Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Saturday, November 14, 2015 10:57 AM
To: Caunce, Cassandra ENV:EX
Subject: Text info from SF
Attachments: imagejpeg_3.jpg; textplain_2.txt; imagejpeg_4.jpg

textplain_2

While the MoE staff are up there can they go to the bottom of Lot 21 and collect samples from the red water oozing out. Strong septic/sulphur smell down there yesterday.

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Saturday, November 14, 2015 12:22 PM
To: Caunce, Cassandra ENV:EX; Downie, AJ ENV:EX
Subject: CHH - additional text from Sonia Furstenau regarding permit

Also - just think about why the "settling pond" is empty when water is rushing off that site.
1. Engineering failure. Water is flowing all over but NOT going to settlumg pond
2. Settling pond is not holding the water because it was not designed oroperly and there is no liner underneath - water is leaching out from undrneath and into the creek on cvrd.
This is not about coming back and saying everything is fine because water samples come back fine. 8 months into this permit, one rain event, and there is a total failure of the so-called engineering at this site. There is no way to say that this is an acceptable situation.

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Sunday, November 15, 2015 11:47 AM
To: Caunce, Cassandra ENV:EX
Cc: Downie, AJ ENV:EX
Subject: Text from Sonia

The settling pond does not hold water. Where is the water going, Jennifer? There is no liner, just gravel. Water is pouring out from underground into the stream.

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Sunday, November 15, 2015 11:48 AM
To: Caunce, Cassandra ENV:EX; Downie, AJ ENV:EX
Subject: Text from sonia
Attachments: imagejpeg_2_2.jpg

November 17, 2015 File: PR-105809

Cassandra Caunce
Director, Compliance Section
Environmental Protection Regional Operations
Ministry of Environment

RE: Surface Stormwater Quality at Cobble Hill Holdings November 14, 2015; Metals, TSS and Turbidity

Runoff was observed leaving the west boundary of Cobble Hill Holdings quarry site (PR-105809) following a heavy rainfall event November 12 & 13, 2015. Ministry staff were on site to sample and observe conditions on November 14, 2015. At that time, a very low volume trickle was observed leaving the site though it was evident that higher flow was present prior to constructed channeling. The purpose of sampling was to determine whether the subsequent runoff had contacted landfilled material and whether it meets ambient water quality guidelines.

Samples of surface water runoff were collected on November 14, 2015 at three locations at PR-105809 with an additional sample collected in a seep at the north end of Lot 21 and one in Shawnigan Creek several kilometers downstream. A brief summary of sampling locations:

- SW1 – approximately 15 m west of permitted discharge point from settling pond in ephemeral creek (no actual discharge from pipe was occurring at sample time)
- CHH1- surface runoff 0.5 m inside west boundary perimeter fence approximately 60 m south of the discharge point from settling pond to ephemeral creek
- CHH2 – surface runoff at 0.5 m outside of west boundary perimeter fence approximately 60 m south of the discharge point from settling pond to ephemeral creek
- REG SC – Shawnigan Creek approximately 1.2 km upstream of south Shawnigan Lake at bridge at Sooke Lake Road
- L21S – North boundary of Lot 21 bottom slope toe drainage seep into Shawnigan Creek

Parameters analyzed were turbidity, total suspended solids (TSS), pH, metals, chloride, sulphate and PAHs. All samples were collected following standard MOE sampling protocols. The samples were put on ice in a cooler and shipped overnight to ALS Global in Burnaby, BC.

Water sample results were compared to applicable BC and Health Canada Drinking Water Guidelines[1] and BC Water Quality Guidelines (WQGs) for the protection of aquatic life[2]. Most water quality results were below applicable guideline levels except where noted below.

[1] http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index-eng.php#t2

Ministry of Environment Coast Region, Environmental Protection Division | Mailing Address: 200 - 10470 152nd Street, Surrey BC V3R 0Y3 | Telephone: 604 582-5200, Facsimile: 604 584-9751, Website: www.gov.bc.ca/env

Results for TSS were below detection limits for all samples except for the Lot 21 drainage seep which had a TSS level of 12.4 mg/L. BC guidelines for the protection of aquatic life are change of < 5mg/L (chronic exposure) and change of < 25 mg/L (acute exposure) from background levels. This result is not surprising given that samples are collected immediately downstream from runoff over exposed soils during a heavy rainfall event where risk of solids material entering sample bottles are high.

Turbidity levels were also relatively low except for the L21S sample with 31.8 NTU (nephelometric turbidity units). The CHH1, CHH2 and SW1 had turbidity levels similar to the downstream Shawnigan Creek turbidity level (REG SC). The BC drinking water quality guideline is no greater than a change of 1 NTU from background levels. Given the flow volume of the seep in relation to the Shawnigan Creek flows on November 14th, the turbidity and TSS values from the L21S are a negligible contribution to overall Creek water quality.

A review of the metals results against Health Canada Drinking Water (HC DW) guidelines showed generally no exceedances except for a slight exceedance of the aluminum guideline which is intended as drinking water treatment operational guidance for facilities that use aluminum-based coagulants. Sites REG SC, CHH2 and L21S had aluminum concentrations of 0.176 mg/L, 0.231 mg/L and 0.297mg/L respectively. The L21S sample had slightly elevated iron and manganese levels above the Health Canada guidelines which are both aesthetic guidelines referring to taste and laundry staining.

Sulphate and chloride concentrations were measured and sample concentrations met applicable guidelines. While the CHH1 & 2 and SW1 samples had relatively higher sulphate concentrations than Shawnigan Creek downstream (REG SC) and Lot 21 seep sulphate levels, the concentrations measured were well below the drinking water guideline of 500 mg/L.

All surface water polycyclic aromatic hydrocarbons analyses were below the lowest analytical detection limits.

Overall the surface water quality results are generally within applicable ambient guideline levels and do not pose a risk to aquatic life nor human health. The three samples collected near the landfill PR-105809 indicate that the runoff sampled had not contacted landfilled materials.

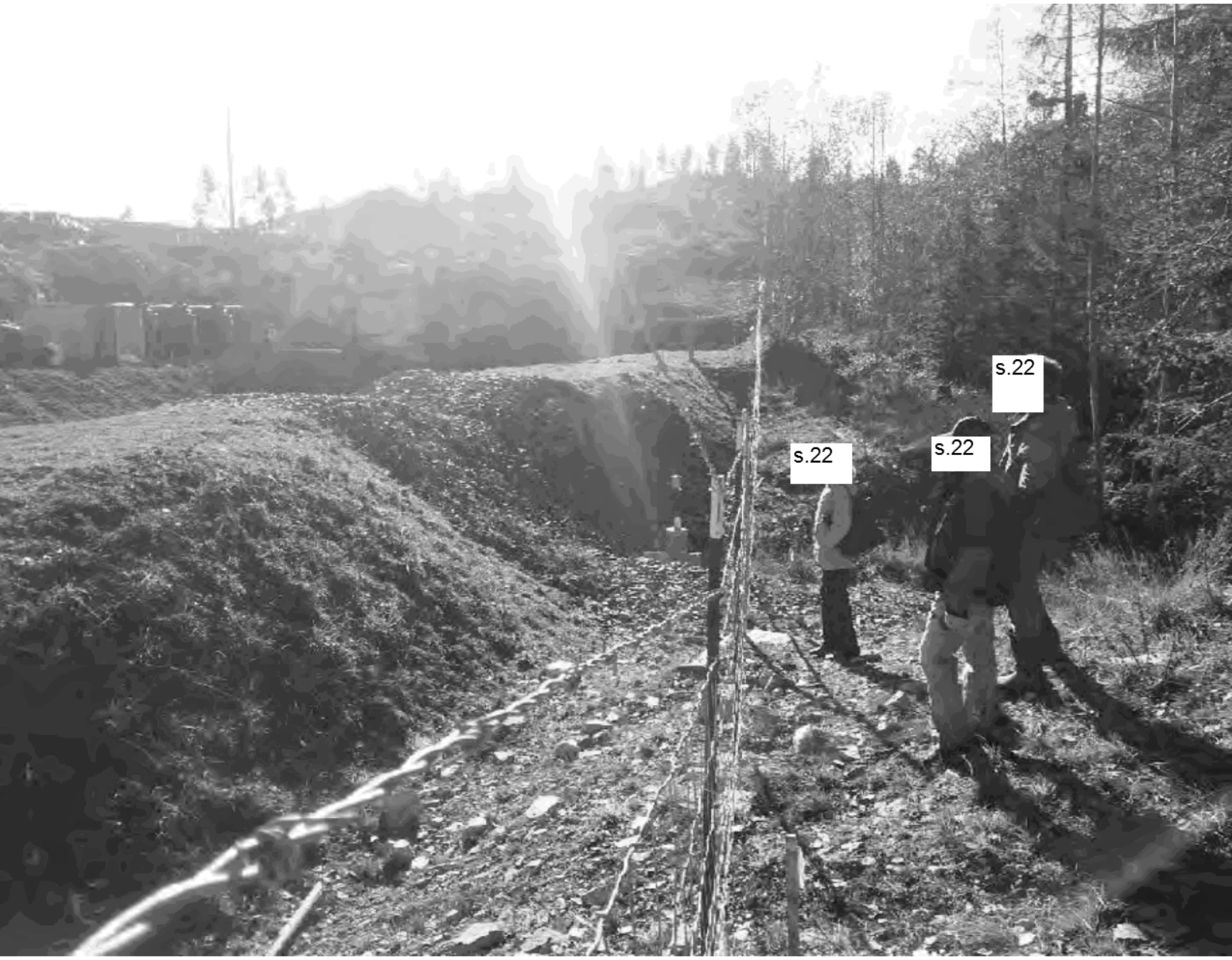
Liz Freyman R.P.Bio.
Head, Compliance Section

Attachment: Table of Results

---

[2] http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/water-quality-guidelines/approved-water-quality-guidelines

