ARIZONA MINERALS

2210 E Fort Lowell Rd
Tucson, AZ 85719
Tel: 520-485-1300

October 5, 2022

via electronic mail (chauhan.vimal@azdeq.gov)

Mr. Vimal Chauhan, Project Manager
Groundwater Aquifer Protection Unit
Arizona Department of Environmental Quality
1100 West Washington Street
Phoenix, Arizona 85007

RE: Arizona Minerals Inc. – Aquifer Protection Permit (APP) Request for Determination of Applicability – Hermosa Project Trench Camp

Dear Mr. Chauhan,

Arizona Minerals Inc. (AMI) is submitting this request for a Determination of Applicability (DOA) under Arizona Administrative Code (A.A.C.) R18-9-106. This submittal includes the DOA Application Form and Supplemental Information with Appendices supporting this request.

As this request indicates, AMI is seeking a determination from the Arizona Department of Environmental Quality (ADEQ) that up to four (4) million metric tonnes of non-potentially acid-generating (NPAG) rock, generated during the first five (5) years of exploration and potential development and production activities, would be considered "inert material" as defined by Arizona Revised Statutes (A.R.S.) 49-201-22. The Supplementation Information included with this Application supports this determination.

Thank you for your consideration. Please feel free to call me at (520) 485-1300 or brent.musslewhite@south32.net should you have any questions or require any additional information.

Sincerely,

Brent Musslewhite
Digitally signed by Brent Musslewhite
Date: 2022.10.05 11:32:14 -07'00'

Brent Musslewhite
Director, Environment and Permitting

CC: Paul Nazaryk, Principal Environmental Planning and Approvals, Arizona Minerals Inc.

Enclosures: DOA Application with Supplemental Information

ADEQ
Arizona Department of Environmental Quality

AQUIFER PROTECTION PERMIT DETERMINATION OF APPLICABILITY (DOA)

GENERAL INFORMATION

1 Applicant – Person signing the application [A.A.C. R18-9-106.B.2]

(Check One) ☐ Owner ☐ Operator ☒ Owner and Operator Email brent.musslewhite@South32.net

Name Brent Musslewhite
Phone (520) 485-1300 (office)
Title Director, Environment and Permitting
Business
Mailing Address 2210 East Fort Lowell Road City Tucson State AZ Zip 85719

2 Facility Name [A.A.C. R18-9-106.B.1]

Facility Name Hermosa Project Property

☐ New ☒ Currently Operating

3 Facility Address and Location Information [A.A.C. R18-9-106.B.1]

Address 749 Harshaw Road

City Patagonia State AZ Zip 85624

County Santa Cruz

Township Section 32 in Township 22S, Range 16E and in Township 23S, Range 16E; and un-surveyed Sections 3 and 4 of the Gila and Salt River Baseline and Meridian

Latitude 31° 27' 59.4" N Longitude 110° 43' 35" W ☐ NAD27 ☒ NAD83

4 Certification Statement [A.A.C. R18-9-A201(B)(7)]

I certify under penalty of law that this Aquifer Protection Permit application and all attachments were prepared under my direction or authorization and all information is, to the best of my knowledge, true, accurate and complete. I also certify that the APP discharging facilities described in this form is or will be designed, constructed, operated, and/or closed in accordance with the terms and conditions the Aquifer Protection Permit and applicable requirements of Arizona Revised Statutes Title 49, Chapter 2, and Arizona Administrative Code Title 18, Chapter 9 regarding aquifer protection permits. I am aware that there are significant penalties for submitting false information, including permit revocation as well as the possibility of fine and imprisonment for knowing violations.

Print Name Brent Musslewhite

[signature]
Signature

October 5, 2022
Date

Pursuant to A.R.S. § 41-1030:

(1) ADEQ shall not base a licensing decision, in whole or in part, on a requirement or condition not specifically authorized by statute or rule. General authority in a statute does not authorize a requirement or condition unless a rule is made pursuant to it that specifically authorizes the requirement or condition.
(2) Prohibited licensing decisions may be challenged in a private civil action. Relief may be awarded to the prevailing party against ADEQ, including reasonable attorney fees, damages, and all fees associated with the license application.
(3) ADEQ employees may not intentionally or knowingly violate the requirement for specific licensing authority. Violation is cause for disciplinary action or dismissal, pursuant to ADEQ's adopted personnel policy. ADEQ employees are still afforded the immunity in A.R.S. §§ 12-821.01 and 12-820.02.

