Homestake Mining Company of California
P.O. Box 98
Grants, NM 87020

Tel +1 505 287 4456
Fax +1 505 287 4457

August 30, 2021

ATTN: Document Control Desk
Document Control
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTN: Mr. Ron C. Linton
Project Manager / Hydrogeologist
U.S. Nuclear Regulatory Commission
Decommissioning, Uranium Recovery & Waste Programs
Office of Nuclear Materials Safety and Safeguards
MS T-5A10, 11545 Rockville Pike
Rockville, MD 20852

ATTN: Ms. Anne Maurer
Ground Water Quality Bureau
New Mexico Environment Department
PO Box 5469
Santa Fe, NM 87502-5469

RE: 1st Half 2021 Semi-Annual Environmental Monitoring Report for Period January - June 2021, In Accordance with Nuclear Regulatory Commission Docket No. 40-8903, License No. SUA 1471, and New Mexico Environmental Department DP-200 Ground Water Discharge Plan

Mr. Linton and Ms. Maurer:

Pursuant to US Nuclear Regulatory Commission License SUA-1471, Docket 40-8903, License Condition 35(E) and in accordance with the ground water discharge permit DP-200 issued by the New Mexico Environment Department, please find below a hyperlink to the Semi-Annual Environmental Monitoring Report for the first half of 2021 (January-June) for Homestake Mining Company's Grants Reclamation Project.

https://app.box.com/s/8k4yq9uhf0wprxeha0zl9e4xjtuaxhxl

Thank you for your time and attention on this matter. If you have any questions, please contact me via e-mail at bbingham@homestakeminingcoca.com or via phone at 505.290.8019.

Respectfully,

Brad R. Bingham
Closure Manager
Homestake Mining Company, Grants, New Mexico
Office: 505.287.4456 x35 | Cell: 505.290.8019

cc: B. Tsosie, DOE, Grand Junction, Colorado (electronic copy)
M. Purcell, Region VI EPA, Dallas, Texas (electronic copy)
M. McCarthy, Barrick, Salt Lake City, Utah (electronic copy)
D. Lattin, Barrick, Elko, Nevada (electronic copy)
G. Hoffman, Hydro-Engineering, Casper, Wyoming (electronic copy)
R. Whicker, Environmental Restoration Group, Albuquerque, New Mexico (electronic copy)

HOMESTAKE MINING COMPANY OF CALIFORNIA

Grants Reclamation Project

SEMI-ANNUAL
ENVIRONMENTAL MONITORING REPORT

Reporting Period
January- June 2021

U.S. Nuclear Regulatory Commission License SUA-1471
State of New Mexico DP-200

TABLE OF CONTENTS

TABLES

TABLES (cont.)

FIGURES

ATTACHMENTS

1.0 INTRODUCTION

This Semi-Annual Environmental Monitoring Report summarizes effluent monitoring data recorded for Homestake Mining Company of California - Grants Project (Homestake) from January through June 2021. The submittal of this report to the appropriate Nuclear Regulatory Commission (NRC) Regional Office and State of New Mexico within 60 days after January 1, and July 1 for each year of operation is required for all uranium mill facilities pursuant to 10 CFR Part 40.65. The monitoring data and the report format have been selected by Homestake representatives to satisfy the requirements of 10 CFR Part 40.65 and Discharge Permit No. 200, dated September 18, 2014.

Homestake's monitoring and surveillance program for radioactive effluent releases have been designed to ensure the project's compliance with 10 CFR Part 40, and Part 20 U.S. NRC Standards for Protection Against Radiation and closely approximates programs as described in NRC's Regulatory Guide 4.14, Radiological Effluent and Environmental Monitoring at Uranium Mills. Some effluent monitoring activities differ from those presented in the Regulatory Guide 4.14 as required by Homestake's Radioactive Materials License (SUA-1471).

Recontouring reclamation activities began in September 1993 and mill demolition commenced in late October 1993 and was completed December 10, 1995. A mill decommissioning completion report was submitted in February 1996 (ML12293A170) and approved by the NRC on January 28, 1999 (ML080030067). The large tailings pile (LTP) has been re-contoured and covered with an interim cover on the top and radon barrier on the outslopes. Bedding and erosion protection was placed on the outslopes after placement of the radon barrier. Soil cleanup verification of the off-pile contaminated soil (windblown tailings) is complete; the completion report was submitted December 18, 1995 (ML12291A911) and approved by the NRC on January 28, 1999 (ML080030067).

Homestake's groundwater monitoring program, as outlined in License Condition 35, continued throughout the report period. The requirements set forth in Condition 35 include the reporting of both radiological and non-radiological water quality parameters for specified wells, as well as the documentation of water injection and collection volumes of the groundwater cleanup system. The performance review of the groundwater corrective action program (GCAP) is submitted annually as a separate document and contains the groundwater monitoring information for January 1 through December 31 of each year. In order to meet NRC's requirement for semi-annual reporting, groundwater-monitoring data for the point-of-compliance (POC) wells, pond monitoring wells DD, DD2 and X and background well P are included. It should be noted that the POC wells will eventually be used to demonstrate groundwater compliance. A summary of the operations of groundwater treatment technologies, as required by DP-200 is provided in Section 3.0.

2.0 ENVIRONMENTAL MONITORING PROGRAMS

The monitoring requirements for the site are summarized in Table 2-1, Table 2-2, and Table 2-3 attached. Details of the monitoring program are discussed in the following sections.

2.1 Air Particulate Monitoring

Homestake continuously samples total suspended particulates at seven locations around the reclamation site (see Figure 1). Those locations identified as HMC-1, HMC-1A, HMC-2 and HMC-3 are areas at the property boundary expected to have the highest predictable concentrations of radionuclides in airborne particulates. The predominant wind direction is from the southwest; accordingly, HMC-1, HMC-1A, HMC-2 and HMC-3 are generally located downwind from Homestake's reclamation activities. HMC-1A is northeast of EP-3 located north of the mill site. The location identified as HMC-6 represents background conditions for air particulates and is located due west of the large tailings pile at the western most side of the property boundary. Locations HMC-4 and HMC-5 are site proximal to the nearest residences. HMC-7 is a blank Whatman filter that is analyzed as a lab and filter manufacturer quality check sample.

Homestake uses Hi-Q HVP-4300 AFC High Volume Air Samplers (or equivalent) to continuously sample the ambient air at the locations shown in Figure 1. The samples are collected on 8-inch by 10-inch Whatman glass fiber filters (or equivalent), which are changed weekly or more frequently as required by dust loading. Pace Analytical (PACE) analyzes the collected samples quarterly for Natural Uranium, Radium-226 and Thorium-230. Air sampling flow volumes and run times are recorded by HMC and the data are reported to PACE for calculation of average radionuclide concentrations in air particulates. The results of environmental air particulate monitoring for 1st half 2021 are provided in Attachment 1.

2.2 Radon Gas Monitoring

Radon-222 gas concentrations in ambient outdoor air are monitored on a continuous basis at the nine locations identified in Figure 1. The background location for radon gas is HMC-16, located northwest of the site. Rapidos high-sensitivity track-etch passive radon monitors (PRM) from Radonova, or equivalent, are used to continuously monitor radon gas at each sampling location. Homestake personnel place new PRMs quarterly at the monitoring locations and the exposed detectors are retrieved and returned to the vendor for analysis. The PRM detectors measure radon gas concentrations in ambient outdoor air by exposing a special alpha-particle sensitive plastic chip mounted inside a chamber with a membrane filter on one end that is permeable to air and radon gas, but not to dust or solid phase particulate radionuclides. Radon-222 gas from ambient air diffuses through the membrane, and the subsequent decay of radon gas inside the chamber causes imprint tracks on the alpha-sensitive plastic chip that can be enhanced by a chemical etching process and counted after collection. The radon gas concentration is calculated by determining the number of tracks per unit area of the plastic chip. The semi-annual average results are presented in Attachment 2.

2.3 Effluent and Radon Flux Monitoring

Regulations in 10 CFR 40.65 require licensees to estimate and report the quantities of principal radionuclides released to unrestricted areas in gaseous effluents every six months.

Radon-222 was the only gaseous-phase effluent radionuclide released to unrestricted areas in the 2nd half 2020. The principal sources of radon-222 at the site are the large tailings pile (LTP) and Small Tailings Pile (STP). Radon-222 releases from components of the water treatment system (the Reverse Osmosis [RO] building, clarifier tanks, and spray evaporators on the evaporation ponds) are insignificant relative to those of the LTP and STP.

Annual flux measurements for calendar year 2021 were conducted as two separate deployments in May and June, consisting of 100 canisters per deployment on the LTP and STP respectively. Of the 100 canister measurements on the STP, 99 canisters were found usable as the seal around the lip of one canister placement was compromised during deployment. Deployments were conducted in accordance with the methods proposed in HMC's response to the NRC's 2017 notice of violation (NOV) regarding an average radon flux rate from the LTP that exceeded the 20 picocuries per square meter per second (pCi m^{-2} s^{-1}) standard given in 10 CFR 40, Appendix A (ERG, 2017 and NRC, 2017). The Radon Flux report for 2020 is provided in Attachment 4 to this Report.

On April 20, 2017, the NRC issued an NOV for the manner in which average radon flux was measured and calculated for 2015. The 2016 annual flux report, dated January 2017, observed previously existing protocols pending NRC resolution of a regulatory decision on these matters. On April 24-26, 2017 the NRC conducted an onsite inspection, and in associated discussions indicated that side slopes of the LTP, upon which final cover was completed in 1995 (including flux measurements followed by placement of final erosion control material), cannot be used for annual flux estimates unless new flux measurements on the side slopes are conducted. NRC indicated that 100 annual measurements across the top of the LTP, and calculation of the arithmetic mean of the 100 measurements, would be an acceptable approach to meet the requirements of License Condition 36E with respect to the LTP. This protocol has been observed since 2017 as detailed in radon flux reports provided with corresponding semi-annual environmental monitoring reports. On May 5, 2021, NRC staff withdrew the NOV for incorrectly documenting that HMC's "techniques for monitoring radon flux on the large tailings pile was a violation of NRC requirements" (ML21124A358), and NRC staff are currently working with HMC to clarify the measuring techniques necessary to comply with License Condition 36E. Until this issue is resolved, HMC continues to take annual measurements of radon flux on the LTP using the same method that has been observed since the 2017 NOV.

With respect to the STP, the evaporation pond (EP1) is an operational facility as EP1 operations and disposal of additional materials in the STP will continue. Since the STP is still operational, it can be broken into regions in accordance with EPA Method 115, with the pond being one region of zero flux (20.55 acres), and the remaining areas (earthen surfaces) along with the inside berms of EP-1, collectively representing a second region of 32.67 acres. Section 2.1.7 of EPA Method 115 provides an explicit mathematical formula for area-weighted averaging of various regions to determine the overall weighted average flux for the entire pile. Under Method 115, calculation of effluent release of radon from the STP is based on the flux measurement data

noted above (100 flux measurements), and a calculated overall area-weighted average flux for the two regions as follows (excerpted from EPA Method 115):

(b) The mean radon flux for the total uranium mill tailings pile shall be calculated as follows.

$$J_s = \frac{J_1A_1 + J_2A_2 + \ldots + J_iA_i}{A_t}$$

where:

J_s	=	Mean flux for the total pile (pCi/m²-s)
J_i	=	Mean flux measured in region i (pCi/m²-s)
A_i	=	Area of region i (m²)
A_t	=	Total area of the pile (m²)

Based on 2021 flux monitoring results, the calculated average radon flux effluent value for the LTP in 2021 was 47.5 pCi m^{-2} s^{-1}. With respect to the STP, the arithmetic mean flux for the earthen region of the pile (132,240 m^2 area) in 2021 was 39.0 pCi m^{-2} s^{-1}. The area of EP1 is approximately 83,155 m^2, and this pond area was assigned a value of zero flux. The overall area-weighted average radon flux for the STP in 2021 was calculated as follows:

STP Radon Flux = [(39.0 pCi/m^2-s)(132,240 m^2) + (0 pCi/m^2-s)(83,155 m^2)] / (83,155 m^2 + 132,240 m^2)

= 23.9 pCi/m^2-s

Thus, average Rn-222 flux values of 47.5 and 23.9 pCi m^{-2} s^{-1} for the LTP and STP respectively are assumed for 2021. Based on the 2021 average flux values (47.5 and 23.9 pCi m^{-2} s^{-1} for the LTP and STP, respectively), along with the approximate areal extent of the applicable surfaces including the top of the LTP (≈ 106 acres) and the entire STP (≈ 53.2 acres), the annual radon emissions from the tailings piles in 2021 were calculated to be 643 Ci and 162 Ci respectively. For the 1st half 2021 semiannual reporting period only, effluent radon releases are assumed equivalent to half of these values, or 321.5 Ci and 81 Ci for the LTP and STP respectively. Detailed results of the 2021 radon flux measurements are provided in Attachment 4 of this Semiannual Report.

3.0 OPERATIONS

3.1 Flow Rates

The monthly influent totals to each of the evaporation ponds are presented in Table 3.1-1 for the 1st half 2021. Inputs to Evaporation Pond 2 were RO brine, zeolite regeneration, tailings sumps, and transfers from the collection pond. Transfers from Evaporation Pond 2 to Evaporation Pond 1 or Evaporation Pond 3 and transfers from Evaporation Pond 1 to Evaporation Pond 3 are presented in this table as well. The influent into the collection ponds was from miscellaneous

flow from the RO plant which includes any diverted flow, flow from the RO sumps, backwash from the microfiltration system and blow down from the clarifiers and flow from the zeolite regeneration. The freeboard measurements taken from the evaporation and collection ponds are tabulated in Table 3.1-2. No measurements of the East Collection Pond freeboard were made after the middle of February due to this pond not being used, however a minimal water was maintained in the pond to keep sediment stationary during the down time. The leak detection volumes pumped for from Evaporation Ponds 2 and 3 are presented in Tables 3.1-3 through 3.1-5. These three tables give the gallons per day per acre (GPD/AC) with values that exceed 775 GPD/AC highlighted in bold and blue.

The tailings sump volume for the Large Tailings Pile are presented in Table 3.1-6. Injection into the LTP ceased in July 2015 and dewatering well collection ceased after 2017. The monthly collection totals broken out by aquifer and restoration area are shown in Table 3.1-7. The monthly injection totals broken out by aquifer and area are presented in Table 3.1-8. The On-Site, South Off-Site, and North Off-site injection water is a combination of San Andres water, zeolite treated water, and RO Product water. The low concentration re-injection ceased operation in July of 2016 and therefore not presented in this monitoring report.

Table 3.1-9 presents the influent totals for the active treatment systems. The inflow to the RO plant averaged 526 gpm in the 1st half 2021 while the inputs to the 300 zeolite and 1200 zeolite cells averaged 0 and 115 gpm respectively. The 300 zeolite plant was off-line during the 1st half of 2021 while the inputs to the 1200 zeolite were reduced due to algae problems. Table 3.1-10 presents the total volumes of treated effluent. It also presents the regeneration and brine effluents that were discharged into Evaporation Pond 2 from the treatment systems. The fresh water injection totals from each of the three restoration areas are also presented in this table.

3.2 Reversal Wells

The depth to water measurements for the Reversal Wells are presented in Table 3.2-1. Water levels in alluvial reversal pair wells B-BA, DZ-KZ, SM-SN and S2-S5 are presented in this table.

3.3 Pond and Pipeline Maintenance

No repairs were made to the evaporation/collection ponds from January through June of 2021.

3.4 Well Drilling and Closures

One new well was drilled during the period from January through June of 2021 as indicated in Table 3.4-1 while 302 wells were abandoned on top of the LTP.

3.5 Facilities Inspections and Maintenance

Facilities, structures, contaminated fluid pipelines, equipment, diversion structures and diversion channels associated with groundwater treatment, and drainages were inspected during the period from January through June of 2021. Minor surface water erosion piping was identified originating on top of the LTP after several rain events. The erosional piping was addressed in first half of 2021 to prevent further erosion in this area.

In addition, the following significant maintenance activities were performed during this semi-annual reporting period on the groundwater treatment systems:

Zeolite Groundwater Treatment

- Although no major maintenance activities were performed on the 1200 zeolite system in the 1st half 2021, numerous smaller maintenance activities, including valve repair, leak repair, instrumentation issues and weed /algae removal were performed. These issues resulted in significant down time during this period.

Reverse Osmosis Groundwater Treatment

- Due to scaling in bank 3 of low pressure skid #3 (e.g. LPRO3), the membranes were replaced in June 2021. Since the replacement, LPRO3 has been operating at 82% recovery with no indication of scaling.
- RO3 interstage/booster pump between banks 1 and 2 was experiencing oil leakage and needed to be rebuilt/replaced. The pump was rebuilt and put back into service in June 2021.

4.0 WATER QUALITY MONITORING

4.1 Groundwater Quality Monitoring

Table 2-2 outlines the water quality sampling frequency and parameters monitored which was approved in November 2019 (ML19217A353). In addition, the volumes of water injected and recovered as part of the ground-water cleanup program are monitored on a weekly frequency and the rates documented. A performance review report is submitted by March 31 of each year according to License Condition 35E. The groundwater monitoring data for the POC wells, as required to comply with 10 CFR 40.65, are reported in Tables 4.1-1 through 4.1-6 A sample was collected from background well P in the 1st half 2021 (see Table 4.1-4). The water quality of POC wells is currently not representative of steady state aquifer conditions and the concentration levels are not compared to 10 CFR 20 effluent limits. A hydraulic barrier forces the water in the aquifer near these POC wells to move in the direction of the collection wells where the water is withdrawn and treated. Due to these conditions, water level data on these wells are also not reflective of steady state conditions, and therefore are not reported here.

4.2 Pond Water Quality Monitoring

Table 4.2-1 presents the water quality data associated with the collection and evaporation ponds. The water quality data for the Evaporation Pond alluvial monitoring wells are presented in Table 4.2-2. This table highlights the concentrations that exceed the alluvial site standards in bold and blue. The sulfate and TDS concentrations naturally exceed the site standard in wells DD and

DD2. The uranium concentrations in well DD2 naturally exceed the alluvial site standard as they have since this well was drilled. Total concentrations for manganese, selenium, molybdenum and uranium are presented for the ponds and are generally similar to the dissolved concentrations. Table 4 from the Discharge Permit DP-200 requests uranium activity as one of the analytes for monitoring but is not included because it is a calculated value from the uranium concentrations.

4.3 Treated Water Quality Monitoring

Table 4.3-1 presents the effluent water quality analysis from the Post Treatment Tank (SP2). The SP2 sample is collected after mixing of the RO product, zeolite treated and fresh water. This table also shows that all SP2 concentrations in the 1st half 2021 were less than all alluvial site standards for each of these samples.

Table 4.3-2 presents the treated water quality data for the RO product (SP1) and the zeolite treated water (300Z, 1200Z Trains 1 & 2, and 1200Z Trains 3 & 4) with sample constituent concentrations that exceed the alluvial site standards highlighted in bold and blue. All RO product constituent concentrations measured in the 1st half 2021 were less than or equal to the corresponding alluvial site standards. Table 4.3-2 also presents the treated water quality for the zeolite treatment process. In the 1st half 2021, zeolite treatment water was less than or equal to the corresponding alluvial site standards treat for the 1200 zeolite systems. The zeolite treated water is monitored for the discharge from the 300 zeolite and Trains 1 & 2 and Trains 3 & 4 from the 1200 systems.

5.0 DIRECT RADIATION

Gamma dose rates are continuously monitored using optically stimulated luminescence (OSL) dosimeter badges placed at each of the eight locations identified in Figure 1. HMC #16 is considered the background location for direct radiation. Each OSL badge consists of an aluminum oxide detector within a plastic holder. The plastic provides adequate protection from weather for these badges to be used outdoors. The OSLs are exchanged semi-annually and analyzed by an approved independent laboratory (currently Landauer). The levels of direct environmental radiation are recorded for each of the eight locations. Pertinent sample data are reported in Attachment 3.

6.0 SURFACE CONTAMINATION

The Occupational Monitoring Program requirements are summarized in Table 2-3. The aspects related to contamination control are discussed briefly below.

6.1 Personnel Skin and Clothing

The monitoring of personnel for alpha contamination may be required by the Radiation Safety Officer (RSO) depending on the nature of the work being performed as specified in the Radiation Protection Program (RPP) Manual (HMC, 2019). The applicable procedure is found in SOP 12

(Contamination Surveys) which may or may not be conducted under a radiation work permit (RWP) at the discretion of the RSO. Documentation for personnel contamination surveys is maintained in RWP or miscellaneous surveys folders as applicable. For the 1st half of 2021, no personnel contamination surveys showed evidence of elevated activity in excess of background levels.

6.2 Survey of Equipment Prior to Release for Unrestricted Use

Equipment surveys are required for all equipment that is to be removed from Restricted Areas as specified in the RPP (HMC, 2019). Depending on the equipment use and potential for contact with tailings or other licensed radioactive material (e.g. residual solids from water treatment operations), the RSO may require equipment release surveys for projects that don't require an RWP. Standard Operating Procedures are used for all equipment release surveys. No surface contamination above the release criteria specified in NRC Regulatory Guide 8.30 was observed during this reporting period.

7.0 LOWER LIMIT OF DETECTION

Homestake representatives have calculated the Lower Limit of Detection (LLD) for field survey instrumentation systems, where applicable, to better inform evaluation of survey results. The LLD is defined in NRC Regulatory Guide 8.30 – Appendix B as the smallest concentration of radioactive material that has a 95% probability of being detected. Radioactive material is "detected" if the value measured on an instrument is high enough to conclude that activity above the system background is present at a given level of confidence. Since the LLD is a function of sample volume, counting efficiency, radiochemical yield, etc., it varies for different sampling and analysis procedures.

For the individual measurement systems for which Homestake calculates LLDs, the following formula is utilized:

$$LLD = \frac{3+4.66\ S_b}{3.7\ E+4\ EVY \exp(-\lambda t)}$$

Where:

LLD	is the lower limit of detection (microcuries per milliliter [μCi/mL]);
S_b	is the standard deviation of the instrument background counting rate (counts per second);
3.7 E+4	is the number of disintegrations per second per microcurie;
E	is the counting efficiency (counts per disintegration);
V	is the sample volume (mL);
Y	is the fractional radiochemical yield (when applicable);
λ	is the radioactive decay constant for the particular radionuclide; and;
t	is the elapsed time between sample collection and counting

The value of S_b used in the calculation of the LLD for a particular measurement system will be based on the actual observed variance of the instrument background counting rate. The laboratory has been instructed to report the LLD, minimum detectible concentration (MDC), or reporting limit (RL) as applicable for each measurement considering all of the parameters associated with the measurement system and the sample size.

The vendor laboratory that performed the analyses reported herein has documented that the LLD, MDC or RL as applicable for air and water samples will meet the specifications in Regulatory Guide 4.14. This assumes a minimum water sample size of 1 liter and an air sample volume of 2 E+9 mL. Radonova (track-etch detector vendor lab) reports the LLD for radon-222. The LLDs for the constituents are:

Ra-226, Th-230 in air	1 E-16 µCi/mL
Rn-222 in air	3.4 E-10 µCi/mL
U-nat in air	1 E-16 µCi/mL
U-nat in water	2 E-10 µCi/mL
Ra-226, Th-230 in water	2 E-10 µCi/mL

8.0 DATA SUMMARY AND CONCLUSIONS

The summaries of Homestake's environmental effluent monitoring program included in this submittal contain data for applicable radiological parameters that could be released to unrestricted areas. DP-200 and 10 CFR Part 40.65 requires that Homestake submit effluent release monitoring data to the State of New Mexico and the NRC within 60 days of the end of the six-month period ending January 1 and July 1 of each year. Homestake is submitting this report to satisfy the regulatory requirements cited above. The attachments included in this report summarize the results of the effluent monitoring activities conducted by Homestake for the required monitoring period.

The data collected for Homestake's environmental effluent monitoring program parameters can be readily compared to 10 CFR Part 20 Appendix B effluent concentration (EC) values, not for determinations of public dose, but as a qualitative indicator for identifying effluent levels or trends that could pose a concern in terms of compliance with public dose limits given in 10 CFR 20.1301. During the current reporting period (1st half 2021), Homestake has not exceeded 10 CFR Part 20 EC values in any terrestrial effluents covered by this report. As discussed earlier, this does not include groundwater values at POC wells.