Cobble Hill Holdings November 14, 2015 Stormwater Quality Results												
Client Sample ID			REG SW1	REG SC	REG CHH1	REG CHH2	REG L21S					
Date Sampled			14-Nov-2015	14-Nov-2015	14-Nov-2015	14-Nov-2015	14-Nov-2015					
ALS Sample ID			L1702465-1	L1702466-1	L1702464-1	L1702463-1	L1702462-1					
Parameter	Lowest Detection Limit	Units	Water	Water	Water	Water	Water	Drinking Water Quality Guidelines (approved and working)			Water Quality Guidelines (approved and working) for the Protection of Aquatic Life	
								Units	BC DW	Health Can DW	Chronic	Acute
Physical Tests (Water)												
Conductivity	2.0	uS/cm	573	44.9	332	287	306					
Hardness (as CaCO3)	0.50	mg/L	207	14.5	122	104	114					
pH	0.10	pH	7.08	7.13	6.41	6.39	7.42					
Total Suspended Solids	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	12.4	mg/L			*Change of 5*	Change of 25
Turbidity	0.10	NTU	1.65	1.72	1.16	3.61	31.8	NTU	Change of 1			*Change of 5*
Chloride (Cl) total	0.50	mg/L	28.4	2.96	9.82	7.74	8.98	mg/L dissolved	250	250	*150*	600
Sulfate (SO4)	0.30	mg/L	157	3.66	101	85.9	17.5	mg/L	500	500	*218*	
Total Metals (Water)												
Aluminum (Al)-Total	0.0030	mg/L	0.0753	0.176	0.0995	0.231	0.297	µg/L		100 (foot note #1)		
Antimony (Sb)-Total	0.00010	mg/L	0.00042	<0.00010	<0.00010	<0.00010	0.00011	µg/L	14	6		20
Arsenic (As)-Total	0.00010	mg/L	0.00013	0.00013	0.00012	0.00014	0.00027	µg/L		10		5
Barium (Ba)-Total	0.000050	mg/L	0.0205	0.00378	0.0443	0.0452	0.0186	µg/L		1000	*1000*	5000
Beryllium (Be)-Total	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	µg/L	4		5.3	
Bismuth (Bi)-Total	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	µg/L				
Boron (B)-Total	0.010	mg/L	0.040	<0.010	0.013	0.012	0.017	µg/L	5000	5000		1200
Cadmium (Cd)-Total	0.0000050	mg/L	0.0000137	<0.0000050	0.0000072	0.0000095	<0.0000050	µg/L	5	5		Under review
Calcium (Ca)-Total	0.050	mg/L	65.4	4.22	39.4	33.2	30.5	mg/L				
Chromium (Cr)-Total	0.00010	mg/L	0.00027	0.00036	0.00021	0.00031	0.00062	µg/L	50	50		1
Cobalt (Co)-Total	0.00010	mg/L	0.00079	<0.00010	0.00020	0.00021	0.00208	µg/L			*4*	110
Copper (Cu)-Total	0.00050	mg/L	0.00194	0.00102	0.00107	0.00109	0.00175	µg/L	500	1000	1, 2.2, 2.9, 2.8	6.4, 7.2, 8.8, 8.5
Iron (Fe)-Total	0.0050	mg/L	0.0788	0.118	0.0505	0.149	2.92	µg/L		300 (footnote #2)		1000
Lead (Pb)-Total	0.000050	mg/L	0.000083	0.000060	<0.000050	0.000090	0.000254	µg/L	50	10	4.5, 4.8, 5.4, 5.3	1.7, 38.7, 54.5, 51.9
Magnesium (Mg)-Total	0.0050	mg/L	10.7	0.968	5.73	5.12	9.14	mg/L				
Manganese (Mn)-Total	0.00010	mg/L	0.0324	0.00534	0.0185	0.0134	0.810	µg/L		50 (footnote #2)	*800*	1100
Molybdenum (Mo)-Total	0.000050	mg/L	0.00179	<0.000050	0.000286	0.000218	0.000235	µg/L	250		*1000*	2000
Nickel (Ni)-Total	0.00050	mg/L	0.00172	<0.00050	0.00084	0.00081	0.00115	µg/L				25
Phosphorus (P)-Total	0.010	mg/L	0.016	0.013	<0.010	0.023	0.016	µg/L				
Potassium (K)-Total	0.050	mg/L	1.99	0.287	1.18	1.27	0.874	mg/L				373
Selenium (Se)-Total	0.000050	mg/L	0.000589	<0.000050	0.000554	0.000600	0.000097	µg/L	10	10	*2*	
Silicon (Si)-Total	0.050	mg/L	4.37	3.43	3.90	3.91	4.35	µg/L				
Silver (Ag)-Total	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	µg/L			*0.05*	0.1
Sodium (Na)-Total	0.050	mg/L	21.8	2.45	8.85	7.66	14.5	mg/L		200		
Strontium (Sr)-Total	0.00020	mg/L	0.223	0.0184	0.0983	0.0863	0.113	µg/L				
Sulfur (S)-Total	0.50	mg/L	56.1	1.26	34.3	29.7	6.07	mg/L				
Thallium (Tl)-Total	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	µg/L	2			0.3
Tin (Sn)-Total	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	µg/L				
Titanium (Ti)-Total	0.00030	mg/L	0.00408	0.00459	0.00322	0.0151	0.0123	µg/L				2000
Uranium (U)-Total	0.000010	mg/L	0.000562	<0.000010	0.000023	0.000025	0.000063	µg/L		20		300
Vanadium (V)-Total	0.00050	mg/L	0.00089	0.00067	0.00058	0.00086	0.00128	µg/L				6
Zinc (Zn)-Total	0.0030	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	µg/L	5000	5000	*7.5*	*33*
PAHs (Water)	All congeners below lowest analytical detection limit											
1. Al guideline for operational consideration for dw treatment using coagulants												
2. Aesthetic guideline for taste and laundry staining												
Exceeded guideline												


s.22
s.22
s.22

s.15,s.16,s.17,s.22

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Wednesday, November 18, 2015 7:28 PM
To: Caunce, Cassandra ENV:EX
Subject: From SF: photos from today - series 3: upper level

I am fwd'g emails from Sonia Furstenau for compliance staff to consider.

From: Sonia Furstenau
Sent: Wednesday, November 18, 2015 7:16 PM
To: McGuire, Jennifer ENV:EX
Subject: photos from today - series 3: upper level

These are photos from the upper soil management area s.22 brought s.22 really good camera and lens today).

Do you know about the water pooled there? It looks like some sort of a catchment area.

Thanks,
Sonia

(Please let me know if you're not able to access the photos, and I will resend in another format.)

P1010163.JPG

P1010159.JPG

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Wednesday, November 18, 2015 7:28 PM
To: Caunce, Cassandra ENV:EX
Subject: Fw: photos from today - series 2: the cell

From: Sonia Furstenau
Sent: Wednesday, November 18, 2015 7:10 PM
To: McGuire, Jennifer ENV:EX
Subject: photos from today - series 2: the cell

A few questions from these pictures.

Do you know what is being done with the tank? s.22 said those tanks capture the "contact water" then send them into the treatment system. Any idea what's being done? Again - if the system is not functioning at 100%, is this an appropriate time to allow more soil to be dumped?

In 1010141 notice the state of the tarps on the pile of soil.

Thanks,
Sonia


P1010144.JPG


P1010141.JPG


P1010136.JPG

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Wednesday, November 18, 2015 7:29 PM
To: Caunce, Cassandra ENV:EX
Subject: Fw: photos from today - series 1: settling pond

From: Sonia Furstenau
Sent: Wednesday, November 18, 2015 7:03 PM
To: McGuire, Jennifer ENV:EX
Subject: photos from today - series 1: settling pond

Hi Jennifer,

Here are photos of the settling pond today (if you click on "properties" it confirms the date and time photos were taken). After yesterday's rain, which caused flooding throughout the south island, there is almost no water whatsoever in the pond.

Given that contact water left the cell yesterday during the breach, this is, of course, worrying.

In a conversation with s.22 this morning s.2 acknowledged that "the infiltration pond is not working the way it says it should work according to the design."

Also attached is one photo of the water at pit bottom from today, and one of the creek (which, since it always runs, summer and winter, is not really "ephemeral", right?)

If you were to take ten steps back from where s.22 is standing, you would hear the water rushing underground.

Thanks,
Sonia

P1010153.JPG

Thanks,
Sonia

P1010156.JPG

P1010157.JPG

P1010147.JPG

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 8:10 PM
To: Caunce, Cassandra ENV:EX
Subject: Text from Sonia F

A letter received by a resident from MoE staff in Kamloops yestreday said that they were "considering reducing or suspending operations...a decision will be made after consideration of a suitable response frome the company."
You know what the company's response will be.You know that they will delay just to buy more time for dumping. And what is 'suitable'? A report from Active Earth? You know that there is a huge issue here.
Please. I am begging. Please suspend the permit. People are on the road right now, trucks have arrived. Please let the courts do what they need to do. Please understand what this is doing to people's lives.

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 8:11 PM
To: Caunce, Cassandra ENV:EX
Subject: From Sonia F
Attachments: imagepng_2_0.png

Mar 14, 2014, 5:12 PM

LOL. The board wants to give these people an open mike so the board can say they considered everything.

The director had to answer three hundred of these people by

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 8:13 PM
To: Caunce, Cassandra ENV:EX
Subject: More texts
Attachments: imagejpeg_3.jpg; textplain_2.txt; imagejpeg_4.jpg

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 8:13 PM
To: Caunce, Cassandra ENV:EX
Subject: Texts. - more
Attachments: imagejpeg_3_1.jpg

textplain_2

New berm has been built within five metre buffer zone of cvrd property. Was Mines contacted? CVRD was not contacted.

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 8:14 PM
To: Caunce, Cassandra ENV:EX
Subject: And more texts
Attachments: imagejpeg_2.jpg; imagejpeg_3.jpg


11


SAVE OUR
SHAWNIGAN
WATER
LEARN | ACT | DONATE

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 10:47 AM
To: Caunce, Cassandra ENV:EX
Subject: Fw: Truck event
Attachments: photo.JPG

From: Sonia Furstenau
Sent: November-19-15 10:41 AM
To: McGuire, Jennifer ENV:EX
Subject: Fwd: Truck event

Truck pup falling off edge of cell just now. Machine pushed it back up. More pictures to come.
---------- Forwarded message ----------
From: s.22
Date: Nov 19, 2015 10:39 AM
Subject: Truck event
To: "Furstenau Sonia"s.22
Cc:

Sent from my iPhone

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 11:18 AM
To: Caunce, Cassandra ENV:EX
Subject: Fw: Machine stuck on top of liner
Attachments: IMG_0626.MOV

From: Sonia Furstenau
Sent: November-19-15 11:00 AM
To: McGuire, Jennifer ENV:EX
Subject: Fwd: Machine stuck on top of liner
---------- Forwarded message ----------
From: 's.22
Date: Nov 19, 2015 10:58 AM
Subject: Machine stuck on top of liner
To: "Furstenau Sonia" s.22
Cc: s.22

Sent from my iPhone

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 11:19 AM
To: Caunce, Cassandra ENV:EX
Subject: Fw: Mixing material with the waste in the cell itself - not in soil mgmt area
Attachments: 20151119_105705.jpg

From: Sonia Furstenau
Sent: November-19-15 11:00 AM
To: McGuire, Jennifer ENV:EX
Subject: Mixing material with the waste in the cell itself - not in soil mgmt area

This is not what we understand from the permit. Isn't soil supposed to be dealt with in the soil mgmt area, tested, then relicatef to the cell after it has been tested?

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 11:19 AM
To: Caunce, Cassandra ENV:EX
Subject: Fw: From MeM permit
Attachments: 20151119_105449.jpg

From: Sonia Furstenau
Sent: November-19-15 10:56 AM
To: McGuire, Jennifer ENV:EX
Subject: From MeM permit

f) During construction, appropriate Quality Assurance/Quality Control (QAQC) shall be carried out. Within 30 days of completing construction, a construction QAQC report shall be submitted to the Inspector. This report shall include a summary of the liner installation, materials testing and compaction information and the QAQC measures employed during construction.

Has this cell been inspected?

Is the cell construction complete?


DEERE

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 11:21 AM
To: Caunce, Cassandra ENV:EX
Subject: Fw: Cell
Attachments: 20151119_111853.jpg

From: Sonia Furstenau
Sent: November-19-15 11:20 AM
To: McGuire, Jennifer ENV:EX
Subject: Cell

If it were raining right now, do tou thi k this would prevent contact water from leaving the cell?

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Thursday, November 19, 2015 11:23 PM
To: Caunce, Cassandra ENV:EX
Subject: Re: SIA

Thanks, Cassandra. I will now send directly to you - I just sent a few more to Jennifer this evening, which I will forward now.

Sonia

On Thu, Nov 19, 2015 at 2:07 PM, Caunce, Cassandra ENV:EX <Cassandra.Caunce@gov.bc.ca> wrote:

Hello Sonia,

Jennifer McGuire passed your contact information over to me as I am responsible for the provincial Compliance team. Should you have any further information to share on SIA activities, please feel free to email it to me instead of Jennifer.

Kind regards,

Cassandra Caunce, BSc.

Director, Compliance & Integrated Pest Management

Regional Operations Branch, Environmental Protection

Ministry of Environment

1259 Dalhousie Drive

Kamloops, BC V2C 5Z5

(direct) 250.371-6225 • (fax) 250.828-4000 • (reception) 250.371-6200

www.gov.bc.ca/env

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 11:23 AM
To: Caunce, Cassandra ENV:EX
Subject: Fw: Men in dump truck
Attachments: 20151119_112020.jpg

From: Sonia Furstenau
Sent: November-19-15 11:22 AM
To: McGuire, Jennifer ENV:EX
Subject: Men in dump truck

Men are atanding in the pup of thw dump truck working in contaminated soil without safety gear.

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Thursday, November 19, 2015 11:27 AM
To: Hoffman, Al MEM:EX; Dunkley, Jim R MEM:EX
Cc: Caunce, Cassandra ENV:EX
Subject: Fw: From MeM permit & SIA/CHH
Attachments: 20151119_105449.jpg

hi,
this incoming question refers to the MEM permit.
Cassandra is coordinating the MOE compliance activities related to CHH.
JLM

From: Sonia Furstenau
Sent: November-19-15 10:56 AM
To: McGuire, Jennifer ENV:EX
Subject: From MeM permit

f) During construction, appropriate Quality Assurance/Quality Control (QAQC) shall be carried out. Within 30 days of completing construction, a construction QAQC report shall be submitted to the Inspector. This report shall include a summary of the liner installation, materials testing and compaction information and the QAQC measures employed during construction.
Has this cell been inspected?
Is the cell construction complete?