SUPPLEMENTAL INFORMATION
Determination of Applicability
Hermosa Project NPAG Waste Rock

Prepared for:
Arizona Minerals, Inc.
2210 East Fort Lowell Road
Tucson, Arizona 85719

Prepared by

CLEAR CREEK ASSOCIATES

a Geo-Logic Company

221 N. Court Avenue, Suite 101
Tucson, Arizona 85701
clearcreekassociates.com
Project number CC22.1148.00

October 5, 2022

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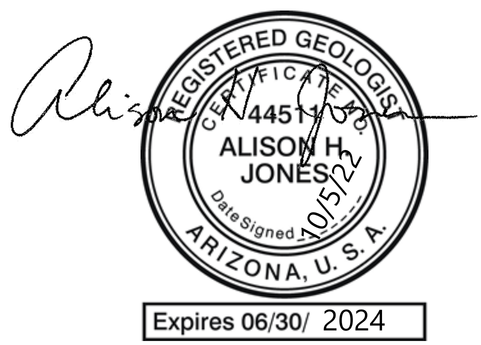

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1. Introduction

Clear Creek Associates, LLC prepared this Determination of Applicability (DOA) application and supplemental information on behalf of Arizona Minerals Inc. (AMI). By submitting this application, AMI is seeking a decision from the Arizona Department of Environmental Quality regarding inertness[1] of non-potentially acid-generating (NPAG) waste rock and the Aquifer Protection Permit (APP) status of the material. This request encompasses up to approximately 4 million metric tonnes of rock, to be generated during the first five (5) years of exploration and potential development and mining activities.

2. Facility Description

AMI is a mineral exploration and development company focused on the exploration and potential development of the Hermosa Project (a zinc, silver, manganese, and lead prospect) near Patagonia, Arizona, in Santa Cruz County. Ongoing exploration will be furthered by the advancement of shafts and/or declines and will facilitate further characterization of the resource. If AMI determines that development of a mine is feasible and makes a subsequent decision to mine, AMI will proceed with the construction and operation of an underground mine and associated surface facilities.

Exploration and, if undertaken, development and active mining will result in the generation of rock from the underground shafts and other workings. Should mining proceed, AMI estimates that during the first five (5) years of exploration, development, and operation, up to 4 million metric tons (tonnes) of NPAG waste rock will be generated and brought to the surface, where it will be stockpiled or used in construction activities. Any potentially acid-generating (PAG) waste rock will be placed in a lined TSF as allowed by AMI's APP. NPAG and PAG will be segregated according to a waste rock management plan to be prepared by AMI.

Stormwater runoff from surface placement of NPAG waste rock will be managed under the terms of the site's Mining Multi-Sector General Permit (MSGP) authorization. Any discharge of such runoff to a protected surface water would occur only pursuant to the terms and conditions of the facility's MSGP or individual AZPDES permit.

AMI currently has the following environmental permits/authorizations:

- Mining Multi-Sector General Permit Authorization AZMS-81380 (referenced above);
- Arizona State Mine Inspector State ID# 13-03295;
- ADEQ Voluntary Remediation Program Site Code #505143-02;
- APP No. P-512235. The current APP-permitted facilities include a dry stack tailing storage facility (TSF), an underdrain collection pond (UCP), and two water treatment plants (WTP1 and WTP2);
- AZPDES Permit no. AZ0026387.

3. Material Characterization

3.1 Lithologies

The rock lithologies expected to be placed in the NPAG waste rock piles include the Paleozoic sedimentary rocks of the Concha, Scherrer, Epitaph formations, the Cretaceous Meadow Valley Andesite, and older volcanics of Jurassic and Triassic age (including what is sometimes referred to as the "Hardshell Volcanics"). These rock units were mapped and described by Graybeal et al. (2015) and Simons (1974). Graybeal described the lithologies as follows:

- Cretaceous Meadow Valley andesite (designated as Ka by Graybeal et al., 2015) - Gray, greenish-gray, or grayish-red, porphyritic to fine-grained, thin to very thick flows of trachyandesite or diorite; contains some rhyodacite or dacite. Maximum thickness of about 3,000 feet. The Cretaceous andesite is the surface unit throughout most of the Trench Camp claim and most of the Alta Claim.
- Jurassic/Triassic volcanics (JTrv) - Light-colored rhyolitic, alkali rhyolitic, and quartz latitic lava, tuff, and welded tuff; locally much altered to sericite, epidote, carbonate, and chlorite, or strongly hornfelsed. Thickness uncertain but probably more than 6,000 feet. This unit is present at the surface at the eastern part of the Alta Claim, and elsewhere is underneath the Cretaceous andesite. [This unit includes the "Older Volcanics" and "Hardshell Volcanics" referred to by AMI.]
- Permian Concha Limestone (Pcn) - Gray to light-gray, fine-grained, medium to thick-bedded limestone with lenses and nodules of chert. About 155 m (510 ft) thick.
- Permian Scherrer Formation (Ps) - Brownish-gray to gray, massive, sandy limestone and white to light-brownish-gray, fine-grained sandstone. About 46 m (150 ft) thick.