REFERENCES

Environmental Restoration Group, Inc. (ERG). 2017. Proposal to address radon flux NOV for the LTP (NRC Docket No. 040-08903/2016-001 License No. SUA-1471). In: Reply to Notice of Violation, Docket No. 040-08903/2016-001, License No. SUA-1471 [Submitted to NRC by Homestake Mining Company of California (HMC) on September 13, 2017].

Homestake Mining Company of California (HMC). 2019. Radiation Protection Program Manual, Revision 3. Homestake Grants Reclamation Project, Cibola County, New Mexico. October 26.

U.S. Nuclear Regulatory Commission (NRC). 2017. NRC Inspection Report 040-08903/2016-001 and Notice of Violation. April 20, 2017.

Table 2-1
Environmental Monitoring Program Excluding Groundwater Monitoring

Table 2-1 - Environmental Monitoring Program Excluding Groundwater Monitoring

Type of Sample	Number	Locations	Method	Frequency	Analytical Parameters
AIR Particulates	4	HMC-1, HMC-1A, HMC-2, HMC-3 at or near the site boundary in sectors that have the highest predicted concentrations of radioactive airborne particulates.	Continuous (High Vol.)	Weekly filter change or more frequently as required. Samples composited and analyzed quarterly.	Natural Uranium, Radium-226, Thorium-230
	2	HMC-4, HMC-5 at site boundary nearest occupied residences	Continuous (High Vol.)	Weekly filter change, or more frequently as required. Samples composited and analyzed quarterly.	Natural Uranium, Radium-226, Thorium-230
	1	HMC-6 background location	Continuous (High Vol.)	Weekly filter change, or more frequently as required. Samples composited and analyzed quarterly.	Natural Uranium, Radium-226, Thorium-230
Radon Gas	9	Locations described in Air - Particulates & HMC-7 on S boundary, HMC-1A near Evaporation Pond (EP-3), & HMC-16 as a background	Continuous Track-etch	Quarterly	Rn-222
DIRECT RADIATION	8	Locations described in Air - Particulates & HMC-16 as a background	OSL	Semi-Annual	Gamma Exposure Rate

Table 2-2
Groundwater Monitoring Program (2019, as modified by Amendment 54)

Table 2-2. Groundwater Monitoring at the Grants Site (2019 as modified by Amendment 54)		
Well	**Parameter List Code**	**Frequency of Monitoring**
Alluvial Background Wells		
P, Q, 921	B, F	Annual
Operational Monitoring		
Collection system wells Injection system wells	Total Volume Total Volume	Monthly Monthly
Reversal wells B, BA, KZ, DZ, SM, SN, S2, S5	Water Level	Weekly
San Andres Wells		
Deep #1R, Deep #2R, 943M, 951R	B, F H	Annual Semi-annual
Alluvial Compliance Monitoring Wells		
On-Site Monitoring Wells (Evap. Ponds) DD, DD2, X	B, F plus Mn H	Annual Quarterly
Additional On-Site Monitoring Wells 1A, 1K, 639, 802, B11, D1, F, FB, GH, GN, L, L5, K9, M3, MX, MB, MQ, NC, S4, SUB3, T2, T19, T23, T41, T54	B, F	Annual
South Off-Site Wells 490, 497, 540, 631, 643#, 644, 864, 869, Q5, R3, SUB2	B, F	Annual
Section 34 Land application wells 555, 556, 557, 844, 845, 846	B, F	Annual
North Off-Site Wells(includes Section 28 Land application wells) 688, 881, 882, 883, 884, 886, 888, 893, 659, H2A, MR, H55, MO	B, F	Annual
Western Portion of North Off-Site Wells (Includes Section 33 Land application wells) 541, 551, 647, 649, 654, 899, 996	B, F	Annual
Chinle Compliance Monitoring Wells		
Upper Chinle Wells 494, CE2, CE8, CE9, CE15, CF4, CW3, CW13#, CW18, CW25#	B, F	Annual
Middle Chinle Wells 493, ACW, CW17, CW2, CW28, CW45, CW55, CW62, CW76, R3, Y7	B, F	Annual
Lower Chinle Wells CW29, CW32, CW41, CW42, CW43, V6	B, F	Annual

Note: # Monitoring will start after well ceasing to be used for injection

Table 2-2. Groundwater Monitoring at the Grants Site (2019 as modified by Amendment 54), con't

Parameter List Code	Included Parameters (Dissolved)	Method	Reporting Limits	Units
B	Water level			
	pH	Field	0.01	s.u.
	Total dissolved solids (TDS)	A2540 C	20	mg/L
	Sulfate (SO_4)	E300.0	4	mg/L
	Chloride (Cl)	E300.0	1	mg/L
	Bicarbonate (HCO_3)	A2320 B	5	mg/L
	Carbonate (CO_3)	A2320 B	5	mg/L
	Sodium (Na)	E200.7	0.9	mg/L
	Calcium (Ca)	E200.7	0.5	mg/L
	Magnesium (Mg)	E200.7	0.5	mg/L
	Potassium (K)	E200.7	0.5	mg/L
	Nitrate (NO_3)	E353.2	0.1	mg/L
	Uranium (U)	E200.8	0.0003	mg/L
	Selenium (Se)	E200.8	0.005	mg/L
	Molybdenum (Mo)	E200.8	0.03	mg/L
	Radium-226 (Ra-226)	E903.0	Precision Variable	pCi/L
F	Vanadium (V)	E200.8	0.01	mg/L
	Radium-228 (Ra-228)	RA-05	Precision Variable	pCi/L
	Thorium-230 (Th-230)	E908.0	Precision Variable	pCi/L
H	Water Level			
	TDS	A2540 C	20	mg/L
	SO_4	E300.0	4	mg/L
	U	E200.8	0.0003	mg/L
	Se	E200.8	0.005	mg/L
	Mo	E200.8	0.03	mg/L
	Cl	E300.0	1	mg/L

Table 2-3
Occupational Monitoring Program

Table 2-3 Occupational Monitoring Program

Type of Sample	Number	Locations	Method	Frequency	Analytical Parameters
Lapel Personal Air Sample	As required by RWP	As required by RWP (2-3 L/min or equivalent)	SOP 11 (formerly HP-1)	As required by RWP	Alpha, U-Nat
Lapel Personal Air Sampler Calibration	As required by RWP	N/A	SOP 11 (formerly HP-1)	As required by RWP	Flow rate
Release of Equipment	As required by RWP or otherwise by RSO	Potentially Contaminated Equipment and Materials	SOP 12 (formerly HP-4)	As required by RWP or otherwise by RSO	Alpha, beta gamma
ALARA	N/A	As required by RSO	N/A (formerly HP-8)	N/A	As required by RSO
Respiratory Protection	As required by RWP	As required by RWP	N/A (formerly HP-7)	N/A	N/A
Bioassay	As required by RWP	As required by RWP	SOP 14 (formerly HP-8)	Baseline, Termination and Semi-annual	U-Nat in urine
Instrument Calibration	Variable	Radiation Detection Instruments in use	SOP 16 (formerly HP-10)	Semiannually	N/A
Personnel Gamma (OSL)	Variable	Personnel	SOP 13 (formerly in HP-11)	Quarterly	Gamma
Personnel Contamination	As required by RWP or otherwise by RSO	As required by RWP or otherwise by RSO	SOP 12 (formerly HP-12)	As required by RWP or otherwise by RSO	Alpha
Radiation Protection Training	As required	Mill Site taught by RSO (certified individual) subjects as per Reg Guide 8.31 and RPP Manual	RPP Manual (formerly HP-14) for people working with groundwater or physical work with tailings sand/ slimes	Initial & annual refresher	Training Class & Written Test

SOP = Standard Operating Procedure; HP-# = Homestake procedure number (historic); RSO = Radiation Safety Officer; RPP = Radiation Protection Program
RWP = Radiation Work Permit; OSL = Optically Stimulated Luminescence dosimeter

Tables 3.1-1 through 3.1-10
Flow Rates

Table 3.1-1. Evaporation and Collection Pond Monthly Influent Totals

Evap Pond 1

January	Interval Gallons
Transfer EP-2 to EP-1	0

February	Interval Gallons
Transfer EP-2 to EP-1	0

March	Interval Gallons
Transfer EP-2 to EP-1	2,575,000

April	Interval Gallons
Transfer EP-2 to EP-1	11,887,000

May	Interval Gallons
Transfer EP-2 to EP-1	3,084,100

June	Interval Gallons
Transfer EP-2 to EP-1	4,137,900

Evap Pond 2

January	Interval Gallons
R.O. Flow to Evaporation Ponds	3,421,200
Tailings Sumps	236,960
Tailings Pile	0
Zeolite Regeneration & Overflow	0
E Coll Pond to EP-2	0
February	Interval Gallons
R.O. Flow to Evaporation Ponds	2,720,850
Tailings Sumps	197,720
Tailings Pile	0
Zeolite Regeneration & Overflow	4,352,600
E Coll Pond to EP-2	0
March	Interval Gallons
R.O. Flow to Evaporation Ponds	2,678,940
Tailings Sumps	195,690
Tailings Pile	0
Zeolite Regeneration & Overflow	0
E Coll Pond to EP-2	0
April	Interval Gallons
R.O. Flow to Evaporation Ponds	4,980,440
Tailings Sumps	191,980
Tailings Pile	0
Zeolite Regeneration & Overflow	3,067,800
E Coll Pond to EP-2	217,382
May	Interval Gallons
R.O. Flow to Evaporation Ponds	5,737,010
Tailings Sumps	186,950
Tailings Pile	0
Zeolite Regeneration & Overflow	4,918,400
E Coll Pond to EP-2	1,550
June	Interval Gallons
R.O. Flow to Evaporation Ponds	7,121,720
Tailings Sumps	217,620
Tailings Pile	0
Zeolite Regeneration & Overflow	241,700
E Coll Pond to EP-2	460,715

Evap Pond 3

January	Interval Gallons
Transfer EP-1 to EP-3	0
Transfer EP-2 to EP-3	0

February	Interval Gallons
Transfer EP-1 to EP-3	0
Transfer EP-2 to EP-3	0

March	Interval Gallons
Transfer EP-1 to EP-3	0
Transfer EP-2 to EP-3	0

April	Interval Gallons
Transfer EP-1 to EP-3	0
Transfer EP-2 to EP-3	835,279

May	Interval Gallons
Transfer EP-1 to EP-3	0
Transfer EP-2 to EP-3	20,641,690

June	Interval Gallons
Transfer EP-1 to EP-3	0
Transfer EP-2 to EP-3	245

Collection Ponds

January	Interval Gallons
Miscellanous RO and Clarifier Flow	3,188,018
Tailings Sumps	0
Zeolite Regeneration	0

February	Interval Gallons
Miscellanous RO and Clarifier Flow	2,559,202
Tailings Sumps	0
Zeolite Regeneration	0

March	Interval Gallons
Miscellanous RO and Clarifier Flow	2,821,456
Tailings Sumps	0
Zeolite Regeneration	0

April	Interval Gallons
Miscellanous RO and Clarifier Flow	3,138,332
Tailings Sumps	0
Zeolite Regeneration	0

May	Interval Gallons
Miscellanous RO and Clarifier Flow	3,464,028
Tailings Sumps	0
Zeolite Regeneration	0

June	Interval Gallons
Miscellanous RO and Clarifier Flow	6,475,654
Tailings Sumps	0
Zeolite Regeneration	0

Table 3.1-2. Evaporation and Collection Pond Weekly Freeboard Measurements (feet)

	EP1	EP2	EP3A	EP3B	W Coll	E Coll
1/4/2021	11.5	6.81	5.17	5.17	3.02	2.5
1/11/2021	11.6	6.7	5.20	4.89	3.09	4
1/18/2021	12	6.6	5.24	4.36	2.95	4
1/25/2021	12	6.46	5.24	4.76	2.98	4
2/1/2021	12	6.31	5.27	4.8	3.11	4
2/8/2021	12	6.23	5.31	4.83	3.18	4
2/15/2021	12	5.9	5.35	4.88	3.19	3
2/22/2021	12	5.44	5.37	4.9	3.3	-
3/1/2021	12	5.06	5.42	5	3.3	-
3/8/2021	12	4.83	5.47	5.03	3.4	-
3/15/2021	12	4.81	5.55	5.14	3.4	-
3/22/2021	13.3	5.14	5.61	5.13	3.38	-
3/29/2021	13.3	5.14	5.61	5.2	3.48	-
4/5/2021	13.3	5.12	5.70	5.3	3.44	-
4/12/2021	13.3	5.6	5.59	5.26	2.2	-
4/19/2021	13.3	5.2	5.69	4.35	3.28	-
4/26/2021	13.3	7.64	5.81	5.53	4.5	-
5/3/2021	10.7	8.17	5.88	5.66	4.1	-
5/10/2021	10.7	7.75	6.01	5.5	3.7	-
5/17/2021	10.7	9.62	5.13	4.23	3.7	-
5/24/2021	10.7	10.87	3.85	4.01	3.6	-
5/31/2021	10.7	11.02	3.97	3.83	3.7	-
6/7/2021	10.7	10.87	4.12	4.08	3.38	-
6/14/2021	10.7	10.65	4.30	4.36	4.1	-
6/21/2021	11	10.58	4.54	4.77	3.9	-
6/28/2021	11	10.36	4.63	4.99	3.7	-

Table 3.1-3. Evaporation Pond 2 Leak Detection

Date	No. 1			No. 2			No. 3			No. 4			No. 5		
	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC
Previous Reading	174,220			2,097,080			954,180			1,191,250			1,283,220		
1/4/2021	174,220	0	0	2,097,090	10	0	954,180	0	0	1,191,250	0	0	1,291,740	8,520	345
1/11/2021	174,220	0	0	2,097,090	0	0	954,180	0	0	1,191,250	0	0	1,299,460	7,720	312
1/18/2021	174,220	0	0	2,097,090	0	0	954,180	0	0	1,191,250	0	0	1,306,870	7,410	300
1/25/2021	174,220	0	0	2,097,090	0	0	954,180	0	0	1,191,250	0	0	1,321,020	14,150	573
2/1/2021	174,220	0	0	2,097,090	0	0	954,180	0	0	1,191,250	0	0	1,321,020	0	0
2/8/2021	174,220	0	0	2,097,090	0	0	954,180	0	0	1,191,250	0	0	1,327,770	6,750	273
2/15/2021	174,220	0	0	2,097,090	0	0	954,180	0	0	1,191,250	0	0	1,335,810	8,040	325
2/22/2021	174,220	0	0	2,100,580	3,490	158	955,450	1,270	47	1,191,250	0	0	1,348,340	12,530	507
3/1/2021	174,220	0	0	2,104,680	4,100	186	956,300	850	32	1,191,250	0	0	1,357,160	8,820	357
3/8/2021	174,220	0	0	2,108,350	3,670	166	956,300	0	0	1,191,250	0	0	1,367,080	9,920	401
3/15/2021	174,220	0	0	2,111,150	2,800	127	956,420	120	4	1,191,250	0	0	1,375,540	8,460	342
3/22/2021	174,220	0	0	2,116,800	5,650	256	957,370	950	36	1,191,250	0	0	1,385,340	9,800	397
3/29/2021	174,220	0	0	2,121,310	4,510	205	957,690	320	12	1,191,250	0	0	1,393,960	8,620	349
4/5/2021	174,220	0	0	2,125,790	4,480	203	957,690	0	0	1,191,250	0	0	1,401,780	7,820	316
4/12/2021	174,220	0	0	2,130,880	5,090	231	957,690	0	0	1,191,250	0	0	1,409,830	8,050	326
4/19/2021	174,220	0	0	2,133,240	2,360	107	957,690	0	0	1,191,250	0	0	1,413,620	3,790	153
4/26/2021	174,220	0	0	2,133,240	0	0	957,690	0	0	1,191,250	0	0	1,413,630	10	0
5/3/2021	174,220	0	0	2,133,250	10	0	957,690	0	0	1,191,250	0	0	1,413,650	20	1
5/10/2021	174,220	0	0	2,133,260	10	0	957,690	0	0	1,191,250	0	0	1,413,760	110	4
5/17/2021	174,220	0	0	2,133,260	0	0	957,690	0	0	1,191,250	0	0	1,413,690	-70	-3
5/24/2021	174,220	0	0	2,133,270	10	0	957,690	0	0	1,191,250	0	0	1,413,710	20	1
5/31/2021	174,220	0	0	2,133,270	0	0	957,690	0	0	1,191,250	0	0	1,413,730	20	1
6/7/2021	174,220	0	0	2,133,270	0	0	957,690	0	0	1,191,250	0	0	1,413,740	10	0
6/14/2021	174,220	0	0	2,133,270	0	0	957,690	0	0	1,191,250	0	0	1,413,740	0	0
6/21/2021	174,220	0	0	2,133,280	10	0	957,690	0	0	1,191,250	0	0	1,413,740	0	0
6/28/2021	174,220	0	0	2,133,290	10	0	957,690	0	0	1,191,250	0	0	1,413,780	40	2

NOTE: Totalizer readings that result in minor positive or negative volumes should not be given any significance.
GPD/AC = Gallons per day per acre; those that exceed 775 are in bold.
 # = Pump not installed due to collapsed standpipe

Table 3.1-4. Evaporation Pond 3A Leak Detection

Cell A Sumps	A-1			A-2			A-3			A-4			A-5		
	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC
Previous Reading	70			1,133,530			303,160			29,990			670,720		
1/4/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,720	0	0
1/11/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,720	0	0
1/18/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,720	0	0
1/25/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,720	0	0
2/1/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,720	0	0
2/8/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,720	0	0
2/15/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,720	0	0
2/22/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,720	0	0
3/1/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,720	0	0
3/8/2021	70	0	0	1,133,530	0	0	303,160	0	0	29,990	0	0	670,740	20	1
3/15/2021	70	0	0	1,133,540	10	1	303,160	0	0	29,990	0	0	670,750	10	1
3/22/2021	70	0	0	1,133,550	10	1	303,160	0	0	29,990	0	0	670,760	10	1
3/29/2021	70	0	0	1,133,550	0	0	303,160	0	0	29,990	0	0	670,790	30	2
4/5/2021	70	0	0	1,133,570	20	1	303,160	0	0	29,990	0	0	670,810	20	1
4/12/2021	70	0	0	1,133,560	-10	-1	303,160	0	0	29,990	0	0	670,820	10	1
4/19/2021	70	0	0	1,133,580	20	1	303,160	0	0	29,990	0	0	670,840	20	1
4/26/2021	70	0	0	1,133,590	10	1	303,160	0	0	29,990	0	0	670,850	10	1
5/3/2021	70	0	0	1,134,630	1,040	58	303,160	0	0	29,990	0	0	670,860	10	1
5/10/2021	70	0	0	1,134,630	0	0	303,160	0	0	29,990	0	0	670,880	20	1
5/17/2021	70	0	0	1,134,650	20	1	303,160	0	0	29,990	0	0	670,900	20	1
5/24/2021	70	0	0	1,139,120	4,470	248	303,160	0	0	29,990	0	0	671,320	420	23
5/31/2021	70	0	0	1,151,140	12,020	666	303,160	0	0	29,990	0	0	671,770	450	25
6/7/2021	70	0	0	1,155,540	4,400	244	303,160	0	0	29,990	0	0	671,800	30	2
6/14/2021	70	0	0	1,156,930	1,390	77	303,160	0	0	29,990	0	0	671,820	20	1
6/21/2021	70	0	0	1,159,440	2,510	139	303,160	0	0	29,990	0	0	671,840	20	1
6/28/2021	70	0	0	1,159,980	540	30	303,160	0	0	29,990	0	0	671,870	30	2

NOTE: Totalizer readings that result in minor positive or negative volumes should not be given any significance
GPD/AC = Gallons per day per acre; those that exceed 775 are in bold.
@ = Totalizer not connected

Table 3.1-5. Evaporation Pond 3B Leak Detection

Cell B Sumps	B-1			B-2			B-3			B-4			B-5		
	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC	Reading	Gallons	GPD/AC
Previous Reading	183,730			514,250			1,793,290			534,900			443,850		
1/4/2021	183,750	20	1	514,250	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
1/11/2021	184,250	500	28	514,260	10	1	1,793,290	0	0	534,900	0	0	443,850	0	0
1/18/2021	184,260	10	1	514,260	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
1/25/2021	184,260	0	0	514,260	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
2/1/2021	184,260	0	0	514,260	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
2/8/2021	184,260	0	0	514,260	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
2/15/2021	184,260	0	0	514,260	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
2/22/2021	184,260	0	0	514,260	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
3/1/2021	184,260	0	0	514,260	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
3/8/2021	184,330	70	4	514,280	20	1	1,793,290	0	0	534,900	0	0	443,850	0	0
3/15/2021	184,370	40	2	514,280	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
3/22/2021	184,380	10	1	514,290	10	1	1,793,290	0	0	534,900	0	0	443,850	0	0
3/29/2021	184,680	300	17	514,290	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
4/5/2021	184,680	0	0	514,300	10	1	1,793,290	0	0	534,900	0	0	443,850	0	0
4/12/2021	184,680	0	0	514,290	-10	-1	1,793,290	0	0	534,900	0	0	443,850	0	0
4/19/2021	184,680	0	0	514,290	0	0	1,793,290	0	0	534,900	0	0	443,850	0	0
4/26/2021	184,680	0	0	514,320	30	2	1,793,290	0	0	534,900	0	0	443,850	0	0
5/3/2021	184,680	0	0	514,330	10	1	1,793,290	0	0	534,900	0	0	443,850	0	0
5/10/2021	184,680	0	0	514,340	10	1	1,793,290	0	0	534,900	0	0	443,900	50	3
5/17/2021	184,680	0	0	514,360	20	1	1,793,290	0	0	534,900	0	0	443,900	0	0
5/24/2021	184,680	0	0	514,380	20	1	1,793,290	0	0	534,900	0	0	443,900	0	0
5/31/2021	184,680	0	0	514,450	70	4	1,793,290	0	0	534,900	0	0	443,900	0	0
6/7/2021	184,680	0	0	514,600	150	8	1,793,290	0	0	534,900	0	0	443,900	0	0
6/14/2021	184,680	0	0	514,780	180	10	1,793,340	50	3	534,900	0	0	443,920	20	1
6/21/2021	188,650	3,970	220	515,270	490	27	1,793,410	70	4	534,900	0	0	443,940	20	1
6/28/2021	191,300	2,650	147	516,060	790	44	1,793,480	70	4	534,900	0	0	443,960	20	1

NOTE: Totalizer readings that result in minor positive or negative volumes should not be given any significance.
GPD/AC = Gallons per day per acre; those that exceed 775 are in bold.
 # = Pump Maintenance; pumps off line.