DEERE

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Thursday, November 19, 2015 11:40 PM
To: Caunce, Cassandra ENV:EX; McGuire, Jennifer ENV:EX
Subject: engineering assessment of water flow from SIA site

Hello Cassandra and Jennifer,

CVRD sent an independent engineer on to the CVRD property adjacent to the SIA site, and he gave us a verbal report this afternoon. He will be providing a written report early next week.

The upshot of his assessment of water flow onto CVRD land is that "a huge amount of storm and surface water to the site is going directly to ground with no treatment or testing" and leaving the site through the channel that emerges 20 m from the settling pond (the so-called "ephemeral stream").

His view is that a significant amount of water is bypassing the whole system.

It was his view that the settling pond should be full after the volume of rain that we've had in the last week, but his observations, along with the photos taken over the course of the week, indicate that it is essentially empty. In his view, this indicates that the pond is "porous" and that it does not hold water for any length of time.

We will share the official report when we receive it next week.

However, at this point, I would hope that this information will be informative.

Thank you,
Sonia

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Thursday, November 19, 2015 11:28 PM
To: Caunce, Cassandra ENV:EX
Subject: 20151119_110107.mp4

Sonia Furstenau has shared the following video:

20151119_110107.mp4

Open

This email grants access to this item without logging in. Only forward it to people you trust.

Google Drive: Have all your files within reach from any device.

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Friday, November 20, 2015 1:36 PM
To: Caunce, Cassandra ENV:EX
Attachments: IMG_0086.jpg; IMG_0075.jpg

Subject: Fwd: no subject

Hi Cassandra,

These trucks were in the lineup yesterday on Stebvings Rd.

I eillforward an email shortly with regulations.

Thanks,
Sonia


11

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Friday, November 20, 2015 1:37 PM
To: Caunce, Cassandra ENV:EX; McGuire, Jennifer ENV:EX
Subject: Fwd: IMPORTANT TRANSPORT INFO FOR CONTAMINATED SOILS

Cassandra,

There have been many documented incidents of the trucks carrying the loads from Nanaimo leaking materials out the backs.

Please see the mesaage below.

Thank you,
Sonia

---------- Forwarded message ----------
From: s.22
Date: Nov 20, 2015 1:29 PM
Subject: Fwd: IMPORTANT TRANSPORT INFO FOR CONTAMINATED SOILS
To: s.22
Cc: "Sonia Furstenau" s.22

> Here is one more important bit of information - the trucks cannot leak anything out onto the road - the water they are leaking is contaminated and therefore they need sealed tailgates this is from http://www.bclaws.ca/civix/document/id/complete/statreg/00_96458_01- Cargo securement 35.04 Vehicles must be equipped and cargo must be contained, immobilized or secured in accordance with the applicable requirements of this Division and the Standard and so that it cannot
>
> (a) leak, spill, blow off, fall from, fall through or otherwise be dislodged from the vehicle, or
> (b) shift on or within the vehicle in a manner that affects the stability or maneuverability of the vehicle.
> [en. B.C. Reg. 113/2005, Sch. 1.]
>
> Sent from my Samsung device over Bell's LTE network.

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Friday, November 20, 2015 1:39 PM
To: Caunce, Cassandra ENV:EX; McGuire, Jennifer ENV:EX
Subject: Fwd: FW: SRA email addresses

---------- Forwarded message ----------
From: s.22
Date: Nov 20, 2015 12:04 PM
Subject: FW: SRA email addresses
To: "Sonia Furs

> FYI….sigh…
>
> Cheers s.22
>
>
> From: s.22
> Date: Friday, November 20, 2015 at 11:46 AM

> Subject: Re: SRA email addresses
>
> Thank you s.22 I was at the site all morning, and it is disheartening to see the trucks roll in with contamination seeping from the back of their trucks. Of interest was a comment from s.22 who came to speak to us. s.2 said that even if s.2 wanted to stop s. could not because the permit and MoE would not allow s.22 to stop operating on the site. Mind boggling when s. said that. It was captured on film.
>
: s.22 also said that s. had not business interest in the site, and that s. is just on contract to s.22
>
> Also, s.22 trucking was in there getting loaded with something. We called the company and they said that they were not hauling in or out and that s.22 had just hired their truck for the day. Shortly after the call the truck left the site.
>
> They are working right along the property line. I thought they had to have a 5m buffer.
>
> Two local residents today stated that they had been threatened by s.22 that their house would be burnt down if they joined the protesters. The local residents appear to be living in fear.
>
> The police took their time arriving. They didn't show up until 8:30. We had 7 trucks waiting for 90 minutes - once the police arrived we couldn't stop it.
>

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Friday, November 20, 2015 3:53 PM
To: Caunce, Cassandra ENV:EX
Subject: Re: FW: From MeM permit & SIA/CHH

Thanks, Cassandra.

There remainmany outstanding questions from what we witnessed yesterday. In particular, dumping straight into the cell and the mixing of cement powder intothe soils as we saw yesterday.

There are serious allegations in front of the BC Supreme Court right now about the non arm's length relationship between CHH and the engineers acting as Qualified Professionals, Active Earth.

Given significant issues that arose this last week with the surface water leaving the site, the breach of contact water from the cell, the apparent non-functioning of the settling pond, and now a forthcoming engineering report that contradicts Active Earth's assessment and design of the water management on site, I am certain that you can appreciate that the Shawnigan community does not have any confidence that Active Earth can be relied on to provide unbiased information about this site.

This is the elephant in the room that can't be ignored. There is, at the very least, a perceived conflict of interest to have Active Earth acting as the Qualified Professional on anything to do with this site (We argue it is not a perceived, but a real conflict.). Matt Pye has admitted under oath that Active Earth and CHH created a profit-sharing company, as indicated by the signed agreement from February 14, 2013. They concealed this agreement from MoE and MEM throughout the permitting process.

The EAB decision repeatedly deferred to the Techincal Assessment Report of Active Earth, while negating many of the concerns identified by numerous other scientists and engineers. Now those concerns - about the design of the water treatment system (Dr Liyannage's testimony), the nature of the rock under the quarry (Thurber Engineering and others), groundwater issues (Lowen and Kohut) and the actual capacity for any operators at this facility to truly capture all contact and non-contact water before it leaved this site.

We know that the water treatment system is not working as designed. Given the location of this site uphill from our lake and the vast quantities of water that move through and around this site, combined with the worrying nature of the materials being brought on site,.we are imploring with you to take a precautionary position at this time and stop all dumping. A thorough and independent assessment needs to happen - there is zero confidence and zero social license in this community right now.

We are also currently seeking independent testing of the material that is coming on to the site. A sufficient quantity fell off the back of a dump truck for us to collect for testing. David Mitchell of Active Earth signed the Contaminated Soil Relocation document for the material coming in from Port Moody. As you can hopefully appreciate again, we see Mr Mitchell as a potential beneficiary of the revenues from this contract, and we therefore have no confidence that his assessment can be counted on to be reliable.

There are far too many issues at this point in time for us to be placated by a report from Active Earth on anything to do with this facility or operation. I do hope that given the stakes - the health of our watershed and our community - we are eager to see real action being taken on these many worrisome issues.

Thank you,
Sonia

Hi Sonia – Please see below.

From: Dunkley, Jim R MEM:EX
Sent: Friday, November 20, 2015 2:59 PM
To: Caunce, Cassandra ENV:EX
Cc: McGuire, Jennifer ENV:EX
Subject: RE: From MeM permit & SIA/CHH

See answers below in red.

Jim Dunkley

From: Sonia Furstenau s.22
Sent: November-19-15 10:56 AM
To: McGuire, Jennifer ENV:EX
Subject: From MeM permit

f) During construction, appropriate Quality Assurance/Quality Control (QAQC) shall be carried out. Within 30 days of completing construction, a construction QAQC report shall be submitted to the Inspector. This report shall include a summary of the liner installation, materials testing and compaction information and the QAQC measures employed during construction.

Has this cell been inspected? The Ministry of Energy and Mines is in receipt of an Professional Engineer report for the construction methodology, installation and sign-off of the liner.

Is the cell construction complete? No. Cell construction is not complete until all material is placed and compacted and a final cover of at least two meters of till or residential classification soil, compacted to the degree necessary to prevent/limit erosion and sustain growth of appropriate vegetation.

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Friday, November 20, 2015 6:53 AM
To: Caunce, Cassandra ENV:EX
Subject: Fw: High tech water containment systems at work
Attachments: FZ200 27398 C.jpg

From: Sonia Furstenau
Sent: Thursday, November 19, 2015 10:30 PM
To: McGuire, Jennifer ENV:EX
Subject: Fwd: FW: High tech water containment systems at work

---------- Forwarded message ----------
From: s.22
Date: Thu, Nov 19, 2015 at 10:27 PM
Subject: FW: High tech water containment systems at work
To: Sonia Furstenau s.22

From s.22 - I already put it on the Google Drive Update Folder - s.22

-----Original Message-----
From: s.22
Sent: November-19-15 8:07 PM
To: s.22
Subject: High tech water containment systems at work

s.22

You can see in this picture water running from the waste across the sand which covers the bottom liner, getting diverted by sand bags, and directed toward the green collection barrels.

This is the high tech solution that will prevent any problems on this site.

s.22

Victoria, BC, Canada


DEERE


HITACHI
McRae's
CASE

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Friday, November 20, 2015 8:56 PM
To: Caunce, Cassandra ENV:EX
Subject: Fwd: SIA Site Nov 20
Attachments: P1010177.jpg; SIRM-Dump Nov 20.jpg

FYI.
If SIRM is telling you that thw water treatment system is working, how to explain the trucks pumping water out of the green tanks at the edge of the cell.
Do you know where that water is being deposited? Are there records? Is there water sampling being done?
Thanks,
Sonia

---------- Forwarded message ----------
From: s.22
Date: Nov 20, 2015 8:51 PM
Subject: SIA Site Nov 20
To: s.22
Cc: "Sonia Furstenau s.22

Hi s.22

We were up there also about 10am and saw that also, along with all the other activity. Saw a tank truck pumping out the green contact water tanks – guess the system isn't working properly on its own – see attached. It boggles me how the machines are working the material on top of the liner like that – I don't see how it can escape damage. Couple of photos attached.

s.22

PS: Your email somehow ended up with the text in the subject line?

From: s.22
Sent: November-20-15 7:32 PM
To: s.22
Subject: Hi s.22 just connecting here on email. I was up at the fence with s.22 today. They were scraping a ditch along the fence by hand with shovels. Pathetic engineering.. I chatted with the two labourers, low paid guys scratching out a living. Then the s.22 came along, ignored us and put them back to work.

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Thursday, November 19, 2015 11:24 PM
To: Caunce, Cassandra ENV:EX
Subject: Fwd: FW: High tech water containment systems at work
Attachments: FZ200 27398 C.jpg

---------- Forwarded message ----------
From: s.22
Date: Thu, Nov 19, 2015 at 10:30 PM
Subject: Fwd: FW: High tech water containment systems at work
To: "McGuire, Jennifer ENV:EX" <jennifer.mcguire@gov.bc.ca>

---------- Forwarded message ----------
From: s.22
Date: Thu, Nov 19, 2015 at 10:27 PM
Subject: FW: High tech water containment systems at work
To: Sonia Furstenau s.22

From s.22 . I already put it on the Google Drive Update Folder . s.22

-----Original Message-----
From: s.22
Sent: November-19-15 8:07 PM
To: s.22
Subject: High tech water containment systems at work

s.22

You can see in this picture water running from the waste across the sand which covers the bottom liner, getting diverted by sand bags, and directed toward the green collection barrels.

This is the high tech solution that will prevent any problems on this site.

s.22

Victoria, BC, Canada

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Sunday, November 22, 2015 7:48 PM
To: Caunce, Cassandra ENV:EX
Cc: McGuire, Jennifer ENV:EX
Subject: Media statements from owners of CHH/SIA

Dear Cassandra,

Over the last ten days, with the many media reports related to the SIA property, statements have been made by or on behalf of the owners.

Here are my concerns.

This is a self-monitoring permit. There already exists a serious conflict of interest on the part of Active Earth, who are the "Qualified Professionals".

Now what I see from Mr Kelly is a blatant disregard for facts, as he has repeatedly said over the course of the last ten days that "no breach of containment, discharge or overflow" and that the "containment and treatment systems were functioning as designed."

