

**From:** [Larry Teahon](#)  
**To:** [Burrows, Ronald](#)  
**Cc:** [Sabrina Fox](#); [Tami Dyer](#); [Kari Toews](#)  
**Subject:** [External\_Sender] Response to LC 11.11  
**Date:** Friday, December 04, 2015 11:27:29 AM  
**Attachments:** [Radon Daugher Measurements in the Wellfield Area.xlsx](#)

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Ron:

On September 21, 2015, Crow Butte submitted to the NRC responses to requests for addition clarifications concerning License Condition 11.11. In the response to RAI #8 (page 30), Crow Butte indicated the following: "All wellfield operations personnel participate in the monitoring program, which includes monitoring for internal and external exposure. The external exposure is monitored with OSL badges provided by Landauer and exchanged on a quarterly frequency. The badges are worn for an employee's entire shift. Since it is difficult to sample all areas of the wellfield accurately, the internal exposures for the wellfield operations personnel are based on the same plant concentrations at a 100% occupancy factor. Wellfield concentrations of both radon daughters and airborne uranium will be much lower than plant concentrations so this is a very conservative way to assign internal intake". Attached is the data collected in the wellfield that was used in making this assessment.

Regards,

**Larry Teahon**

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**Kuznetz Samples**

	WL	WL	WL	WL	WL	WL	WL	WL	WL
Location/ Date Range	10-May-13	12-Jul-13	16-Aug-13	30-Sep-13	18-Oct-13	8-Nov-13	20-Dec-13	24-Jan-14	Average
AM-1	0.002	0.001	0.001	0.001	0.000	0.000	0.003	0.000	0.0010
AM-2	0.002	0.002	0.001	0.001	0.000	0.001	0.001	0.001	0.0011
AM-3	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.001	0.0014
AM-4	0.002	0.001	0.001	0.001	0.002	0.002	0.001	0.000	0.0013
AM-5	0.001	0.002	0.000	0.001	0.001	0.001	0.000	0.001	0.0009
<b>AM-6</b>	<b>0.000</b>	<b>0.002</b>	<b>0.000</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>	<b>0.0009</b>
AM-8	0.002	0.002	0.000	0.001	0.001	0.000	0.004	0.000	0.0013
AM-22	0.000	0.001	0.000	0.001	0.000	0.001	0.001	0.000	0.0005
AM-23	0.001	0.002	0.001	0.001	0.000	0.001	0.001	0.001	0.0010
AM-24	0.000	0.002	0.001	0.014	0.001	0.000	0.001	0.001	0.0025
AM-25	0.007	0.004	0.000	0.001	0.000	0.000	0.001	0.000	0.0016
WH-9	0.000	0.003	0.000	0.001	0.000	0.000	0.001	0.001	0.0008
WH-17	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.0009
WH-47	0.001	0.001	0.001	0.000	0.001	0.000	0.002	0.001	0.0009
WH-50	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.0009
TE-1	0.001	0.001	0.001	0.000	0.001	0.000	0.001	0.001	0.0008
TE-2	0.003	0.002	0.000	0.001	0.001	0.000	0.004	0.004	0.0019
TE-3	0.003	0.004	0.000	0.001	0.002	0.002	0.003	0.002	0.0021
TE-4	0.002	0.004	0.000	0.001	0.002	0.001	0.001	0.001	0.0015

**Bkg Station**

**Bkg Subtracted Kuznetz Samples**

Location/ Date Range	10-May-13	12-Jul-13	16-Aug-13	30-Sep-13	18-Oct-13	8-Nov-13	20-Dec-13	24-Jan-14	Average
AM-1	0.002	0	0.001	0	0	0	0.002	0	0.0006
AM-2	0.002	0	0.001	0	0	0	0	0	0.0004
AM-3	0.001	0	0.001	0	0	0	0.003	0	0.0006
AM-4	0.002	0	0.001	0	0.001	0.001	0	0	0.0006
AM-5	0.001	0	0	0	0	0	0	0	0.0001
AM-8	0.002	0	0	0	0	0	0.003	0	0.0006
AM-22	0	0	0	0	0	0	0	0	0.0000
AM-23	0.001	0	0.001	0	0	0	0	0	0.0003
AM-24	0	0	0.001	0.013	0	0	0	0	0.0018
AM-25	0.007	0.002	0	0	0	0	0	0	0.0011
WH-9	0	0.001	0	0	0	0	0	0	0.0001
WH-17	0.001	0	0	0	0	0	0	0	0.0001
WH-47	0.001	0	0.001	0	0	0	0.001	0	0.0004
WH-50	0.001	0	0	0	0	0	0	0	0.0001
TE-1	0.001	0	0.001	0	0	0	0	0	0.0003
TE-2	0.003	0	0	0	0	0	0.003	0.003	0.0011
TE-3	0.003	0.002	0	0	0.001	0.001	0.002	0.001	0.0013
TE-4	0.002	0.002	0	0	0.001	0	0	0	0.0006

Average 0.0006 (excludes bkg station result)