upstream	Overtopping (1)
1979	USA Union Carbide	43	Upstream	Seepage (UN)
1985	Italy Stava	29.5	Upstream	Seepage (268)
1985	China Chenzhou	UN	Upstream	Overtopping (49)
1985	Chile Cerro Negro	40	Upstream	Earthquake (UN)
1986	China Huangmeishan	UN	Upstream	Seepage (19)
1988	China Lixi	40	Upstream	Overtopping (20)
1991	Canada Sullivan	21	Upstream	Seepage (UN)
1993	Peru Marsa	UN	Upstream	Overtopping (6)
1994	USA Tapo Canyon	24	Upstream	Earthquake (UN)
1994	South Africa Merriespruit	31	Upstream	Overtopping (17)
1995	Guyana Omai	44	Unknown	Seepage (UN)
1995	Philippines Surigao	UN	Upstream	Foundation Failure (12)
1996	Bolivia Porco	UN	Upstream	Overtopping (UN)
1996	Bulgaria Sgurigrad	45	Upstream	Seepage (107)
1998	Spain Los Frailes	27	Upstream	Foundation Failure (UN)
2000	Romania	7	Downstream	Overtopping (UN)
2002	Philippines San Marcelino	UN	Unknown	Overtopping (UN)
2004	Canada Pinchi Lake	12	W/Retention	(UN)
2009	Russia	20	Unknown	UN (1)
2010	Hungary	22	Downstream	Seepage (10)
2011	Japan Kavakari	UN	Unknown	Earthquake (UN)
2012	Philippines Padcal	UN	Upstream	Overtopping (UN)
2014	Canada Mount Polly	40	Unknown	Foundation Failure (UN)
2015	Brazil Fundao	90	Upstream	Seepage (19)



Slur Spillage near Kuruwa



05/05/19





Slurry Spillages near Klumme



25/03/19