I am aware that the company did not report the incident on Friday, November 13th to MoE, despite this being required by their permit. I also expect they did not report the Tuesday, November 17th issue either, or at least not before it was reported by concerned citizens.

It does worry me a great deal that Mr Kelly, rather than acknowledge what has happened at this site, and shown concern for the potential risk or harm, he has shown instead an unwillingness to be honest and forthcoming. And as one owner of a self-monitoring permit, this attitude causes legitimate concern in Shawnigan, which I hope you can appreciate.

I have compiled his statements, with links to the reports, below.

Thank you,
Sonia

Friday, November 13: CTV News

http://vancouverisland.ctvnews.ca/possible-soil-dump-overflow-sparks-advisory-at-shawnigan-lake-1.2658212

Monday, November 16: CFAX

http://www.cfax1070.com/News/Top-Stories/South-Island-Aggregrate-Site-says-examination-from

Thursday, November 19: Times-Colonist

http://www.timescolonist.com/news/local/ministry-considers-suspending-shawnigan-contaminated-soil-landfill-1.2115930#sthash.JVJ0zOaK.dpuf

Friday, November 20: Times-Colonist

http://www.timescolonist.com/news/local/shawnigan-lake-soil-dump-decision-expected-next-week-1.2116784

Friday, November 20: CHEK News:

http://www.cheknews.ca/environment-ministry-to-decide-next-week-whether-to-suspend-sias-operations-at-shawnigan-lake-2-123208/

Friday, November 20: Juice FM News

http://www.mycowichanvalleynow.com/9765/ministry-of-environment-considering-reducing-or-suspending-operations-at-sia-site/

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Wednesday, November 25, 2015 4:24 PM
To: Caunce, Cassandra ENV:EX
Subject: Re: SIA Check in

Cassandra,

I have an enormous number of unanswered queations at this time, and I remain firm in my convictions that the operations at this site pose a risk to my community.

I will point out that you have sent me direct responses to only two questions thus far.

I am currently in a Board meeting, and I have s.22 to attend this evening.

I will work on compiling unanswered questions and getting them to you by the end of tomorrow.

s.13,s.16

As I pointed out in my email to you on Friday Nov 20, there is a fundamental issue around the nature of Active Earth's actual role in the entire permitting process. If MoE chooses to continue to defer to information from Active Earth, while disregarding independent scientists, this will serve to inflame what is already a very high level of mistrust in the Shawnigan.

Sonia

> Hello Sonia,
>
> Over the last few weeks, you sent the Ministry a lot of information regarding SIA. I'd like to check in with you to see if there were any specific questions you had that remain unanswered.
>
> Please let me know.
>
> **Cassandra Caunce**, BSc.
>
> *Director, Compliance & Integrated Pest Management*
>
> Regional Operations Branch, Environmental Protection
>
> **Ministry of Environment**
>
> 1259 Dalhousie Drive
>
> Kamloops, BC V2C 5Z5
>
> (direct) 250.371-6225 • (fax) 250.828-4000 • (reception) 250.371-6200

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Thursday, November 26, 2015 4:04 PM
To: Caunce, Cassandra ENV:EX
Subject: Re: SIA Check in

Cassandra,

I have just returned from an 8 hour budget meeting. I will be compiling unanswered questions this evening and sending them to you.

Thank you,
Sonia

On Wed, Nov 25, 2015 at 4:08 PM, Caunce, Cassandra ENV:EX <Cassandra.Caunce@gov.bc.ca> wrote:

Hello Sonia,

Over the last few weeks, you sent the Ministry a lot of information regarding SIA. I'd like to check in with you to see if there were any specific questions you had that remain unanswered.

Please let me know.

Cassandra Caunce, BSc.

Director, Compliance & Integrated Pest Management

Regional Operations Branch, Environmental Protection

Ministry of Environment

1259 Dalhousie Drive

Kamloops, BC V2C 5Z5

(direct) 250.371-6225 • (fax) 250.828-4000 • (reception) 250.371-6200

www.gov.bc.ca/env

Jager, Brenda CSNR:EX

From:	Sonia Furstenau s.22
Sent:	Friday, November 27, 2015 11:24 AM
To:	Caunce, Cassandra ENV:EX; McGuire, Jennifer ENV:EX
Cc:	XT:HLTH Hasselback, Paul; Miskiewicz, Monika OAG:EX; Todosichuk, Ardice; Minister, ENV ENV:EX
Subject:	Unanswered questions related to CHH/SIA/SIRM site
Attachments:	unanswered questions nov 26 2015.doc

Dear Cassandra,

You emailed me earlier this week pointing out that I have sent many emails to the Ministry of Environment over the last few weeks, and asking if there were any questions that have not been answered. As I indicated in my reply, we have had many long-standing unanswered questions and concerns, and with the recent events, there are even more.

I have attached a document that includes several links to a Google Drive File. Please let me know if you have any difficulties accessing the documents and photos at this link:

s.22

The situation in Shawnigan is becoming increasingly tense. This morning, a protester was assaulted by a truck driver s.2 has laid charges with the RCMP.

Once again, with the many unanswered questions and the growing anxiety and frustration in this community, I urge the Ministry to take proactive steps and suspend activity while all of these serious issues are dealt with.

s.13,s.16

I look forward to your responses to these unanswered questions.

Respectfully,
Sonia Furstenau
CVRD Director for Shawnigan Lake

Questions Related to Ongoing Issues

1. I have asked repeatedly for a copy of the "Water Treatment Commissioning Report" – most recently in my September 17th letter to Minister Polak. (Attachment 1 in Google Update Folder – Attachment File:
s.22 I never received a reply to this letter.) According to the Permit, water is not to be discharged before a commissioning report has been submitted.

> **May I please see a copy of the Commissioning Report, if such a report exists? If it does not exist, why is the site allowed to operate?**

2. There were many commitments made in the Technical Analysis Report (TAR) that was produced by Active Earth. These were relied on by the Ministry when deciding to grant the Permit, and also by the EAB in their decision. The EAB actually quoted them in their report. Not all commitments ended up being articulated in the Permit wording.

> **Can the community expect MOE and MEM to ensure that CHH/SIA/SIRM honour these commitments?**

3. We have repeatedly raised the issue about the water in the "lake" or "perpetual pond" at the bottom of the pit, next to the settling pond/water treatment area. While the EAB decision deferred to the findings of Active Earth vis-à-vis the water at the bottom of Lot 23, there is mounting evidence that the reports of s.22 (Attachment 2 in Google Drive Attachment Documents File) and s.22 (Attachment 3), which conclude that there is ground water at the pit bottom, are accurate. Throughout the entire summer, and months into severe drought conditions, water was always present at the pit bottom; with the recent rains the "lake" has now returned.

I expressed concern over this issue to Al Hoffman with MEM in June of this year, and s.13,s.16
s.13,s.16 dismisses concerns by arguing there is no aquifer, that water at the pit bottom is rainwater only, and that the water remains over the summer months "because it is deep enough that it is present year around."

Nowhere is it mentioned that SIA (perhaps with advice from AE) had attempted, without success, to pump the water out of the pond, or that there is a 15-20 foot trench blasted out from this area. The small adjacent hole dug specifically for this purpose had a pump active for months yet there was no effect on water level. (See photos in Google Update Drive – perpetual pond and settling pond photos:
s.22

The EAB testimony of s.22 (Attachment 5), the blaster who oversaw the blasting of a "15-20 foot trench" at the bottom of the site, was that a channel was blasted which drained a significant volume of water from the site at the time. s.13,s s.13,s.16 reiterates that water is leaving the site without going through the water containment or treatment systems, and bypassing the "settling pond" altogether.

> **Why is the Ministry not taking seriously the mounting evidence that there is significant underground flow of water off this site that is bypassing the water treatment system?**

4. No cover has been built over the "soil management area". Since there is no cover on the contaminant area, in the event of a significant snowfall and then quick thaw and deluge of rain there will be a huge run-off of water from the site that appears not to have been calculated.

This type of event is not unusual at least 2-3 times a year. With the elevation of the site, the snowfall amount (and rain) can be significantly higher than at the lake elevation. 12" of snow plus 2" of rain can produce a mess, even in the best of times where there is decent drainage.

> **Why does the Ministry not insist that the soil management area be covered? Are there any provisions for the additional water that comes from fast melting snow (ie rain that falls after there has been a snow fall)?**

Questions Related to Recent Events

1. There was a significant amount of water that was documented leaving the site on Friday, November 13th, then a breach of contact water into the main quarry on Tuesday, November 17th.

Photos and videos in Google Drive Update folder:
s.22

This was not reported by the company or the operators (who were aware of it), but by CVRD bylaw staff and myself. The operator's "Emergency Response Plan" (Attachment manual outlines the procedures to be followed in the case of Water Treatment System Failure/Breach (section 4.7) and Bedrock Fractures/Seepage

Encountered (section 4.8). Clearly these procedures were not followed, and only instituted as a result of third parties reporting what was happening at the site.

> **Given the threat of contamination to an entire community's drinking water source, why were operations allowed to continue after these breaches had been reported?**

2. The incoming soil is very wet – during transportation last week in heavy rain, water and sludge was dripping out of the backs of trucks. One truckload appeared to be too heavy to dump, and three staff members were standing in the back of a dump truck appearing to be loosening the soil with shovels.

> **Does the soil have the moisture content it is supposed to have in order to be put into the containment cell? Was this being tested by the operators before the soil was dumped directly to the containment cell? Do you have records of this?**

3. From the EAB Decision:

[75] Incoming soil will be weighed at the existing weigh scale located at the eastern entrance to the Site. The soils will then be deposited and inspected in the soil management area to ensure there are no hazardous waste soils. This area will also include a holding cell designated to temporarily store suspect or rejected soils.

[76] In addition to checking soil chemical quality, incoming soils will also be screened for soil moisture content (an issue when soils are supersaturated and free water is able to drain from the soil)

[77] Soil will be stockpiled in the soil management area. Once soil quality has been confirmed by qualified personnel, the soil may be relocated on the Site to the adjacent soil treatment area or to the permanent encapsulation area, depending on the nature of the contaminants (treatable versus untreatable).

> **Why is incoming soil being dumped directly off the embankment into the encapsulation cell (see google drive update folder for images)? This is blatantly at odds with the above EAB description and presents many potential problems including hazard to the liner and inadvertent acceptance of soil that should be rejected.**

4. It is apparent that the settling ponds are not working as designed. There is supposed to be minimum water level and references are made to baffles in the discharge pipe to limit flow. Yet any water collected by the ponds quickly leaks out through the bottom and very little water (if any) is discharged out of the pipe.

Given the increasing evidence that the settling (or "exfiltration") pond is not working as designed, why is the site allowed to continue to operate?

5. Trucks have been documented dripping water and soil, and the barge docked at Duke Point was photographed leaching liquid into the ocean.

Why are trucks allowed to transport the soil in unlined containers, and why is the barge not required to provide better protection?

6. The morning of November 26, SIRM staff were seen trying to thaw out pipes with a propane Tiger torch on the water treatment plant. Was cold weather put in planning for the water clarification system? There is a lack of insulation or a building to protect from cold temperatures. (See photo in Google Update Drive, Nov 26.)

Last week we saw trucks come and pump water out of the cisterns that are located at the edge of the containment cell (See photos in Google Update Drive, Nov 20.)

The water treatment system appears to be rife with problems – why won't the Ministry halt all dumping of contaminated fill until it can be proven that the system is fail-safe?

Has the water that was pumped out been tested? Where has it been relocated to?

7. In your Soil Chemistry Report recently posted on the MoE website, you state "Soil chloride levels measured range between 216-631 mg/kg which exceeded CSR industrial land use standard of 90 mg/kg. Soil zinc slightly exceeded the CSR IL of 150 mg/kg CSR IL standard for one sample." Then the report states that the soils "appear to meet permit requirements."

Why are there exceedences noted, then no mention that this does not comply with the Permit?