- Permian Epitaph Dolomite (Pe) - Gray fine-grained, thick-bedded limestone, silty limestone, gray dolomitic limestone, lesser sandstone and conglomerate, and sparse pods of chert and quartz. About 262 m (860 ft) thick.

Older rock units are present at the site but will not be generated as waste rock and are not addressed in this request for determination of applicability or described further in this document.

Based on AMI's model, up to approximately 4 million tonnes of NPAG waste rock are expected to be generated and brought to the surface during the first five (5) years of exploration, development, and potential mining. The estimated amounts of each rock type are summarized in Table 1 below:

Table 1: NPAG Waste Rock Types Generated in Years 0-5

FORMATION	Metric Tonnes	Percent
Concha	1,748,884	53.5%
Scherrer	105,487	3.2%
Epitaph	895,687	27.4%
Meadow Valley Andesite	42,259	1.3%
Hardshell Volcanics	5,473,107	14.5%
Old Volcanics	5,028	0.2%
Total Metric Tonnes	**3,270,452**	**100%**

NOTE: Tonnages are approximate.

3.2 Inertness Evaluation

According to Arizona Revised Statutes (A.R.S.) § 49-201.22:

> *"Inert material means broken concrete, asphaltic pavement, manufactured asbestos-containing products, brick, rock, gravel, sand and soil. Inert material also includes material that when subjected to a water leach test that is designed to approximately natural infiltrating waters will not leach substances in concentrations that exceed numeric aquifer water quality standards established pursuant to section 49-223, including overburden and wall rock that is not acid generating, taking into consideration acid neutralization potential, and that has not and will not be subject to mine leaching operations."*

Based on this definition, inertness of rock types was evaluated based on: (1) acid base accounting (ABA) and net acid generating (NAG) pH; and (2) results of Synthetic Precipitation Leaching Procedure (SPLP) testing.[1] A total of 444 samples were characterized for ABA and 95 samples classified as NPAG were characterized by SPLP. In addition, kinetic (humidity cell) testing was performed on 16 samples, representing each rock type. The six rock types were characterized as summarized in Table 2.

Table 2: Inertness Characterization by Rock Type

Lithology	Number of ABA Samples	Number of SPLP Samples	Number of HCT Samples	Percent Produced (Aggregate to Surface Years 0-5)
Concha	132	32	5	53.5%
Epitaph	70	16	2	3.2%
Scherrer	41	12	1	27.4%
Meadow Valley Andesite	32	11	3	1.3%
Hardshell Volcanics	120	19	4	14.5%
Old Volcanics	49	5	1	0.2%
Total	444	95	16	100%

3.2.1 Acid Generation

Four hundred forty-four (444) static (Acid Base Accounting [ABA] and Net Acid Generation pH [NAG pH]) and 16 kinetic (humidity cell) tests were conducted on all rock units to evaluate their potential to generate acidic conditions.

ABA testing was conducted to identify Acid Generation Potential (AGP) and Acid Neutralization Potential (ANP). The AGP was based on the total sulfur content of the rock; the ANP was based on an acid neutralization titration or total carbonate content. The Net Neutralization Potential (NNP) was calculated using the formula ANP-AGP=NNP as tons of CaCO3/kiloton (kton) of sample. The approach reflected in the BADCT Manual is that if NNP>+20, the rock is non-acid

[1] Pursuant to the Arizona Mining Guidance Manual BADCT (BADCT Manual), SPLP is the "preferred approach" for leach testing. BADCT Manual, Appendix B, p. B-5.

generating, and if NNP<-20 it is acid generating. Between +20 and -20, there is uncertainty and additional inquiry may be appropriate.

