Urani? Naamik
Peqatigiiffik Narsaq

Disclosure:

Greenland Minerals` unreliability

April 2022

Introduction:
Greenland Minerals` hearing about the Kuannersuit project caused busyness at organization; Urani? Naamik Narsaq. It is the largest project at a hearing in Greenland's history, which includes thousands of pages to be read and analyzed. It has been new for everyone in this country. But now that we do not feel suffocated, we have, at our own pace, been able to analyze the dust emissions in the Kuannersuit project.
Analysis of Greenland Minerals` dust pollution report came more as a coincidence. We discovered that the dust pollution emissions from the open pit mine are more than halved, and the dust pollution emissions on the gravel roads are not really related. We found that the PM2.5 emissions, which should be 10% of the PM10 emissions, were almost 30%.
Therefore, we decided to investigate all kinds of dust pollution emissions in the project. And when Greenland Minerals had notified its shareholders that Urani? Naamik Narsaq only deals with the uranium issue, we took upon us the work on dust pollution.
In our report writing, it was important that we wrote in a credible way. We checked all of our results several times. We used the ERM approach using all emission factors from USEPAAP-42. That way, we found several major flaws in the ERM`s report, even though Greenland Minerals called them dust experts.
Our thorough approach is also due to the fact that Greenland Minerals referenced 35 times in their White Paper responses, and just as many times refer to Chapter 8 of the EIA report, where dust pollution emissions were addressed.
Finally, we will evaluate the National Danish Center for Environment and Energy, DCE`s role during the Greenland Minerals' hearings on the Kuannersuit project.

Urani? Naamik
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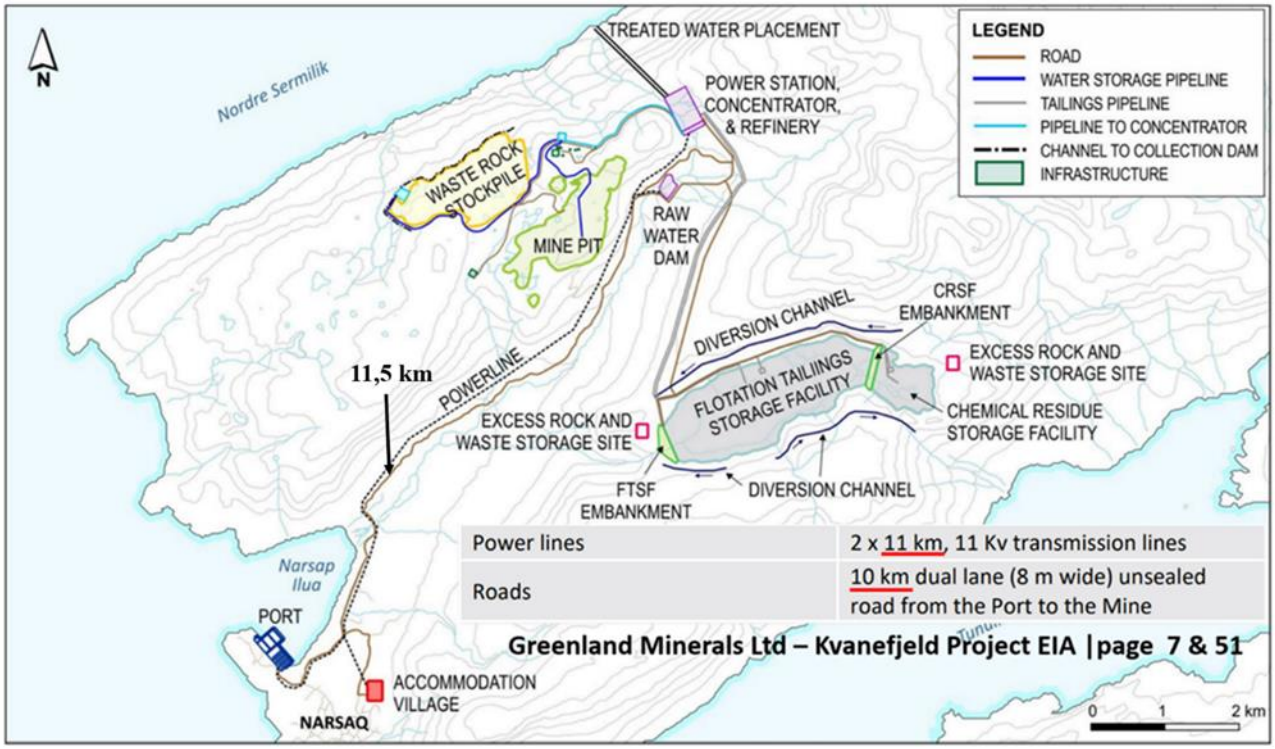
1. Greenland Minerals` full deliberation scams to reduce dust pollution:

First, we want to clarify that ERM has not been to Narsaq on a study trip. They have solved the task that Greenland Minerals has commissioned. Greenland Minerals has provided all information about the Kuannersuit project to ERM. Therefore, it must be emphasized that Greenland Minerals has the full responsibility for ERM`s dust report.

1.A. All activities in the open mine are reduced by 70-74%. They "forget" the winter, where it is not possible to spray with water. On the scam above, Greenland Minerals reduces by 54-55%.



1.B. On the map you can clearly see the fraud regarding the length of gravel road from the port to the mining area. When you measure carefully, you get the length of the gravel road which is 11.5 km, including the bumps on the gravel road. You can clearly see it on the map. This is a dust pollution saving of 39% (including other deficiencies).

Table C- 12: Activity data for Grading

Greenland Minerals and Energy (GME) A/S: ERM page C-8

Data Input		Units
No. of grader[a]	1	-
Distance on road 3 (from pit to dump)	2	km
Distance on road 4 (from pit to crusher	3	km
Operating hours on road 3[b]	1,012	hours
Operating hours on road 4[b]	1,003	Hours

a. Communication with GME on 11 November 2014
b. Assumed by PEL

Table C- 16: Activity Data for Wheel Generated Dust (Unpaved Roads)

Greenland Minerals and Energy (GME) A/S: ERM page C-10

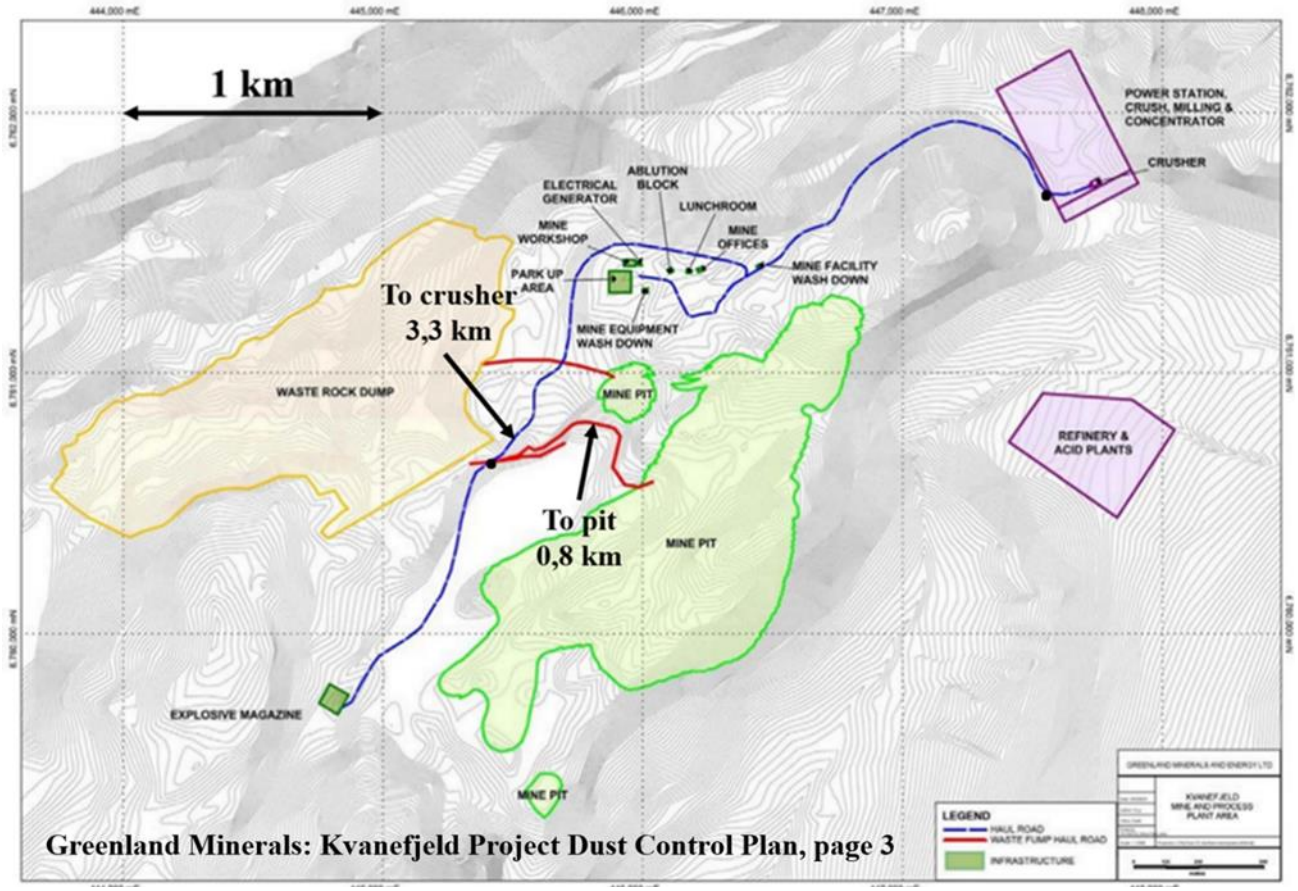
Data Input		Units
No. of truck[a]	6	-
Distance on road 1 (from pit to dump – 100% of waste)	3	km
Distance on road 2 (from pit to crusher – 100% of ore)	2	km
Operating hours on road 1[b]	6,248	hours
Operating hours on road 2[b]	6,584	Hours

