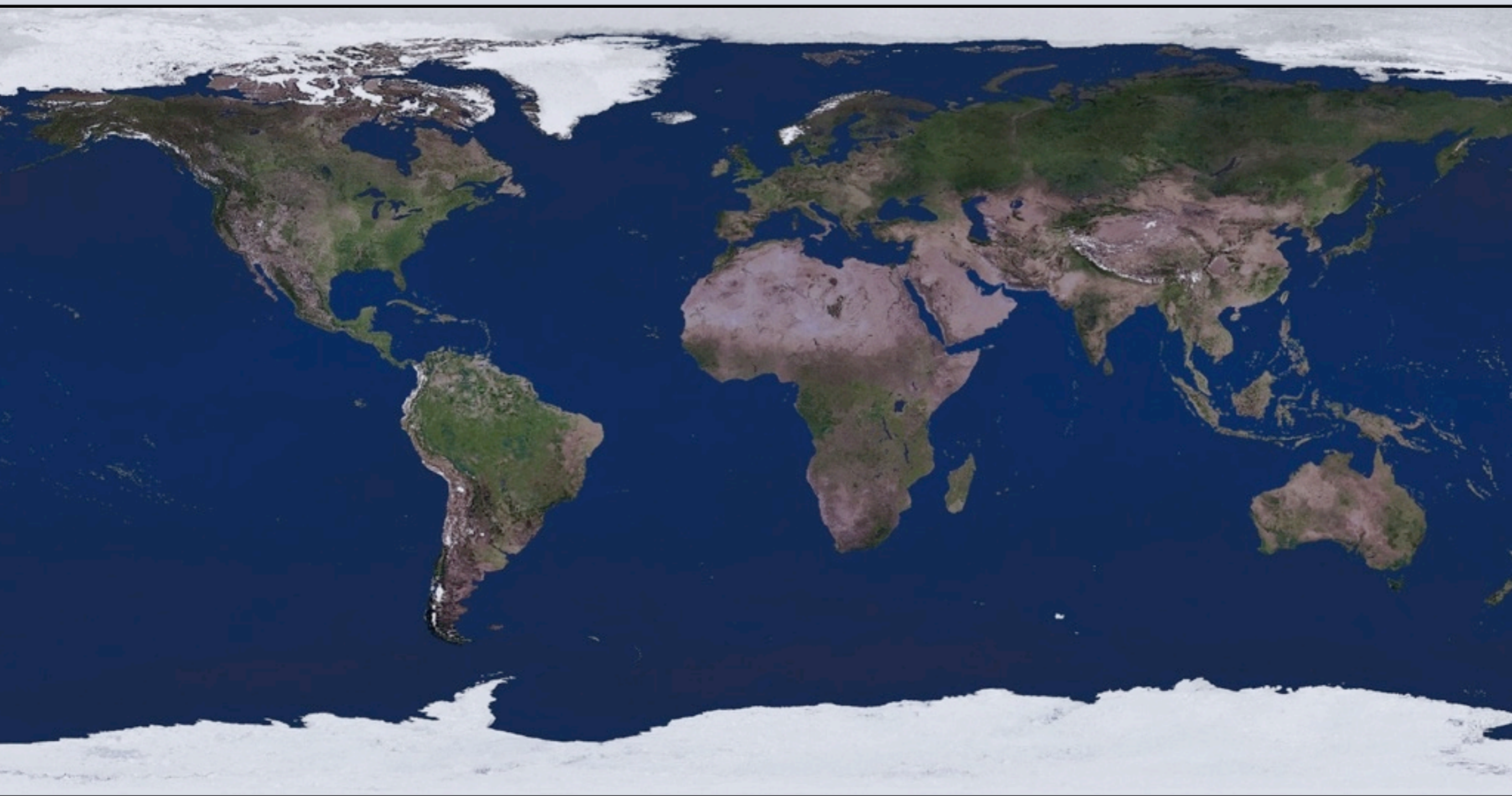