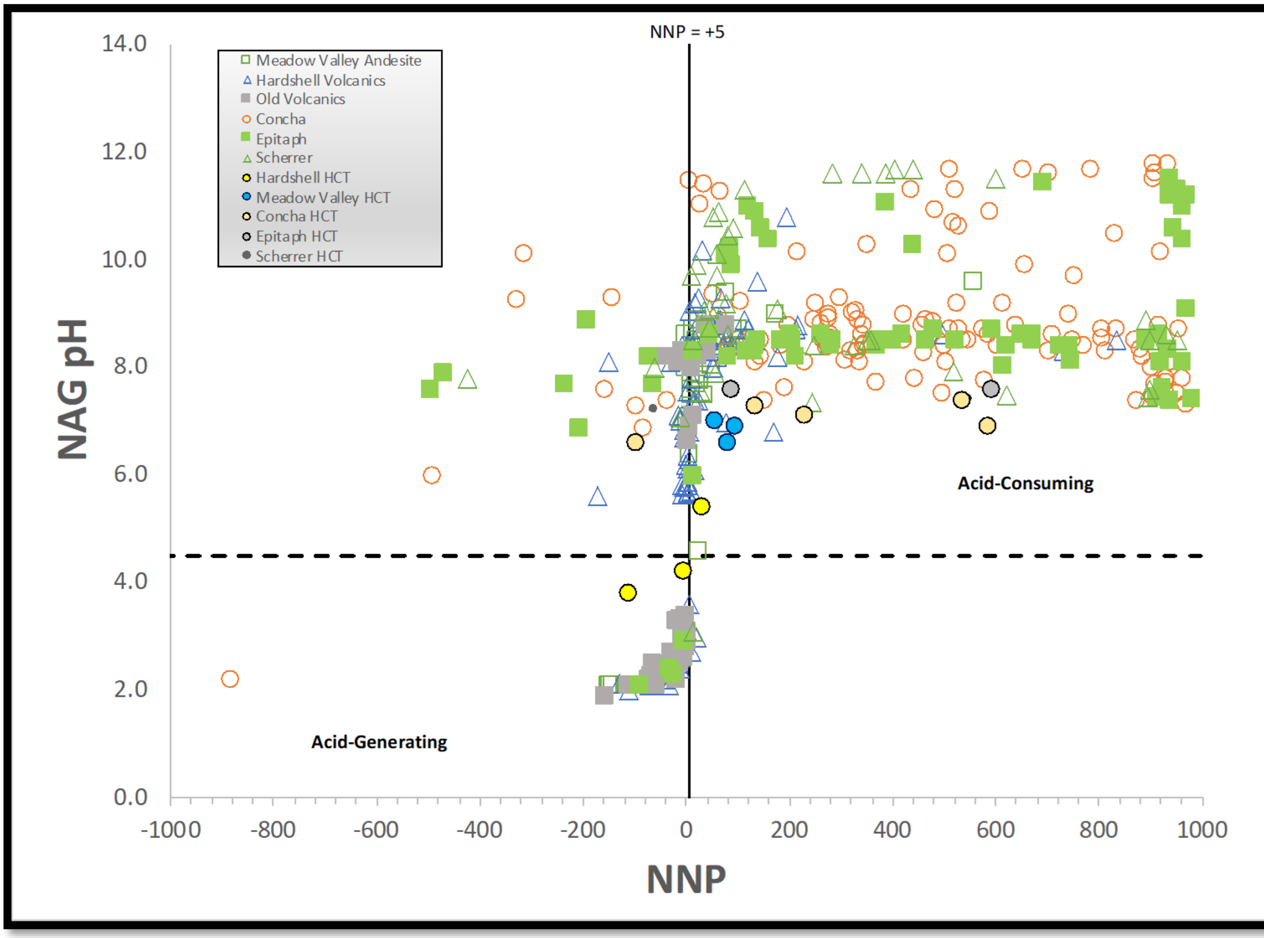
The NAG pH test was also used to directly assess the acid-generating potential of the samples. The NAG pH test involves the reaction of a sample with hydrogen peroxide and heat to rapidly oxidize sulfide minerals. Acid generation and acid neutralization reactions occur simultaneously, and the net result represents a direct measure of the amount of acid generated. A NAG pH of less than 4.5 indicates that the sample is net acid generating (Stewart et al., 2006). Because rainwater has a pH near 5.2, 4.5 is used as a lower net acid-generation threshold to clearly separate the NAG pH criterion from natural rainfall.

Kinetic (humidity cell) tests were conducted for each rock type on a total of 16 samples to determine the rates of acid-generation, acid-neutralization, and the long-term pH after a period of about 3.5 years. Five (5) of these samples were considered NPAG.