d. Communication with GME on 11 November 2014
e. assumed by PEL

1.C. Giant trucks of 72 tons, must drive 33,000 times to the waste dump and drive to the crushing plant 34,400 times a year, respectively. It will create a lot of dust. Greenland Minerals has changed the lengths of the routes so the route to the rock crusher will be 2 km long and the route to the dump truck will be 3 km long.
But in the SRK Consult`s report, last updated in 2017, you can read that from the intersection near the waste dump and to the stone crusher, the distance is 3.3 km. And from the crossroads there is an 800 meter long gravel road. On an average, the giant trucks have to drive 5 km down to the stone crusher. On this large scam, Greenland Minerals saves 217% of the dust pollution on the gravel roads around the mining area.

1.D. Furthermore, SRK Consult draws attention to the fact that especially the 800 meters long and 20 meters wide gravel road, from the open pit to the intersection, must be maintained regularly. It does not appear that maintenance of the gravel roads is included in the ERM`s dust report. We have carefully estimated that Greenland Minerals can count on using 100,000 tons of gravel per year for that purpose. In the 800 meter long gravel road, 15 million tons of stone and vehicles
will drive through each year and strain the gravel road. And also bulldozers of 74 tons will drive on the road 168 times back and forth between the open mine to the gray waste dump truck.
Wheel tracks from the heavy vehicles, water spraying, dust formation, streams, erosion and river bursts in the spring will wear out the gravel roads. One must also keep in mind that in some winters