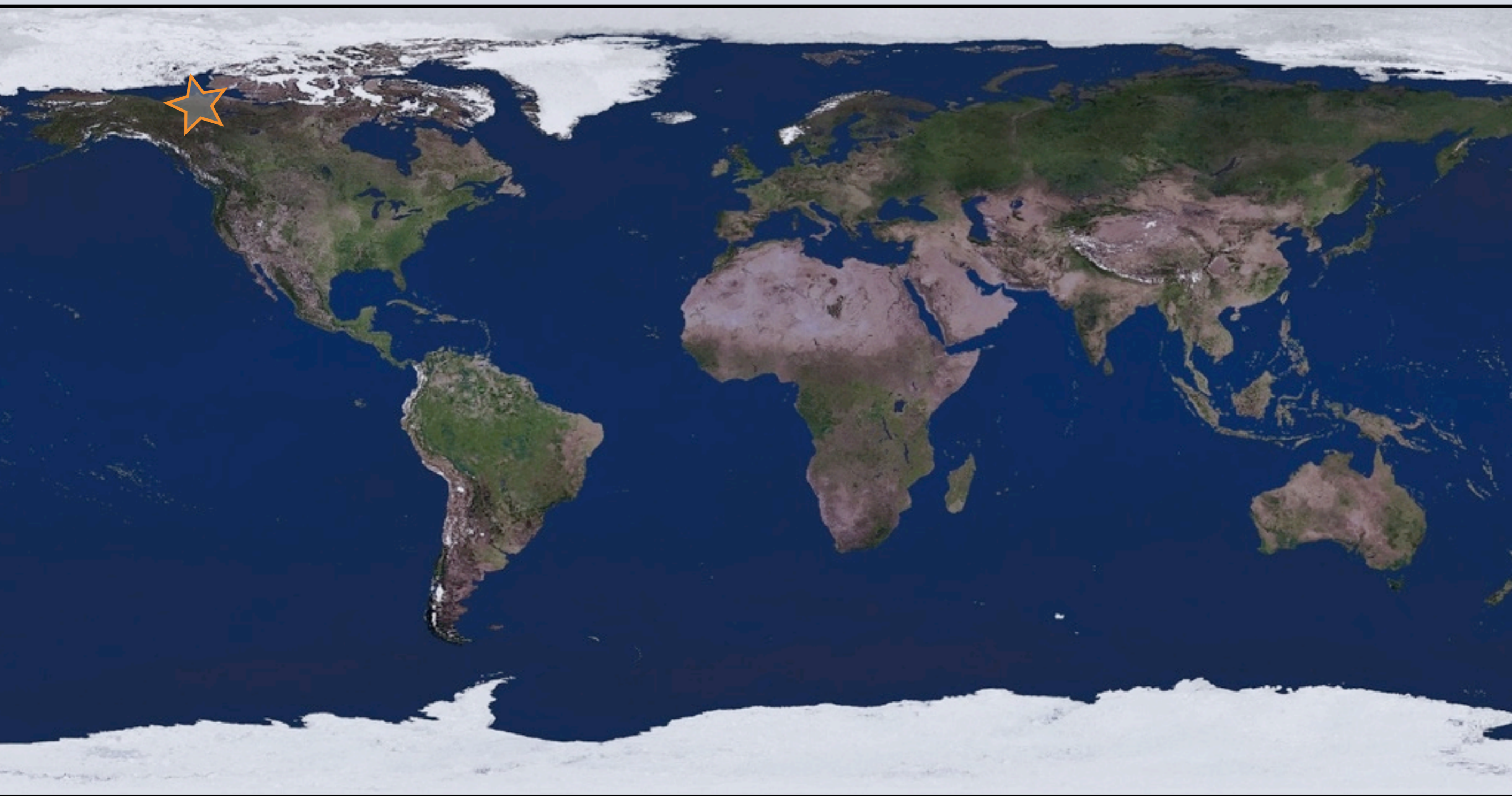