A plot of the NNP vs. NAG pH is shown in Figure 2. Of the 444 ABA points plotted, 354 have a NAG pH of greater than 4.5 and are considered NPAG. Ninety (90) samples had a NAG pH of less than 4.5 and are considered PAG. Every rock type had samples that were PAG and NPAG. However, the results are consistent with the lithologies, with carbonaceous rocks having a NAG pH of greater than 4.5 and more siliceous rocks more likely to have a NAG pH less than 4.5.

As plotted, the data points illustrate that an NNP value of +5 isolates the acid-producing (NAG pH < 4.5) samples. Thus, a shift in NNP from +20 to +5 is appropriate to segregate PAG and NPAG rock generated during exploration and potential future development and mining. Of the 444 samples analyzed for ABA, 280 had a NNP greater than +20, and 311 had an NNP greater than +5. Note that the AGP term for calculating NNP was derived from *total* sulfur measurement rather than the sulfide sulfur concentration. Because acid is not generated by all forms of sulfur, this methodology results in an over-estimate of AGP, and a lower NNP. This adds a factor of safety to the identified NNP value of +5 as an appropriate NPAG/PAG cutoff value.

Figure 2: NAG pH vs. Net Neutralization Potential (NNP)



Tabulated ABA and NAG pH analytical data are provided in Appendix A.

3.2.2 Leach Testing

Ninety-five (95) samples that had been previously determined to be NPAG[2] were subjected to SPLP testing. The data set includes testing results for all principal rock types distributed in the zones to be developed. The geometric average for each analyte was calculated for each rock unit[3]. Environmental data, such as metals concentrations in SPLP tests, are usually log-normally

[2] With a NAG pH >4.5 or NNP >+5.

[3] Calculations of the geometric mean used the detection level when results were non-detect, rather than one-half (½) the detection level value that is sometimes used for non-detect results. This is a conservative approach when comparing results (especially averages of multiple results) to numeric AWQSs.

distributed. This was the case for the samples analyzed for this project[4]. Hence, use of the geometric mean (versus the arithmetic mean) is the appropriate way to determine the central tendency (Landwher, 1978). The geometric means were calculated (1) as an overall value for all samples, (2) for each rock unit, and (3) weighted based on the amount of each rock type that is anticipated to be placed at the surface in years 0-5 from Table 1.

Of the constituents with numeric Aquifer Water Quality Standards (AWQSs) that were quantified, four (4) had one or more exceedances of their AWQSs: antimony, arsenic, lead, and thallium. Antimony exceeded the AWQS of 0.006 µg/L in 26 of the 95 samples. Arsenic exceeded the AWQS in three (3) samples, lead exceeded the AWQS in ten (10) samples, and thallium exceeded the AWQS in one sample. The lithologies in which these exceedances occurred are shown in Table 3.

Table 3: SPLP Analyses Exceeding AWQSs

	Antimony		Arsenic		Lead		Thallium	
Lithology	# > AWQS 0.006 mg/L	GM mg/L	# > AWQS 0.05 mg/L	GM mg/L	# > AWQS 0.05 mg/L	GM mg/L	# > AWQS 0.002 mg/L	GM mg/L
Concha	12	0.0048	0	0.0037	3	0.0014	0	0.0005
Epitaph	2	0.0028	0	0.0026	1	0.0009	0	0.0004
Sherrer	5	0.0047	0	0.0015	2	0.0025	0	0.0004
Meadow Valley Andesite	1	0.0014	0	0.0043	0	0.0002	0	0.0006
Hardshell Volcanics	6	0.0051	3	0.0081	4	0.0075	0	0.0002
Old Volcanics	0	0.0023	0	0.0026	0	0.0004	1	0.0005
Note: GM = Geometric Mean								

None of the calculated geometric means calculated for each rock type exceeded the AWQSs (Table 3 and Appendix B). Based on this analysis, NPAG waste rock is not expected leach substances in concentrations that exceed numeric AWQSs.

Table 4 provides the unweighted geometric mean for all NPAG material analyzed by SPLP, and the weighted geometric means for each constituent with a numeric AWQS for NPAG material to be generated during the first 5 years of exploration and potential future development and

[4] The number of non-detect results causes a skewed (log-normal) distribution of the data. This log-normal distribution results in the median concentrations being more consistent with the geometric mean, rather than the arithmetic mean.

operation. Weighting is based on the rock percentages provided in Table 1. None of the values in Table 4 exceed an AWQS.