Table 3.1-6. Monthly Tailings Collection and Injection Totals

	Sumps (gallons)
January	236,960
February	197,720
March	195,690
April	191,980
May	186,950
June	217,620

Table 3.1-7. Monthly Collection Totals by Aquifer and Area (gallons)

	On-Site Collection			South Off-Site Collection				North Off-Site Collection
	Alluvial	Upper Chinle	Middle Chinle	Alluvial	Upper Chinle	Middle Chinle	Lower Chinle	Alluvial
January	5,840,116	6,933,910	1,537,200	4,005,080	0	2,655,790	0	0
February	5,236,273	4,882,575	1,184,500	3,623,870	0	2,701,960	0	0
March	6,058,101	4,504,995	822,200	2,934,625	0	2,083,455	0	1,097,600
April	11,267,080	7,859,840	1,819,800	2,320,925	0	1,006,145	0	12,800
May	16,932,295	8,246,385	123,400	3,615,315	0	1,263,335	0	1,913,100
June	23,076,530	6,938,670	1,522,800	1,370,960	0	905,660	0	472,500

Table 3.1-8. Monthly Injection Totals by Aquifer and Area (gallons)

	On-Site Injection			South Off-Site Injection				North Off-Site Injection
	Alluvial	Upper Chinle	Middle Chinle	Alluvial	Upper Chinle	Middle Chinle	Lower Chinle	Alluvial
January	22,377,115	2,211,850	205,135	1,046,600	0	1,139,140	0	1,046,600
February	8,756,840	3,017,750	125,610	2,052,700	0	804,290	0	2,052,700
March	12,511,410	2,363,890	318,600	4,774,000	0	885,640	0	4,774,000
April	12,660,070	2,017,080	252,750	6,094,100	0	758,345	0	6,094,100
May	16,755,330	2,188,580	232,790	7,175,200	0	614,320	0	7,175,200
June	17,606,625	2,846,050	329,225	8,501,300	0	832,400	0	8,501,300

Table 3.1-9. Treatment System Influents Monthly Totals (gallons)

	300 GPM Zeolite	1200 GPM Zeolite	RO Plant
January	0	7,880,500	18,013,218
February	0	4,622,200	14,349,552
March	0	4,792,300	14,430,196
April	0	3,067,800	23,937,872
May	0	7,738,300	27,530,038
June	0	864,000	34,367,974

Table 3.1-10. Treatment System Effluent and Fresh Water Monthly Totals (gallons)

	Treatment Systems				Fresh Water Injection		
	Zeolite		RO Plant				
	Treated	Regeneration	Treated	Brine	On-Site	South Off-Site	North Off-Site
January	7,880,500	0	11,404,000	3,421,200	7,925,427	3,676,228	484,345
February	269,600	4,352,600	9,069,500	2,720,850	7,590,942	5,070,945	1,875,113
March	4,792,300	0	8,929,800	2,678,940	5,771,162	3,154,333	2,882,505
April	0	3,067,800	15,819,100	4,980,440	5,934,392	2,457,736	2,577,871
May	2,819,900	4,918,400	18,329,000	5,737,010	7,658,417	2,280,784	2,668,799
June	622,300	241,700	20,770,600	7,121,720	6,766,069	2,208,414	2,869,517

Table 3.2-1
Reversal Wells

Table 3.2-1. Depth to Water in Reversal Wells

Well Name	B	BA	DZ	KZ	S2	S5	SM	SN	SO	SP
MP Elev.	**6570.9**	**6571.58**	**6590.53**	**6571.72**	**6573.72**	**6574.69**	**6578.74**	**6579.26**	**6578.79**	**6578.66**
1/4/2021	40.45	41.68	55.06	35.65	41.48	46.34	45.00	44.63	45.61	45.33
1/11/2021	40.34	41.56	54.78	35.59	41.42	46.32	44.93	44.60	45.50	45.29
1/18/2021	40.06	41.22	54.44	35.50	41.26	46.21	44.76	44.45	45.33	45.15
1/25/2021	39.96	41.07	54.33	35.40	41.18	46.07	44.70	44.41	45.26	45.47
2/1/2021	40.07	41.23	54.63	35.40	41.25	46.25	44.72	44.45	45.31	45.12
2/8/2021	39.97	41.08	54.34	35.39	41.26	46.21	44.64	44.39	45.28	45.09
2/15/2021	39.99	41.14	89.81	35.46	41.44	46.27	44.68	44.39	45.38	45.14
2/22/2021	40.11	41.34	54.56	35.48	41.59	46.59	44.92	44.60	45.59	45.34
3/1/2021	40.21	41.47	54.41	35.50	41.69	46.50	45.01	44.68	45.70	45.43
3/8/2021	40.09	41.25	54.29	35.42	41.70	46.51	45.03	45.13	45.69	45.45
3/15/2021	40.15	41.20	54.46	35.08	41.74	46.56	45.02	44.69	45.74	45.47
3/22/2021	40.03	41.04	54.47	35.39	41.73	46.58	45.00	44.66	45.69	45.45
3/29/2021	40.19	41.22	54.79	35.46	41.88	46.75	45.13	44.77	45.82	45.56
4/5/2021	40.17	41.46	54.63	35.42	41.90	46.75	45.15	44.79	45.86	45.60
4/12/2021	40.73	42.96	56.26	53.40	47.25	46.86	45.90	45.22	45.91	45.69
4/19/2021	40.94	43.34	56.72	35.60	54.60	47.10	45.25	44.95	45.92	45.73
4/26/2021	39.08	43.16	56.67	35.75	41.10	47.09	45.28	45.01	45.94	45.77
5/3/2021	39.25	42.40	56.67	35.96	42.00	47.12	45.31	45.10	45.95	45.80
5/10/2021	39.32	43.40	56.97	36.10	42.03	47.26	45.35	45.10	45.99	45.84
5/17/2021	39.40	43.47	57.00	36.16	42.00	47.35	45.32	45.12	45.98	46.85
5/24/2021	41.36	43.60	57.32	36.27	49.86	48.74	45.35	45.18	46.00	45.87
5/31/2021	41.50	43.53	57.43	36.35	64.70	45.60	45.38	45.26	45.97	45.55
6/7/2021	41.59	43.89	57.40	36.40	48.00	47.50	45.25	45.16	45.92	45.80
6/14/2021	41.77	44.35	58.11	36.55	42.09	47.70	45.30	45.22	45.99	45.87
6/21/2021	42.00	44.52	57.43	36.68	48.51	47.58	45.32	45.26	46.02	44.91
6/28/2021	42.02	44.24	57.38	36.76	42.40	47.47	45.32	46.25	46.06	45.90

Table 3.4-1
Wells Drilled

Table 3.4-1. Wells Drilled and Abandoned

Wells Drilled		Wells Abandoned		Wells Abandoned	
Well Name	**Restoration Area**	**Well Name**	**Restoration Area**	**Well Name**	**Restoration Area**
SAG1	Off-Site	T43	Tailings	T88	Tailings
		T44	Tailings	T89	Tailings
		T45	Tailings	T90	Tailings
		T46	Tailings	T91	Tailings
		T47	Tailings	T92	Tailings
Wells Abandoned		T48	Tailings	T93	Tailings
Well Name	**Restoration Area**	T49	Tailings	T94	Tailings
NE5	Tailings	T50	Tailings	T95	Tailings
NW5	Tailings	T51	Tailings	T96	Tailings
T1	Tailings	T52	Tailings	T97	Tailings
T4	Tailings	T53	Tailings	T98	Tailings
T5	Tailings	T54	Tailings	T99	Tailings
T6	Tailings	T55	Tailings	T100	Tailings
T7	Tailings	T56	Tailings	T101	Tailings
T8	Tailings	T57	Tailings	T102	Tailings
T9	Tailings	T58	Tailings	T103	Tailings
T10	Tailings	T59	Tailings	T104	Tailings
T11	Tailings	T60	Tailings	T105	Tailings
T12	Tailings	T61	Tailings	T106	Tailings
T13	Tailings	T62	Tailings	T107	Tailings
T14	Tailings	T63	Tailings	T108	Tailings
T15	Tailings	T64	Tailings	T109	Tailings
T16	Tailings	T65	Tailings	T110	Tailings
T17	Tailings	T66	Tailings	T111	Tailings
T18	Tailings	T67	Tailings	WME-18	Tailings
T19	Tailings	T68	Tailings	WME-19	Tailings
T20	Tailings	T69	Tailings	WME-20	Tailings
T21	Tailings	T70	Tailings	WN4	Tailings
T22	Tailings	T71	Tailings		
T24	Tailings	T72	Tailings		
T26	Tailings	T73	Tailings		
T27	Tailings	T74	Tailings		
T28	Tailings	T75	Tailings		
T29	Tailings	T76	Tailings		
T30	Tailings	T77	Tailings		
T31	Tailings	T78	Tailings		
T32	Tailings	T79	Tailings		
T33	Tailings	T80	Tailings		
T34	Tailings	T81	Tailings		
T35	Tailings	T82	Tailings		
T36	Tailings	T83	Tailings		
T37	Tailings	T84	Tailings		
T38	Tailings	T85	Tailings		
T40	Tailings	T86	Tailings		
T42	Tailings	T87	Tailings		

Table 4.1-1
Water Quality Analysis for Well D1

Well D1 Was Not Sampled in the 1st Half of 2021

Table 4.1-2
Water Quality Analysis for Well DD

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 3/17/2021
Report ID: S2103169001

ProjectName: HMC GRP
Lab ID: S2103169-001
ClientSample ID: DD
COC: WEB
PWS ID:
Comments

WorkOrder: S2103169
CollectionDate: 3/9/2021 10:40:00 AM
DateReceived: 3/12/2021 10:41:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
pH	6.90	s.u.			Field	03/09/2021 1040	
Anions/Cations							
Chloride	73	mg/L		1	EPA 300.0	03/15/2021 1554	AB
Sulfate	1920	mg/L		2	EPA 300.0	03/15/2021 1554	AB
General Parameters							
Total Dissolved Solids (180)	3530	mg/L		20	SM 2540	03/12/2021 1441	MW
Metals - Dissolved							
Molybdenum	<0.01	mg/L		0.01	EPA 200.8	03/13/2021 022	MS
Selenium	0.076	mg/L		0.005	EPA 200.8	03/13/2021 022	MS
Uranium	0.105	mg/L		0.0003	EPA 200.8	03/13/2021 022	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by:
Jessica Gillan, Project Manager

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 5/12/2021
Report ID S2104145001

ProjectName: HMC GRP
Lab ID: S2104145-001
ClientSample ID: DD
COC: WEB
PWS ID:
Comments

WorkOrder: S2104145
CollectionDate: 4/5/2021 10:19:00 AM
DateReceived: 4/9/2021 11:20:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
pH	7.26	s.u.			Field	04/05/2021 1019	
Anions/Cations							
Alkalinity, Total (As CaCO3)	288	mg/L		5	SM 2320B	04/12/2021 1800	ACE
Alkalinity, Bicarbonate as HCO3	352	mg/L		5	SM 2320B	04/12/2021 1800	ACE
Alkalinity, Carbonate as CO3	<5	mg/L		5	SM 2320B	04/12/2021 1800	ACE
Chloride	68.6	mg/L	D	2.24	EPA 300.0	04/09/2021 2111	AB
Nitrogen, Nitrate+Nitrite (as N)	9.6	mg/L		0.1	EPA 353.2	04/16/2021 1401	AMB
Sulfate	1960	mg/L	D	5	EPA 300.0	04/13/2021 1527	AB
Calcium	439	mg/L		2	EPA 200.7	04/12/2021 1511	DG
Magnesium	106	mg/L		2	EPA 200.7	04/12/2021 1511	DG
Potassium	9	mg/L		2	EPA 200.7	04/12/2021 1511	DG
Sodium	440	mg/L		3	EPA 200.7	04/12/2021 1511	DG
General Parameters							
Total Dissolved Solids (180)	3500	mg/L		20	SM 2540	04/09/2021 1456	ACE
Metals - Dissolved							
Manganese	0.606	mg/L		0.005	EPA 200.8	04/12/2021 2304	MS
Molybdenum	<0.01	mg/L		0.01	EPA 200.8	04/12/2021 2304	MS
Selenium	0.067	mg/L		0.005	EPA 200.8	04/12/2021 2304	MS
Uranium	0.102	mg/L		0.0003	EPA 200.8	04/12/2021 2304	MS
Uranium Activity	69.1	pCi/L		0.2	Calculation	05/12/2021 1105	JKG
Vanadium	<0.02	mg/L		0.02	EPA 200.8	04/12/2021 2304	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 5/12/2021
Report ID S2104145001

ProjectName: HMC GRP
Lab ID: S2104145-001
ClientSample ID: DD
COC: WEB
PWS ID:
Comments

WorkOrder: S2104145
CollectionDate: 4/5/2021 10:19:00 AM
DateReceived: 4/9/2021 11:20:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Radium 226	<0.2	pCi/L		0.2	SM 7500 Ra-B	05/10/2021 1409	WN
Radium 226 Precision (±)	0.04	pCi/L			SM 7500 Ra-B	05/10/2021 1409	WN
Radium 228	2.3	pCi/L		1	Ga-Tech	05/01/2021 410	WN
Radium 228 Precision (±)	1.9	pCi/L			Ga-Tech	05/01/2021 410	WN
Thorium 230	<0.3	pCi/L		0.3	ACW10	04/28/2021 803	AEF
Thorium 230 Precision (±)	0.02	pCi/L			ACW10	04/28/2021 803	AEF

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Table 4.1-3
Water Quality Analyses for Well DD2

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 3/17/2021
Report ID: S2103169001

ProjectName: HMC GRP
Lab ID: S2103169-002
ClientSample ID: DD2
COC: WEB
PWS ID:
Comments

WorkOrder: S2103169
CollectionDate: 3/9/2021 11:56:00 AM
DateReceived: 3/12/2021 10:41:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
pH	6.76	s.u.			Field	03/09/2021 1156	
Anions/Cations							
Chloride	54	mg/L		1	EPA 300.0	03/15/2021 1604	AB
Sulfate	1480	mg/L		2	EPA 300.0	03/15/2021 1604	AB
General Parameters							
Total Dissolved Solids (180)	2660	mg/L		20	SM 2540	03/12/2021 1443	MW
Metals - Dissolved							
Molybdenum	<0.01	mg/L		0.01	EPA 200.8	03/13/2021 057	MS
Selenium	<0.005	mg/L		0.005	EPA 200.8	03/13/2021 057	MS
Uranium	0.235	mg/L		0.0003	EPA 200.8	03/13/2021 057	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan
Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 5/12/2021
Report ID S2104145001

ProjectName: HMC GRP
Lab ID: S2104145-002
ClientSample ID: DD2
COC: WEB
PWS ID:
Comments

WorkOrder: S2104145
CollectionDate: 4/5/2021 10:58:00 AM
DateReceived: 4/9/2021 11:20:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
pH	7.11	s.u.			Field	04/05/2021 1058	
Anions/Cations							
Alkalinity, Total (As CaCO3)	294	mg/L		5	SM 2320B	04/12/2021 1808	ACE
Alkalinity, Bicarbonate as HCO3	358	mg/L		5	SM 2320B	04/12/2021 1808	ACE
Alkalinity, Carbonate as CO3	<5	mg/L		5	SM 2320B	04/12/2021 1808	ACE
Chloride	57.8	mg/L	D	2.24	EPA 300.0	04/09/2021 2121	AB
Nitrogen, Nitrate+Nitrite (as N)	<0.1	mg/L		0.1	EPA 353.2	04/16/2021 1402	AMB
Sulfate	1500	mg/L		2	EPA 300.0	04/09/2021 2121	AB
Calcium	338	mg/L		2	EPA 200.7	04/12/2021 1513	DG
Magnesium	89	mg/L		2	EPA 200.7	04/12/2021 1513	DG
Potassium	9	mg/L		2	EPA 200.7	04/12/2021 1513	DG
Sodium	394	mg/L		3	EPA 200.7	04/12/2021 1513	DG
General Parameters							
Total Dissolved Solids (180)	2600	mg/L		20	SM 2540	04/09/2021 1457	ACE
Metals - Dissolved							
Manganese	2.59	mg/L		0.005	EPA 200.8	04/12/2021 2310	MS
Molybdenum	<0.01	mg/L		0.01	EPA 200.8	04/12/2021 2310	MS
Selenium	<0.005	mg/L		0.005	EPA 200.8	04/12/2021 2310	MS
Uranium	0.237	mg/L		0.0003	EPA 200.8	04/12/2021 2310	MS
Uranium Activity	160	pCi/L		0.2	Calculation	05/12/2021 1105	JKG
Vanadium	<0.02	mg/L		0.02	EPA 200.8	04/12/2021 2310	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 5/12/2021
Report ID S2104145001

ProjectName: HMC GRP
Lab ID: S2104145-002
ClientSample ID: DD2
COC: WEB
PWS ID:
Comments

WorkOrder: S2104145
CollectionDate: 4/5/2021 10:58:00 AM
DateReceived: 4/9/2021 11:20:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Radium 226	0.3	pCi/L		0.2	SM 7500 Ra-B	05/10/2021 1409	WN
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	05/10/2021 1409	WN
Radium 228	<1	pCi/L		1	Ga-Tech	05/01/2021 713	WN
Radium 228 Precision (±)	1.6	pCi/L			Ga-Tech	05/01/2021 713	WN
Thorium 230	<0.3	pCi/L		0.3	ACW10	04/28/2021 803	AEF
Thorium 230 Precision (±)	0.05	pCi/L			ACW10	04/28/2021 803	AEF

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Table 4.1-4
Water Quality Analyses for Well P

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 5/19/2021
Report ID S2104249001

ProjectName: HNC GRP
Lab ID: S2104249-001
ClientSample ID: P
COC: WEB
PWS ID:
Comments

WorkOrder: S2104249
CollectionDate: 4/15/2021 8:34:00 AM
DateReceived: 4/19/2021 11:39:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
pH	7.52	s.u.			Field	04/15/2021 834	
Anions/Cations							
Alkalinity, Total (As CaCO3)	208	mg/L		5	SM 2320B	04/19/2021 1824	ACE
Alkalinity, Bicarbonate as HCO3	254	mg/L		5	SM 2320B	04/19/2021 1824	ACE
Alkalinity, Carbonate as CO3	<5	mg/L		5	SM 2320B	04/19/2021 1824	ACE
Chloride	49	mg/L		1	EPA 300.0	04/19/2021 2120	AB
Nitrogen, Nitrate+Nitrite (as N)	5.6	mg/L		0.1	EPA 353.2	04/21/2021 1143	AMB
Sulfate	1020	mg/L		2	EPA 300.0	04/19/2021 2120	AB
Calcium	227	mg/L		2	EPA 200.7	04/20/2021 1435	DG
Magnesium	47	mg/L		2	EPA 200.7	04/20/2021 1435	DG
Potassium	8	mg/L		2	EPA 200.7	04/20/2021 1435	DG
Sodium	287	mg/L		3	EPA 200.7	04/20/2021 1435	DG
General Parameters							
Total Dissolved Solids (180)	1830	mg/L		20	SM 2540	04/19/2021 1535	ACE
Metals - Dissolved							
Manganese	0.675	mg/L		0.005	EPA 200.8	04/20/2021 1050	MS
Molybdenum	<0.01	mg/L		0.01	EPA 200.8	04/20/2021 1050	MS
Selenium	0.144	mg/L		0.005	EPA 200.8	04/20/2021 1050	MS
Uranium	0.0279	mg/L		0.0003	EPA 200.8	04/20/2021 1050	MS
Vanadium	<0.02	mg/L		0.02	EPA 200.8	04/20/2021 1050	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 5/19/2021
Report ID S2104249001

ProjectName: HNC GRP
Lab ID: S2104249-001
ClientSample ID: P
COC: WEB
PWS ID:
Comments

WorkOrder: S2104249
CollectionDate: 4/15/2021 8:34:00 AM
DateReceived: 4/19/2021 11:39:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Dissolved							
Radium 226	0.4	pCi/L		0.2	SM 7500 Ra-B	05/12/2021 1226	WN
Radium 226 Precision (±)	0.1	pCi/L			SM 7500 Ra-B	05/12/2021 1226	WN
Radium 228	<1	pCi/L		1	Ga-Tech	05/15/2021 920	WN
Radium 228 Precision (±)	1.1	pCi/L			Ga-Tech	05/15/2021 920	WN
Thorium 230	<0.3	pCi/L		0.3	ACW10	04/28/2021 1416	AEF
Thorium 230 Precision (±)	0.02	pCi/L			ACW10	04/28/2021 1416	AEF

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Table 4.1-5
Water Quality Analyses for Well S4

Well S4 Was Not Sampled in the 1st Half of 2021

Table 4.1-6
Water Quality Analyses for Well X

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 3/17/2021
Report ID: S2103169001

ProjectName: HMC GRP
Lab ID: S2103169-003
ClientSample ID: X
COC: WEB
PWS ID:
Comments

WorkOrder: S2103169
CollectionDate: 3/9/2021 2:10:00 PM
DateReceived: 3/12/2021 10:41:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
pH	7.24	s.u.			Field	03/09/2021 1410	
Anions/Cations							
Chloride	107	mg/L		1	EPA 300.0	03/15/2021 1613	AB
Sulfate	312	mg/L		2	EPA 300.0	03/15/2021 1613	AB
General Parameters							
Total Dissolved Solids (180)	1040	mg/L		20	SM 2540	03/12/2021 1444	MW
Metals - Dissolved							
Molybdenum	0.12	mg/L		0.01	EPA 200.8	03/13/2021 103	MS
Selenium	0.013	mg/L		0.005	EPA 200.8	03/13/2021 103	MS
Uranium	0.0506	mg/L		0.0003	EPA 200.8	03/13/2021 103	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by:
Jessica Gillan, Project Manager

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 4/16/2021
Report ID: S2104143001

ProjectName: HMC GRP
Lab ID: S2104143-001
ClientSample ID: X
COC: WEB
PWS ID:
Comments

WorkOrder: S2104143
CollectionDate: 4/5/2021 3:43:00 PM
DateReceived: 4/9/2021 11:17:00 AM
FieldSampler: EA
Matrix: Water

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
pH	7.33	s.u.			Field	04/05/2021 1543	
Anions/Cations							
Chloride	117	mg/L		1	EPA 300.0	04/13/2021 1416	AB
Sulfate	342	mg/L		2	EPA 300.0	04/09/2021 2052	AB
General Parameters							
Total Dissolved Solids (180)	1040	mg/L		20	SM 2540	04/09/2021 1453	ACE
Metals - Dissolved							
Molybdenum	0.09	mg/L		0.01	EPA 200.8	04/12/2021 2252	MS
Selenium	0.011	mg/L		0.005	EPA 200.8	04/12/2021 2252	MS
Uranium	0.0437	mg/L		0.0003	EPA 200.8	04/12/2021 2252	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by:
Jessica Gillan, Project Manager

Table 4.2- 1
Lined Pond Water Quality

Table 4.2-1. Lined Pond Water Quality

Sample Point Name	Date	Temp (deg.C)	pH (f) (std. units)	Conductivity (micromhos/cm)	CO3 (mg/L)	Ca (mg/L)	CL (mg/L)	HCO3 (mg/L)	Mg (mg/L)	K (mg/L)	Na (mg/L)	SO4 (mg/L)	TDS (mg/L)
E Coll Pond	3/22/21	7.10	9.72	15440			792					6070	13200
	4/27/21	12.40	9.88	13510			702					5360	11200
Evap Pond 1	3/27/21	6.40	9.40	54950			7100					29100	62800
	5/20/21	19.90	9.35	52490			4900					37500	60200
Evap Pond 2	3/22/21	7.30	9.28	23770			1690					13400	22900
	4/26/21	14.40	9.19	22510			1230					9950	17500
Evap Pond 3A	3/22/21	7.40	9.25	132300			62700					16500	152000
	4/26/21	14.70	9.61	209100			70200					17500	193000
Evap Pond 3B	3/22/21	11.00	9.34	106500			35500					16400	123000
	4/26/21	14.80	9.35	112900			40000					25100	146000
W Coll Pond	3/22/21	7.70	8.74	5468			283					2170	3920
	4/27/21	12.50	8.94	11050			586					4460	8840

f = field measurement
t = analyte, total

Sample Point Name	Date	NO3 (mg/L)	Mn(t) (mg/L)	Se (mg/L)	Se (t) (mg/L)	Mo (mg/L)	Mo (t) (mg/L)	Unat (mg/L)	Unat (t) (mg/L)	Ra226 (pCi/L)	Ra228 (pCi/L)	Ra226+ Ra228 (pCi/L)	Th230 (pCi/L)	V (mg/L)
E Coll Pond	3/22/21			0.742	1.05	41	34.6	30.6	76.2					
	4/27/21			0.818	1.14	31.8	42.9	17.5	23.4					
Evap Pond 1	3/27/21			0.854	<0.025	135	197	127	112					
	5/20/21			0.821	0.781	105	123	70.7	84.1					
Evap Pond 2	3/22/21			0.546	0.794	55	60.7	22	26.3					
	4/26/21			0.615	0.654	49.9	45.3	19.5	18.8					
Evap Pond 3A	3/22/21			<0.025	0.714	2180	2100	794	788					
	4/26/21			0.796	0.425	2400	2500	946	801					
Evap Pond 3B	3/22/21			<0.025	<0.025	1030	1010	572	566					
	4/26/21			<0.025	<0.025	1300	1260	788	629					
W Coll Pond	3/22/21			0.3	0.316	11.2	10.5	4	4.18					
	4/27/21			0.893	0.953	27.6	33.2	9.2	11					

f = field measurement
t = analyte, total

Table 4.2- 2
Evaporation Pond Monitoring Wells Water Quality

Table 4.2-2. Evaporation Pond Monitoring Wells Water Quality

Sample Point Name	Date	WL (feet)	Temp (deg.C)	pH (f) (std. units)	Conductivity (micromhos/cm)	CO3 (mg/L)	Ca (mg/L)	CL (mg/L)	HCO3 (mg/L)	Mg (mg/L)	K (mg/L)	Na (mg/L)
Site Standard Qal aquifer								250				
D1	No Sample in the First Half of 2021											
DD	3/9/21	49.29	12.90	6.90	3919			73				
	4/5/21	55.69	13.90	7.26	3913	<5	439	68.6	352	106	9	440
DD2	3/9/21	46.51	12.20	6.76	3129			54				
	4/5/21	46.63	13.30	7.11	3102	<5	33	57.8	358	89	9	394
P	4/15/21	40.49	12.70	7.52	2365	<5	227	49	254	47	8	287
S4	No Sample in the First Half of 2021											
X	3/9/21	33.08	14.70	7.24	7.24			107				
	4/5/21	33.21	16.00	7.33	7.33			117				