HIA in a Tiny Yukon Mining Community

Murray Lee MD MPH

IAIA13







Keno City, Yukon Territory

$63^{\circ}54'33''N$ $135^{\circ}18'15''W$











Keno City residents confront Alexco at YESAB meeting

by Josh Kerr Friday April 27, 2012

Ian Stewart/Yukon News



KENO CITY

Alexco Resources' plans to expand its mining operations in the Keno City area are facing fierce opposition from some residents of the small community in central Yukon.

The junior mining company is looking to develop two new mines to feed the mill it operates on the edge of

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Femsport Challenge



Flippin' Out



Health Effects Assessment Tool (HEAT): An Innovative Guide for HIA in Resource Development Projects

Authored by Tania Barron, Marla Orenstein and Ame-Lia Tamburrini

January 2010

Habitat Health Impact Consulting & Environmental Resources Management

Habitat
HEALTH IMPACT CONSULTING



ICMM
International Council
on Mining & Metals

Good Practice Guidance on Health Impact Assessment



Guidance 2010-1



water

noise

emergency response

infectious disease



stress & mental well-being



air & soil



injury

Keno City Fire Hall Drinking Water Quality
(305' deep well - pump at 299')

Parameter	Units	04-Aug-98	04-Dec-99	24-Oct-00	19-Dec-01	23-Aug-02	16-Sep-03	02-Jul-04	16-Jun-05	20-Jun-06	18-Apr-08	GCDWQ	
Physical Tests													
5		< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	15	1
1		385	384	358	440	589	559	535	527	562			
7		238	234	234	331	414	360	356	378	386		600	1
8		202	184	184	206	297	297	288	294	281		-	2
99		7.67	7.91	8.06	7.93	8.17	7.85	7.83	8.08	7.72		6.6 - 8.5	1
9		0.4	0.8	< 0.1	0.7	0.3	0.28	0.72	2.68	3.5		6	1.4
Dissolved Anions													
Alkalinity - Total	mg/L	122	112	122	111	125	168	156	156	148	147		
Chloride	mg/L	5.9	5	5.2	6.2	6.4	9.1	9.6	7.56	8.38	6.26	250	1
Fluoride	mg/L	0.07	0.09	0.2	0.03	0.04	0.04	0.038	0.053	0.046	< .1	1.6	
Sulphate	mg/L	82	70	70	67	88	136	120	121	123	129	500	1.5
Nutrients													
Nitrate Nitrogen	mg/L	1.9	1.7	1.6	1.67	1.6	1.5	1.86	1.55	1.83	1.51	10	
Nitrite Nitrogen	mg/L	< 0.1	< 0.1	< 0.1	< 0.001	< 0.1	< 0.1	< 0.1	< 0.001	< 0.001	< 0.002	1	
Total Metals													
Aluminum	mg/L	< 0.2	< 0.005	< 0.005	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.036		
Antimony	mg/L				< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.001	0.006	4.5
Arsenic	mg/L	0.0027	0.0051	0.0055	0.003	0.002	0.001	0.003	0.00187	0.00238	0.005	0.01	
Barium	mg/L	0.11	0.144	0.122	0.11	0.12	0.15	0.157	0.139	0.134	0.14	1	
Boron	mg/L	< 0.1	< 0.05	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	6	4
Cadmium	mg/L	0.0007	0.0007	0.0008	0.0007	0.0008	0.0011	0.00099	0.00094	0.00095	0.0009	0.005	
Calcium	mg/L	62.6	59.4	54.8	55.9	58.8	86.7	88	79.8	86.2	80.4		
Chromium	mg/L	< 0.01	< 0.001	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.001	0.06	
Copper	mg/L	0.02	0.154	1.16 ⁽⁷⁾	< 0.01	< 0.01	< 0.01	< 0.01	0.0043	0.103	0.18	1	1.5
Iron	mg/L	0.11	0.03	0.09	< 0.03	0.05	0.17	< 0.03	0.071	1.98	0.42	0.3	1
Lead	mg/L	< 0.001	0.010	0.049 ⁽⁷⁾	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0015	< 0.001	0.01	5.5
Magnesium	mg/L	14.4	13.1	11.4	11.8	14.3	19.5	18.7	17.3	19.1	21.6		
Manganese	mg/L	< 0.005	< 0.001	0.002	0.002	< 0.002	0.005	0.0025	0.0036	< 0.002	0.004	0.05	1
Mercury	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.02	0.001	
Potassium	mg/L	< 2	0.3	0.24	0.3	0.3	0.3	0.35	0.31	0.32	0.3		
Selenium	mg/L	0.002	0.002	< 0.003	0.002	0.002	0.002	0.0037	0.002	0.002	0.002	0.01	
Sodium	mg/L	2	1.8	1.96	2.1	2	3	2.6	2.3	2.4	2.43	200	1
Uranium	mg/L	0.00462	0.00476	0.00465	0.0037	0.0054	0.0125	0.0116	0.00959	0.00965	0.0067	0.02	4
Zinc	mg/L	0.510	0.159	0.363	0.47	0.28	0.31	0.224	0.135	0.183	0.16	6	1.6
Dissolved Metals													
Aluminum	mg/L			< 0.005	< 0.01								
Antimony	mg/L				< 0.0005								
Arsenic	mg/L			0.0052	0.002							0.026	6
Barium	mg/L			0.122	0.11							1	
Boron	mg/L			< 0.05	< 0.1							6	6
Cadmium	mg/L			0.0008	0.0007							0.006	
Calcium	mg/L			54.8	54.7								
Chromium	mg/L			< 0.001	< 0.002							0.05	
Copper	mg/L			0.905	0.006							1	1.3
Iron	mg/L			0.06	< 0.03							0.3	1
Lead	mg/L			0.036 ⁽⁷⁾	< 0.001							0.01	3.7
Magnesium	mg/L			11.4	11.6								
Manganese	mg/L			0.002	< 0.002							0.05	1
Mercury	mg/L			< 0.00005	< 0.0002							0.001	
Potassium	mg/L			0.26	0.3								
Selenium	mg/L			< 0.003	0.002							0.01	
Sodium	mg/L			1.98	2.1							200	1
Uranium	mg/L			0.00458	0.0037							0.1	
Zinc	mg/L			0.356	0.43							6	1.3