8. Sulphur levels in both the water samples and soil samples were high, although there are no DWS levels listed and BC Contaminated Sites Regulation has only one restriction on Sulphur. It must be less than 500 mg/kg for Agricultural soil. Levels in the soil were 19700, 19900, and 31500. At the discharge, the water tested had 23.2 mg/L. In s.22 results from the summer, the control sample out of Shawnigan Creek had undetectable levels of sulphur.

s.22

Environment Alberta does have concerns about Sulphur

http://environment.gov.ab.ca/info/posting.asp?assetid=7417&categoryid=4

Effects of Sulphur on Soil:

Under aerobic conditions, specific micro-organisms may oxidize the S in wastes, water or soil through the reaction:

S + 3/2O2 + H2O =>H2SO4 (induced by bacterial action)
Sulphuric acid increases soil acidity, solubilizes sulphates, mobilizes trace metals from soil, reduces the concentration of basic ions, decreases soil availability of nutrients, and ultimately reduces microbial activity. Acid neutralizing agents such as limestone (a mixture of calcium and magnesium carbonates), hydrated lime (calcium hydroxide), quick lime (calcium oxide) or equivalent alkaline products are suitable to buffer or mitigate these effects and should be used when remediating S-containing soils or landfilling S-wastes.

> **It appears that this site is introducing large quantities of Sulphur into the environment and water. Why is the Ministry not addressing this issue in its communications, and why is this acceptable to the Ministry?**
>
> **Is SIRM following any of the above protocols? If they are, are they doing it in the Soil Management Area, as prescribed by the Permit, and then testing the materials before they are deposited to the containment cell? If they are, as we have seen, mixing cement into the soil that is already in the containment cell, is this a violation of the Permit? (See photos in Google Update Drive – November 19 files.)**

9. From the EAB decision:

[112] The initial proposal in the TAR was that discharged water would meet BC Water Quality Guidelines for freshwater Aquatic Life. However, this was later changed as a result of the consultation process. The discharged water is now proposed to meet the most stringent of BC Water Quality Guidelines for Drinking Water use or Aquatic Life. If the water treatment system, as designed, is unable to achieve suitable effluent quality, the system design will be adjusted and, while any such adjustments are underway, effluent may be trucked to a treatment facility on an "as-needed" basis. Alternatively, additional storage tanks could be temporarily brought to the Site.

The water testing results had exceedences in a number of levels – suspended solids, turbidity, iron, manganese. Sulphur, which does not have a DW guideline amount listed, was very elevated.

Why does the Ministry downplay these exceedences and the issues generally with the water that is coming off this site and directly into drinking water sources?

Have you compared these results with any kind of control samples, taken from water before it has contact with the SIA site? Compare, for example, to s.22 **control sample (Flow) in his samples collected last summer:**

s.22

These results certainly do not meet the "most stringent BC Water Quality Guidelines". In downplaying these issues, the Ministry creates increasing distrust and growing anxiety in the community, and contributes to an ever growing sense that the staff are working to ensure uninterrupted operations at the site, rather than to ensure that there is no risk to the environment, and no risk to the health of the people of Shawnigan Lake. The growing levels of cynicism and anxiety are themselves creating profound health effects in the people of this community, who are increasingly feeling driven to try as individuals to prevent further dumping into their watershed.

We are less than a year into the operations at this site, and there is evidence of pollution entering our drinking water systems. It is astonishing to the people of Shawnigan Lake that the Ministry allows ongoing non-compliance and contraventions of this Permit, and that the assurances and promises made to this community are proving to be increasingly hollow.

Questions related to Misrepresentation and Conflict of Interest

Pressing and serious questions arise from the relationship between CHH/SIA and the engineering company acting as the "Qualified Professionals", Active Earth. It is clear that both MoE and MEM continue to rely on Active Earth for reports from the site, and this is disturbing for many reasons, not least of all that Active Earth engineers are potentially in a position to reap profits from the activities at the site.

s.22 has admitted under oath that Active Earth and CHH created a profit-sharing company, as indicated by the signed agreement from February 14, 2013. CHH and Active Earth concealed this agreement from MoE and MEM throughout the permitting process. It is clear that the Permit was granted without knowledge of

the overwhelming conflict of interest affecting the judgement of the Active Earth engineers. This also applies to the EAB decision.

> **There is a great deal of compelling evidence that the Qualified Professionals have been co-applicants in the Permit process, and potentially co-owners of the Permit now. Why does the Ministry not suspend the Permit until this is sorted out in court?**

The EAB decision repeatedly deferred to the Techincal Assessment Report of Active Earth, while negating many of the concerns identified by numerous other scientists and engineers. Now those concerns - about the design of the water treatment system s.22 testimony – Attachment 6), issues with Active Earths Assessments (SRA's submissions – Attachment 7), groundwater issues s.22 and the actual capacity for any operators at this facility to truly capture all contact and non-contact water before it leaved this site.

The implications of the Ministry's decision to not act on this issue are very serious – the message it sends out to all of BC is that this government is fine with companies misrepresenting themselves throughout permitting processes, and that Qualified Professionals can continue to operate as such, even when serious conflicts of interest have been identified.

> **Why has the Ministry taken this stance, in view of the overwhelming evidence that staff have been consistently given inaccurate information by the Permit holders?**

Documents filed related to this case can be found at:
http://thesra.ca/about-the-sra/water-protection-legal-action/legal-action-archive

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Monday, November 30, 2015 2:20 PM
To: Caunce, Cassandra ENV:EX; McGuire, Jennifer ENV:EX; Todosichuk, Ardice; Miskiewicz, Monika OAG:EX; XT:HLTH Hasselback, Paul
Subject: water sampling and engineering report
Attachments: water sample comparison chart.xls; Report 1876885 rev 001-2.pdf; stormwater_quality_assessment_nov17-15.pdf; stormwater_quality_assessment-memo-nov-20-2015-1.pdf

Dear Cassandra and Jennifer,

I have just heard from staff at CVRD that the s.13,s.16 is expected tomorrow. It will be shared with you at that time.

I have organized some of the the water sampling results that you supplied last week in a way that helps me to answer one very important question, which is whether this site is introducing pollution or contamination to the environment, and ultimately to our drinking water.

What I find most informative is to look at the water samples from Shawnigan Creek before it goes through the SIA site, then look at the water that is emerging from the SIA site. I find some of the comparisons worrying.

The conductivity of the water in Shawnigan Creek above the site is 28 uS/cm. The conductivity of the water in the ephemeral creek is 573 uS/cm. This is nearly 21 times higher.

Hardness of the water in the ephemeral stream is 21 times higher, Chloride 14 times higher, Sulfate 115 times higher.

Sulfur is undetectable in Shawnigan Creek above the site, yet there is 56.1 mg/L of sulfur in the ephemeral stream.

Sodium is 12.5 times higher in the ephemeral stream than it is in Shawnigan Creek.

You can see the other data in my chart. I have attached the Madrone Results from 2013 - these show that Shawnigan Creek has remained fairly consistent over the last two years. I have also attached the two reports from MoE.

My question is why is it okay for this site to be introducing pollution into our drinking watershed eight months into a fifty year permit? Even if the water at this point does not "exceed BC Drinking Water Standards", is it not a problem that there are highly elevated levels of metals coming into a creek that feeds our community drinking water? What happens with the next rainfall? What happens with the second hundred thousand tonnes? The fifth? The 20th?

Thank you,
Sonia

		Madrone	MoE		MoE	MoE	MoE	
		Nov 8 2013	Nov 17 2015		Nov 14 2015	Nov 14 2015	Nov 17 2015	
	Units	Upstream Boundary of CHH property	S Shawn. Creek upstream from CHH		SW1 - 15 m west of discharge point (ephemeral creek)	CHH1 - 0.5 m inside west boundary	Settling Pond Discharge	Value increase
Conductivity	uS/cm		28.0		573	332	348	12.4 - 20-7 x
Hardness (as Ca CO3)	mg/L		9.99		207	122	152	15.2 - 20.7 x
pH	pH		6.83		7.08	6.41	7.58	
Total suspended solids	mg/L		<3.0		<3.0	<3.0	25.7	
Turbidity	NTU		1.09		1.65	1.16	61.4	
Chloride (Cl)	mg/L		2.07		28.4	9.82	9.21	4.4 - 13.7 x
Suffate (SO4)	mg/L		1.36		157	101	71.0	52.2 - 115.4 x
Total metals water								
Aluminum (Al)	mg/L	0.0444	0.193		0.0753	0.0995	3.28	16.99 x
Antimony (Sb)	mg/L	<0.0001	<0.00010		0.00042	<0.00010	0.00019	
Arsenic (As)	mg/L	0.00006	0.00012		0.00013	0.00012	0.00049	
Barium (Ba)	mg/L	0.00325	0.00283		0.0205	0.0443	0.0261	7.24 - 15.6 x
Beryllium (Be)	mg/L	<0.00005	<0.00010		<0.00010	<0.00010	<0.00010	
Bismuth (Bi)	mg/L	<0.0001	<0.000050		<0.00050	<0.00050	<0.000050	
Boron (B)	mg/L	<0.002	<0.010		0.04	0.013	0.015	
Cadmium (Cd)	mg/L	<0.00001	<0.00000050		0.0000137	0.0000072	0.0000166	
Calcium (Ca)	mg/L	5.28	3.06		65.4	39.4	49.1	12.9 - 21.4 x
Chromium (Cr)	mg/L	<0.0005	0.00027		0.00027	0.00021	0.00558	
Cobalt (Co)	mg/L	<0.0001	0.00013		0.00079	0.0002	0.0024	
Coper (Cu)	mg/L	0.0007	0.00094		0.00194	0.00107	0.00866	
Iron (Fe)	mg/L	0.071	0.114		0.0788	0.0505	3.14	
Lead (Pb)	mg/L	<0.0001	0.000054		0.000083	<0.000050	0.00171	
Magnesium (Mg)	mg/L	0.83	0.571		10.7	5.73	7.26	10.03 - 18.7 x
Manganese (Mn)	mg/L	0.0027	0.00867		0.0324	0.0185	0.0887	
Molybdenum (Mo)	mg/L	<0.00005	<0.000050		0.00179	0.000286	0.00164	
Nickel (Ni)	mg/L	<0.0002	<0.00050		0.00172	0.00084	0.00484	
Phosphorus (P)	mg/L	n/a	<0.010		0.016	<0.010	0.084	
Potassium (K)	mg/L	<0.1	0.136		1.99	1.18	1.45	8.7 - 14.63 x
Selenium (Se)	mg/L	<0.0001	<0.000050		0.000589	0.000554	0.000503	
Silicon (Si)	mg/L	2.64	2.42		4.37	3.9	8.38	3.5 x
Silver (Ag)	mg/L	<0.00005	<0.00010		<0.000010	<0.000010	0.000017	
Sodium (Na)	mg/L	2.1	1.74		21.8	8.85	9.16	5.1 - 12.5 x
Strontium (Sr)	mg/L	0.023	0.0152		0.223	0.0983	0.141	6.46 - 14.7 x
Sulfur (S)	mg/L	n/a	<0.050		56.1	34.3	23.2	464 -1122 x
Thallium (Tl)	mg/L	<0.00001	<0.000010		<0.000010	<0.000010	0.00002	
Tin (Sn)	mg/L	<0.0001	<0.00010		<0.00010	<0.00010	<0.00010	
Titanium (Ti)	mg/L	<0.0005	0.00339		0.00408	0.00322	0.189	
Uranium (U)	mg/L	<0.00001	0.00001		0.000562	0.000023	0.0015	
Vanadium (V)	mg/L	0.0003	0.00059		0.00089	0.00058	0.00913	
Zinc (Zn)	mg/L	0.0009	<0.0030		<0.0030	<0.0030	0.0077	

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Report Transmission Cover Page

Bill To:	Madrone Environmental Services	Project:	
Report To:	Madrone Environmental Services	ID:	13.0317
	1081 Canada Avenue	Name:	SIA Water
	Duncan, BC, Canada	Location:	Shawnigan Creek
	V9L 1V2	LSD:	
Attn:	Kyle Rezansoff	P.O.:	
Sampled By:		Acct code:	
Company:			

Lot ID:	**971858**
Control Number:	
Date Received:	Nov 14, 2013
Date Reported:	Nov 20, 2013
Report Number:	1876885

Contact & Affiliation	Address	Delivery Commitments
Kyle Rezansoff Madrone Environmental Services	1081 Canada Avenue Duncan, British Columbia V9L 1V2 Phone: (250) 746-5545 Fax: (250) 746-5850 Email: kyle.rezansoff@madrone.ca	On [Lot Verification] send (COA) by Email - Single Report On [Report Approval] send (COC, Test Report) by Email - Single Report On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Single Report On [Lot Creation] send (COR) by Email - Single Report

Notes To Clients:

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Exova

Sample Custody

Bill To:	Madrone Environmental Services	Project:	
Report To:	Madrone Environmental Services	ID:	13.0317
	1081 Canada Avenue	Name:	SIA Water
	Duncan, BC, Canada	Location:	Shawnigan Creek
	V9L 1V2	LSD:	
Attn:	Kyle Rezansoff	P.O.:	
Sampled By:		Acct code:	
Company:			

Lot ID:	**971858**
Control Number:	
Date Received:	Nov 14, 2013
Date Reported:	Nov 20, 2013
Report Number:	1876885

Sample Disposal Date: December 20, 2013

All samples will be stored until this date unless other instructions are received. Please indicate other requirements below and return this form to the address or fax number on the top of this page.