= Quality Control Sample

Concentrations greater than site standards are in **bold**.

f = field measurement

Sample Point Name	Date	SO4 (mg/L)	TDS (mg/L)	NO3 (mg/L)	Se (mg/L)	Mo (mg/L)	Unat (mg/L)	Ra226 (pCi/L)	Ra228 (pCi/L)	Ra226+ Ra228 (pCi/L)	Th230 (pCi/L)	V (mg/L)
Site Standard Qal aquifer		1500	2734	12	0.32	0.1	0.16			5	0.3	0.02
D1	No Sample in the First Half of 2021											
DD	3/9/21	**1920**	**3530**		0.076	<0.01	0.105					
	4/5/21	**1960**	**3500**	9.6	0.067	<0.01	0.102	<0.2	2.3	<2.3	<0.3	<0.02
DD2	3/9/21	1480	2660		<0.005	<0.01	**0.235**					
	4/5/21	**1500**	2600	<0.1	<0.005	<0.01	**0.237**	0.3	<1	<1.3	<0.3	<0.02
P	4/15/21	1020	1830	5.6	0.144	<0.01	0.0279	0.40	<1	<1.4	<0.3	<0.02
S4	No Sample in the First Half of 2021											
X	3/9/21	314	1040		0.013	**0.120**	0.0506					
	4/5/21	342	1040		0.011	0.090	0.0437					

= Quality Control Sample

Concentrations greater than site standards are in **bold**.

f = field measurement

Table 4.3-1
Compliant Water Quality

Table 4.3-1. Compliant Water Quality

Sample Point Name	Date	Temp (deg.C)	pH (f) (std. units)	Conductivity (micromhos/cm)	CO3 (mg/L)	Ca (mg/L)	CL (mg/L)	HCO3 (mg/L)	Mg (mg/L)	K (mg/L)	Na (mg/L)
Site Standard Qal aquifer							250				
					Post Treatment Tank						
SP2	1/26/2021	13.40	6.98	1617	< 5	120	116	196	34	7	180
	2/25/2021	15.30	8.20	1676	< 5	119	106	183	34	7	208
	3/27/2021	14.60	7.56	1442	< 5	106	107	223	33	7	156
	4/26/2021	17.1	8.03	1278	< 5	90	100	218	33	7	141
	5/24/2021	21	6.49	790.2	< 5	54	58	129	20	4	82
	6/28/2021		7.49	898.6	< 5	62	49	94	21	4	98

Concentrations greater than site standards are in **bold**.

f = field measurement

Sample Point Name	Date	SO4 (mg/L)	TDS (mg/L)	NO3 (mg/L)	Se (mg/L)	Mo (mg/L)	Unat (mg/L)	Ra226 (pCi/L)	Ra228 (pCi/L)	Ra226+ Ra228 (pCi/L)	Th230 (pCi/L)	V (mg/L)
Site Standard Qal aquifer		1500	2734	12	0.32	0.1	0.16			5	0.3	0.02
						Post Treatment Tank						
SP2	1/26/2021	465	1100	1.2	0.012	0.02	0.0129	0.08	<1.6	<1.68	0.03	< 0.01
	2/25/2021	470	1150	1.1	0.012	< 0.01	0.0498	0.11	1.5	1.61	0.02	< 0.02
	3/27/2021	365	990	1	0.006	0.01	0.0210	0.09	<1.6	<1.69	0.03	< 0.02
	4/26/2021	286	860	0.9	< 0.005	0.02	0.0065	0.06	<2	<2.06	0.04	< 0.02
	5/24/2021	167	470	3.9	< 0.005	0.01	0.0096	0.02	<1.5	<1.52	0.01	< 0.02
	6/28/2021	154	400	0.4	< 0.005	0.01	0.0165	0.5	1.2	1.70	0.02	< 0.02

Concentrations greater than site standards are in **bold**.

f = field measurement

Table 4.3-2
Treated Water Quality

Table 4.3-2. Treated Water Quality

Sample Point Name	Date	Temp (deg.C)	pH (f) (std. units)	Conductivity (micromhos/cm)	CO3 (mg/L)	Ca (mg/L)	CL (mg/L)	HCO3 (mg/L)	Mg (mg/L)	K (mg/L)	Na (mg/L)
Parameter Code		12	109	51	6	1	7	5	2	3	4
Site Standard Qal aquifer							250				
						RO Product					
RO SP1	1/26/2021	12.9	8.08	35.07	< 5	< 2	4	< 5	< 2	< 2	5
	2/25/2021	14.9	6.36	38.55	< 5	< 2	5	< 5	< 2	< 2	7
	3/27/2021	13.3	7.18	43.77	< 5	< 2	5	< 5	< 2	< 2	8
	4/26/2021	16.4	7.86	50.26	< 5	< 2	6	5	< 2	< 2	8
	5/24/2021	18.5	5.17	34.83	< 5	< 2	4	5	< 2	< 2	6
	6/28/2021		6.64	48.14	< 5	< 2	5	9	< 2	< 2	9
						Zeolite Treated Water					
LP RO2		NO 2021 OPERATION									
300Z		NO 2021 OPERATION									
1200Z Trains 1&2		NO 2021 OPERATION									
1200Z Trains 3&4	1/26/2021	10.7	7.05	2318	< 5	173	152	43	42	8	315
	5/26/2021	17.1	6.33	2469	< 5	191	147	62	54	9	326

Concentrations greater than site standards are in **bold**.

f = field measurement

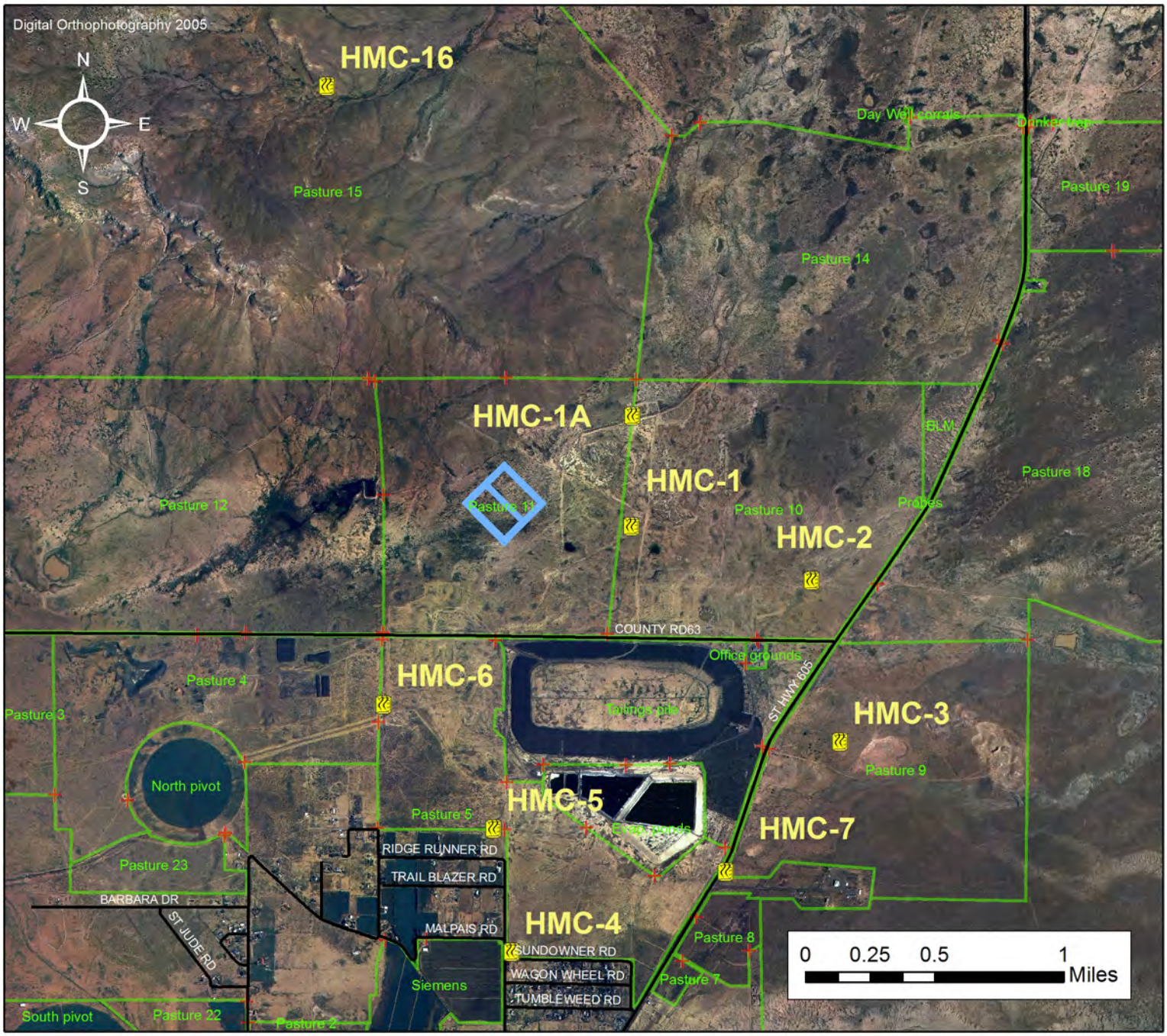
Sample Point Name	Date	SO4 (mg/L)	TDS (mg/L)	NO3 (mg/L)	Se (mg/L)	Mo (mg/L)	Unat (mg/L)	Ra226 (pCi/L)	Ra228 (pCi/L)	Ra226+ Ra228 (pCi/L)	Th230 (pCi/L)	V (mg/L)
Parameter Code		8	10	39	40	36	15	45	57	372	48	42
Site Standard Qal aquifer		1500	2734	12	0.32	0.1	0.16			5	0.3	0.02
							RO Product					
RO SP1	1/26/2021	4	< 20	0.4	< 0.005	0.02	0.0051	0.05	<2.4	<2.45	<0.3	< 0.01
	2/25/2021	4	20	0.4	< 0.005	0.02	0.001	0.06	2	2.06	0.04	< 0.02
	3/27/2021	5	40	0.5	< 0.005	0.02	0.0022	<0.03	1	<1.03	0.05	< 0.02
	4/26/2021	4	30	0.5	< 0.005	0.02	0.0043	0.08	2.1	2.18	0.04	< 0.02
	5/24/2021	2	< 20	0.4	< 0.005	0.01	0.0041	<0.04	<2	<2.04	0.04	< 0.02
	6/28/2021	5	30	0.4	< 0.005	0.02	0.0073	2.7	<1.6	<4.3	0.11	< 0.02
							Zeolite Treated Water					
LP RO2		NO 2021 OPERATION										
300Z		NO 2020 OPERATION										
1200Z Trains 1&2		NO 2020 OPERATION										
1200Z Trains 3&4	1/26/2021	946	1760	< 0.1	0.032	< 0.01	0.0901	0.11	20.3	20.41	0.04	< 0.01
	5/26/2021	939	1980	1.4	0.030	0.01	0.0906	0.11	1.1	1.21	0.01	< 0.02

Concentrations greater than site standards are in **bold**.

f = field measurement

Figure 1 – Monitoring & Sampling Locations

FIGURE 1 : HMC Air Monitoring & Sampling Locations - Grants, NM



Location ID	Sampling Unit	Northing	Easting
HMC-1	Hi-Vol Particulate (Air), Track-Etch Cup (Radon), OSL Badge (Gamma)	1547458.8	491370.5
HMC-1A	Hi-Vol Particulate (Air), Track-Etch Cup (Radon), OSL Badge (Gamma)	1549715.8	491387.7
HMC-2	Hi-Vol Particulate (Air), Track-Etch Cup (Radon), OSL Badge (Gamma)	1546349.5	495053.2
HMC-3	Hi-Vol Particulate (Air), Track-Etch Cup (Radon), OSL Badge (Gamma)	1543048.7	495640.5
HMC-4	Hi-Vol Particulate (Air), Track-Etch Cup (Radon), OSL Badge (Gamma)	1538751.1	488918.0
HMC-5	Hi-Vol Particulate (Air), Track-Etch Cup (Radon), OSL Badge (Gamma)	1541268.4	488546.3
HMC-6	Hi-Vol Particulate (Air), Track-Etch Cup (Radon), OSL Badge (Gamma)	1543813.1	486297.3
HMC-7	Track-Etch Cup (Radon)	1540395.7	493293.8
HMC-16	Track-Etch Cup (Radon), OSL Badge (Gamma)	1556470.5	485135.1

Location
Road
Gate
EP-3
Fence Line
Section Line

HOMESTAKE

Attachment 1
High Volume Air Sampling Results
(First half of 2021)

Pace Analytical
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

All shaded fields must be completed.

This is a legal document; any misrepresentation may be construed as fraud.

#WEB

Client Name	Homestake Mining Company
Report Address	560 Anaconda Rd Route 605 Milan, NM 87201
Invoice Address	Same
Project Identification	HMC GRP
Contact Name	Kyle Martinez
Email	kmartinez1@barrick.com
Phone	(505) 287-1606
Purchase Order #	4500094065
Quote #	2546/2547
Sampler (Signature/Attestation of Authenticity)	
Telephone #	(505) 238-4172

ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME SAMPLED	SAMPLE IDENTIFICATION	Matrix	# of Containers	Total Uranium	Total Ra-226	Total TH-230						REMARKS
1	S2107150-001			HMC-1	FT	1	X	X	X						Total Volume: 1.31E8 L
2	002	Q	2	HMC-1A	FT	1	X	X	X						Total Volume: 1.28E8 L
3	003			HMC-2	FT	1	X	X	X						Total Volume: ~~9.89E7 L~~ 1.42
4	004	2021		HMC-3	FT	1	X	X	X						Total Volume: 1.13E8 L
5	005			HMC-4	FT	1	X	X	X						Total Volume: ~~1.86E8 L~~
6	006	Composite		HMC-5	FT	1	X	X	X						Total Volume: 1.34E8 L
7	007			HMC-6	FT	1	X	X	X						Total Volume: ~~1.30E8 L~~
8	008			HMC-7	FT	1	X	X	X						
9															See attached
10															
11															
12															
13															
14															

1.42 E+8 L 1.12 E+8 L 1.10 E+8 L

LAB COMMENTS	Relinquished By (Signature/Printed)	DATE	TIME	Received By (Signature/Printed)	DATE	TIME
	[signature] Chuck Carr	7/6/2021	12:00	Kathy Bom	7.9.21	7:42

SHIPPING INFO
- ☐ UPS
- ☒ FedEx
- ☐ USPS
- ☐ Hand Carried
- ☐ Other

MATRIX CODES

Water	WT
Soil	SL
Solid	SD
Filter (circled)	FT
Other	OT

TURN AROUND TIMES

Check desired service
- ☒ Standard turnaround
- ☐ RUSH - 5 Working Days
- ☐ URGENT - < 2 Working Days

Rush & Urgent Surcharges will be applied

COMPLIANCE INFORMATION

Compliance Monitoring ? Y / (N)
Program (SDWA, NPDES,...)
PWSID / Permit #
Chlorinated? Y / (N)
Sample Disposal: Lab ✓ Client

ADDITIONAL REMARKS

INTER-MOUNTAIN LABS

Survey Meter # Model 2241-2; SN 182115
pH strip lot # HC904495
Thermometer SN# 27130475

Condition Upon Receipt (Attach to COC)

Sample Receipt

1 Number of ice chests/packages received: 1 ROI? Yes (No)
*Note as "**OTC**" if samples are received over the counter, unpackaged*

2 Temperature of cooler/samples. *(If more than 8 coolers, please write on back)*

Temps Observed (°C):	→						
Temps Corrected (°C):	←						

***Acceptable is: 0.1° to 10°C** for Bacteria; and 0.1° to 6°C for most other water parameters. Samples may not have had adequate time to cool following collection. Indicate ROI (Received on Ice) for iced samples received on the same day as sampled, in addition to temperature at receipt.*

Client contact for temperatures outside method criteria must be documented below.

3 Emission rate of samples for radiochemical analyses < 0.5mR/hr?	(Yes)	No	N/A
4 COC Number (If applicable): WRB			
5 Do the number of bottles agree with the COC?	(Yes)	No	N/A
6 Were the samples received intact? *(no broken bottles, leaks, etc.)*	(Yes)	No	N/A
7 Were the sample custody seals intact?	Yes	No	(N/A)
8 Is the COC properly completed, legible, and signed?	(Yes)	No	

Sample Verification, Labeling & Distribution

1 Were all requested analyses understood and appropriate?	(Yes)	No
2 Did the bottle labels correspond with the COC information?	(Yes)	No
3 Samples collected in method-prescribed containers?	(Yes)	No

4 Sample Preservation:

pH at Receipt:	Final pH (if added in lab):	Preservative/Lot#	Date/Time Added:
_____ Total Metals	_____ Total Metals	HNO_3 _____	_____
_____ Diss Metals	_____ Diss Metals	*Filtered and preserved in metals*	*Filtered and preserved in metals*
_____ Nutrient	_____ Nutrient	H_2SO_4 _____	
_____ Cyanide	_____ Cyanide	NaOH _____	
_____ Sulfide	_____ Sulfide	ZnAcet _____	
_____ Phenol	_____ Phenol	H_2SO_4 _____	
_____ SDWA Rads	_____ SDWA Rads	HNO_3 _____	_____

Preserved samples for Rad analysis accompanied by Field Blank?	Yes	No	
5 VOA vials have <6mm headspace?	Yes	No	N/A
6 Were all analyses within holding time at the time of receipt?	(Yes)	No	
7 Specially requested detection limits (RLs) assigned?	Yes	No	N/A
8 Have rush or project due dates been checked and accepted?	Yes	No	N/A
9 Do samples require subcontracted analyses?	Yes	(No)	

If "Yes", which type of subcontracting is required? **General** **Customer-Specified** **Certified**

Sample Receipt, Verification, Login, Labeling & Distribution completed by *(initials)*: RB

Set ID: S2107150

Discrepancy Documentation *(use back of sheet for notes on discrepancies)*

Any items listed above with a response of "No" or do not meet specifications must be resolved.

Person Contacted: _____ Method of Contact: __ Phone: _____

Initiated By: _____ Date/Time: _____ __ Email: _____

Problem:

Resolution:

Total Sampling Volume for Quarter (L)							
1	1A	2	3	4	5	6	7
1.31E+08	1.28E+08	1.42E+08	1.13E+08	1.12E+08	1.34E+08	1.10E+08	n/a

HMC 2021 Q2

FLOW VOLUMES

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Date: 8/30/2021

CLIENT: Barrick Homestake Company
Project: HMC GRP
Lab Order: S2107150

CASE NARRATIVE

Report ID: S2107150001

Samples HMC-1, HMC-1A, HMC-2, HMC-3, HMC-4, HMC-5, HMC-6 and HMC-7 were received on July 9, 2021.

All samples were received and analyzed within the EPA recommended holding times, except those noted below in this case narrative. Samples were analyzed using the methods outlined in the following references:

"Standard Methods For The Examination of Water and Wastewater", approved method versions
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition
40 CFR Parts 136 and 141
40 CFR Part 50, Appendices B, J, L, and O
Methods indicated in the Methods Update Rule published in the Federal Register Friday, May 18, 2012
ASTM approved and recognized standards

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by:

Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 8/30/2021
Report ID S2107150001

ProjectName: HMC GRP
Lab ID: S2107150-001
ClientSample ID: HMC-1
COC: WEB
PWS ID:
Comments Q2 2021 Composite

WorkOrder: S2107150
CollectionDate:
DateReceived: 7/9/2021 7:42:00 AM
FieldSampler:
Matrix: Filter

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	131000000	Liters			Field		
Radionuclides - Filter							
Radium 226	7.1	pCi/Filter		0.2	SM 7500RAB	08/26/2021 1436	WN
Radium 226 Precision (±)	0.5	pCi/Filter			SM 7500RAB	08/26/2021 1436	WN
Radium 226	5.4E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Radium 226 Precision (±)	3.8E-18	µCi/mL			Calculation	08/30/2021 813	WN
Thorium 230	5.9	pCi/Filter		0.2	ACW10	08/29/2021 1220	AEF
Thorium-230 Precision (±)	1.0	pCi/Filter			ACW10	08/29/2021 1220	AEF
Thorium 230	4.5E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Thorium 230 Precision (±)	7.6E-18	µCi/mL			Calculation	08/30/2021 813	WN
Uranium	168	pCi/Filter		0.2	EPA 200.8	08/24/2021 1930	MS
Uranium	1.3E-15	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Metals - Total							
Vanadium	0.13	mg/Kg		0.02	EPA 200.8	08/24/2021 1930	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company:	Barrick Homestake Company 560 Anaconda Rd Route 605 Milan, NM 87021	**Date Reported**	8/30/2021
		Report ID	S2107150001
ProjectName:	HMC GRP	**WorkOrder:**	S2107150
Lab ID:	S2107150-002	**CollectionDate:**	
ClientSample ID:	HMC-1A	**DateReceived:**	7/9/2021 7:42:00 AM
COC:	WEB	**FieldSampler:**	
PWS ID:		**Matrix:**	Filter
Comments	Q2 2021 Composite		

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	128000000	Liters			Field		
Radionuclides - Filter							
Radium 226	4.7	pCi/Filter		0.2	SM 7500RAB	08/26/2021 1436	WN
Radium 226 Precision (±)	0.4	pCi/Filter			SM 7500RAB	08/26/2021 1436	WN
Radium 226	3.7E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Radium 226 Precision (±)	3.1E-18	µCi/mL			Calculation	08/30/2021 813	WN
Thorium 230	3.7	pCi/Filter		0.2	ACW10	08/29/2021 1626	AEF
Thorium-230 Precision (±)	0.8	pCi/Filter			ACW10	08/29/2021 1626	AEF
Thorium 230	2.9E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Thorium 230 Precision (±)	6.3E-18	µCi/mL			Calculation	08/30/2021 813	WN
Uranium	84.0	pCi/Filter		0.2	EPA 200.8	08/24/2021 2004	MS
Uranium	6.6E-16	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Metals - Total							
Vanadium	0.11	mg/Kg		0.02	EPA 200.8	08/24/2021 2004	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
D	Report limit raised due to dilution	E	Value above quantitation range
G	Analyzed at IML Gillette laboratory	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
U	Analyte below method detection limit	X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 8/30/2021
Report ID S2107150001

ProjectName: HMC GRP
Lab ID: S2107150-003
ClientSample ID: HMC-2
COC: WEB
PWS ID:
Comments Q2 2021 Composite

WorkOrder: S2107150
CollectionDate:
DateReceived: 7/9/2021 7:42:00 AM
FieldSampler:
Matrix: Filter

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	142000000	Liters			Field		
Radionuclides - Filter							
Radium 226	4.2	pCi/Filter		0.2	SM 7500RAB	08/26/2021 1436	WN
Radium 226 Precision (±)	0.4	pCi/Filter			SM 7500RAB	08/26/2021 1436	WN
Radium 226	2.9E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Radium 226 Precision (±)	2.8E-18	µCi/mL			Calculation	08/30/2021 813	WN
Thorium 230	4.0	pCi/Filter		0.2	ACW10	08/29/2021 1626	AEF
Thorium-230 Precision (±)	0.8	pCi/Filter			ACW10	08/29/2021 1626	AEF
Thorium 230	2.8E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Thorium 230 Precision (±)	5.6E-18	µCi/mL			Calculation	08/30/2021 813	WN
Uranium	42.7	pCi/Filter		0.2	EPA 200.8	08/24/2021 2010	MS
Uranium	3.0E-16	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Metals - Total							
Vanadium	0.12	mg/Kg		0.02	EPA 200.8	08/24/2021 2010	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 8/30/2021
Report ID S2107150001

ProjectName: HMC GRP
Lab ID: S2107150-004
ClientSample ID: HMC-3
COC: WEB
PWS ID:
Comments Q2 2021 Composite

WorkOrder: S2107150
CollectionDate:
DateReceived: 7/9/2021 7:42:00 AM
FieldSampler:
Matrix: Filter

