

From: [Randy Whicker](#)
To: [Linton, Ron](#); [Brad Bingham](#)
Cc: [Jennifer Ortega](#); [Lattin, Daniel](#)
Subject: [External_Sender] RE: RE: Requested Supplemental Information - LAR to Change Background Monitoring Location for Radon and Ambient Gamma Radiation (ML20356A287)
Date: Wednesday, March 31, 2021 12:48:59 PM
Attachments: [HMC 2020 Radon Study Results.pdf](#)

Ron,

Attached is a corrected version of the table with HMC-7 data included.

Thanks,

Randy

From: Linton, Ron <Ron.Linton@nrc.gov>
Sent: Wednesday, March 31, 2021 9:15 AM
To: Randy Whicker <randywhicker@ergoffice.com>; Brad Bingham <bbingham@barrick.com>
Cc: Jennifer Ortega <Jennifer.Ortega@barrick.com>; Lattin, Daniel <dlattin@barrick.com>
Subject: RE: RE: Requested Supplemental Information - LAR to Change Background Monitoring Location for Radon and Ambient Gamma Radiation (ML20356A287)

Thanks Randy.

From: Randy Whicker <randywhicker@ergoffice.com>
Sent: Wednesday, March 31, 2021 10:26 AM
To: Linton, Ron <Ron.Linton@nrc.gov>; Brad Bingham <bbingham@barrick.com>
Cc: Jennifer Ortega <Jennifer.Ortega@barrick.com>; Lattin, Daniel <dlattin@barrick.com>
Subject: [External_Sender] RE: Requested Supplemental Information - LAR to Change Background Monitoring Location for Radon and Ambient Gamma Radiation (ML20356A287)

Ron – my apologies for the inadvertent omission of HMC-7. I'll get the missing data added this morning.

Thanks,

Randy

From: Linton, Ron <Ron.Linton@nrc.gov>
Sent: Wednesday, March 31, 2021 6:18 AM
To: Brad Bingham <bbingham@barrick.com>
Cc: Jennifer Ortega <Jennifer.Ortega@barrick.com>; Lattin, Daniel <dlattin@barrick.com>; Randy Whicker <randywhicker@ergoffice.com>
Subject: RE: Requested Supplemental Information - LAR to Change Background Monitoring Location for Radon and Ambient Gamma Radiation (ML20356A287)

Brad:

We noticed that station HMC-7 was left off this list. That station's data is needed as well. If possible, I would ask if you could send one table with HMC-7 added. That way I can put one table in ADAMS for reference. If that is not possible, I can put in the table you sent on 3/29 and HMC-7 data separately. Either way will work.

Thanks.

Ron

From: Brad Bingham <bbingham@barrick.com>

Sent: Monday, March 29, 2021 9:01 AM

To: Linton, Ron <Ron.Linton@nrc.gov>

Cc: Jennifer Ortega <Jennifer.Ortega@barrick.com>; Daniel Lattin <dlattin@barrick.com>; Randy Whicker <randywhicker@ergoffice.com>

Subject: [External_Sender] Requested Supplemental Information - LAR to Change Background Monitoring Location for Radon and Ambient Gamma Radiation (ML20356A287)

Mr. Linton,

As requested, Homestake has attached the 2020 radon data for the LAR Radon studies, including the 4th quarter information. The 4th quarter data was unavailable at the time of the 12/18/2020 LAR submittal (ML20356A287). Please contact me at the number below if you have any questions.

Respectfully,

Brad R. Bingham, Closure Manager

Homestake Mining Company- Grants, NM

Mailing Address: PO Box 98, Hwy 605, Grants, NM 87020

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Location	2020 Q1 Results			2020 Q2 Results			2020 Q3 Results			2020 Q4 Results		
		Radon Conc. (pCi/L)	Uncertainty (± pCi/L)		Radon Conc. (pCi/L)	Uncertainty (± pCi/L)		Radon Conc. (pCi/L)	Uncertainty (± pCi/L)		Radon Conc. (pCi/L)	Uncertainty (± pCi/L)