there will be heavy rain showers, creating wet and very heavy snow avalanches that slide from the mountain slopes.
And of course there are other gravel roads that need to be maintained.
Lack of maintenance causes damage to heavy vehicles.
When you treat gravel many times, a lot of dust pollution is created by the same gravel. Unloading from ships will create dust pollution. Loading trucks will also create dust pollution. Transport on gravel roads creates dust pollution and empty trucks on the return road create dust pollution. Unloading of gravel, if necessary, to the gravel depot will create dust pollution. Loading gravel, unloading gravel at the maintenance site will create dust pollution and empty trucks will also create dust pollution. Scraping the road will create dust pollution.
Especially the gravel roads in the mine area where heavy trucks drive also need to be maintained regularly. And of course the 11.5 km gravel road, between the mine area to the port also needs to be maintained. It may be that 100,000 tons of gravel will be too little.



1.2. Only the work of the bulldozer is included. The bulldozer must drive 60,000 km each year and slide on the mine site. Traffic from pit 1 and pit 2: Excavators, bulldozers and drilling vehicle runs must also be included.

1.3. Changes in the number of blastings. When an activity in the open mine creates less dust, the number of blastings in the calculation basis increases and vice versa:

1.3.A. Drilling: The calculation basis is 184 blastings.

1.3.B. Blastings: The calculation basis is 177 blastings.

1.3.C. Loading of stones in the open pit: The calculation basis is 168 blastings.

1.4 There are doubts about assessing the export of raw materials. Because the difference between the most and the fewest blasts is 560,000 ton of rock.

2. Organizing Greenland Minerals` stone and transport activities.

The transport of imported substances and chemicals is poorly described. And some of the reagents are referred to as containers only. We used a general container, which can hold 25 tons, for these reagents. And the other reagents, denoted by weight, were placed in the same containers. For the export of raw materials, we used special containers that can contain 32 tons of raw materials. The truck must be able to ascend to the mining area. Therefore, we chose a truck that weighs 15 tons. Container trailer weighs 4 tons. And all containers weigh 3 tons.
We used the same emission factors as described in Greenland Minerals' EIA report and in the appendices.
We used reliable emission factors from USEPAAP-42. The results can be seen in Table 1. The results in Table 2 are emission figures after dust reductions, which have been indicated by Greenland Minerals.
We corrected the errors and other numbers were corrected to 168 drilling rigs. Distribution of stones from the open pit mine is 3,000,000 tons of stone for the stone crusher and 2,880,000 tons of stone for the waste dump truck.

2.1 Calculation of dust pollution before dust control

	Greenland Minerals			Urani? Naamik Narsaq		
Table 1	PM30 kg	PM10 kg	PM2,5 kg	PM30 kg	PM10 kg	PM2,5 kg
Drilling	5 800	3 070	460	5 800	3 070	460
Blasting	3 800	1 980	110	3 800	1 980	110
Bulldozing in the open pits	32 400	5 910	3 410	199 800	46 830	18 710
Loading	18 900	8 960	1 360	18 900	8 960	1 360
Bulldozing and unloading stones at the waste dump	20 100	6 360	1 800	75 700	19 950	6 880
Transport of rocks + (bulldozer, excavators and the movements of the drilling vehicles on the gravel road)[a]	603 400	146 170	55790	1 618 000	398 090	148 880
Activities on the gravel road between the harbor and the mining area	432 700	105 800	39 570	711 000	173 830	65 010
Maintenance of gravel roads	(2 200)[b]	(680)[b]	(70)[b]	176 000	43 470	15 940
Unloading in the crusher	9 700	4 570	690	9 700	4570	690
Total	**1 137 020** (1 137 156)[c]	**286 650** (288 249)[c]	**103 500** (84 742)[c]	**2 871 860**	**700 750**	**258 050**
The proportion	1 PM30	1 PM10	1 PM2,5	**2,5** PM30	**2,4** PM10	**2,5** PM2,5

[a] *Greenland Minerals have not included + (.....) in the calculations*
[b] *Not included in the sum, to avoid double calculation*
[c] *From ERM: AQA, Kvanefjeldet page 18.*

The revelations of Greenland Minerals' fraud numbers and deficiencies are shown in the results in table 1. The numbers were almost three times as large.