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	113000000	Liters			Field		
Radionuclides - Filter							
Radium 226	7.1	pCi/Filter		0.2	SM 7500RAB	08/26/2021 1436	WN
Radium 226 Precision (±)	0.6	pCi/Filter			SM 7500RAB	08/26/2021 1436	WN
Radium 226	6.3E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Radium 226 Precision (±)	5.3E-18	µCi/mL			Calculation	08/30/2021 813	WN
Thorium 230	5.6	pCi/Filter		0.2	ACW10	08/29/2021 1626	AEF
Thorium-230 Precision (±)	1.0	pCi/Filter			ACW10	08/29/2021 1626	AEF
Thorium 230	5.0E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Thorium 230 Precision (±)	8.8E-18	µCi/mL			Calculation	08/30/2021 813	WN
Uranium	63.5	pCi/Filter		0.2	EPA 200.8	08/24/2021 2016	MS
Uranium	5.6E-16	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Metals - Total							
Vanadium	0.12	mg/Kg		0.02	EPA 200.8	08/24/2021 2016	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 8/30/2021
Report ID S2107150001

ProjectName: HMC GRP
Lab ID: S2107150-005
ClientSample ID: HMC-4
COC: WEB
PWS ID:
Comments Q2 2021 Composite

WorkOrder: S2107150
CollectionDate:
DateReceived: 7/9/2021 7:42:00 AM
FieldSampler:
Matrix: Filter

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	112000000	Liters			Field		
Radionuclides - Filter							
Radium 226	23.8	pCi/Filter		0.2	SM 7500RAB	08/26/2021 1436	WN
Radium 226 Precision (±)	0.9	pCi/Filter			SM 7500RAB	08/26/2021 1436	WN
Radium 226	2.1E-16	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Radium 226 Precision (±)	8.0E-18	µCi/mL			Calculation	08/30/2021 813	WN
Thorium 230	16.1	pCi/Filter		0.2	ACW10	08/29/2021 1626	AEF
Thorium-230 Precision (±)	2.6	pCi/Filter			ACW10	08/29/2021 1626	AEF
Thorium 230	1.4E-16	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Thorium 230 Precision (±)	2.3E-17	µCi/mL			Calculation	08/30/2021 813	WN
Uranium	92.8	pCi/Filter		0.2	EPA 200.8	08/24/2021 2022	MS
Uranium	8.3E-16	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Metals - Total							
Vanadium	0.86	mg/Kg		0.02	EPA 200.8	08/24/2021 2022	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company: Barrick Homestake Company
560 Anaconda Rd Route 605
Milan, NM 87021

Date Reported 8/30/2021
Report ID S2107150001

ProjectName: HMC GRP
Lab ID: S2107150-006
ClientSample ID: HMC-5
COC: WEB
PWS ID:
Comments Q2 2021 Composite

WorkOrder: S2107150
CollectionDate:
DateReceived: 7/9/2021 7:42:00 AM
FieldSampler:
Matrix: Filter

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	134000000	Liters			Field		
Radionuclides - Filter							
Radium 226	6.3	pCi/Filter		0.2	SM 7500RAB	08/26/2021 1653	WN
Radium 226 Precision (±)	0.5	pCi/Filter			SM 7500RAB	08/26/2021 1653	WN
Radium 226	4.7E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Radium 226 Precision (±)	3.7E-18	µCi/mL			Calculation	08/30/2021 813	WN
Thorium 230	4.2	pCi/Filter		0.2	ACW10	08/29/2021 1626	AEF
Thorium-230 Precision (±)	0.8	pCi/Filter			ACW10	08/29/2021 1626	AEF
Thorium 230	3.1E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Thorium 230 Precision (±)	6.0E-18	µCi/mL			Calculation	08/30/2021 813	WN
Uranium	122	pCi/Filter		0.2	EPA 200.8	08/24/2021 2028	MS
Uranium	9.1E-16	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Metals - Total							
Vanadium	0.19	mg/Kg		0.02	EPA 200.8	08/24/2021 2028	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company:	Barrick Homestake Company 560 Anaconda Rd Route 605 Milan, NM 87021	**Date Reported**	8/30/2021
		Report ID	S2107150001
ProjectName:	HMC GRP	**WorkOrder:**	S2107150
Lab ID:	S2107150-007	**CollectionDate:**	
ClientSample ID:	HMC-6	**DateReceived:**	7/9/2021 7:42:00 AM
COC:	WEB	**FieldSampler:**	
PWS ID:		**Matrix:**	Filter
Comments	Q2 2021 Composite		

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Field							
Actual Volume	110000000	Liters			Field		
Radionuclides - Filter							
Radium 226	5.0	pCi/Filter		0.2	SM 7500RAB	08/26/2021 1653	WN
Radium 226 Precision (±)	0.4	pCi/Filter			SM 7500RAB	08/26/2021 1653	WN
Radium 226	4.6E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Radium 226 Precision (±)	3.6E-18	µCi/mL			Calculation	08/30/2021 813	WN
Thorium 230	3.9	pCi/Filter		0.2	ACW10	08/29/2021 1626	AEF
Thorium-230 Precision (±)	0.8	pCi/Filter			ACW10	08/29/2021 1626	AEF
Thorium 230	3.5E-17	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Thorium 230 Precision (±)	7.3E-18	µCi/mL			Calculation	08/30/2021 813	WN
Uranium	68.4	pCi/Filter		0.2	EPA 200.8	08/24/2021 2034	MS
Uranium	6.2E-16	µCi/mL		1.0E-16	Calculation	08/30/2021 813	WN
Metals - Total							
Vanadium	0.15	mg/Kg		0.02	EPA 200.8	08/24/2021 2034	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank	C	Calculated Value
D	Report limit raised due to dilution	E	Value above quantitation range
G	Analyzed at IML Gillette laboratory	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	L	Analyzed by another laboratory
M	Value exceeds Monthly Ave or MCL or is less than LCL	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	S	Spike Recovery outside accepted recovery limits
U	Analyte below method detection limit	X	Matrix Effect

Reviewed by: Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Sample Analysis Report

Company:	Barrick Homestake Company 560 Anaconda Rd Route 605 Milan, NM 87021	**Date Reported**	8/30/2021
		Report ID	S2107150001
ProjectName:	HMC GRP	**WorkOrder:**	S2107150
Lab ID:	S2107150-008	**CollectionDate:**	
ClientSample ID:	HMC-7	**DateReceived:**	7/9/2021 7:42:00 AM
COC:	WEB	**FieldSampler:**	
PWS ID:		**Matrix:**	Filter
Comments	Q2 2021 Composite		

Analyses	Result	Units	Qual	RL	Method	Date Analyzed/Init	
Radionuclides - Filter							
Radium 226	0.5	pCi/Filter		0.2	SM 7500RAB	08/26/2021 1653	WN
Radium 226 Precision (±)	0.2	pCi/Filter			SM 7500RAB	08/26/2021 1653	WN
Thorium 230	0.19	pCi/Filter		0.2	ACW10	08/29/2021 1626	AEF
Thorium-230 Precision (±)	0.1	pCi/Filter			ACW10	08/29/2021 1626	AEF
Uranium	0.3	pCi/Filter		0.2	EPA 200.8	08/24/2021 2039	MS
Metals - Total							
Vanadium	<0.02	mg/Kg		0.02	EPA 200.8	08/24/2021 2039	MS

These results apply only to the samples tested.

RL - Reporting Limit

Qualifiers:

B	Analyte detected in the associated Method Blank
D	Report limit raised due to dilution
G	Analyzed at IML Gillette laboratory
J	Analyte detected below quantitation limits
M	Value exceeds Monthly Ave or MCL or is less than LCL
O	Outside the Range of Dilutions
U	Analyte below method detection limit
C	Calculated Value
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
L	Analyzed by another laboratory
ND	Not Detected at the Reporting Limit
S	Spike Recovery outside accepted recovery limits
X	Matrix Effect

Reviewed by: Jessica Gillan

Jessica Gillan, Project Manager

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

ANALYTICAL QC SUMMARY REPORT

CLIENT: Barrick Homestake Company **Date:** 8/30/2021
Work Order: S2107150 **Report ID:** S2107150001
Project: HMC GRP

Uranium, Air Filter Analysis Sample Type **MBLK** Units: pCi/Filter

MBLK (08/24/21 19:19) RunNo: 192579

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Uranium	ND	0.2					

Uranium, Air Filter Analysis Sample Type **LCS** Units: pCi/Filter

LCS (08/24/21 19:25) RunNo: 192579

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Uranium	66.0	0.2	67.7		97.5	85 - 115	

Uranium, Air Filter Analysis Sample Type **MS** Units: pCi/Filter

S2107150-001AS (08/24/21 19:54) RunNo: 192579

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Uranium	1620	0.2	1490	168	97.5	70 - 130	

Uranium, Air Filter Analysis Sample Type **MSD** Units: pCi/Filter

S2107150-001AMSD (08/24/21 19:59) RunNo: 192579

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Uranium	1630	0.2	1620	0.460	98.0	20	

Uranium, Air Filter Analysis Sample Type **DUP** Units: pCi/Filter

S2107150-001AD (08/24/21 19:48) RunNo: 192579

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Uranium	167	0.2	168	0.655		20	

Radium 226 Air Filter Analysis Sample Type **MBLK** Units: pCi/Filter

MB-2275 (08/26/21 14:36) RunNo: 192667 PrepDate: 08/26/21 8:14 BatchID: 18657

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	ND	0.2					

Radium 226 Air Filter Analysis Sample Type **LCS** Units: pCi/Filter

LCS-2275 (08/26/21 14:36) RunNo: 192667 PrepDate: 08/26/21 8:14 BatchID: 18657

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Radium 226	8.0	0.2	7.81		103	67 - 129	

Radium 226 Air Filter Analysis Sample Type **LCSD** Units: pCi/Filter

LCSD-2275 (08/26/21 14:36) RunNo: 192667 PrepDate: 08/26/21 8:14 BatchID: 18657

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Radium 226	7.4	0.2	8.0	7.90	94.8	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Report limit raised due to dilution
E	Value above quantitation range	G	Analyzed at IML Gillette laboratory
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by another laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits	X	Matrix Effect

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

ANALYTICAL QC SUMMARY REPORT

CLIENT: Barrick Homestake Company **Date:** 8/30/2021
Work Order: S2107150 **Report ID:** S2107150001
Project: HMC GRP

Total (3050) Metals by EPA 200.8-Soil Sample Type **MBLK** Units: mg/Kg

MBLK (08/24/21 19:19) RunNo: 192577

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Vanadium	ND	0.02					

Total (3050) Metals by EPA 200.8-Soil Sample Type **MS** Units: mg/Kg

S2107150-001AS (08/24/21 19:54) RunNo: 192577

Analyte	Result	RL	Spike	Ref Samp	%REC	% Rec Limits	Qual
Vanadium	2.23	0.02	2.2	0.13	95.6	70 - 130	

Total (3050) Metals by EPA 200.8-Soil Sample Type **MSD** Units: mg/Kg

S2107150-001AMSD (08/24/21 19:59) RunNo: 192577

Analyte	Result	RL	Conc	%RPD	%REC	% RPD Limits	Qual
Vanadium	2.23	0.02	2.23	0.187	95.8	20	

Total (3050) Metals by EPA 200.8-Soil Sample Type **DUP** Units: mg/Kg

S2107150-001AD (08/24/21 19:48) RunNo: 192577

Analyte	Result	RL	Ref Samp	%RPD	%REC	% RPD Limits	Qual
Vanadium	0.12	0.02	0.13	1.91		20	

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Report limit raised due to dilution
E	Value above quantitation range	G	Analyzed at IML Gillette laboratory
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
L	Analyzed by another laboratory	ND	Not Detected at the Reporting Limit
O	Outside the Range of Dilutions	R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits	X	Matrix Effect

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Barrick Homestake Company

Client Sampler ID: HMC-1

Lab ID: S2107150-001 **Sample Air Volume: 131000000 Liters**
Q2 2021 Composite

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	7.1	0.5	5.4E-17	3.8E-18	1E-16	9 E-13	Week	0.0060
Thorium 230	5.9	1.0	4.5E-17	7.6E-18	1E-16	3 E-14	Year	0.15
Uranium	168		1.3E-15		1E-16	9 E-14	Year	1.4

Lab ID: S2104095-001 **Sample Air Volume: 131000000 Liters**
2021 First Qtr

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	2.9	0.3	2.2E-17	2.3E-18	1E-16	9 E-13	Week	0.0024
Thorium 230	1.0	0.3	7.3E-18	2.3E-18	1E-16	3 E-14	Year	0.024
Uranium	16.9		1.3E-16		1E-16	9 E-14	Year	0.14

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Barrick Homestake Company

Client Sampler ID: HMC-1-A

Lab ID: S2107150-002 Client Sample ID: HMC-1A Sample Air Volume: 128000000 Liters
Q2 2021 Composite

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	4.7	0.4	3.7E-17	3.1E-18	1E-16	9 E-13	Week	0.0041
Thorium 230	3.7	0.8	2.9E-17	6.3E-18	1E-16	3 E-14	Year	0.097
Uranium	84.0		6.6E-16		1E-16	9 E-14	Year	0.73

Lab ID: S2104095-002 Client Sample ID: HMC-1A Sample Air Volume: 126000000 Liters
2021 First Qtr

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	1.5	0.3	1.2E-17	2.4E-18	1E-16	9 E-13	Week	0.0013
Thorium 230	0.7	0.3	5.3E-18	2.4E-18	1E-16	3 E-14	Year	0.018
Uranium	14.7		1.2E-16		1E-16	9 E-14	Year	0.13

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Barrick Homestake Company

Client Sampler ID: HMC-2

Lab ID: S2107150-003 **Sample Air Volume: 142000000 Liters**
Q2 2021 Composite

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	4.2	0.4	2.9E-17	2.8E-18	1E-16	9 E-13	Week	0.0032
Thorium 230	4.0	0.8	2.8E-17	5.6E-18	1E-16	3 E-14	Year	0.093
Uranium	42.7		3.0E-16		1E-16	9 E-14	Year	0.33

Lab ID: S2104095-003 **Sample Air Volume: 89700000 Liters**
2021 First Qtr

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	3.5	0.4	3.9E-17	4.5E-18	1E-16	9 E-13	Week	0.0043
Thorium 230	1.4	0.4	1.6E-17	4.5E-18	1E-16	3 E-14	Year	0.053
Uranium	23.3		2.6E-16		1E-16	9 E-14	Year	0.29

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Barrick Homestake Company

Client Sampler ID: HMC-3

Lab ID: S2107150-004 **Sample Air Volume: 113000000 Liters**
Q2 2021 Composite

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	7.1	0.6	6.3E-17	5.3E-18	1E-16	9 E-13	Week	0.0070
Thorium 230	5.6	1.0	5.0E-17	8.8E-18	1E-16	3 E-14	Year	0.17
Uranium	63.5		5.6E-16		1E-16	9 E-14	Year	0.62

Lab ID: S2104095-004 **Sample Air Volume: 134000000 Liters**
2021 First Qtr

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	4.6	0.4	3.5E-17	3.0E-18	1E-16	9 E-13	Week	0.0039
Thorium 230	1.7	0.5	1.3E-17	3.7E-18	1E-16	3 E-14	Year	0.043
Uranium	53.2		4.0E-16		1E-16	9 E-14	Year	0.44

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Barrick Homestake Company

Client Sampler ID: HMC-4

Lab ID: S2107150-005 **Sample Air Volume: 112000000 Liters**
Q2 2021 Composite

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	23.8	0.9	2.1E-16	8.0E-18	1E-16	9 E-13	Week	0.023
Thorium 230	16.1	2.6	1.4E-16	2.3E-17	1E-16	3 E-14	Year	0.47
Uranium	92.8		8.3E-16		1E-16	9 E-14	Year	0.92

Lab ID: S2104095-005 **Sample Air Volume: 115000000 Liters**
2021 First Qtr

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	12.2	0.6	1.1E-16	5.2E-18	1E-16	9 E-13	Week	0.012
Thorium 230	6.6	1.2	5.7E-17	1.0E-17	1E-16	3 E-14	Year	0.19
Uranium	48.0		4.2E-16		1E-16	9 E-14	Year	0.47

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Pace Analytical®
Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Barrick Homestake Company

Client Sampler ID: HMC-5

Lab ID: S2107150-006 **Sample Air Volume: 134000000 Liters**
Q2 2021 Composite

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	6.3	0.5	4.7E-17	3.7E-18	1E-16	9 E-13	Week	0.0052
Thorium 230	4.2	0.8	3.1E-17	6.0E-18	1E-16	3 E-14	Year	0.10
Uranium	122		9.1E-16		1E-16	9 E-14	Year	1.0

Lab ID: S2104095-006 **Sample Air Volume: 134000000 Liters**
2021 First Qtr

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	2.8	0.3	2.1E-17	2.2E-18	1E-16	9 E-13	Week	0.0023
Thorium 230	2.6	0.7	2.0E-17	5.2E-18	1E-16	3 E-14	Year	0.067
Uranium	15.5		1.2E-16		1E-16	9 E-14	Year	0.13

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Barrick Homestake Company

Client Sampler ID: HMC-6

Lab ID: S2107150-007 **Sample Air Volume: 110000000 Liters**
Q2 2021 Composite

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	5.0	0.4	4.6E-17	3.6E-18	1E-16	9 E-13	Week	0.0051
Thorium 230	3.9	0.8	3.5E-17	7.3E-18	1E-16	3 E-14	Year	0.12
Uranium	68.4		6.2E-16		1E-16	9 E-14	Year	0.69

Lab ID: S2104095-007 **Sample Air Volume: 125000000 Liters**
2021 First Qtr

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
Radium 226	2.3	0.3	1.8E-17	2.4E-18	1E-16	9 E-13	Week	0.0020
Thorium 230	1.6	0.5	1.3E-17	4.0E-18	1E-16	3 E-14	Year	0.043
Uranium	8.9		7.1E-17		1E-16	9 E-14	Year	0.079

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Pace Analytical® Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Air Filter Summary Report

Client: Barrick Homestake Company

Client Sampler ID: HMC-7

Lab ID: S2107150-008 **Sample Air Volume:**
Q2 2021 Composite

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
	0.5	0.2				9 E-13	Week	
	0.19	0.1				3 E-14	Year	
	0.3					9 E-14	Year	

Lab ID: S2104095-008 **Sample Air Volume:**
2021 First Qtr

Analyte	Result pCi/filter	Precision ± pCi/filter	Result µCi/ml	Precision ± µCi/ml	RL	10 CFR Pt 20 Effluent Limit	Effluent Class	% Effluent Conc.
	0.3	0.2				9 E-13	Week	
	0.4	0.2				3 E-14	Year	
	0.4					9 E-14	Year	

Effluent Limits are from 10 CFR Part 20 Appendix B Table 2

ND - Not Detected at the Reporting Limit

Attachment 2

Radon Gas Monitoring Results

Attachment 2 - Radon Gas Monitoring Results

Track-Etch Passive Survey

Location	Monitoring Period	Rn Concentration (µCi/ml)	Uncertainty - 2 S.D. (µCi/ml)	LLD (µCi/ml)
HMC #1(average) N Outer Perimeter	1/6/21 - 7/1/21	5.8E-10	1.3E-10	3.4E-10
HMC #1-A (average) N Outer Perimeter	1/6/21 - 7/1/21	5.3E-10	1.3E-10	3.4E-10
HMC #2 (average) NE Outer Perimeter	1/6/21 - 7/1/21	6.9E-10	1.4E-10	3.4E-10
HMC #3 (average) E Outer Perimeter	1/6/21 - 7/1/21	5.1E-10	1.3E-10	3.4E-10
HMC #4 (average) S Outer Perimeter	1/6/21 - 7/1/21	6.0E-10	1.3E-10	3.4E-10
HMC #5 (average) N of Nearest Residence	1/6/21 - 7/1/21	6.5E-10	1.3E-10	3.4E-10
HMC #6 (average) W of Outer Perimeter	1/6/21 - 7/1/21	5.3E-10	1.3E-10	3.4E-10
HMC #7 (average) S Boundary	1/6/21 - 7/1/21	6.3E-10	1.4E-10	3.4E-10
HMC #16 (average) Background	1/6/21 - 7/1/21	3.0E-10	1.0E-10	3.4E-10

Attachment 3
Environmental Gamma Radiation Results

Attachment 3 - Environmental Gamma Radiation Results
OSL Perimeter Survey

Direct Radiation Measurements

Location	Monitoring Period	Dose Rate (mrem/6 mo)	Error (mrem/6 mo)*
HMC #1 N Outer Perimeter	1/1/21 - 6/30/21	58.4	5.7
HMC #1-A N Outer Perimeter	1/1/21 - 6/30/21	58.5	5.7
HMC #2 NE Outer Perimeter	1/1/21 - 6/30/21	63.6	6.2
HMC #3 E Outer Perimeter	1/1/21 - 6/30/21	56.1	5.5
HMC #4 S Outer Perimeter	1/1/21 - 6/30/21	69.2	6.8
HMC #5 N of Nearest Residence	1/1/21 - 6/30/21	58.7	5.8
HMC #6 W of Outer Perimeter	1/1/21 - 6/30/21	54.1	5.3
HMC #16 Background	1/1/21 - 6/30/21	46.1	4.5

*Error is 1.96 std. dev.

Attachment 4
2021 Annual Radon Flux Report

Radon Flux Measurements for the HMC Grants Tailings Piles

August 2021

Prepare for:

Homestake Mining Company of California
P. O. Box 98
Grants, New Mexico 87020

Prepared by:

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM 87113

Radon Flux Measurements for the HMC Tailings Piles

1. Introduction

Reclamation activities associated with the Large Tailings Pile (LTP) at the Grants Uranium Mill, owned by Homestake Mining Company of California (HMC), were completed in phases. The pile was contoured in 1994 at which time an interim cover was placed on the top of the pile to control the dispersal of tailings by wind and water erosion. Radon barriers were applied to the north, west, and south side slopes, with completion of the work in 1994. Radon flux measurements were made on the side slopes on October 24-25, 1994. Completion of the placement of radon barrier on the east side slope and aprons occurred just prior to making the radon flux measurements on July 24-25, 1995. An evaporation pond was constructed on the Small Tailings Pile (STP) and an interim cover placed on the remainder of the pile. Initial radon flux measurements were made on the LTP and STP on August 18-19, 1995.

As part of a request for a license amendment extending the milestones in the NRC License for placement of the final radon barrier over the tailings piles, radon flux measurements were repeated in the areas with interim cover on October 21-22, 2003. This license amendment required HMC to repeat these measurements annually.

In 2017, the U.S. Nuclear Regulatory Commission (NRC) notified HMC (NRC, 2017) that the method historically used for calculating the average radon-222 flux release from the LTP was inconsistent with EPA's Method 115 specifications and could no longer include area-weighted averaging of the radon flux from the LTP's rock-covered side slopes (an average radon flux of 3.27 pCi/m²s was measured in 1995 prior to placement of a final cap of rock armor for erosion control). In other words, only the top of the LTP is currently subject to annual radon flux measurements, and for this objective, 100 measurements are required. With respect to the STP, this is considered an operational impoundment under NRC definitions[1] and the previous method for measurement and calculation of radon flux from STP is consistent with Method 115 specifications for area-weighted averaging of various regions of the pile (water covered portion and earthen covered portions).

Annual flux measurements for calendar year 2021 were made in two separate deployments, consisting of 100 canisters per deployment. The first 100 canister measurements were made on the LTP on May 24-25, 2021. The second 100 canister measurements were made on the STP on June 7-8, 2021. Of the 100 canister measurements on the STP, 99 canisters were found usable as the seal around the lip of one canister placement was compromised during deployment. The deployment locations, along with annotated location identification (ID) numbers, are shown in Figure 1-1. The flux measurement locations design was based on a triangular-grid pattern with randomized start point as generated using the U.S. Department of Energy's statistical design software package Visual Sampling Plan (VSP, 2016). In some cases, small adjustments in planned sampling locations were necessary (e.g., locations that fell on staged equipment or other operational

[1]As indicated in 10 CFR 40, Appendix A, "*Operation* means that a uranium or thorium mill tailings pile or impoundment is being used for the continued placement of byproduct material or is in standby status for such placement. A pile or impoundment is in operation from the day that byproduct material is first placed in the pile or impoundment until the day final closure begins." Since 11e.(2) byproduct material will continue to be disposed in the STP until groundwater restoration is complete, and because the final closure process for the STP has not been initiated, this pile is considered an operational tailings impoundment.

infrastructure (e.g., zeolite water treatment cells) though such adjustments were minimized to the extent possible by selecting the nearest viable measurement location.