2020 Routine Environmental Radon Monitoring Data

HMC-1	Detector 1	0.65	0.14	Detector 1	1.10	0.19	Detector 1	0.62	0.17	Detector 1	1.20	0.19
	Detector 2	0.68	0.14	Detector 2	0.46	0.14	Detector 2	0.68	0.17	Detector 2	1.20	0.19
	Average	0.67		Average	0.78		Average	0.65		Average	1.20	
HMC-1A	Detector 1	0.59	0.14	Detector 1	0.57	0.14	Detector 1	0.65	0.17	Detector 1	1.10	0.17
	Detector 2	0.57	0.11	Detector 2	0.62	0.14	Detector 2	0.59	0.17	Detector 2	1.10	0.17
	Average	0.58		Average	0.60		Average	0.62		Average	1.10	
HMC-2	Detector 1	0.81	0.17	Detector 1	0.62	0.14	Detector 1	0.65	0.17	Detector 1	1.30	0.19
	Detector 2	0.76	0.14	Detector 2	0.62	0.14	Detector 2	0.86	0.17	Detector 2	1.20	0.19
	Average	0.79		Average	0.62		Average	0.76		Average	1.25	
HMC-3	Detector 1	0.54	0.11	Detector 1	0.49	0.14	Detector 1	0.57	0.17	Detector 1	1.00	0.17
	Detector 2	0.57	0.11	Detector 2	0.38	0.11	Detector 2	0.51	0.14	Detector 2	0.97	0.17
	Average	0.56		Average	0.44		Average	0.54		Average	0.99	
HMC-4	Detector 1	0.59	0.14	Detector 1	0.54	0.11	Detector 1	0.57	0.17	Detector 1	1.40	0.22
	Detector 2	0.70	0.14	Detector 2	0.51	0.14	Detector 2	0.59	0.17	Detector 2	1.20	0.19
	Average	0.65		Average	0.53		Average	0.58		Average	1.30	
HMC-5	Detector 1	0.59	0.14	Detector 1	0.62	0.14	Detector 1	0.78	0.17	Detector 1	1.10	0.17
	Detector 2	0.68	0.14	Detector 2	1.20	0.19	Detector 2	0.68	0.17	Detector 2	1.20	0.19
	Average	0.64		Average	0.91		Average	0.73		Average	1.15	
HMC-6	Detector 1	0.57	0.11	Detector 1	0.46	0.14	Detector 1	0.62	0.17	Detector 1	0.95	0.17
	Detector 2	0.57	0.11	Detector 2	0.51	0.11	Detector 2	0.54	0.14	Detector 2	0.97	0.17
	Average	0.57		Average	0.49		Average	0.58		Average	0.96	
HMC-7	Detector 1	0.70	0.14	Detector 1	0.46	0.14	Detector 1	0.65	0.17	Detector 1	1.10	0.17
	Detector 2	0.70	0.14	Detector 2	0.59	0.14	Detector 2	0.68	0.17	Detector 2	1.00	0.17
	Average	0.70		Average	0.53		Average	0.67		Average	1.05	
HMC-16	Detector 1	0.32	0.09	Detector 1	0.30	0.11	Detector 1	0.30	0.14	Detector 1	0.65	0.14
	Detector 2	0.41	0.11	Detector 2	0.30	0.09	Detector 2	0.38	0.14	Detector 2	0.57	0.14
	Average	0.37		Average	0.30		Average	0.34		Average	0.61	
HMC-10FF	Detector 1	0.68	0.14	Detector 1	0.43	0.14	Detector 1	0.57	0.17	Detector 1	1.20	0.19
	Detector 2	0.68	0.14	Detector 2	0.49	0.14	Detector 2	0.65	0.17	Detector 2	1.10	0.17
	Average	0.68		Average	0.46		Average	0.61		Average	1.15	

2020 Radon vs Distance Study

R1	Detector 1	0.89	0.22	Detector 1	1.10	0.19	Detector 1	2.10	0.3	Detector 1	1.90	0.3
	Detector 2	1.10	0.25	Detector 2	1.20	0.22	Detector 2	2.00	0.28	Detector 2	1.90	0.3
	Average	1.00		Average	1.15		Average	2.05		Average	1.90	
R2	Detector 1	0.97	0.25	Detector 1	0.62	0.14	Detector 1	0.89	0.17	Detector 1	1.10	0.17
	Detector 2	0.81	0.22	Detector 2	0.62	0.14	Detector 2	0.81	0.17	Detector 2	1.20	0.19
	Average	0.89		Average	0.62		Average	0.85		Average	1.15	
R3	Detector 1	0.68	0.22	Detector 1	0.57	0.14	Detector 1	0.68	0.14	Detector 1	1.10	0.17
	Detector 2	0.57	0.22	Detector 2	0.49	0.14	Detector 2	0.76	0.17	Detector 2	0.57	0.17
	Average	0.63		Average	0.53		Average	0.72		Average	0.84	
R4	Detector 1	0.54	0.22	Detector 1	0.46	0.14	Detector 1	0.70	0.14	Detector 1	1.00	0.17
	Detector 2	0.49	0.19	Detector 2	0.51	0.14	Detector 2	0.59	0.14	Detector 2	0.97	0.17
	Average	0.52		Average	0.49		Average	0.65		Average	0.99	
R5	Detector 1	0.70	0.22	Detector 1	0.51	0.14	Detector 1	0.65	0.14	Detector 1	1.00	0.17
	Detector 2	0.62	0.22	Detector 2	0.51	0.14	Detector 2	0.68	0.14	Detector 2	1.20	0.19
	Average	0.66		Average	0.51		Average	0.67		Average	1.10	
R6	Detector 1	0.73	0.22	Detector 1	0.62	0.14	Detector 1	0.84	0.17	Detector 1	1.40	0.22
	Detector 2	0.59	0.22	Detector 2	0.59	0.14	Detector 2	0.81	0.14	Detector 2	1.50	0.25
	Average	0.66		Average	0.61		Average	0.83		Average	1.45	
R7	Detector 1	0.73	0.22	Detector 1	0.59	0.14	Detector 1	0.84	0.17	Detector 1	1.50	0.25
	Detector 2	0.76	0.22	Detector 2	0.73	0.17	Detector 2	0.81	0.17	Detector 2	1.20	0.19
	Average	0.75		Average	0.66		Average	0.83		Average	1.35	
R8	Detector 1	0.70	0.22	Detector 1	0.54	0.14	Detector 1	0.86	0.17	Detector 1	1.20	0.19
	Detector 2	0.62	0.22	Detector 2	0.49	0.14	Detector 2	0.78	0.17	Detector 2	1.20	0.19
	Average	0.66		Average	0.52		Average	0.82		Average	1.20	
R9	Detector 1	0.62	0.22	Detector 1	0.51	0.14	Detector 1	0.78	0.14	Detector 1	1.10	0.19
	Detector 2	0.62	0.22	Detector 2	0.51	0.14	Detector 2	0.62	0.14	Detector 2	1.30	0.22
	Average	0.62		Average	0.51		Average	0.70		Average	1.20	
R10	Detector 1	0.49	0.19	Detector 1	0.46	0.14	Detector 1	0.59	0.14	Detector 1	1.00	0.17
	Detector 2	0.57	0.22	Detector 2	0.49	0.14	Detector 2	0.57	0.14	Detector 2	1.10	0.17
	Average	0.53		Average	0.48		Average	0.58		Average	1.05	
R11	Detector 1	0.43	0.19	Detector 1	0.41	0.11	Detector 1	0.49	0.11	Detector 1	0.89	0.17
	Detector 2	0.59	0.22	Detector 2	0.43	0.14	Detector 2	0.51	0.14	Detector 2	0.92	0.17
	Average			Average			Average			Average		