☐ Extend Sample Storage Until _____ (MM/DD/YY)

The following charges apply to extended sample storage:

Storage for an additional 30 days	$ s.1	per sample
Storage for an additional 60 days	$ 7	per sample
Storage for an additional 90 days	$	per sample

☐ Return Sample, collect, to the address below via:

- ☐ Greyhound
- ☐ DHL
- ☐ Purolator
- ☐ Other (specify) _____

Name _____
Company _____
Address _____
_____
Phone _____
Fax _____

Signature _____

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Analytical Report

Bill To: Madrone Environmental Services
Report To: Madrone Environmental Services
1081 Canada Avenue
Duncan, BC, Canada
V9L 1V2
Attn: Kyle Rezansoff
Sampled By:
Company:

Project:
ID: 13.0317
Name: SIA Water
Location: Shawnigan Creek
LSD:
P.O.:
Acct code:

Lot ID: **971858**
Control Number:
Date Received: Nov 14, 2013
Date Reported: Nov 20, 2013
Report Number: 1876885

		Reference Number	971858-1	971858-2	971858-3	
		Sample Date	Nov 08, 2013	Nov 08, 2013	Nov 08, 2013	
		Sample Time	15:08	15:08	15:23	
		Sample Location				
		Sample Description	Site 1 / Sample 1 / 5 / cm	Site 1 / Sample 2 / 5 / cm	Site 2 / Sample 3 / 5 / cm	
		Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Metals Total						
Aluminum	Total	mg/L	0.047	0.046	0.101	0.005
Antimony	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Arsenic	Total	mg/L	0.00008	0.00008	0.00013	0.00005
Barium	Total	mg/L	0.00369	0.00366	0.00757	0.00005
Beryllium	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Bismuth	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Boron	Total	mg/L	0.005	0.004	0.004	.002
Cadmium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Calcium	Total	mg/L	5.69	5.69	11.0	0.05
Chromium	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Cobalt	Total	mg/L	<0.0001	<0.0001	0.0009	0.0001
Copper	Total	mg/L	0.0009	0.0007	0.0009	0.0001
Iron	Total	mg/L	0.077	0.074	0.530	0.002
Lead	Total	mg/L	<0.0001	<0.0001	0.0001	0.0001
Lithium	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Magnesium	Total	mg/L	1.03	1.01	2.37	0.04
Manganese	Total	mg/L	0.0078	0.0073	0.281	0.001
Molybdenum	Total	mg/L	<0.00005	<0.00005	0.00007	0.00005
Nickel	Total	mg/L	<0.0002	<0.0002	0.0004	0.0002
Potassium	Total	mg/L	0.1	0.1	0.3	0.1
Selenium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Silicon	Total	mg/L	2.68	2.70	3.18	0.02
Silver	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Sodium	Total	mg/L	2.4	2.4	5.1	0.1
Strontium	Total	mg/L	0.0241	0.0236	0.0421	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.00001	<0.00001	0.00001	0.00001
Tin	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Total	mg/L	0.0006	0.0005	0.0030	0.0005
Uranium	Total	mg/L	<0.00001	<0.00001	0.00001	0.00001
Vanadium	Total	mg/L	0.0004	0.0003	0.0003	0.0001
Zinc	Total	mg/L	0.0008	0.0011	0.0016	0.0005
Zirconium	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Analytical Report

Bill To: Madrone Environmental Services
Report To: Madrone Environmental Services
1081 Canada Avenue
Duncan, BC, Canada
V9L 1V2
Attn: Kyle Rezansoff
Sampled By:
Company:

Project:
ID: 13.0317
Name: SIA Water
Location: Shawnigan Creek
LSD:
P.O.:
Acct code:

Lot ID: **971858**
Control Number:
Date Received: Nov 14, 2013
Date Reported: Nov 20, 2013
Report Number: 1876885

		Reference Number	971858-4	971858-5	971858-6	
		Sample Date	Nov 08, 2013	Nov 08, 2013	Nov 08, 2013	
		Sample Time	15:23	15:47	15:47	
		Sample Location				
		Sample Description	Site 2 / Sample 4 / 5 / cm	Site 3 / Sample 5 / 5 / cm	Site 3 / Sample 6 / 5 / cm	
		Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Metals Total						
Aluminum	Total	mg/L	0.084	0.046	0.048	0.005
Antimony	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Arsenic	Total	mg/L	0.00009	0.00008	0.00007	0.00005
Barium	Total	mg/L	0.00635	0.00379	0.00399	0.00005
Beryllium	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Bismuth	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Boron	Total	mg/L	0.003	0.003	0.004	.002
Cadmium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Calcium	Total	mg/L	8.93	5.62	5.80	0.05
Chromium	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Cobalt	Total	mg/L	0.0006	<0.0001	<0.0001	0.0001
Copper	Total	mg/L	0.0008	0.0007	0.0007	0.0001
Iron	Total	mg/L	0.358	0.079	0.079	0.002
Lead	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005
Magnesium	Total	mg/L	1.83	0.99	1.01	0.04
Manganese	Total	mg/L	0.168	0.0042	0.0046	0.001
Molybdenum	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Nickel	Total	mg/L	0.0003	<0.0002	<0.0002	0.0002
Potassium	Total	mg/L	0.2	0.1	0.1	0.1
Selenium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Silicon	Total	mg/L	2.99	2.71	2.78	0.02
Silver	Total	mg/L	<0.00005	<0.00005	<0.00005	0.00005
Sodium	Total	mg/L	4.0	2.4	2.4	0.1
Strontium	Total	mg/L	0.0356	0.0247	0.0252	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Tin	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Titanium	Total	mg/L	0.0020	0.0007	0.0006	0.0005
Uranium	Total	mg/L	0.00001	<0.00001	<0.00001	0.00001
Vanadium	Total	mg/L	0.0003	0.0003	0.0003	0.0001
Zinc	Total	mg/L	0.0010	0.0023	0.0015	0.0005
Zirconium	Total	mg/L	<0.0005	<0.0005	<0.0005	0.0005

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Analytical Report

Bill To:	Madrone Environmental Services	Project:	
Report To:	Madrone Environmental Services	ID:	13.0317
	1081 Canada Avenue	Name:	SIA Water
	Duncan, BC, Canada	Location:	Shawnigan Creek
	V9L 1V2	LSD:	
Attn:	Kyle Rezansoff	P.O.:	
Sampled By:		Acct code:	
Company:			

Lot ID: **971858**
Control Number:
Date Received: Nov 14, 2013
Date Reported: Nov 20, 2013
Report Number: 1876885

Reference Number	971858-7	971858-8
Sample Date	Nov 08, 2013	Nov 08, 2013
Sample Time	16:32	16:32
Sample Location		
Sample Description	Site 4 / Sample 7 / 5 / cm	Site 4 / Sample 8 / 5 / cm
Matrix	Water	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Metals Total						
Aluminum	Total	mg/L	0.044	0.041		0.005
Antimony	Total	mg/L	<0.0001	<0.0001		0.0001
Arsenic	Total	mg/L	0.00006	0.00006		0.00005
Barium	Total	mg/L	0.00325	0.00342		0.00005
Beryllium	Total	mg/L	<0.00005	<0.00005		0.00005
Bismuth	Total	mg/L	<0.0001	<0.0001		0.0001
Boron	Total	mg/L	<0.002	<0.002		.002
Cadmium	Total	mg/L	<0.00001	<0.00001		0.00001
Calcium	Total	mg/L	5.28	5.36		0.05
Chromium	Total	mg/L	<0.0005	<0.0005		0.0005
Cobalt	Total	mg/L	<0.0001	<0.0001		0.0001
Copper	Total	mg/L	0.0007	0.0006		0.0001
Iron	Total	mg/L	0.071	0.076		0.002
Lead	Total	mg/L	<0.0001	<0.0001		0.0001
Lithium	Total	mg/L	<0.0005	<0.0005		0.0005
Magnesium	Total	mg/L	0.83	0.83		0.04
Manganese	Total	mg/L	0.0027	0.0041		0.001
Molybdenum	Total	mg/L	<0.00005	<0.00005		0.00005
Nickel	Total	mg/L	<0.0002	<0.0002		0.0002
Potassium	Total	mg/L	<0.1	0.1		0.1
Selenium	Total	mg/L	<0.0001	<0.0001		0.0001
Silicon	Total	mg/L	2.64	2.58		0.02
Silver	Total	mg/L	<0.00005	<0.00005		0.00005
Sodium	Total	mg/L	2.1	2.1		0.1
Strontium	Total	mg/L	0.0230	0.0236		0.0001
Thallium	Total	mg/L	<0.00001	<0.00001		0.00001
Thorium	Total	mg/L	<0.00001	<0.00001		0.00001
Tin	Total	mg/L	<0.0001	<0.0001		0.0001
Titanium	Total	mg/L	<0.0005	<0.0005		0.0005
Uranium	Total	mg/L	<0.00001	<0.00001		0.00001
Vanadium	Total	mg/L	0.0003	0.0003		0.0001
Zinc	Total	mg/L	0.0009	0.0006		0.0005
Zirconium	Total	mg/L	<0.0005	<0.0005		0.0005

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Analytical Report

Bill To:	Madrone Environmental Services	Project:	
Report To:	Madrone Environmental Services	ID:	13.0317
	1081 Canada Avenue	Name:	SIA Water
	Duncan, BC, Canada	Location:	Shawnigan Creek
	V9L 1V2	LSD:	
Attn:	Kyle Rezansoff	P.O.:	
Sampled By:		Acct code:	
Company:			

Lot ID:	**971858**
Control Number:	
Date Received:	Nov 14, 2013
Date Reported:	Nov 20, 2013
Report Number:	1876885

Approved by:

Anthony Neumann, MSc
Laboratory Operations Manager

Exova
#104, 19575-55 A Ave.
Surrey, British Columbia
V3S 8P8, Canada

T: +1 (604) 514-3322
F: +1 (604) 514-3323
E: Surrey@exova.com
W: www.exova.com

Methodology and Notes

Bill To:	Madrone Environmental Services	Project:		Lot ID:	**971858**
Report To:	Madrone Environmental Services	ID:	13.0317	Control Number:	
	1081 Canada Avenue	Name:	SIA Water	Date Received:	Nov 14, 2013
	Duncan, BC, Canada	Location:	Shawnigan Creek	Date Reported:	Nov 20, 2013
	V9L 1V2	LSD:		Report Number:	1876885
Attn:	Kyle Rezansoff	P.O.:			
Sampled By:		Acct code:			
Company:					

Method of Analysis

Method Name	Reference		Method	Date Analysis Started	Location
BC ICP-MS Total Metals in Water	US EPA	*	Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	18-Nov-13	Exova Edmonton
BC Trace Total Metals in Water	APHA	*	Inductively Coupled Plasma (ICP) Method, 3120 B	18-Nov-13	Exova Edmonton

** Reference Method Modified*

Comments:

Please direct any inquiries regarding this report to our Client Services group.
Results relate only to samples as submitted.

November 23, 2015 File: PR-105809

Cassandra Caunce
Director, Compliance Section
Environmental Protection Regional Operations
Ministry of Environment

RE: Water Quality at Cobble Hill Holdings Collected November 17, 2015

Water quality samples were collected at Cobble Hill Holdings quarry and landfill site (PR-105809) following heavy rainfall events that occurred November 12 - 14, 2015. Ministry staff were on site to sample and observe conditions on November 17, 2015. Sample locations were at the settling pond discharge, surface runoff from a diversion ditch at the southwest property perimeter and at Shawnigan Creek upstream the PR-105809 landfill. The purpose of sampling was to determine whether the settling pond discharge meets permit limits and the perimeter ditch diversion runoff meet ambient water quality guidelines as well how it compares to background water quality conditions.