2.2 Calculation of dust pollution after the dust control.

	Greenland Minerals			Urani? Naamik Narsaq		
Table 2	PM30 kg	PM10 kg	PM2,5 kg	PM30 kg	PM10 kg	PM2,5 kg
Drilling	1 550	800	120	1 550	800	120
Blasting	1 070	560	30	2 440	1 270	70
Bulldozing in the open pits	9 700	1 770	1 020	129 700	30 400	12 150
Loading	5 700	2 690	410	12 300	5 820	880
Bulldozing and unloading stones at the waste dump	6 000	1 910	540	49 200	12 970	4 470
Transport of rocks + (bulldozer, excavators and the movements of the drilling vehicles on the gravel road)	221 490	53 500	20 590	594 600	145 370	54 370
Activities on the gravel road between the harbor and the mining area	160 100	39 140	14 640	263 100	64 320	24 050
Maintenance of gravel roads	(650)	(200)	(20)	48 100	12 050	4 340
Unloading in the crusher	2 900[a]	1 370[a]	210[a]	6 280	2 970	450
Total	**414 030** (420 486)[b]	**103 740** (107 543)[b]	**37 730** (31 615)[b]	**1 130 930**	**281 770**	**103 080**
The proportion	1 PM30	1 PM10	1 PM2,5	**2,7** PM30	**2,7** PM10	**2,7** PM2,5

[a] *The same reduction as other reductions with 70 %*
[b] *From ERM: AQA, Kvanefjeldet page 18.*

3. Small particles that affect human health.

The difference between Greenland Minerals scams and Urani? Naamik Narsaq`s results: The small particles PM10 and PM2.5 is 2,7 more.

4. Assessment of ERM`s dust report.

4.1 Transport of imported substances and chemicals

Substances and chemicals are only described as containers. There are no weight designations. And other reagents are described by weight only, but do not tell how to transport. (ERM: AQA, Kvanefjeldet page 29 and page 30).

4.2 Calculation of dust emissions on gravel roads.

It is not possible to see how they got to the results. There is no document of the basis for the calculations. (ERM: AQA, Kvanefjeldet page 18).

4.3 Dust control.

In ERM`s dust report, the dust control fills almost a page. They refer to Greenland Minerals`s own dust control report: "Kvanefjeld Project Dust Control Plan". Greenland Minerals sent it to ERM in June 2015. It states how they will fight the dust on their own Kuannersuit project.
But it is not clear what Greenland Minerals wants with the dust control.
It does not say how much water they will use per. m^2 gravel road in the summer, how much salt they will use per. m^2 pr. blasting for example on the gravel road. And there is also no concrete approach with regard to dust control in the open mine. How many m^3 of water will they use for that purpose?
An example of a good report on dust control was made by Australian Pacific Environment in 2014 for NSW Minerals Council / ACARP Project C22027. A 65-page report. After the name change, the company was renamed Environmental Resources Management, ERM.

5. The use of ERM`s dust report during the consultation on Greenland Miranerals Kuannersuit project.

In Greenland Minerals' white paper, written after consultations, which were published on their website, Greenland Minerals has referred to ERM`s dust report 35 times and just as many times in the EIA report chapter 8, which deals with dust pollution.
To alting.dk, the director John Mair, November 9, 2020, stated as follows: "We look forward to many good consultation responses, good citizen meetings and not least a dialogue characterized by objectivity and facts."
ERM`s dust report filled a lot during the hearings. Our study shows that the dialogue on dust pollution, during the hearings, was characterized by unspeakability and outside facts.

6. DCE`s role in Greenland Minerals` Kuannersuit project.

DCE, the Danish National Center for the Environment, the independent consultants, is implemented in our raw materials law. We must cooperate with GEUS / DCE around the raw materials area when there are investigations and consultations. And they are honored via agreement between GEUS / DCE and Naalakkersuisut. They are obliged to keep up with developments in the mining area

around the world, and inform us/the people about it. We want GEUS / DCE to take into account that we give very high priority to our natural environment, which is vulnerable to pollution. They are why we feel safe, because GEUS / DCE "takes care of us". They are our anchor when mining companies apply for the exploitation of our resources. We, as a country, have given them the right of veto. Hearings cannot be started without GEUS / DCE acceptance.