2. Radon Flux Results

The results of the 199 flux measurements, consisting of 100 canisters on top of the LTP and 99 canisters across all accessible portions of the STP are presented in Figure 2-1, and in tabular form in Appendix A. Per HMC's response to the NRC's radon flux NOV for the LTP (ERG, 2017), canisters were placed only on the top of the LTP. The average measured flux from the top of the LTP for calendar year 2021 is 47.5 pCi/m^{2}s, which exceeds the 20 pCi/m^{2}s standard given in 10 CFR 40, Appendix A. Since the STP is considered an operational impoundment, canisters were placed on earthen regions of the pile (side slopes and southern portion of the STP) as well as on the inside of the berms for Evaporation Pond 1 (EP-1) as the water level in EP-1 was significantly lower in 2021, and solids from the cleanout of the West Collection Pond had been placed on the south bank of EP-1. Area-weighted averaging was used to calculate the average rate of radon emissions from the pile consisting of two regions, including 1) the evaporation pond area (20.55 acres, or 83,155 m², assigned a value of zero radon flux for the calculation), and 2) the earthen covered portions of the pile along with the inside berms of EP-1 (32.67 acres, or 132,240 m², assigned an average measured flux for calendar year 2021 of 39.0 pCi/m²s). All flux measurements were performed in accordance with EPA Method 115. Using Equation 2-1 below, the overall average measured radon flux from the STP for calendar year 2021 is 23.9 pCi/m²s, which exceeds the flux standard specified in 10 CFR 40 Appendix A.

Equation 2-1:

$$Flux_{STP} = \frac{(0.0\,pCi/m^2sec * 83{,}155\,m^2) + (39.0\,pCi/m^2sec * 132{,}240\,m^2)}{(83{,}155\,m^2 + 132{,}240\,m^2)} = 23.9\,pCi/m^2s$$

The assumed radon flux for locations that included duplicate sample analysis (same canister analyzed twice) was based on the average of the duplicate analysis results.

Figure 1-1 - Measurement Locations

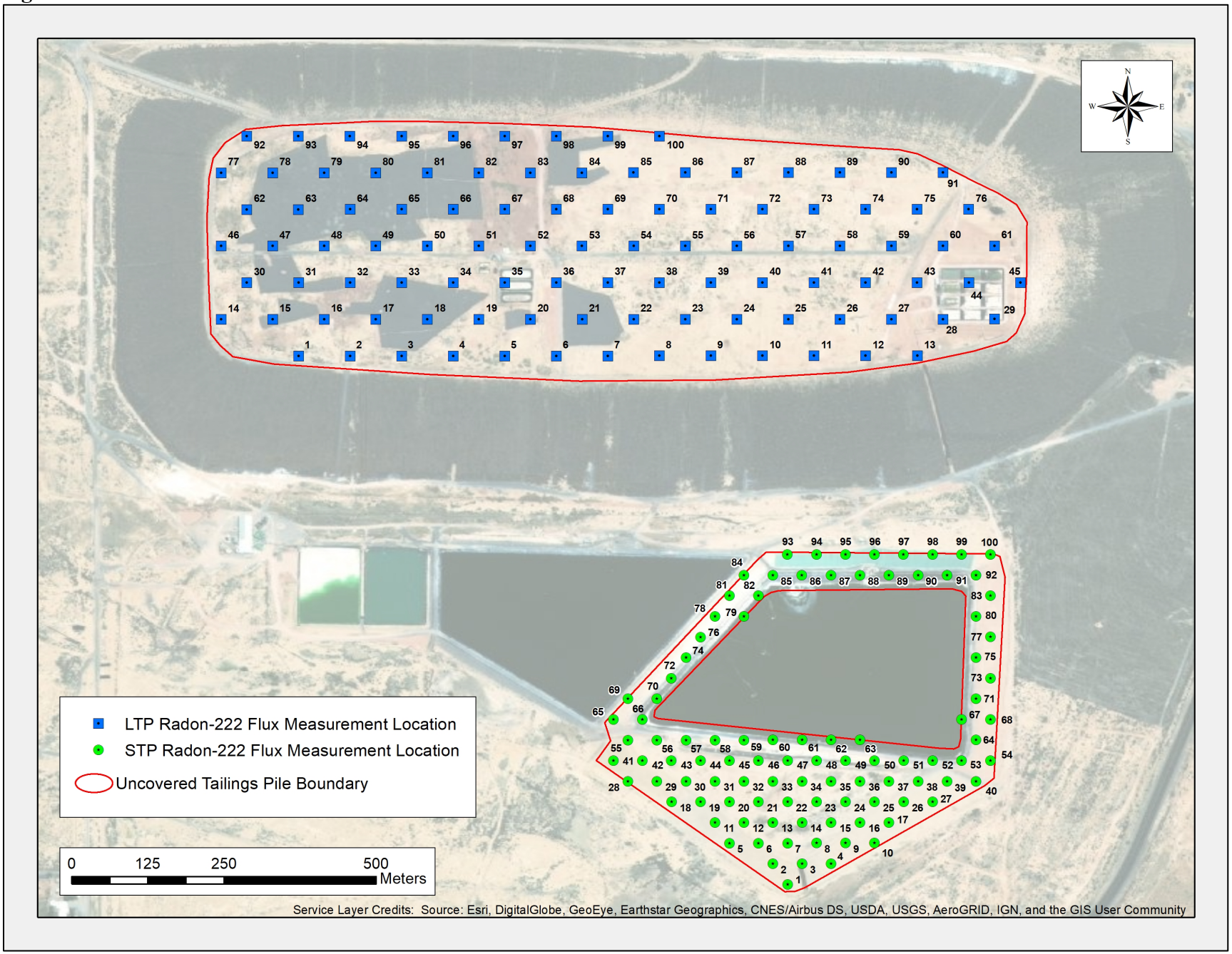
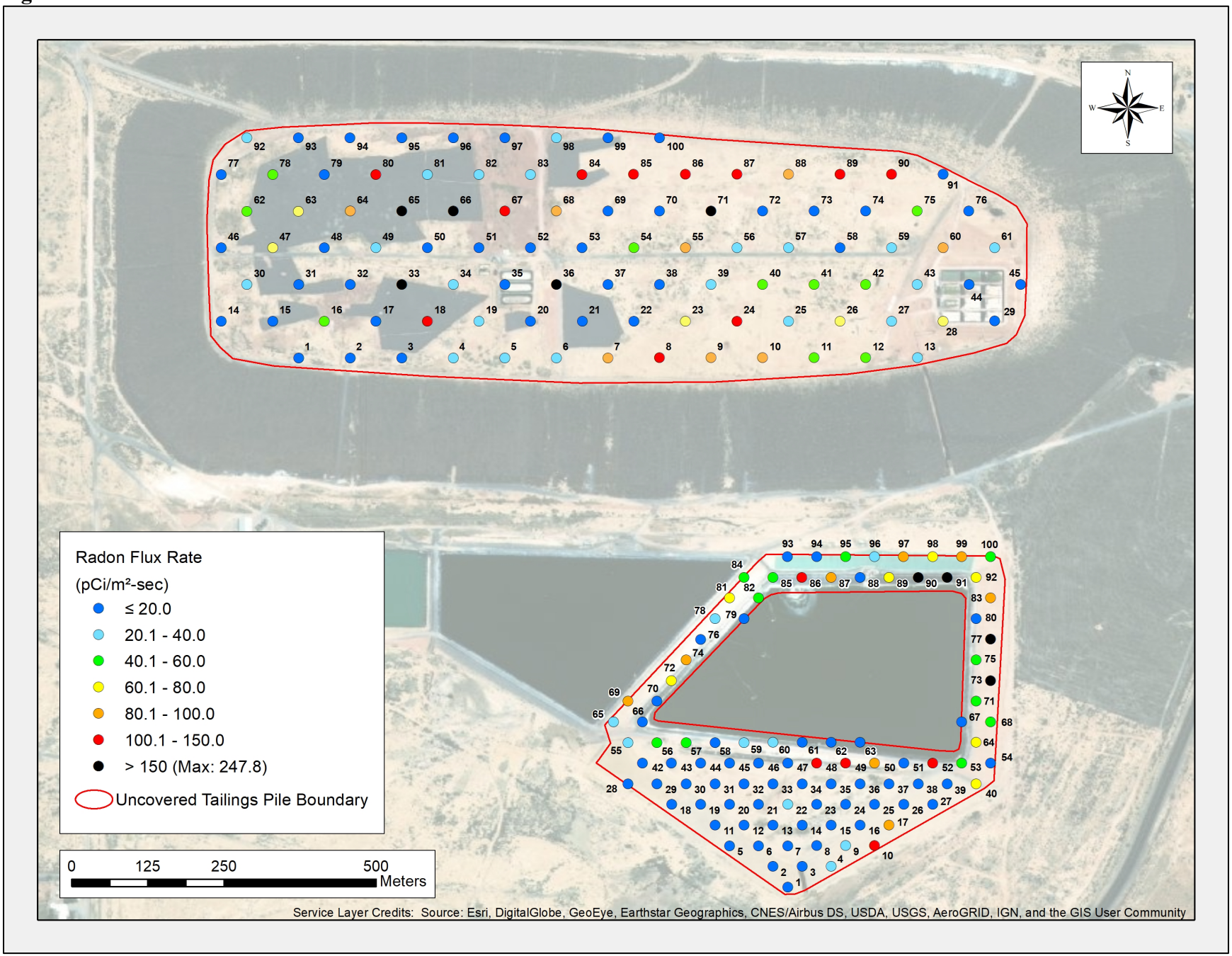


Figure 2-1 Radon Flux Measurement Results



3. Quality Assurance

The data quality requirements specified in EPA Method 115 were met for the measurements, with one minor exception. During deployment on the LTP (May 24- 25) the temperature dropped below 35 degrees Fahrenheit for approximately 30 minutes. Based on data from the onsite meteorological station, there was no rainfall in the 24 hours prior to or during deployment and aside from the 30-minute period on the LTP noted above the ambient temperatures did not fall below 35 degrees Fahrenheit during deployment.

Two independent sources were used to calibrate the spectrometer used to measure radon flux canister samples, and identical geometry conditions to that of the canisters was maintained. Good agreement between calibration factors was obtained as shown in Table 3.1. The relative percent difference (RPD) of the average efficiencies for the two sources was less than the 10% accuracy required by EPA Method 115.

Twenty-three canisters were reanalyzed for laboratory duplicate analysis comparisons. The second analysis is indicated in the Appendix A results table with a "D" shown in the Lab Type column. The comparison results are shown in Table 3.2 and are consistent with typical gamma spectroscopy results. All 23 canisters analyzed for duplicate measurement comparisons met the EPA Method 115 criteria requiring a relative percent difference (RPD) no greater than 10% for flux rates above 1.0 pCi/m^2s. The average RPD for all 23 canisters is 2.0 percent.

Two trip blanks for each 100-canister deployment (4 total) were included in the batch and were counted without exposing them to radon. The measured fluxes ranged from 0.11 and 0.29 pCi/m^2s are near the expected 0 pCi/m^2s value. These results indicate that the canisters had not been exposed while sealed in the plastic bags, confirming the integrity of the bags during both deployments.

References

Environmental Restoration Group, Inc. (ERG). 2017. Proposal to address radon flux NOV for the LTP (NRC Docket No. 040-08903/2016-001 License No. SUA-1471). In: Reply to Notice of Violation, Docket No. 040-08903/2016-001, License No. SUA-1471 [Submitted to NRC by Homestake Mining Company of California (HMC) on September 13, 2017].

U.S. Nuclear Regulatory Commission (NRC). 2017. NRC Inspection Report 040-08903/2016-001 and Notice of Violation. April 20, 2017.

VSP Development Team (VSP). 2016. Visual Sample Plan: A Tool for Design and Analysis of Environmental Sampling. Version 7.7. Pacific Northwest National Laboratory. Richland, WA. http://vsp.pnnl.gov

Table 3.1 Quality Assurance Results of Standard Analysis

Identifier	Date	Count Duration (sec)	Activity (nCi)	Total Counts	Average BKG Counts	Efficiency	Error
STD #1	5/25/2021	1200	80	46062	2645.5	0.0122	6.21E-05
STD #3	5/25/2021	1200	78.83	43119	2645.5	0.0116	6.11E-05
STD #1	5/25/2021	1200	80	45593	2645.5	0.0121	6.18E-05
STD #3	5/25/2021	1200	78.83	43215	2645.5	0.0116	6.12E-05
STD #1	5/26/2021	1200	80	45461	2677.5	0.0120	6.18E-05
STD #3	5/26/2021	1200	78.83	43434	2677.5	0.0116	6.14E-05
STD #1	5/26/2021	1200	80	45330	2677.5	0.0120	6.17E-05
STD #3	5/26/2021	1200	78.83	43211	2677.5	0.0116	6.12E-05
STD #3	6/8/2021	1200	78.83	43510	2673	0.0117	6.14E-05
STD #1	6/8/2021	1200	80	45269	2673	0.0120	6.16E-05
STD #1	6/8/2021	1200	80	45467	2488	0.0121	6.17E-05
STD #3	6/8/2021	1200	78.83	43806	2488	0.0118	6.15E-05
STD #3	6/9/2021	1200	78.83	43572	2488	0.0117	6.13E-05
STD #1	6/9/2021	1200	80	45739	2488	0.0122	6.18E-05
STD #1	6/9/2021	1200	80	45644	2673	0.0121	6.19E-05
STD #3	6/9/2021	1200	78.83	43248	2673	0.0116	6.12E-05
Mean of STD #1 Efficiencies						0.0121	
Mean of STD #3 Efficiencies						0.0117	
Relative Percent Difference of Efficiencies of Standards						3.7%	

Note:

[1] Efficiency unit is net counts-per-second per source activity in becquerels.

[2] SD: standard deviation of efficiency.

Table 3.2 Duplicate Analysis Comparison

Pile	Canister	Analysis 1 (pCi/m²s)	Analysis 2 (pCi/m²s)	Average Flux (pCi/m²s)	RPD (%)
STP	460	8.8	8.9	8.9	1.6
LTP	523	13.8	13.9	13.9	1.2
LTP	312	53.1	51.9	52.5	2.3
LTP	495	61.7	63.5	62.6	2.9
LTP	94	17.0	16.7	16.8	1.9
LTP	512	38.8	39.5	39.1	1.8
LTP	428	14.9	14.6	14.7	2.4
LTP	429	24.6	23.9	24.3	2.9
LTP	527	9.2	9.0	9.1	1.6
LTP	441	119.8	119.1	119.5	0.6
LTP	424	106.0	105.6	105.8	0.4
LTP	509	23.2	23.2	23.2	0.0
STP	418	10.7	10.7	10.7	0.0
STP	496	20.4	19.7	20.1	3.1
STP	492	10.0	10.2	10.1	1.8
STP	468	19.8	20.2	20.0	2.0
STP	506	107.2	106.9	107.0	0.2
STP	512	14.1	14.9	14.5	5.6
STP	459	53.7	55.4	54.6	3.0
STP	414	149.0	151.7	150.4	1.8
STP	504	64.5	62.6	63.5	2.9
STP	409	89.9	95.0	92.5	5.6
STP	94	87.2	85.4	86.3	2.0
STP	529	23.9	24.0	23.9	0.2
Mean of the Duplicate Analyses Relative Percent Differences					2.0 %

Appendix A

Radon Flux Measurement Results

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

LTL

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Flux (pCi/m²s) Error 1.00 S.D.	Remarks
1		523	05/24/2021 09:06	05/25/2021 09:45	05/25/2021 14:44	200	2645.5		5279	0.0119	13.95	0.3	0.22	OK
1		523	05/24/2021 09:06	05/25/2021 09:45	05/25/2021 14:48	220	2645.5	D	5743	0.0119	13.79	0.3	0.21	OK
2		263	05/24/2021 09:07	05/25/2021 09:48	05/25/2021 14:38	303	2645.5		5949	0.0119	10.03	0.2	0.15	OK
3		521	05/24/2021 09:08	05/25/2021 09:50	05/25/2021 14:21	800	2645.5		5272	0.0119	2.52	0.1	0.06	OK
4		412	05/24/2021 09:10	05/25/2021 09:51	05/25/2021 14:35	100	2645.5		6667	0.0119	37.04	0.4	0.48	OK
5		431	05/24/2021 09:12	05/25/2021 09:54	05/25/2021 15:00	100	2645.5		5571	0.0119	30.81	0.4	0.44	OK
6		498	05/24/2021 09:13	05/25/2021 09:56	05/25/2021 14:52	113	2645.5		7956	0.0119	39.2	0.4	0.46	OK
7		517	05/24/2021 09:15	05/25/2021 09:57	05/25/2021 14:56	60	2645.5		10045	0.0119	95.05	0.5	0.97	OK
8		446	05/24/2021 09:16	05/25/2021 09:58	05/25/2021 14:58	60	2645.5		11357	0.0119	107.65	0.5	1.03	OK
9		493	05/24/2021 09:17	05/25/2021 10:00	05/25/2021 15:06	76	2645.5		12148	0.0119	90.72	0.5	0.84	OK
10		91	05/24/2021 09:19	05/25/2021 10:01	05/25/2021 15:08	61	2645.5		9132	0.0119	84.95	0.5	0.91	OK
11		514	05/24/2021 09:20	05/25/2021 10:02	05/25/2021 15:03	90	2645.5		6914	0.0119	42.94	0.4	0.54	OK
12		515	05/24/2021 09:21	05/25/2021 10:04	05/25/2021 15:11	85	2645.5		7300	0.0119	48.16	0.5	0.59	OK
13		490	05/24/2021 09:22	05/25/2021 10:05	05/25/2021 15:13	120	2645.5		6040	0.0119	27.71	0.4	0.38	OK
14		473	05/24/2021 09:25	05/25/2021 10:07	05/25/2021 15:16	1016	2645.5		5404	0.0119	1.8	0.1	0.05	OK
15		522	05/24/2021 09:28	05/25/2021 10:09	05/25/2021 15:34	1200	2645.5		3521	0.0119	0.42	0.1	0.04	OK
16		312	05/24/2021 09:30	05/25/2021 10:10	05/25/2021 15:57	59	2645.5	D	5531	0.0119	53.05	0.6	0.74	OK
16		312	05/24/2021 09:30	05/25/2021 10:10	05/25/2021 15:55	59	2645.5		5411	0.0119	51.86	0.6	0.73	OK
17		524	05/24/2021 09:31	05/25/2021 10:12	05/25/2021 16:00	330	2645.5		5240	0.0119	7.92	0.2	0.14	OK
18		529	05/24/2021 09:32	05/25/2021 10:13	05/25/2021 15:59	28	2645.5		5687	0.0119	116.34	0.8	1.57	OK
19		461	05/24/2021 09:33	05/25/2021 10:14	05/25/2021 16:07	111	2645.5		5367	0.0119	26.75	0.4	0.39	OK
20		470	05/24/2021 09:34	05/25/2021 10:16	05/25/2021 16:09	390	2645.5		5315	0.0119	6.62	0.2	0.12	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

LTP

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Flux (pCi/m²s) Error 1.00 S.D.	Remarks
21		492	05/24/2021 09:35	05/25/2021 10:17	05/25/2021 16:42	184	2645.5		5423	0.0119	15.86	0.3	0.24	OK
22		472	05/24/2021 09:38	05/25/2021 10:18	05/25/2021 16:17	1200	2645.5		3831	0.0119	0.57	0.1	0.04	OK
23		495	05/24/2021 09:40	05/25/2021 10:20	05/25/2021 16:38	49	2645.5		5457	0.0119	63.51	0.6	0.89	OK
23		495	05/24/2021 09:40	05/25/2021 10:20	05/25/2021 16:40	49	2645.5	D	5303	0.0119	61.7	0.6	0.87	OK
24		506	05/24/2021 09:41	05/25/2021 10:21	05/25/2021 16:46	22	2645.5		5451	0.0119	142.99	0.9	1.96	OK
25		425	05/24/2021 09:44	05/25/2021 10:22	05/25/2021 16:53	78	2645.5		5240	0.0119	37.91	0.5	0.55	OK
26		525	05/24/2021 09:46	05/25/2021 10:24	05/25/2021 16:48	46	2645.5		5334	0.0119	66.31	0.6	0.93	OK
27		518	05/24/2021 09:47	05/25/2021 10:25	05/25/2021 16:50	114	2645.5		5302	0.0119	25.83	0.4	0.38	OK
28		494	05/24/2021 09:49	05/25/2021 10:27	05/25/2021 16:55	48	2645.5		5273	0.0119	62.79	0.6	0.89	OK
29		94	05/24/2021 09:50	05/25/2021 10:28	05/26/2021 09:52	193	2677.5		5262	0.0118	16.66	0.3	0.26	OK
29		94	05/24/2021 09:50	05/25/2021 10:28	05/26/2021 10:01	193	2677.5	D	5347	0.0118	16.97	0.3	0.26	OK
30		436	05/24/2021 09:52	05/25/2021 10:29	05/26/2021 09:48	131	2677.5		5265	0.0118	25.26	0.4	0.38	OK
31		443	05/24/2021 09:53	05/25/2021 10:31	05/26/2021 09:12	171	2677.5		5264	0.0118	18.9	0.4	0.29	OK
32		445	05/24/2021 09:55	05/25/2021 10:32	05/26/2021 09:27	1183	2677.5		5283	0.0118	1.48	0.1	0.05	OK
33		530	05/24/2021 09:57	05/25/2021 10:34	05/26/2021 10:32	17	2677.5		5301	0.0118	207.02	1.2	2.87	OK
34		451	05/24/2021 09:58	05/25/2021 10:35	05/26/2021 10:29	87	2677.5		5274	0.0118	39.03	0.5	0.57	OK
35		516	05/24/2021 09:59	05/25/2021 10:36	05/26/2021 10:06	1200	2677.5		4086	0.0118	0.78	0.1	0.05	OK
36		508	05/24/2021 10:01	05/25/2021 10:38	05/26/2021 10:28	21	2677.5		5203	0.0118	164.02	1.1	2.3	OK
37		460	05/24/2021 10:02	05/25/2021 10:39	05/26/2021 11:11	483	2677.5		5251	0.0118	5.81	0.2	0.11	OK
38		437	05/24/2021 10:04	05/25/2021 10:41	05/26/2021 11:21	1013	2677.5		5252	0.0118	1.99	0.1	0.06	OK
39		512	05/24/2021 10:05	05/25/2021 10:42	05/26/2021 11:04	86	2677.5		5256	0.0118	39.5	0.5	0.58	OK
39		512	05/24/2021 10:05	05/25/2021 10:42	05/26/2021 11:08	86	2677.5	D	5163	0.0118	38.79	0.5	0.57	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