Samples of surface water runoff were collected on November 17, 2015 at two locations at PR-105809 with an additional sample collected in Shawnigan Creek several hundred meters upstream. A brief summary of sampling locations:

- E292898 – Settling pond discharge
- S1 – Perimeter – collected from runoff leaving the site at the southwest boundary perimeter
- E294426 – South Shawnigan Creek upstream Cobble Hill Holdings property

Parameters analyzed were turbidity, total suspended solids (TSS), pH, metals, chloride, sulphate and polycyclic aromatic hydrocarbons. All samples were collected following standard MOE sampling protocols. The samples were put on ice in a cooler and shipped overnight to ALS Global in Burnaby, BC. Results are summarized in the table below.

Water sample results were compared to applicable BC and Health Canada Drinking Water Guidelines[1] and BC Water Quality Guidelines (WQGs) for the protection of aquatic life[2]. The settling pond discharge permit limits must meet BC Approved WQG and a Compendium of Working WQGs for Freshwater Aquatic Life and TSS must not exceed 25mg/L. Most water quality results were below applicable guideline levels except where noted below.

Results for the settling pond discharge TSS (25.7 mg/L) slightly exceeded the permit limit of 25 mg/L TSS. Results for S1-Perimeter TSS exceeded the BC water quality chronic guideline for the protection of aquatic life. BC TSS guidelines for the protection of aquatic life are change of <5mg/L (chronic exposure) and change of < 25 mg/L (acute exposure) from background levels. The Shawnigan Creek upstream sample TSS was <3.0 mg/L.

[1] http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/sum_guide-res_recom/index-eng.php#t2
[2] http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/water-quality-guidelines/approved-water-quality-guidelines

Ministry of Environment Coast Region, Environmental Protection Division | Mailing Address: 200 - 10470 152nd Street, Surrey BC V3R 0Y3 | Telephone: 604 582-5200, Facsimile: 604 584-9751, Website: www.gov.bc.ca/env

Turbidity levels for both the settling pond discharge and S1-Perimter sample results were 61.4 and 30.3 NTU (nephelometric turbidity units) respectively. These results exceeded the BC drinking water quality guideline of change <1 NTU from background levels and the BC aquatic life guideline of change <5 NTU. Background levels in Shawnigan Creek upstream were 1.09 NTU. Both the TSS and turbidity levels measured were elevated but given the relative flow volumes observed, it is unlikely TSS and turbidity impacts to aquatic life in Shawnigan Creek would occur from these individual flows alone. Downstream samples, collected on November 14th (SC location, November 17, 2015 memo) showed similar turbidity and TSS levels as the November 17th South Shawnigan Creek upstream sample results.

A review of the metals results showed generally no exceedances except for the aluminum Health Canada Drinking Water guideline at all three sampling locations including South Shawnigan Creek upstream. The aluminum guideline is intended as drinking water treatment operational guidance for facilities that use aluminum-based coagulants and is not a health risk at the levels measured.

The settling pond discharge exceeded the Health Canada iron and manganese guidelines which are both aesthetic guidelines referring to taste and laundry staining. The Settling Pond Discharge iron and manganese concentrations found were 3.14mg/L and 0.0887mg/L respectively. The S1-Perimeter sample (2.20 mg/L) exceeded the Health Canada iron guideline.

All surface water polycyclic aromatic hydrocarbons analyses were below the lowest analytical detection limits.

Overall the settling pond discharge water quality exceeded permit limits for TSS, turbidity, aluminum, iron and manganese. The S1-Perimeter water quality results exceeded ambient water quality guidelines TSS, turbidity, aluminum and iron. These exceedances are not expected to pose a significant risk to aquatic life nor human health downstream.

Liz Freyman R.P.Bio.
Head, Compliance Section

Attachment: Table of Results

Cobble Hill Holdings November 17, 2015 Water Quality Results									
Parameter	Lowest Detection Limit	Units	E292898 Settling Pond Discharge[3]	S1-Perimeter	E294426 South Shawnigan Upstream CHH	Drinking Water Quality Guidelines (approved and working)		Water Quality Guidelines (approved and working) for the Protection of Aquatic Life	
						BC DW	Health Can DW	Chronic	Acute
Physical Tests (Water)									
Conductivity	2.0	uS/cm	348	17.4	28.0				
Hardness (as CaCO3)	0.50	mg/L	152	7.86	9.99				
pH	0.10	pH	7.58	6.00	6.83				
Total Suspended Solids	3.0	mg/L	25.7	19.4	<3.0			*Change of 5*	Change of 25
Turbidity	0.10	NTU	61.4	30.3	1.09	Change of 1			*Change of 5*
Chloride (Cl) total	0.50	mg/L	9.21	1.05	2.07	250 (dissolved)	250(dissolved)	150(dissolved)	600(dissolved)
Sulfate (SO4)	0.30	mg/L	71.0	1.55	1.36	500	500	*218*	
Total Metals (Water)									
Aluminum (Al)-Total	0.0030	mg/L	3.28	2.62	0.193		0.100[1]		
Antimony (Sb)-Total	0.00010	mg/L	0.00019	<0.00010	<0.00010	0.014	0.006		0.02
Arsenic (As)-Total	0.00010	mg/L	0.00049	0.00041	0.00012		0.01		0.005
Barium (Ba)-Total	0.000050	mg/L	0.0261	0.0162	0.00283		1	1	5
Beryllium (Be)-Total	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.004		0.0053	
Bismuth (Bi)-Total	0.000050	mg/L	<0.000050	<0.000050	<0.000050				
Boron (B)-Total	0.010	mg/L	0.015	<0.010	<0.010	5	5		1.2
Cadmium (Cd)-Total	0.0000050	mg/L	0.0000166	0.0000073	<0.0000050	0.005	0.005		Under review
Calcium (Ca)-Total	0.050	mg/L	49.1	1.83	3.06				
Chromium (Cr)-Total	0.00010	mg/L	0.00558	0.00365	0.00027	0.05	0.05		0.001
Cobalt (Co)-Total	0.00010	mg/L	0.00240	0.00103	0.00013			0.004	0.11
Copper (Cu)-Total	0.00050	mg/L	0.00866	0.00537	0.00094	0.5	1	0.001-0.0028	0.0064-0.0085
Iron (Fe)-Total	0.0050	mg/L	3.14	2.20	0.114		0.3[2]		1
Lead (Pb)-Total	0.000050	mg/L	0.00171	0.000464	0.000054	0.05	0.01	0.0045-0.0053	0.0317-0.0519
Magnesium (Mg)-Total	0.0050	mg/L	7.26	0.801	0.571				
Manganese (Mn)-Total	0.00010	mg/L	0.0887	0.0369	0.00867		0.050[2]	0.8	1.1
Molybdenum (Mo)-Total	0.000050	mg/L	0.00164	0.000102	<0.000050	0.25		1	2
Nickel (Ni)-Total	0.00050	mg/L	0.00484	0.00345	<0.00050				0.025
Phosphorus (P)-Total	0.010	mg/L	0.084	0.055	<0.010				
Potassium (K)-Total	0.050	mg/L	1.45	0.301	0.136				373
Selenium (Se)-Total	0.000050	mg/L	0.000503	0.000053	<0.000050	0.01	0.01	0.002	
Silicon (Si)-Total	0.050	mg/L	8.38	4.81	2.42				
Silver (Ag)-Total	0.000010	mg/L	0.000017	<0.000010	<0.000010			0.00005	0.0001
Sodium (Na)-Total	0.050	mg/L	9.16	1.10	1.74		200		
Strontium (Sr)-Total	0.00020	mg/L	0.141	0.0107	0.0152				
Sulfur (S)-Total	0.50	mg/L	23.2	<0.50	<0.50				
Thallium (Tl)-Total	0.000010	mg/L	0.000020	0.000010	<0.000010	0.002			0.0003
Tin (Sn)-Total	0.00010	mg/L	<0.00010	<0.00010	<0.00010				
Titanium (Ti)-Total	0.00030	mg/L	0.189	0.156	0.00339				2
Uranium (U)-Total	0.000010	mg/L	0.00150	0.000037	0.000010		0.02		0.3
Vanadium (V)-Total	0.00050	mg/L	0.00913	0.00710	0.00059				0.006
Zinc (Zn)-Total	0.0030	mg/L	0.0077	0.0039	<0.0030	5	5	0.0075	0.033
PAHs (Water)	All congeners below lowest analytical detection limit: <0.000050								

1. Al guideline for operational consideration for dw treatment using coagulants

Exceeded ambient guideline

2. Aesthetic guideline for taste and laundry staining

3. Settling Pond Discharge permit limits are BCA WQG and BCWWQG for Freshwater Aquatic Life uses and Total Suspended Solids (TSS) must not exceed 25 mg/L for up to 1 in 10 year return period flood event of 24 hour duration limit of 25 mg/L

Jager, Brenda CSNR:EX

From: McGuire, Jennifer ENV:EX
Sent: Saturday, November 14, 2015 10:57 AM
To: Caunce, Cassandra ENV:EX
Subject: Second text from SF
Attachments: imagejpeg_3.jpg; textplain_2.txt; imagejpeg_4.jpg

textplain_2

While the MoE staff are up there can they go to the bottom of Lot 21 and collect samples from the red water oozing out. Strong septic/sulphur smell down there yesterday.

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Tuesday, December 1, 2015 7:54 AM
To: Caunce, Cassandra ENV:EX; McGuire, Jennifer ENV:EX; XT:HLTH Hasselback, Paul
Subject: Fwd: water sampling results

FYI - from a citizen who hiked down yesterday morning. Now with more rain coming, we are all deeply worried.

Sonia

Good morning all,
Yesterday on our hike around the Sia Pit our group noticed a smell like rotten eggs. The smell like rotten eggs can come from sulphur solutions.
We suspect that because the the water clarification plant is still frozen and nonoperational the run off from under the contaminated soil is not frozen and draining from the pit using its natural path. The natural path would be into the ephemeral stream

s.22

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Friday, December 11, 2015 2:49 PM
To: Caunce, Cassandra ENV:EX
Cc: McGuire, Jennifer ENV:EX
Subject: Re: SIA site- Dec 10 - Fly-ash Trailer?

Cassandra,

How can we know that it meets the conditions of the permit? It appears that some fly ash is considered "hazardous" - which is not allowed at this site.

Sonia

On Fri, Dec 11, 2015 at 2:48 PM, Caunce, Cassandra ENV:EX <Cassandra.Caunce@gov.bc.ca> wrote:

Hello Sonia,

Provided it meets the requirements of the permit, this material can be landfilled or possibly used as soil stabilizer.

Cassandra Caunce, BSc.

Director, Compliance & Integrated Pest Management

Regional Operations Branch, Environmental Protection

(p:) 250.371-6225

From: Sonia Furstenau [mailtc s.22
Sent: Friday, December 11, 2015 9:05 AM
To: McGuire, Jennifer ENV:EX; Caunce, Cassandra ENV:EX; XT:HLTH Hasselback, Paul; Todosichuk, Ardice; Miskiewicz, Monika OAG:EX; Weaver, Andrew; Routley, Bill
Subject: Fwd: SIA site- Dec 10 - Fly-ash Trailer?

We are all very concerned about a fly ash container having arrived on the SIRM site. Is this company allowed to have fly ash at the site? It appears that there are supposed to be stringent guidelines around the encapsulation of fly ash - this company is demonstrating a distinct incapacity to adhere to stringent guidelines.

I would appreciate a response to this by before the end of today.

Sonia

https://news.gov.bc.ca/stories/investigation-launched-into-contaminated-fly-ash-shipment.

http://www.env.gov.bc.ca/epd/regions/thompson/reports/burnaby-wte-facility.htm

Thanks s.22

Interesting about the "Fly ash" container. Sounds like it can be quite nasty stuff. I wonder if they are using it to reduce the moisture content in the landfill soil?