Table 4: Weighted Geometric Mean SPLP Concentrations from NPAG Waste Rock (mg/L)

	Sb	As	Ba	Be	Cd	Cr	F	Pb	Hg	Ni	Se	Tl
AWQS (mg/L)	0.006	0.05	2	0.004	0.005	0.1	4	0.05	0.002	0.1	0.05	0.002
Geometric Mean all NPAG SPLP	0.0037	0.0036	0.0044	0.0002	0.0002	0.0036	0.2260	0.0014	0.0002	0.0024	0.0019	0.0004
Weighted by Lithology Years 0-5	0.0042	0.0032	0.0041	0.0002	0.0002	0.0038	0.2488	0.0016	0.0002	0.0026	0.002	0.0004

Humidity cell testing (HCT) included five samples of NPAG mine rock. Leachates for these tests all returned AWQS constituent concentrations below AWQS values for the duration of the 3.5-year tests. No initial spike in constituent concentrations were observed, nor did concentrations systematically rise over the test duration. The tabulated HCT data are provided in Appendix B (Table B-3).

Tabulated SPLP data are provided in Appendix B. The entire dataset is provided in Table B-1. Geometric mean SPLP data by rock unit and weighted geometric means by rock type for years 0-5 are provided in Table B-2, and humidity cell testing results are provided on Table B-3.

4. Conclusions

Based on the data presented herein, AMI concludes that:

- Waste rock identified as "NPAG" in this evaluation meets the definition of "inert" under A.R.S. § 49-201.22 because it is not acid generating AND it does not leach constituents at concentrations above the Aquifer Water Quality Standards.
- The NNP value of +5 isolates the acid-producing (NAG pH < 4.5) samples from NPAG (Figure 2). Thus, a shift in NNP from +20 to +5 is appropriate to segregate PAG and NPAG rock generated during exploration and potential future development and mining.
- Waste rock having an NNP less than +5 will be handled as PAG in APP permitted facilities and will not be considered inert.

Ninety-five samples identified as NPAG (based on NAG pH analyses), did not, in aggregate, leach constituents in concentrations greater than AWQSs in SPLP testing. Geometric mean concentrations of analytes, weighted and unweighted based on rock type, did not exceed their respective AWQSs. Except for antimony, weighted and unweighted geometric mean concentrations were below 50% of the applicable AWQSs. Humidity cell testing of five samples of NPAG material produced results that were consistent with SPLP results and below AWQS values.