LTP

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Flux (pCi/m²s) Error 1.00 S.D.	Remarks
40		75	05/24/2021 10:06	05/25/2021 10:43	05/26/2021 11:02	67	2677.5		5260	0.0118	51.14	0.6	0.74	OK
41		418	05/24/2021 10:08	05/25/2021 10:44	05/26/2021 10:58	80	2677.5		5265	0.0118	42.63	0.5	0.62	OK
42		430	05/24/2021 10:09	05/25/2021 10:46	05/26/2021 11:00	60	2677.5		5250	0.0118	57.14	0.6	0.82	OK
43		42	05/24/2021 10:10	05/25/2021 10:47	05/26/2021 10:33	146	2677.5		5266	0.0118	22.6	0.4	0.34	OK
44		479	05/24/2021 10:13	05/25/2021 10:48	05/26/2021 10:37	1200	2677.5		3187	0.0118	0.28	0.1	0.04	OK
45		507	05/24/2021 10:14	05/25/2021 10:50	05/26/2021 13:14	829	2677.5		5248	0.0118	2.8	0.2	0.07	OK
46		428	05/24/2021 10:17	05/25/2021 10:51	05/26/2021 13:34	223	2677.5	D	5361	0.0118	14.92	0.3	0.23	OK
46		428	05/24/2021 10:17	05/25/2021 10:51	05/26/2021 13:29	223	2677.5		5251	0.0118	14.57	0.3	0.23	OK
47		477	05/24/2021 10:18	05/25/2021 10:52	05/26/2021 12:57	1017	2677.5		111467	0.0118	73.17	0.2	0.23	OK
48		406	05/24/2021 10:19	05/25/2021 10:53	05/26/2021 12:52	214	2677.5		5078	0.0118	14.63	0.3	0.24	OK
49		2	05/24/2021 10:20	05/25/2021 10:55	05/26/2021 12:15	931	2677.5		30876	0.0118	20.95	0.2	0.13	OK
50		488	05/24/2021 10:21	05/25/2021 10:57	05/26/2021 12:33	1036	2677.5		19185	0.0118	11.04	0.1	0.1	OK
51		502	05/24/2021 10:22	05/25/2021 10:58	05/26/2021 12:00	940	2677.5		27886	0.0118	18.52	0.2	0.12	OK
52		468	05/24/2021 10:23	05/25/2021 10:59	05/26/2021 11:40	997	2677.5		7040	0.0118	3.25	0.2	0.07	OK
53		469	05/24/2021 10:26	05/25/2021 11:01	05/26/2021 09:21	233	2677.5		5255	0.0118	13.44	0.3	0.22	OK
54		511	05/24/2021 10:27	05/25/2021 11:02	05/26/2021 09:19	72	2677.5		5249	0.0118	46.72	0.6	0.68	OK
55		411	05/24/2021 10:29	05/25/2021 11:03	05/26/2021 09:26	38	2677.5		5245	0.0118	89.89	0.8	1.27	OK
56		409	05/24/2021 10:30	05/25/2021 11:05	05/26/2021 09:16	96	2677.5		5238	0.0118	34.57	0.5	0.51	OK
57		402	05/24/2021 10:31	05/25/2021 11:06	05/25/2021 17:11	74	2645.5		5248	0.0119	40.04	0.5	0.58	OK
58		500	05/24/2021 10:33	05/25/2021 11:08	05/25/2021 17:01	408	2645.5		5237	0.0119	6.19	0.2	0.11	OK
59		427	05/24/2021 10:34	05/25/2021 11:09	05/25/2021 17:13	82	2645.5		5337	0.0119	36.63	0.5	0.53	OK
60		420	05/24/2021 10:37	05/25/2021 11:10	05/25/2021 17:09	38	2645.5		5687	0.0119	85.95	0.7	1.17	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

LTP

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Flux (pCi/m²s) Error 1.00 S.D.	Remarks
61		429	05/24/2021 10:44	05/25/2021 11:12	05/25/2021 17:15	121	2645.5		5212	0.0119	23.91	0.4	0.36	OK
61		429	05/24/2021 10:44	05/25/2021 11:12	05/25/2021 17:18	121	2645.5	D	5355	0.0119	24.61	0.4	0.36	OK
62		410	05/24/2021 10:47	05/25/2021 11:13	05/25/2021 17:21	56	2645.5		5294	0.0119	54.12	0.6	0.77	OK
63		200	05/24/2021 10:49	05/25/2021 11:14	05/25/2021 17:23	40	2645.5		5251	0.0119	75.71	0.7	1.07	OK
64		501	05/24/2021 10:52	05/25/2021 11:16	05/25/2021 17:26	36	2645.5		5327	0.0119	85.56	0.7	1.2	OK
65		496	05/24/2021 10:54	05/25/2021 11:17	05/25/2021 17:27	18	2645.5		5287	0.0119	171.22	1.1	2.38	OK
66		482	05/24/2021 10:57	05/25/2021 11:19	05/25/2021 17:25	17	2645.5		6151	0.0119	211.24	1.1	2.72	OK
67		415	05/24/2021 11:00	05/25/2021 11:21	05/25/2021 17:33	25	2645.5		5340	0.0119	124.35	0.9	1.73	OK
68		422	05/24/2021 11:01	05/25/2021 11:22	05/25/2021 17:34	32	2645.5		5279	0.0119	95.74	0.8	1.34	OK
69		448	05/24/2021 11:02	05/25/2021 11:23	05/25/2021 17:29	190	2645.5		5267	0.0119	15	0.3	0.23	OK
70		5	05/24/2021 11:03	05/25/2021 11:25	05/25/2021 17:36	417	2645.5		5254	0.0119	6.11	0.2	0.11	OK
71		433	05/24/2021 11:05	05/25/2021 11:26	05/25/2021 17:57	18	2645.5		5290	0.0119	171.98	1.1	2.39	OK
72		527	05/24/2021 11:06	05/25/2021 11:27	05/25/2021 17:45	299	2645.5		5253	0.0119	9.05	0.2	0.15	OK
72		527	05/24/2021 11:06	05/25/2021 11:27	05/25/2021 17:50	325	2645.5	D	5789	0.0119	9.2	0.2	0.15	OK
73		80	05/24/2021 11:07	05/25/2021 11:29	05/25/2021 17:58	654	2645.5		5254	0.0119	3.44	0.2	0.07	OK
74		489	05/24/2021 11:08	05/25/2021 11:30	05/26/2021 09:02	509	2677.5		5403	0.0118	5.56	0.2	0.11	OK
75		68	05/24/2021 11:10	05/25/2021 11:32	05/26/2021 13:59	77	2677.5		5246	0.0118	45.32	0.6	0.66	OK
76		104	05/24/2021 11:11	05/25/2021 11:33	05/26/2021 14:17	257	2677.5		5251	0.0118	12.55	0.3	0.2	OK
77		452	05/24/2021 11:13	05/25/2021 11:35	05/26/2021 14:23	220	2677.5		5263	0.0118	14.96	0.3	0.24	OK
78		513	05/24/2021 11:14	05/25/2021 11:37	05/26/2021 14:01	71	2677.5		5286	0.0118	49.62	0.6	0.71	OK
79		526	05/24/2021 11:16	05/25/2021 11:38	05/26/2021 14:35	660	2677.5		5263	0.0118	3.97	0.2	0.09	OK
80		441	05/24/2021 11:17	05/25/2021 11:39	05/26/2021 14:39	31	2677.5	D	5449	0.0118	119.85	0.9	1.65	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

LTP

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Flux (pCi/m²s) Error 1.00 S.D.	Remarks
80		441	05/24/2021 11:17	05/25/2021 11:39	05/26/2021 14:37	31	2677.5		5416	0.0118	119.08	0.9	1.65	OK
81		64	05/24/2021 11:18	05/25/2021 11:41	05/26/2021 14:32	117	2677.5		5252	0.0118	29.41	0.5	0.44	OK
82		510	05/24/2021 11:20	05/25/2021 11:42	05/26/2021 14:29	93	2677.5		5249	0.0118	37.38	0.5	0.55	OK
83		407	05/24/2021 11:21	05/25/2021 11:43	05/26/2021 14:53	150	2677.5		5260	0.0118	22.71	0.4	0.34	OK
84		101	05/24/2021 11:22	05/25/2021 11:44	05/26/2021 14:57	28	2677.5		5302	0.0118	129.44	1	1.81	OK
85		467	05/24/2021 11:24	05/25/2021 11:46	05/26/2021 14:52	33	2677.5		5294	0.0118	109.33	0.9	1.53	OK
86		503	05/24/2021 11:25	05/25/2021 11:47	05/26/2021 14:50	30	2677.5		5251	0.0118	119.38	0.9	1.68	OK
87		424	05/24/2021 11:26	05/25/2021 11:48	05/26/2021 14:45	34	2677.5		5278	0.0118	105.62	0.9	1.49	OK
87		424	05/24/2021 11:26	05/25/2021 11:48	05/26/2021 14:46	34	2677.5	D	5296	0.0118	106	0.9	1.49	OK
88		520	05/24/2021 11:28	05/25/2021 11:50	05/26/2021 14:42	41	2677.5		5269	0.0118	87.12	0.8	1.23	OK
89		4	05/24/2021 11:30	05/25/2021 11:51	05/26/2021 14:44	30	2677.5		5314	0.0118	120.75	0.9	1.69	OK
90		49	05/24/2021 11:33	05/25/2021 11:53	05/26/2021 14:41	33	2677.5		5236	0.0118	108	0.9	1.52	OK
91		480	05/24/2021 11:35	05/25/2021 11:54	05/26/2021 15:51	452	2677.5		5253	0.0118	6.55	0.2	0.12	OK
92		414	05/24/2021 11:36	05/25/2021 11:56	05/26/2021 15:59	117	2677.5		5268	0.0118	29.83	0.5	0.44	OK
93		426	05/24/2021 11:37	05/25/2021 11:57	05/26/2021 15:46	244	2677.5		5260	0.0118	13.45	0.3	0.22	OK
94		419	05/24/2021 11:38	05/25/2021 11:58	05/26/2021 15:32	760	2677.5		5247	0.0118	3.25	0.2	0.08	OK
95		504	05/24/2021 11:40	05/25/2021 12:00	05/26/2021 15:22	496	2677.5		5249	0.0118	5.79	0.2	0.11	OK
96		528	05/24/2021 11:41	05/25/2021 12:01	05/26/2021 15:10	173	2677.5		5247	0.0118	19.45	0.4	0.3	OK
97		459	05/24/2021 11:42	05/25/2021 12:02	05/26/2021 15:14	393	2677.5		5253	0.0118	7.71	0.2	0.14	OK
98		509	05/24/2021 11:44	05/25/2021 12:03	05/26/2021 14:58	147	2677.5		5250	0.0118	23.15	0.4	0.35	OK
98		509	05/24/2021 11:44	05/25/2021 12:03	05/26/2021 15:01	147	2677.5	D	5249	0.0118	23.16	0.4	0.35	OK
99		417	05/24/2021 11:45	05/25/2021 12:05	05/26/2021 13:48	542	2677.5		5258	0.0118	5.12	0.2	0.1	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

LTP

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Error 1.00 S.D.	Remarks
100		457	05/24/2021 11:47	05/25/2021 12:07	05/26/2021 13:38	453	2677.5		5250	0.0118	6.4	0.2	0.12	OK
101	TB	475	05/24/2021 11:48	05/25/2021 12:08	05/26/2021 08:35	1200	2677.5		2980	0.0118	0.17 ✓	0.1	0.04	OK
102	TB	487	05/24/2021 11:49	05/25/2021 12:09	05/26/2021 16:03	1200	2677.5		2864	0.0118	0.11 ✓	0.1	0.04	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

STP

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Flux (pCi/m²s) Error 1.00 S.D.	Remarks
1		475	06/07/2021 08:31	06/08/2021 08:52	06/08/2021 14:44	555	2673		5251	0.0118	4.26	0.2	0.09	OK
2		80	06/07/2021 08:33	06/08/2021 08:53	06/08/2021 14:32	447	2673		5250	0.0118	5.6	0.2	0.1	OK
3		527	06/07/2021 08:35	06/08/2021 08:54	06/08/2021 14:22	556	2673		11683	0.0118	11.04	0.2	0.12	OK
4		433	06/07/2021 08:37	06/08/2021 08:57	06/08/2021 14:40	120	2673		5265	0.0118	24.49	0.4	0.36	OK
5		469	06/07/2021 11:31	06/08/2021 11:41	06/09/2021 16:40	880	2488		5919	0.012	3.25	0.2	0.07	OK
6		482	06/07/2021 09:00	06/08/2021 09:14	06/09/2021 11:55	344	2488		5258	0.012	9.05	0.3	0.15	OK
7		501	06/07/2021 08:59	06/08/2021 09:13	06/08/2021 18:57	323	2673		5255	0.0118	8.54	0.2	0.15	OK
8		200	06/07/2021 08:58	06/08/2021 09:11	06/08/2021 19:04	394	2673		8795	0.0118	12.25	0.2	0.15	OK
9		516	06/07/2021 08:38	06/08/2021 08:58	06/08/2021 15:08	80	2673		5278	0.0118	37.61	0.5	0.54	OK
10		42	06/07/2021 08:39	06/08/2021 08:59	06/08/2021 14:58	26	2673		5747	0.0118	128.9	0.9	1.73	OK
11		411	06/07/2021 11:30	06/08/2021 11:39	06/09/2021 16:56	212	2488		5254	0.012	15.91	0.3	0.25	OK
12		415	06/07/2021 09:02	06/08/2021 09:15	06/09/2021 12:36	220	2488		5261	0.012	15.04	0.3	0.24	OK
13		5	06/07/2021 09:04	06/08/2021 09:16	06/08/2021 15:55	1200	2673		21347	0.0118	9.27	0.1	0.08	OK
14		429	06/07/2021 09:05	06/08/2021 09:17	06/09/2021 12:41	278	2488		5259	0.012	11.61	0.3	0.19	OK
15		422	06/07/2021 09:06	06/08/2021 09:18	06/08/2021 15:50	279	2673		5529	0.0118	10.46	0.3	0.17	OK
16		472	06/07/2021 08:44	06/08/2021 09:02	06/08/2021 15:00	402	2673		5687	0.0118	7.03	0.2	0.12	OK
17		443	06/07/2021 08:45	06/08/2021 09:01	06/08/2021 15:14	37	2673		5289	0.0118	83.25	0.7	1.17	OK
18		312	06/07/2021 11:25	06/08/2021 11:36	06/09/2021 18:35	698	2488		5250	0.012	3.86	0.2	0.08	OK
19		436	06/07/2021 11:26	06/08/2021 11:38	06/09/2021 17:00	444	2488		5252	0.012	6.83	0.2	0.12	OK
20		494	06/07/2021 09:12	06/08/2021 09:25	06/09/2021 12:02	327	2488		5251	0.012	9.58	0.3	0.16	OK
21		448	06/07/2021 09:11	06/08/2021 09:27	06/08/2021 19:31	203	2673		5703	0.0118	15.76	0.3	0.24	OK
22		496	06/07/2021 09:10	06/08/2021 09:23	06/09/2021 12:25	216	2488		6658	0.012	19.75	0.3	0.27	OK

✓

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

STP Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Flux (pCi/m²s) Error 1.00 S.D.	Remarks
22		496	06/07/2021 09:10	06/08/2021 09:23	06/09/2021 12:29	216	2488	D	6853	0.012	20.38	0.3	0.27	OK
23		500	06/07/2021 09:09	06/08/2021 09:21	06/09/2021 11:36	267	2488		5260	0.012	12.05	0.3	0.2	OK
24		410	06/07/2021 09:08	06/08/2021 09:20	06/08/2021 18:53	209	2673		5267	0.0118	13.98	0.3	0.22	OK
25		489	06/07/2021 09:31	06/08/2021 09:41	06/09/2021 09:00	371	2488		5501	0.012	8.54	0.2	0.14	OK
26		418	06/07/2021 08:47	06/08/2021 09:04	06/08/2021 15:15	336	2673		6831	0.0118	10.7	0.2	0.15	OK
26		418	06/07/2021 08:47	06/08/2021 09:04	06/08/2021 15:22	659	2673	D	13387	0.0118	10.71	0.2	0.11	OK
27		479	06/07/2021 08:49	06/08/2021 09:05	06/08/2021 15:10	177	2673		5255	0.0118	16.23	0.3	0.25	OK
28		522	06/07/2021 11:18	06/08/2021 11:31	06/09/2021 18:49	505	2488		5252	0.012	5.91	0.2	0.11	OK
29		473	06/07/2021 11:22	06/08/2021 11:33	06/09/2021 18:27	427	2488		5252	0.012	7.24	0.2	0.13	OK
30		490	06/07/2021 11:23	06/08/2021 11:35	06/09/2021 19:06	543	2488		5256	0.012	5.41	0.2	0.1	OK
31		486	06/07/2021 09:13	06/08/2021 09:28	06/09/2021 12:09	252	2488		5256	0.012	12.85	0.3	0.21	OK
32		425	06/07/2021 09:15	06/08/2021 09:29	06/09/2021 11:28	379	2488		5251	0.012	8.03	0.2	0.14	OK
33		481	06/07/2021 09:16	06/08/2021 09:31	06/09/2021 11:23	246	2488		5266	0.012	13.15	0.3	0.21	OK
34		518	06/07/2021 09:17	06/08/2021 09:32	06/09/2021 11:41	246	2488		5259	0.012	13.16	0.3	0.21	OK
35		492	06/07/2021 09:18	06/08/2021 09:33	06/09/2021 13:02	316	2488	D	5251	0.012	10.01	0.3	0.17	OK
35		492	06/07/2021 09:18	06/08/2021 09:33	06/09/2021 12:55	311	2488		5252	0.012	10.19	0.3	0.17	OK
36		468	06/07/2021 09:19	06/08/2021 09:35	06/09/2021 11:50	166	2488	D	5162	0.012	19.78	0.4	0.3	OK
36		468	06/07/2021 09:19	06/08/2021 09:35	06/09/2021 11:47	166	2488		5263	0.012	20.19	0.4	0.31	OK
37		430	06/07/2021 09:21	06/08/2021 09:36	06/09/2021 12:46	291	2488		5253	0.012	10.97	0.3	0.18	OK
38		530	06/07/2021 09:27	06/08/2021 09:39	06/09/2021 08:53	350	2488		6035	0.012	10.13	0.2	0.16	OK
39		75	06/07/2021 08:50	06/08/2021 09:08	06/08/2021 15:36	745	2673		19343	0.0118	14.06	0.2	0.12	OK
40		525	06/07/2021 08:52	06/08/2021 09:09	06/08/2021 15:34	46	2673		5580	0.0118	70.51	0.6	0.97	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time			Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s)			
			Deployment	Retrieval	Counting						Result	LLD	Error 1.00 S.D.	Remarks
42		477	06/07/2021 09:46	06/08/2021 09:57	06/09/2021 10:23	690	2488		7006	0.012	5.45	0.2	0.09	OK
43		406	06/07/2021 09:44	06/08/2021 09:56	06/09/2021 10:16	340	2488		5604	0.012	9.71	0.3	0.16	OK
44		507	06/07/2021 09:42	06/08/2021 09:53	06/09/2021 10:06	545	2488		6327	0.012	6.42	0.2	0.11	OK
45		512	06/07/2021 09:40	06/08/2021 09:51	06/09/2021 09:59	371	2488	D	8523	0.012	14.07	0.2	0.17	OK
45		512	06/07/2021 09:40	06/08/2021 09:51	06/09/2021 09:55	250	2488		6047	0.012	14.87	0.3	0.22	OK
46		495	06/07/2021 09:38	06/08/2021 09:49	06/09/2021 09:32	1200	2488		4839	0.012	1.32	0.1	0.05	OK
47		402	06/07/2021 09:36	06/08/2021 09:48	06/09/2021 09:13	460	2488		5240	0.012	6.23	0.2	0.11	OK
48		511	06/07/2021 09:35	06/08/2021 09:47	06/09/2021 09:31	30	2488		6723	0.012	148.83	0.9	1.84	OK
49		451	06/07/2021 09:34	06/08/2021 09:44	06/09/2021 09:10	85	2488		13167	0.012	102.35	0.5	0.91	OK
50		427	06/07/2021 09:33	06/08/2021 09:43	06/09/2021 09:08	50	2488		7182	0.012	94.79	0.7	1.14	OK
51		445	06/07/2021 11:37	06/08/2021 11:44	06/09/2021 17:29	1200	2488		6012	0.012	2.07	0.1	0.05	OK
52		506	06/07/2021 09:23	06/08/2021 09:38	06/09/2021 08:50	100	2488	D	16288	0.012	107.16	0.5	0.86	OK
52		506	06/07/2021 09:23	06/08/2021 09:38	06/09/2021 08:49	90	2488		14630	0.012	106.93	0.5	0.9	OK
53		485	06/07/2021 10:07	06/08/2021 10:17	06/09/2021 16:20	72	2488		5271	0.012	50.08	0.6	0.72	OK
54		419	06/07/2021 10:09	06/08/2021 10:19	06/09/2021 16:31	511	2488		5257	0.012	5.79	0.2	0.11	OK
55		1	06/07/2021 09:52	06/08/2021 10:01	06/09/2021 14:02	141	2488		7820	0.012	37.04	0.4	0.44	OK
56		254	06/07/2021 09:55	06/08/2021 10:03	06/09/2021 13:53	83	2488		5266	0.012	42.54	0.5	0.62	OK
57		460	06/07/2021 09:56	06/08/2021 10:06	06/09/2021 14:05	74	2488		5257	0.012	47.8	0.6	0.69	OK
58		437	06/07/2021 09:57	06/08/2021 10:07	06/09/2021 13:55	375	2488		5370	0.012	8.48	0.2	0.14	OK
59		488	06/07/2021 09:58	06/08/2021 10:08	06/09/2021 13:10	103	2488		5635	0.012	36.22	0.5	0.51	OK
60		21	06/07/2021 09:59	06/08/2021 10:09	06/09/2021 13:25	107	2488		5265	0.012	32.49	0.5	0.48	OK
61		2	06/07/2021 10:01	06/08/2021 10:11	06/09/2021 13:31	1200	2488		4416	0.012	1.11	0.1	0.05	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Flux (pCi/m²s) Error 1.00 S.D.	Remarks
62		502	06/07/2021 10:02	06/08/2021 10:13	06/09/2021 13:13	643	2488		5258	0.012	4.2	0.2	0.09	OK
63		105	06/07/2021 10:03	06/08/2021 10:14	06/09/2021 16:23	414	2488		5252	0.012	7.47	0.2	0.13	OK
64		401	06/07/2021 10:11	06/08/2021 10:21	06/09/2021 16:19	53	2488		5251	0.012	68.24	0.7	0.97	OK
65		529	06/07/2021 11:14	06/08/2021 11:27	06/09/2021 19:02	157	2488	D	5605	0.012	23.91	0.4	0.35	OK
65		529	06/07/2021 11:14	06/08/2021 11:27	06/09/2021 18:59	157	2488		5619	0.012	23.96	0.4	0.35	OK
66		461	06/07/2021 11:16	06/08/2021 11:25	06/09/2021 17:16	444	2488		5258	0.012	6.87	0.2	0.12	OK
67		505	06/07/2021 10:16	06/08/2021 10:22	06/09/2021 16:14	244	2488		5906	0.012	15.6	0.3	0.23	OK
68		459	06/07/2021 10:17	06/08/2021 10:25	06/09/2021 16:07	65	2488		5255	0.012	55.38	0.6	0.79	OK
68		459	06/07/2021 10:17	06/08/2021 10:25	06/09/2021 16:09	65	2488	D	5101	0.012	53.72	0.6	0.78	OK
69		94	06/07/2021 11:13	06/08/2021 11:26	06/09/2021 17:13	43	2488		5329	0.012	85.45	0.8	1.2	OK
69		94	06/07/2021 11:13	06/08/2021 11:26	06/09/2021 17:14	43	2488	D	5436	0.012	87.2	0.8	1.21	OK
70		524	06/07/2021 11:10	06/08/2021 11:23	06/09/2021 17:24	239	2488		5261	0.012	14.01	0.3	0.22	OK
71		528	06/07/2021 10:18	06/08/2021 10:26	06/09/2021 16:11	85	2488		5253	0.012	42	0.5	0.61	OK
72		470	06/07/2021 11:09	06/08/2021 11:22	06/09/2021 15:01	56	2488		5258	0.012	63.36	0.7	0.9	OK
73		480	06/07/2021 10:22	06/08/2021 10:27	06/09/2021 16:06	23	2488		5304	0.012	160.89	1.1	2.24	OK
74		409	06/07/2021 11:07	06/08/2021 11:20	06/09/2021 15:05	38	2488		5309	0.012	95.04	0.8	1.33	OK
74		409	06/07/2021 11:07	06/08/2021 11:20	06/09/2021 15:10	38	2488	D	5023	0.012	89.9	0.8	1.3	OK
75		407	06/07/2021 10:24	06/08/2021 10:38	06/09/2021 14:16	62	2488		5265	0.012	57.12	0.6	0.82	OK
76		420	06/07/2021 11:05	06/08/2021 11:19	06/09/2021 14:55	258	2488		5517	0.012	13.31	0.3	0.21	OK
77		414	06/07/2021 10:25	06/08/2021 10:41	06/09/2021 14:12	24	2488	D	5248	0.012	149.02	1	2.09	OK
77		414	06/07/2021 10:25	06/08/2021 10:41	06/09/2021 14:11	24	2488		5342	0.012	151.69	1	2.1	OK
78		508	06/07/2021 11:04	06/08/2021 11:18	06/09/2021 15:03	96	2488		5264	0.012	36.41	0.5	0.53	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