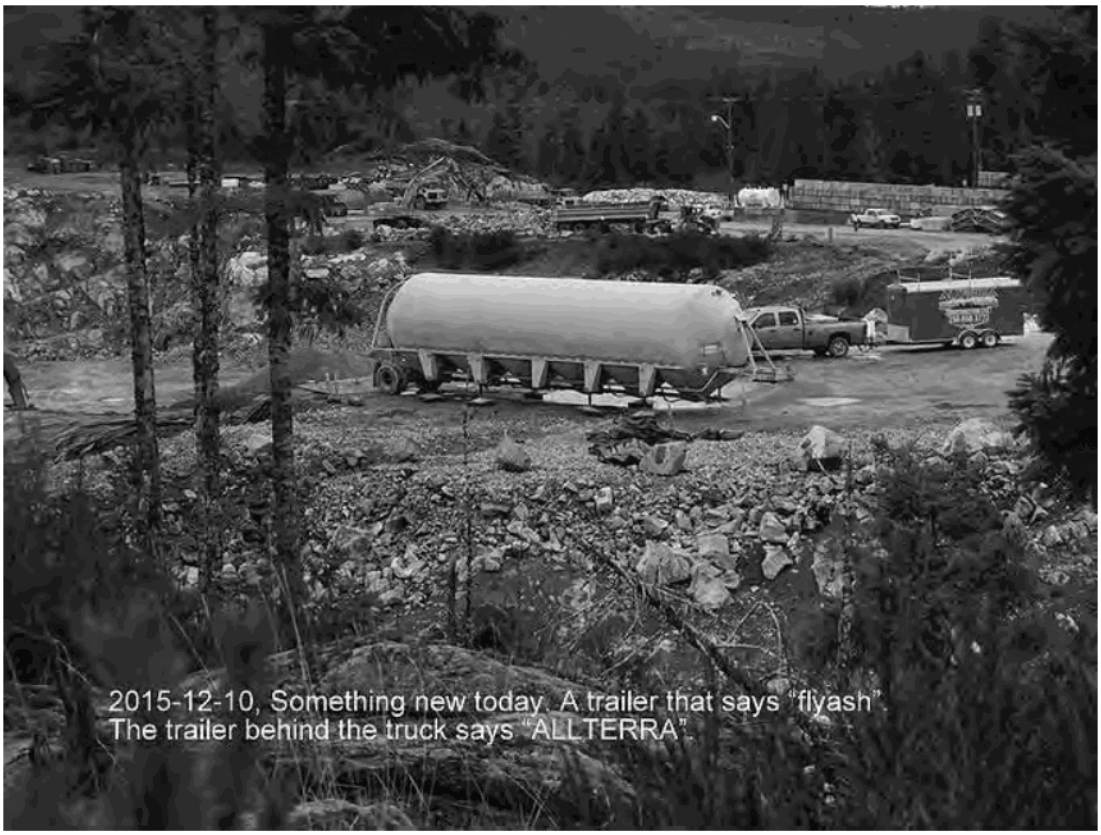
s.22

Fly ash, also known as "pulverised fuel ash" in the United Kingdom, is one of the residues generated by coal combustion, and is composed of the fine particles that are driven out of the boiler with the flue gases. Ash that falls in the bottom of the boiler is called bottom ash. Fly ash is generally captured by electrostatic precipitators or other particle filtration equipment before the flue gases reach the chimneys of coal-fired power plants, and together with bottom ash removed from the bottom of the boiler is known as **coal ash**. Depending upon the source and makeup of the coal being burned, the components of fly ash vary considerably, but all fly ash includes substantial amounts of silicon dioxide (SiO_2) (both amorphous and crystalline), aluminium oxide (Al_2O_3) and calcium oxide (CaO), the main mineral compounds in coal-bearing rock strata.

Constituents depend upon the specific coal bed makeup, but may include one or more of the following elements or substances found in trace concentrations (up to hundreds ppm): arsenic, beryllium, boron, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium, along with very small concentrations of dioxins and PAH compounds.[1][2]

In the past, fly ash was generally released into the atmosphere, but air pollution control standards now require that it be captured prior to release by fitting pollution control equipment. In the US, fly ash is generally stored at coal power plants or placed in landfills. About 43% is recycled,[3] often used as a pozzolan to produce hydraulic cement or hydraulic plaster and a replacement or partial replacement for Portland cement in concrete production. Pozzolans ensure the setting of concrete and plaster and provide concrete with more protection from wet conditions and chemical attack.

In the case that fly or bottom ash is not produced from coal, for example when solid waste is used to produce electricity in an incinerator (see waste-to-energy facilities), this kind of ash may contain higher levels of contaminants than coal ash. In that case the ash produced is often classified as hazardous waste.



From: s.22
Sent: December-10-15 4:43 PM
To: Undisclosed-Recipient:;
Subject: SIA site +

H s.22

The daily routine fo s.22 and me.

s.22

s.22

This album has 13 photos and will be available on OneDrive until 2016-03-09.

You have been sent 13 pictures.

These pictures were sent with Picasa, from Google.
Try it out here: http://picasa.google.com/

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Friday, December 11, 2015 9:05 AM
To: McGuire, Jennifer ENV:EX; Caunce, Cassandra ENV:EX; XT:HLTH Hasselback, Paul; Todosichuk, Ardice; Miskiewicz, Monika OAG:EX; Weaver, Andrew; Routley, Bill
Subject: Fwd: SIA site- Dec 10 - Fly-ash Trailer?

We are all very concerned about a fly ash container having arrived on the SIRM site. Is this company allowed to have fly ash at the site? It appears that there are supposed to be stringent guidelines around the encapsulation of fly ash - this company is demonstrating a distinct incapacity to adhere to stringent guidelines.

I would appreciate a response to this by before the end of today.

Sonia

https://news.gov.bc.ca/stories/investigation-launched-into-contaminated-fly-ash-shipment.

http://www.env.gov.bc.ca/epd/regions/thompson/reports/burnaby-wte-facility.htm

Thanks s.22

Interesting about the "Fly ash" container. Sounds like it can be quite nasty stuff. I wonder if they are using it to reduce the moisture content in the landfill soil?

s.22

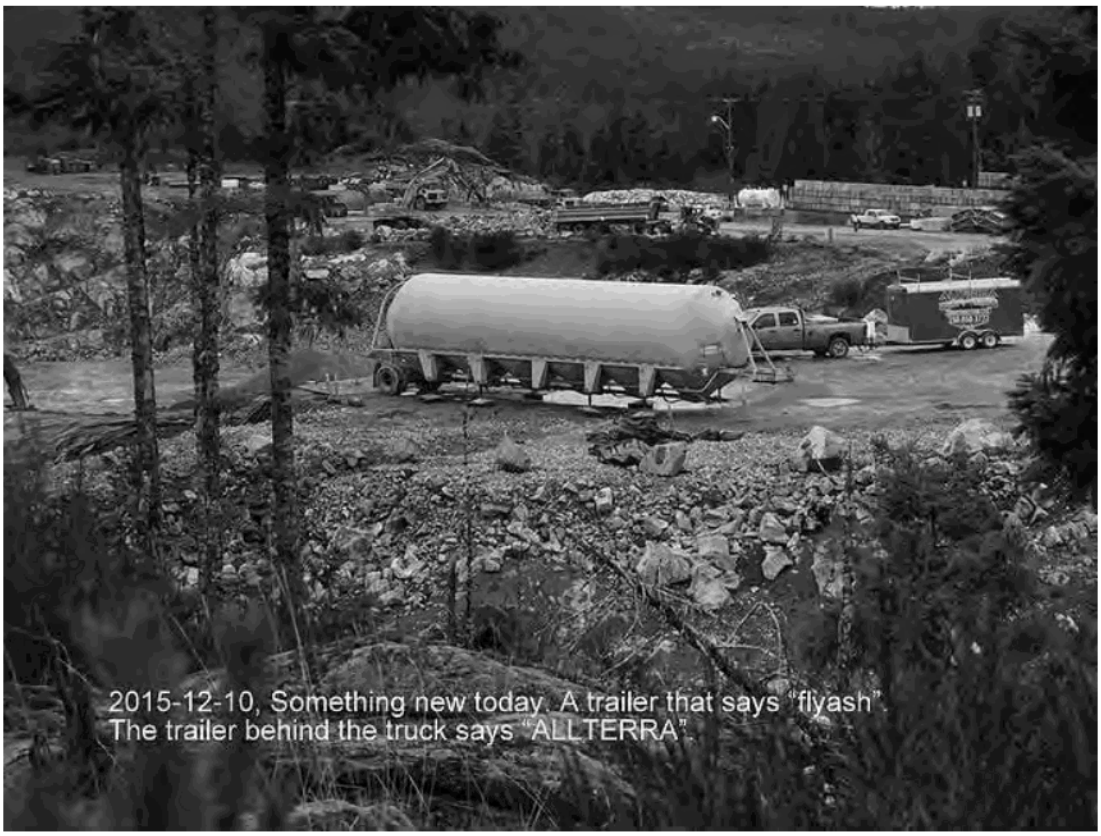
Fly ash, also known as "pulverised fuel ash" in the United Kingdom, is one of the residues generated by coal combustion, and is composed of the fine particles that are driven out of the boiler with the flue gases. Ash that falls in the bottom of the boiler is called bottom ash. Fly ash is generally captured by electrostatic precipitators or other particle filtration equipment before the flue gases reach the chimneys of coal-fired power plants, and together with bottom ash removed from the bottom of the boiler is known as **coal ash**. Depending upon the source and makeup of the coal being burned, the components of fly ash vary considerably, but all fly ash includes substantial amounts of silicon dioxide (SiO_2) (both amorphous and crystalline), aluminium oxide (Al_2O_3) and calcium oxide (CaO), the main mineral compounds in coal-bearing rock strata.

Constituents depend upon the specific coal bed makeup, but may include one or more of the following elements or substances found in trace concentrations (up to hundreds ppm): arsenic, beryllium, boron, cadmium, chromium, hexavalent chromium, cobalt, lead, manganese, mercury, molybdenum, selenium, strontium, thallium, and vanadium, along with very small concentrations of dioxins and PAH compounds.[1][2]

In the past, fly ash was generally released into the atmosphere, but air pollution control standards now require that it be captured prior to release by fitting pollution control equipment. In the US, fly ash is generally stored at coal power plants or placed in landfills. About 43% is recycled,[3] often used as a pozzolan to produce hydraulic cement or hydraulic plaster and a replacement or partial replacement for Portland cement in concrete

production. Pozzolans ensure the setting of concrete and plaster and provide concrete with more protection from wet conditions and chemical attack.

In the case that fly or bottom ash is not produced from coal, for example when solid waste is used to produce electricity in an incinerator (see waste-to-energy facilities), this kind of ash may contain higher levels of contaminants than coal ash. In that case the ash produced is often classified as hazardous waste.



From: s.22
Sent: December-10-15 4:43 PM
To: Undisclosed-Recipient:;
Subject: SIA site +

Hi s.22

The daily routine for s.22 and me.

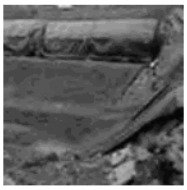
s.22

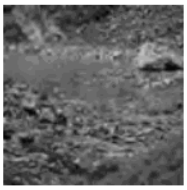
s.22

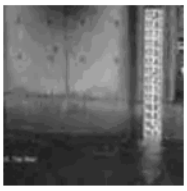
This album has 13 photos and will be available on OneDrive until 2016-03-09.








You have been sent 13 pictures.

These pictures were sent with Picasa, from Google.
Try it out here: http://picasa.google.com/

Jager, Brenda CSNR:EX

From: Sonia Furstenau s.22
Sent: Monday, December 14, 2015 10:58 PM
To: McGuire, Jennifer ENV:EX; Caunce, Cassandra ENV:EX; XT:HLTH Hasselback, Paul; Todosichuk, Ardice; Miskiewicz, Monika OAG:EX
Subject: Fwd: SIA site on December 15,2015 -Dust storm

Hello Jennifer and Cassandra,

I thought you might find these images interesting. Whatever is in that fly ash is now spread all over the quarry and beyond onto CVRD property - and most certainly not "contained in the containment cell", as all contaminates brought to this site are supposed to be.

Thanks,
Sonia

---------- Forwarded message ----------
From:
Date: Mon, Dec 14, 2015 at 12:39 PM
Subject: SIA site on December 15,2015 -Dust storm

Hi All,
We have surprises every day!
A beautiful day.
A dust storm after heavy rain.
A new fence.
No trucks.

PS; Videos to follow on another email.

SIA site on December 15,2015 -Dust storm

s.22

This album has 10 photos and will be available on OneDrive until 2016-03-13.