6.1 DCE`s role in the ERM`s report.

In Greenland Minerals` Kuannersuit project, DCE received ERM`s draft of its dust report for the first time on 5 June 2018. This way DCE had a chance to check the dust pollution in the project. They responded on June 23, 2018, with their first remarks. And the final dust report was sent to DCE January 30, 2019 from ERM.
"DCE / GINR - environmental review and technical evaluation of:" The Kvanefjeld project. Evaluation of environmental impact "of Greenland Minerals A / S" August 2020 states, among other things: "DCE / GINR assumes that EIA's report is in accordance with the minimum requirements associated with the guidelines and can provide an adequate and correct basis for public participation in the decision-making process. "
This means that DCE / GINR accepted ERM`s dust report, in order to be a sufficient and correct basis.
DCE / GINR has had 1½ years to calculate and therefore validate the accuracy of the dust emission calculations. They also did not mention the topic of "dust" in their environmental review and technical evaluation of the Kvanefjeld project.
They would rather use their energy to make an animated film about "minimal dust pollution in the Kuannersuit project". It flourished on Naalakkersuit's website during the hearings.

6.2 First round of hearings.

In the first round of the consultation meetings (and for that matter in the second round) DCE answered questions, with quotes from the Greenland Minerals` EIA report and its references. And they did fill a great deal in the consultation meetings.
The next day, DCE and Urani? Naamik Narsaq met. We had some issues that we did not have control over at the time. We asked about fluorspar and uranium oxide content. DCE replied irritably: "You have to count the atoms yourself!" One of DCE`s tasks is to inform the Greenlandic people. The answer surprised us a lot. But we could sense which side DCE had chosen. Later we became much better at finding information over the internet.

6.3 Second round of hearings.

In Greenland Minerals' website on the Australian Stock Exchange, ASX, DCE always receives much praise from Greenland Minerals for their good cooperation. At the last minute just before the start of the second round of hearings, Greenland Minerals announced an interruption. One of the reasons was that they will not attend because DCE will only attend the consultation meetings via video call.

6.4 Cooperation between Greenland and DCE in the future.

Throughout the course of Greenland Minerals' consultation on the Kuannersuit project, DCE has behaved naively. They do not have enough capacity, nor enough knowledge about large-scale projects. Therefore, DCE could not be an opponent in such projects. They rather became a partner to Greenland Minerals.
In the future, we will have to find partners all over the world. Otherwise we will become victims in our own country.

7. We have been scammed.

We, as a country, have been scammed by Greenland Minerals. We must all acknowledge that. Our ignorance will be exploited and abused by Greenland Minerals types of mining companies, also in the future. We need to be more careful with mining companies where their only interest is to make money on our subsoil and are indifferent to our public health and our irreplaceable and vulnerable nature.

8. Legacy.

First, we would like to express how sorry we are to do the investigations that DCE or other officials should or have done. But we hope that in the future they will become more aware. The USEPA AP-42 dust emission process is very popular with all mining companies worldwide. When they use these predictions, they can tell the population that they pollute only "very little".
In this country, London Mining and Tandbreez have used the USEPAAP-42.
USEPAAP-42 has their basic knowledge from coal mines in the 70s and late 80s. At that time, there were no provisions regarding PM10 and PM2.5. When these came, the USEPAAP-42 was just customized without changing their base starting point.
Did you notice that 35,000 tons of blasted stone create less dust than 59 drilling holes?
Therefore will Urani? Naamik Narsaq come with dust emissions based on the latest knowledge.
And use the Kuannersuit project as a starting point.

On behalf of Urani? Naamik Narsaq

Jan Rehtmar-Petersen

Sources:

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