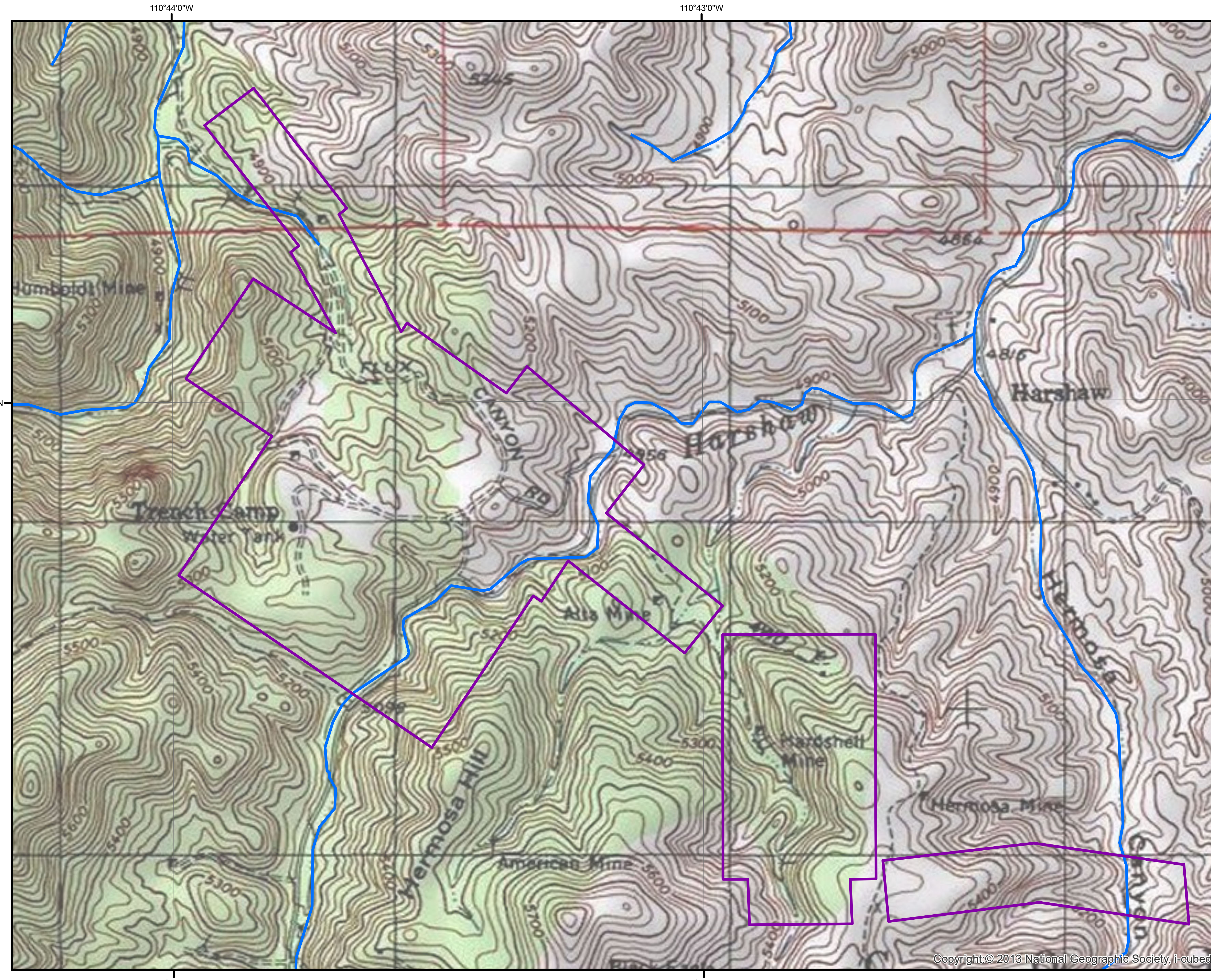
AMI will follow a protocol for characterizing and segregating PAG and NPAG waste rock. Only inert, NPAG material will be placed in waste rock stockpiles or used for construction.

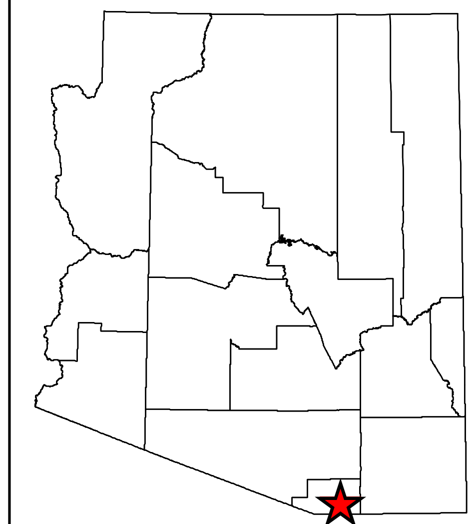
5. References

Landwehr, J.M., 1978. Some properties of the geometric mean and its use in water quality standards, Water Resources Research 14: 1187-1205.

Stewart, W.A., Miller, S.D. & Smart, R. 2006. Advances in acid rock drainage (ARD) characterization of mine wastes. Proceedings of the 7th International Conference in Acid Rock Drainage, p. 2098-2119. http://www.imwa.info/docs/imwa_2006/2098-Stewart-AU.pdf.