Notes:

< = less than the detection limit indicated.

GCDWQ = Guidelines for Canadian Drinking Water Quality.

All limits are Maximum Acceptable Concentration (MAC) unless otherwise indicated.

1. Aesthetic Objective (AO) (taste, odour, appearance, etc.)

2. 1 NTU maximum allowed for water entering distribution systems.

3. There may be a laxative effect in some individuals when sulphate levels exceed 500 mg/L.

4. Interim Maximum Acceptable Concentration (IMAC).

5. First drawn water may be high, flush system before sampling (MAC).

6. At point of consumption.

7. Dec 12/00 resampled: Cu 0.011mg/L, Lead <0.001mg/L. Taken at point of consumption (truck fill point).

Oct. 24/00 sample was collected as an attempt to collect untreated well water - not from a proper sample port.

Suspect the sample location was not properly flushed so that sediment in the pipe caused high levels of lead and copper.

Environmental Data

- water quality
- air quality
- noise
- traffic projections
- soil samples

Health Data



Keno City Hotel Bar

reopening soon...

Stakeholder Engagement





Re: Re: — keno



[redacted] net

7 August, 2012 8:40 AM

To: Murray Lee <murray@habitatcorp.com>

[Hide Details](#)

Re: Re:

13 Attachments, 7.5 MB

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Quick Look

Hi Murray

Just to let you know...Yesab has approved Alexcos' proposal to develop lucky queen and onek...they now refer to the mill as the "Keno district mill" the noise and impact here are astounding...Yesab as usual admitted that this will have a major impact but as usual suggested mitigating what in my opinion is not mitigatable. Tourists are complaining about the noise and dust in the camp ground. Over a third of the residents here now have their homes up for sale...no takers They did a sound study here...in the rain...done by a small Korean fellow who spoke no english.... measured a scoop idling in the pit from Keno and determined that this will all have no effect here at all. [redacted] is leaving on the 15th...ceasing employment here....real story he was fired for spending too much on drilling but that is info from the inside...We need to be helped here...the water in the aquifer is getting weird...people in charge have been ordered to stand down and not push in Keno...We have to do this ourselves...my spies in YG still send me info but will be removed if they draw any attention to themselves...wouldn't be the first time that has happened here.....I think it might be best, to be bought out and move on , but that is not in the cards either...we are being held prisoner in our own homes....I have offered to sell my property and businesses to Alexco 3 times already and was refused. It seems you are the last chance we have here.... Government will not support buying us out as it would be political suicide.....seems we will be left holding the bag here , lives destroyed worthless homes, and no where else to go. [redacted]

----- Original Message -----

From: murray@habitatcorp.com

To: [redacted]

Cc: mada@habitatcorp.com

I know you're scared

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Keno health study met with skepticism

by Jesse Winter Friday November 2, 2012

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Ian Stewart/Yukon News



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