	Average	0.51		Average	0.42		Average	0.50		Average	0.91	
R12	Detector 1	0.70	0.22	Detector 1	0.81	0.17	Detector 1	1.20	0.22	Detector 1	1.90	0.3
	Detector 2	0.76	0.22	Detector 2	0.62	0.14	Detector 2	1.20	0.19	Detector 2	1.50	0.25
	Average	0.73		Average	0.72		Average	1.20		Average	1.70	
R13	Detector 1	0.73	0.22	Detector 1	0.68	0.14	Detector 1	0.95	0.17	Detector 1	1.30	0.22
	Detector 2	0.73	0.22	Detector 2	0.68	0.14	Detector 2	0.95	0.17	Detector 2	1.20	0.19
	Average	0.73		Average	0.68		Average	0.95		Average	1.25	
R14	Detector 1	0.41	0.19	Detector 1	0.54	0.14	Detector 1	0.59	0.11	Detector 1	1.10	0.17
	Detector 2	0.51	0.22	Detector 2	0.43	0.14	Detector 2	0.65	0.14	Detector 2	1.00	0.19
	Average	0.46		Average	0.49		Average	0.62		Average	1.05	
R15	Detector 1	0.68	0.22	Detector 1	0.78	0.17	Detector 1	1.10	0.19	Detector 1	1.50	0.22
	Detector 2	0.70	0.22	Detector 2	0.76	0.17	Detector 2	1.00	0.19	Detector 2	1.70	0.28
	Average	0.69		Average	0.77		Average	1.05		Average	1.60	
R16	Detector 1	0.49	0.22	Detector 1	0.46	0.14	Detector 1	0.84	0.17	Detector 1	1.20	0.19
	Detector 2	0.68	0.22	Detector 2	0.54	0.14	Detector 2	0.86	0.17	Detector 2	1.20	0.19
	Average	0.59		Average	0.50		Average	0.85		Average	1.20	
R17	Detector 1	0.51	0.22	Detector 1	0.49	0.14	Detector 1	0.65	0.14	Detector 1	1.10	0.17
	Detector 2	0.54	0.22	Detector 2	0.51	0.14	Detector 2	0.70	0.14	Detector 2	1.10	0.19
	Average	0.53		Average	0.50		Average	0.68		Average	1.10	
R18	Detector 1	0.70	0.22	Detector 1	0.43	0.14	Detector 1	0.62	0.14	Detector 1	1.20	0.19
	Detector 2	0.49	0.19	Detector 2	0.46	0.14	Detector 2	0.57	0.14	Detector 2	1.10	0.17
	Average	0.60		Average	0.45		Average	0.60		Average	1.15	
R19	Detector 1	0.59	0.22	Detector 1	0.43	0.11	Detector 1	0.62	0.14	Detector 1	1.10	0.19
	Detector 2	0.57	0.22	Detector 2	0.57	0.14	Detector 2	0.65	0.14	Detector 2	0.97	0.17
	Average	0.58		Average	0.50		Average	0.64		Average	1.04	
R20	Detector 1	0.54	0.22	Detector 1	0.43	0.14	Detector 1	0.68	0.14	Detector 1	0.89	0.17
	Detector 2	0.57	0.22	Detector 2	0.41	0.14	Detector 2	0.57	0.14	Detector 2	0.89	0.17
	Average	0.56		Average	0.42		Average	0.63		Average	0.89	

Blue highlighted values suspect based on paired detector result and inconsistency with historical values. These outlier values were omitted from averaging for the Radon vs Distance study described in the License Amendment Request to move the background radon monitoring station.