STP

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time Deployment	Date/Time Retrieval	Date/Time Counting	Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s) Result	Flux (pCi/m²s) LLD	Flux (pCi/m²s) Error 1.00 S.D.	Remarks
79		526	06/07/2021 11:02	06/08/2021 11:17	06/09/2021 15:17	678	2488		5449	0.012	4.12	0.2	0.08	OK
80		452	06/07/2021 10:26	06/08/2021 10:42	06/09/2021 14:18	325	2488		5256	0.012	9.71	0.3	0.16	OK
81		4	06/07/2021 10:59	06/08/2021 11:15	06/09/2021 15:29	45	2488		5274	0.012	79.64	0.7	1.13	OK
82		424	06/07/2021 11:01	06/08/2021 11:13	06/09/2021 15:15	68	2488		5258	0.012	52.11	0.6	0.75	OK
83		509	06/07/2021 10:28	06/08/2021 10:43	06/09/2021 14:09	36	2488		5269	0.012	99.27	0.8	1.4	OK
84		457	06/07/2021 10:58	06/08/2021 11:11	06/09/2021 15:12	63	2488		5295	0.012	56.72	0.6	0.81	OK
85		68	06/07/2021 10:55	06/08/2021 11:09	06/09/2021 15:31	85	2488		5971	0.012	47.27	0.5	0.64	OK
86		513	06/07/2021 10:51	06/08/2021 11:08	06/09/2021 16:05	33	2488		5292	0.012	110.02	0.9	1.54	OK
87		104	06/07/2021 10:46	06/08/2021 11:02	06/09/2021 14:50	42	2488		5308	0.012	85.71	0.8	1.21	OK
88		441	06/07/2021 10:45	06/08/2021 11:00	06/09/2021 14:27	1195	2488		5251	0.012	1.6	0.1	0.05	OK
89		510	06/07/2021 10:44	06/08/2021 10:56	06/09/2021 10:37	61	2488		5772	0.012	62.02	0.6	0.84	OK
90		487	06/07/2021 10:38	06/08/2021 10:52	06/09/2021 10:36	21	2488		7817	0.012	247.81	1.1	2.83	OK
91		467	06/07/2021 10:33	06/08/2021 10:48	06/09/2021 10:42	23	2488		6903	0.012	199.67	1	2.43	OK
92		504	06/07/2021 10:30	06/08/2021 10:48	06/09/2021 10:53	56	2488		5355	0.012	62.64	0.6	0.88	OK
92		504	06/07/2021 10:30	06/08/2021 10:48	06/09/2021 10:54	53	2488	D	5211	0.012	64.45	0.7	0.92	OK
93		417	06/07/2021 10:54	06/08/2021 11:06	06/09/2021 15:51	768	2488		5731	0.012	3.75	0.2	0.08	OK
94		428	06/07/2021 10:48	06/08/2021 11:05	06/09/2021 15:33	1011	2488		5250	0.012	2.16	0.1	0.06	OK
95		64	06/07/2021 10:47	06/08/2021 11:03	06/09/2021 14:51	87	2488		5259	0.012	40.25	0.5	0.58	OK
96		101	06/07/2021 10:41	06/08/2021 10:59	06/09/2021 14:24	133	2488		5346	0.012	26.18	0.4	0.39	OK
97		49	06/07/2021 10:40	06/08/2021 10:55	06/09/2021 10:40	36	2488		5269	0.012	96.55	0.8	1.36	OK
98		426	06/07/2021 10:36	06/08/2021 10:51	06/09/2021 10:39	58	2488		5375	0.012	60.65	0.6	0.86	OK
99		520	06/07/2021 10:35	06/08/2021 10:50	06/09/2021 10:52	37	2488		5430	0.012	97.02	0.8	1.34	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
Albuquerque, NM, 87113

Radon Flux Measurements

Location Name	Field Type	Canister Number	Date/Time			Count Time (sec)	BKG Counts	Lab Type	Sample Counts	Efficiency (cps/dps)	Flux (pCi/m²s)			
			Deployment	Retrieval	Counting						Result	LLD	Error 1.00 S.D.	Remarks
100		503	06/07/2021 10:31	06/08/2021 10:47	06/09/2021 10:43	456	2488		29573	0.012	42.06	0.2	0.26	OK
n/a trip blanks		523	06/07/2021 11:38	06/08/2021 11:45	06/09/2021 10:57	1200	2488		2780	0.012	0.16	0.1	0.04	OK
n/a trip blanks		517	06/07/2021 11:39	06/08/2021 11:46	06/09/2021 19:16	1200	2488		2970	0.012	0.29	0.1	0.04	OK

Types: D-Duplicate, TB-Trip Blank

Reviewed by: _____

Appendix B

Field Deployment and Laboratory Analysis Log Forms

ERG Radon Flux Canister Data Log

Site: HMC GRANTS

LTP 2021

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
1	523	05-24-21	0906	05-25-21	0945	
2	263		0907		0948	
3	521		0908		0950	
4	412		0910		0951	
5	431		0912		0954	
6	498		0913		0956	
7	517		0915		0957	
8	446		0916		0958	
9	493		0917		1000	
10	91		0919		1001	
11	514		0920		1002	
12	515		0921		1004	
13	490		0922		1005	
29	473		0925		1007	
28	522		0928		1009	
27	312		0930		1010	
26	524		0931		1012	
25	529		0932		1013	
24	461		0933		1014	
23	470		0934		1016	
22	492		0935		1017	
21	472		0938		1018	
20	495		0940		1020	
19	506		0941		1021	
18	425		0944		1022	

J. NORWOOD (ERG)
K. MARTINEZ (HMC)
DEPLOY / RETRIEVE

Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113

ERG Radon Flux Canister Data Log

Site: HMC GRANTS LTP 2021

Page: 1 of 4

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
56	502	05-24-21	1022	05-25-21	1058	
55	468		1023		1059	
54	469		1026		1101	
53	511		1027		1102	
52	411		1029		1103	
51	409		1030		1105	
50	402		1031		1106	
49	500		1033		1108	
48	427		1034		1109	
47	420		1037		1110	
46	429		1044		1112	
62	410		1047		1113	
63	200		1049		1114	
64	501		1052		1116	
65	490		1054		1117	
66	482		1057		1119	
67	415		1100		1121	
68	422		1101		1122	
69	448		1102		1123	
70	5		1103		1125	
71	433		1105		1126	
72	527		1106		1127	
73	80		1107		1129	
74	489		1108		1130	
75	68		1110		1132	

Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113

ERG Radon Flux Canister Data Log

Site: HMC GRANTS LTP 2021

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
76	104	05-24-21	1111	05-25-21	1133	
91	452		1113		1135	
90	513		1114		1137	
89	526		1116		1138	
88	441		1117		1139	
87	64		1118		1141	
86	510		1120		1142	
85	407		1121		1143	
84	101		1122		1144	
83	467		1124		1146	
82	503		1125		1147	
81	424		1126		1148	
80	520		1128		1150	
79	4		1130		1151	
78	49		1133		1153	
77	480		1135		1154	
92	414		1136		1156	
93	426		1137		1157	
94	419		1138		1158	
95	504		1140		1200	
96	528		1141		1201	
97	459		1142		1202	
98	509		1144		1203	
99	417		1145		1205	
100	457	↓	1147	↓	1207	

Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113

Trip Blanks 523, 517

ERG Radon Flux Canister Data Log

Site: HMC GRANTS STP 202

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
1	475	06/07/21	08:31	06/08/21	08:52	
2	80		08:33		08:53	
3	5257		08:35		08:54	
4	433		08:37		08:57	
9	516		08:38		08:58	
10	42		08:39		08:59	
16	472		08:44		09:02	
17	443		08:45		09:01	
26	418		08:47		09:04	
27	479		08:49		09:05	
39	75		08:50		09:08	
40	525		08:52		09:09	
8	200		08:58		09:11	
7	501		08:59		09:13	
6	482		09:00		09:14	
12	415		09:02		09:15	
13	5		09:04		09:16	
14	429		09:05		09:17	
15	422		09:06		09:18	
24	410		09:08		09:20	
23	500		09:09		09:21	
22	496		09:10		09:23	
21	448		09:11		09:27	
20	494		09:17		09:25	
31	486		09:13		09:28	

D. NORWOOD (ERG)
E. AGUILAR (HMC)

DEPLOY/RETRIEVE

Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113

ERG Radon Flux Canister Data Log

Site: ITMC GRANTS SEP 2021

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
32	425	6/7/2024	09:15	06.08.21	09:29	
33	481		09:16	6/8/2024	09:31	
34	518		09:17		09:32	
35	492		09:18		09:33	
36	468		09:19		09:35	
37	430		09:21		09:36	
52	506		09:23		09:38	
38	530		09:27		09:39	
25	489		09:31		09:41	
50	427		09:33		09:43	
49	451		09:34		09:44	
48	511		09:35		09:47	
47	402		09:36		09:48	
46	495		09:38		09:49	
45	512		09:40		09:51	
44	507		09:42		09:53	
43	406		09:44		09:56	
42	477		09:46		09:57	
41	484		09:48		09:58	Driven over, No good LP COMPROMISED.
55	1		09:52		10:01	
56	254		09:55		10:03	
57	460		09:56		10:06	
58	437		09:57		10:07	
59	488		09:58		10:08	
60	21		09:59		10:09	

Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113

ERG Radon Flux Canister Data Log

Site: HONC GRANTS STP 2021

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
61	2	6/7/2021	10:01	06/08/21	10:11	
62	502		10:02		10:13	
63	105		10:03		10:14	
53	485		10:07		10:17	
54	419		10:09		10:19	
64	~~405~~ 401		10:11		10:21	
67	505		10:16		10:22	
68	459		10:17		10:25	
71	528		10:18		10:26	
73	480		10:22		10:27	
75	407		10:24		10:38	
77	414		10:25		10:41	
80	452		10:26		10:42	
83	509		10:28		10:43	
92	504		10:30		10:48	
100	503		10:31		10:47	
91	467		10:33		10:48	
99	520		10:35		10:50	
98	426		10:36		10:51	
90	487		10:38		10:52	
97	49		10:40		10:55	
96	101		10:41		10:59	
89	510		10:44		10:56	
88	441		10:45		11:00	
87	104		10:46		11:02	

Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113

ERG Radon Flux Canister Data Log

Site: HNC GRANTS

Location Number	Canister Number	Deployment Date (mm/dd/yy)	Deployment Time (24:00)	Retrieval Date (mm/dd/yy)	Retrieval Time (24:00)	Notes/Comments
95	64	6/7/2021	10:47	06/08/21	11:03	
94	428		10:48		11:05	
86	513		10:51		11:08	
93	417		10:54		11:06	
85	68		10:55		11:09	
84	457		10:58		11:11	
81	4		10:59		11:15	
82	424		11:01		11:13	
79	526		11:02		11:17	
78	508		11:04		11:18	
76	420		11:05		11:19	
74	409		11:07		11:20	
72	470		11:09		11:22	
70	524		11:10		11:23	
69	94		11:13		11:26	
65	529		11:14		11:27	
66	461		11:16		11:25	
28	522		11:18		11:31	
29	473		11:22		11:33	
30	490		11:23		11:35	
18	312		11:25		11:36	
19	436		11:26		11:38	
11	411		11:30		11:39	
5	469		11:31		11:41	
51	445		11:37		11:44	

Environmental Restoration Group, Inc.
8809 Washington St. NE * Suite 150
Albuquerque, NM 87113

ERG Canister Analysis Log Form

Site: HMC LTP 2021
ROI: Channel 440 to Channel ~~530~~ 528
3x3 NaI
DETECTOR: IR 108
GAIN: 0.70
HV: 850 V

	Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
	STD 1A		5/25/21	13:15	1200	46062	cf
	STD 3A			13:36	1200	43119	cf
	BKG A			13:56	1200	2589	cf
	521			14:21	800	5272	cf
	412			14:35	100	6667	cf
	263			14:38	303	5949	cf
	523			14:44	200	5279	cf
x	523 D	✓ (2)		14:48	220	5743	cf
	498			14:52	113	7956	cf
	517			14:56	60	10045	cf
	446			14:58	60	11357	cf
	431			15:00	100	5571	cf
	514			15:03	90	6914	cf
	493			15:06	76	12148	cf
	91			15:08	61	9132	cf
	515			15:11	85	7300	cf
	490			15:13	120	6040	cf
	473			15:16	1,016	5404	DN
	522			15:34	1200	3521	DN
	312			15:55	59	5411	DN
x	312D	✓ (2)		15:57	59	5531	DN
	529			15:59	28	5687	DN
	524			16:00	330	5240	DN
	461			16:07	111	5367	DN
	470			16:09	390	5315	DN
	472			16:17	1200	3831	DN
	495			16:38	49	5457	DN
x	495D	✓ (3)		16:40	49	5303	DN
	492			16:42	184	5423	DN

Review: cf

Date: Jun 10, 2021

ERG Canister Analysis Log Form

Site: HMC LTP 2021 (2)
ROI: Channel 440 to Channel ~~530~~ 529
detector=3x3 NaI
Gain: 0.70
HV - 850v

Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
506		05-25-21	~~22~~ 16:46	22	5451	DN
525			16:48	46	5334	DN
518			16:50	114	5302	DN
425			16:53	78	5240	DN
494			16:55	48	5273	DN
500			17:01	408	5237	DN
420			17:09	38	5687	DN
402			17:11	74	5248	DN
427			17:13	82	5337	DN
429			17:15	121	5212	DN
429D	✓ (4)		17:18	121	5355	DN
410			17:21	56	5294	DN
200			17:23	40	5251	DN
482			17:25	17	6151	DN
501			17:26	36	5327	DN
496			17:27	18	5287	DN
448			17:29	190	5267	DN
415			17:33	25	5340	DN
422			17:34	32	5279	DN
5			17:36	417	5254	DN
527			17:45	299	5253	DN
527D	✓ (5)		17:50	325	5789	DN
433			17:57	18	5290	DN
80			17:58	654	5254	DN
STD 1B			18:10	1200	45593 -	DN
STD 3B			18:37	1200	43215 -	DN
BKGB			18:58	1200	2702 -	DN
BKGA		5/26/21	0704	1200	2764 -	RSH
STD 1A			0735	1200	45461 -	RSH

Review: _____ **Date:** Jun 10, 2021

ERG Canister Analysis Log Form

Site: HMC LTP 2021
ROI: Channel 440 to Channel 530
Detector: 3x3 NaI
Gain: 0.70 HV: 850V

	Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
	STD3C		05-26-21	07:57	1200	43434	DN
Trip Blank	475			08:35	1200	2980	DN
	489			09:02	509	5403	DN
	443			09:12	171	5264	DN
	409			09:16	96	5238	DN
	511			09:19	72	5249	DN
	469			09:21	233	5255	DN
	411			09:26	38	5245	DN
	445			09:27	1183	5283	DN
	436			09:48	131	5265	DN
	94			09:52	193	5262	DN
*	94D	✓ (6)		10:01	193	5347	DN
	516			10:06	1200	4086	DN
	508			10:28	21	5203	DN
	451			10:29	87	5274	DN.
	530			10:32	17	5301	DN
	42			10:33	146	5266	DN
	479			10:37	1200	3187	DN
	418			10:58	80	5265	DN
	430			11:00	60	5250	DN
	75			11:02	67	5260	DN
	512			11:04	86	5256	DN
*	512D	✓ (7)		11:08	86	5163	DN
	460			11:11	483	5251	DN
	437			11:21	1013	5252	DN
	468			11:40	997	7040	ESH
	502			1200	940	27886	ESH
	2			1215	931	30876	ESH
	488		↓	1233	1036	19185	ESH

Review: _____ Date: June 10, 2021

ERG Canister Analysis Log Form

Site: HMC LTP 2021
ROI: Channel 440 to Channel 530
Detector: 3x3 NaI
Gain: 0.70 HV-850V

	Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
	406		05-26-21	1252	214	5078	↑
	477			1257	1017	111467	↑
	507			1314	829	5248	DN
	428			13:29	223	5251	DN
x	428D	✓ (8)		13:34	223	5361	DN
	457			13:38	453	5250	DN
	417			13:48	542	5258	DN
	68			13:59	77	5246	DN
	513			14:01	71	5286	DN
	104			14:17	257	5251	DN
	452			14:23	220	5263	DN
	510			14:29	93	5249	DN
	64			14:32	117	5252	DN
	526			14:35	166	5263	DN
	441			14:37	31	5416	DN
x	441D	✓ (9)		14:39	31	5449	DN
	49			14:41	33	5236	DN
	520			14:42	41	5269	DN
	4			14:44	30	5314	DN
	424			14:45	34	5278	DN
x	424D	✓ (10)		14:46	34	5296	DN
	503			14:50	30	5251	DN
	467			14:52	33	5294	DN
	407			14:53	150	5260	DN
	101			14:57	28	5302	DN
	509			14:58	147	5250	DN
x	509D	✓ (11)		15:01	147	5249	↓
	528		↓	15:10	173	5247	↓
	459			15:14	393	5253	↓

Review: _____ Date: June 10, 2021

ERG Canister Analysis Log Form

Site: HMC LTP 2021
ROI: Channel 440 to Channel 530
Detector: 3×3 NaI
Gain: 0.70 HV-850V

Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
504		05-26-21	15:22	496	5249	DN
419			15:32	760	5247	DN
426			15:46	244	5260	DN
480			15:51	452	5253	DN
414			15:59	117	5268	DN
Trip Blank 487			16:03	1200	2864	DN
STD1D			16:28	1200	45330	DN
STD3D			16:50	1200	43211	DN
BKGD			17:11	1200	~~25~~	DN
109 entries					2591	

Review: _____

Date: Jun 10, 2024

BICRON IR-108
85@ HV

ERG Canister Analysis Log Form

Site: HMC-Grants-STP-2021
ROI: Channel 440 to Channel ~~530~~ 528

Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
STD#1A		June 8, 2021	12:24	1200	45644	SH
STD#3A			12:45	1200	43248	SH
BKGA			13:07	1200	2534	SH
527			14:22	556	11683	DN
80			14:32	447	5250	
433			14:40	120	5265	
475			14:44	555	5251	
42			14:58	26	5747	
472			15:00	402	5687	
516			15:08	80	5278	
479			15:10	177	5255	
443			15:14	37	5289	
418			15:15	336	6831	
4180	D		1522	659	13387	
525			1534	46	5580	
75			1536	745	19343	
422			1550	279	5529	
5			1555	1200	21347	
BKG2A			18:31	1200	2573	
410			18:53	209	5267	
501			1857	323	5255	
200			1904	394	8795	
~~482~~			19:11	~~896~~	~~6059 cs~~	4953
~~415~~			19:17	160	~~5272 cs~~	4376
~~489~~			19:21	225	~~5252 cs~~	4328
~~494~~			19:26	231	~~5250 cs~~	4334
448			19:31	203	~~6877 cs~~	5703
~~500~~			~~19:34~~	187	~~5858 cs~~	4339
~~5000~~			19:43	192	~~5258 cs~~	4371

ACCOUNTS

BAD ROI

Review: CJM

Date: 6/10/2021

ERG Canister Analysis Log Form

Site: HMC GRANTS STP 2021
ROI: Channel 440 to Channel ~~530~~ 529 cf

Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
~~496~~		06/08/21	19:46	129	~~5871~~ cf	4402
~~496D~~	✓		19:48	127	~~5899~~	4379
~~486~~			19:52	184	~~5855~~	4365
~~485~~			19:56	285	~~5854~~	
~~518~~			20:02	191	~~5859~~	
~~481~~			20:06	181	~~5854~~	
~~468~~			20:09	131	~~5857~~	
~~492~~			20:13	225	~~5865~~	
~~492D~~			20:18	229	~~5862~~	
~~430~~			20:23	212	~~5862~~	
STD3B			20:30	1200	~~52086~~ cf	43510
STD1B			20:54	1200	~~54046~~ cf	45269
BKG1B			21:15	1200	~~4679~~ cf	2912
BKGC		6/9/21	0707	1200	~~4325~~ cf	2569
STD1C			0730	1200		45467
STD3C			08:26	1200		43806
506			08:49	90	~~10580~~	14630
506D	✓D (2)		0850	100	16288	cf
530			08:53	350	6035	cf
489			09:00	371	5501	cf
427			09:08	50	7182	cf
451			09:10	~~321~~ 85	~~9327~~	13167 cf
402			09:13	460	5240	cf
511			9:31	30	6723	cf
495			9:32	1200	4839	cf
512	✓		9:55	250	6047	cf
512D	✓D (3)		9:59	371	8523	cf
507			10:06	545	6327	cf
406			10:16	340	5604	cf

BAD ROI

< 514 COUNTS

KEEP COUNTS

NOT COUNTS

Review: _____

Date: June 10, 2021

ERG Canister Analysis Log Form

Site: 2021 GRANTS HMC STP

ROI: Channel 440 to Channel ~~530~~ 529 cf

Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
477		6/9/21	10:23	690	7006	cf
487		↓	1036	21	7817	cf
510			1037	61	5772	cf
426			1039	58	5375	cf
49			1040	36	5269	cf
467			1042	23	6903	cf
503			1043	456	29573	cf
520			1052	37	5430	cf
504			1053	56	5355	cf
* 504D	D (4)		1054	53	5211	cf
Trip Blank 523			1057	1200	2780	DN
481			11:23	246	5266	↓
425			11:28	379	5251	
500			11:36	267	5260	
518			11:41	246	5259	
468			11:47	166	5263	
* 468D	✓ (5)		11:50	166	5162	
482			11:55	344	5258	
494			12:02	327	5251	
486			12:09	252	5256	
496			12:25	216	6658	
496D	✓ (6)		12:29	216	6853	
415			12:36	220	5261	
429			12:41	278	5259	
430 (labeled as ~~430A~~ cf)			12:46	291	5253	
492	* (7)		12:55	311	5252	↓
492D		↓	13:02	316	5251	↓
		NEW	PAGE			

Review: cf

Date: JUNE 10, 2021

ERG Form PWT.107.B

~~Redo Page #3~~

ERG Canister Analysis Log Form

Site: HMC GMWS STY 202
ROI: Channel 440 to Channel 524

Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
~~468D~~	✓ #4	06-09-21	11:50	PAGE	5162	
482			11:55	344	5258	
494			12:02	327	5251	
~~486~~			12:09	252	5256	
496			12:25	216	6658	
496D	✓ #5		12:29	216	6853	
415			12:36	220	5261	
429			12:41	278	5259	
430			12:46	291	5253	
492			12:55	311	5259	
~~492D~~	✓ #6		13:02	316	5251	
488			13:10	103	5635	DN
502			13:13	643	5258	
21			13:25	107	5265	
2			13:31	1700	4416	
254			13:53	83	5266	
437			13:55	375	5370	
1			14:02	141	7820	
460			14:05	74	5257	
509			14:09	36	5269	
414			14:11	24	5342	
* 414D	✓ #9		14:12	24	5248	
407			14:16	62	5265	
452			14:18	325	5256	
101			14:24	133	5346	
441			14:27	1195	5251	
104			14:50	42	5308	
64			14:51	87	5259	
420			14:55	258	5517	

#3

ON

already

moved as 430A

Review: _____

Date: June 10, 2021

ERG Canister Analysis Log Form

Site: HNC Grants STP 2021
ROI: Channel 440 to Channel 529

	Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
	470		06-09-21	15:01	56	5258	DN
	508			15:03	96	5264	
	409			15:05	38	5309	
*	409D	✓ #9		15:08	38	5023	
	457			15:12	63	5295	
	424			15:15	68	5258	
	526			15:17	678	5449	
	4			15:29	45	5274	
	68			15:31	85	5971	
	428			15:33	1,011	5250	
	417			15:51	768	5731	
	513			16:05	33	5292	
	480			16:06	23	5304	
	459			16:07	65	5255	
*	459D	✓ #10		16:09	65	5101	
	528			16:11	85	5253	
	505			16:14	244	5906	
	401			16:19	53	5251	
	485			16:20	72	5271	
	105			16:23	414	5252	
	419			16:31	511	5257	
	469			16:40	880	5919	
	411			16:56	212	5254	
	436			17:00	444	5252	
	94			17:13	43	5329	
*	94D	✓ *11		17:14	43	5436	
	461			17:16	444	5258	
	524			17:24	239	5261	
	445			17:29	1200	6012	✓

Review: _____

Date: June 10, 2021

ERG Canister Analysis Log Form

Site: HMC GRANTS STP 2021
ROI: Channel 440 to Channel 529

Canister Number	Duplicate Count	Count Date (mm/dd/yy)	Count Time (24:00)	Count Duration (seconds)	Total Counts	Technician Initials
473		06-09-21	18:27	427	5252	DN
312			18:35	698	5250	
522			18:49	505	5252	
529			18:59	157	5619	
* 529D	✓ #12		19:02	157	5605	
490			19:06	543	5256	
Trip Blank 517			19:16	1200	2970	
STD 3D			19:37	1200	43572 ✓	
STD 1D			19:58	1200	45739 ✓	
BKGD			20:19	1200	2407 ✓	

Review: CFrank

Date: JUNE 10, 2021