FIGURES





Legend

Patented Claims

Water Course

0 1,000 2,000

Feet

Projection: UTM Zone 12N NAD83

Date	File ID
10/4/2022	AZM-135

CLEAR CREEK ASSOCIATES

FIGURE 1
Hermosa
Patented Claims

APPENDIX A

ACID BASE ACCOUNTING DATA

Table A-1
Acid Base Accounting Results

Sample ID	Lithology	NAG pH	Pyritic Sulfur		Sulfate Sulfur		Total Sulfur		Acid Neutralization Potential		Acid Generation Potential	Net Neutralization Potential
			Acid Base Accounting Results									
			%		%		%		t/kt		t/kt	t/kt
Units		*Standard Units (s.u.)*										
HDS-512_1550-1555_080221	Concha	7.73	0.04	U	0.04	U	0.04	U	933		1.2	931.8
HDS-537_2105-2110_080221	Concha	9.2	1.6		0.2		1.8		308	J	56.3	251.7
HDS-537_2198-2203_080221	Concha	6.89	0.884		4.56		5.44		86.4	J	170	-83.6
HDS-550_2003-2008_080221	Concha	11.03	0.04	U	0.04	U	0.04	U	26.8		1.2	25.6
HDS-556_2102-2107_080221	Concha	2.34	1.33		0.1		1.44		1.6		44.9	-43.3
HDS-560_2042-2047_080221	Concha	9.24	1.67		2.46		4.13		234		129	105.0
HDS-332 (1511.5 TO 1516.5)	Concha	6	5.48		6.72		16		9		500	-491.0
HDS-332 (1555 TO 1560)	Concha	8.5	0.05		0.53		0.58		119		18.1	100.9
HDS-332 (1578 TO 1582)	Concha	8.9			0.06		0.06		248		1.88	246.1
HDS-332 (1582 TO 1587)	Concha	8.5	0.04		0.13		0.17		141		5.31	135.7
HDS-332 (1592 TO 1597)	Concha	8.1	2.23		0.57		2.8		220		87.5	132.5
HDS-332 (1617 TO 1622)	Concha	8.4	0.1		0.3		0.41		616		12.8	603.2
HDS-332 (1627 TO 1632)	Concha	8.7	0.01	U	0.01	U	0.01	U	575		0.3125	574.7
HDS-332 (1642 TO 1647)	Concha	8.7	0.01		0.01	U	0.01	U	805		0.3125	804.7
HDS-332 (1647 TO 1652)	Concha	8.8	0.01	U	0.01	U	0.01	U	640		0.3125	639.7
HDS-332 (1662 TO 1667)A	Concha	8.6	0.01	U	0.01	U	0.01	U	710		0.3125	709.7
HDS-332 (1662 TO 1667)B	Concha	8.5	0.01	U	0.01	U	0.01	U	748		0.3125	747.7
HDS-332 (1672 TO 1677)	Concha	8.4	0.01	U	0.01	U	0.01	U	769		0.3125	768.7
HDS-332 (1747 TO 1752)	Concha	9.7	0.03		0.01	U	0.01	U	753		0.3125	752.7
HDS-332 (1767 TO 1770)	Concha	8.7	0.25		0.13		0.4		845		12.5	832.5
HDS-332 (1837 TO 1842)	Concha	9.9	0.02		0.44		0.46		670		14.4	655.6
HDS-332 (1867 TO 1872)	Concha	8.2	0.01	U	0.01	U	0.01	U	884		0.3125	883.7
HDS-332 (1882 TO 1887)	Concha	11.7	0.01	U	0.01	U	0.01	U	786		0.3125	785.7
HDS-332 (1887 TO 1892)A	Concha	8.8	0.02		0.01	U	0.01	U	916		0.3125	915.7
HDS-332 (1887 TO 1892)B	Concha	8.7	0.01		0.01	U	0.01	U	955		0.3125	954.7
HDS-332 (1912 TO 1917)	Concha	8.1	0.01	U	0.01	U	0.01	U	938		0.3125	937.7
HDS-332 (1922 TO 1927)	Concha	8.5	0.01	U	0.01	U	0.01	U	869		0.3125	868.7
HDS-332 (1927 TO 1932)	Concha	8	0.02		0.01	U	0.01	U	903		0.3125	902.7
HDS-332 (1967 TO 1972)	Concha	7.8	0.01	U	0.01	U	0.01	U	963		0.3125	962.7
HDS-332 (1982 TO 1987)	Concha	7.8	0.01	U	0.01	U	0.01	U	931		0.3125	930.7
HDS-332 (2007 TO 2012)	Concha	8.7	0.01	U	0.01	U	0.01	U	529		0.3125	528.7
HDS-332 (2012 TO 2016)	Concha	8.6	0.01	U	0.01	U	0.01	U	585		0.3125	584.7
HDS-332 (2019 TO 2022)	Concha	8.5	0.01	U	0.01	U	0.01	U	266		0.3125	265.7
HDS-332 (2047 TO 2052)	Concha	9	0.03		0.01	U	0.01	U	743		0.3125	742.7
HDS-332 (2077 TO 2082)	Concha	8.5	0.24		0.18		0.42		559		13.1	545.9
HDS-332 (2082 TO 2087)	Concha	8.5	0.15		0.09		0.24		544		7.5	536.5
HDS-332 (2087 TO 2092)	Concha	8.1	0.44		0.39		0.83		528		25.9	502.1
HDS-332 (2092 TO 2097)A	Concha	8.4	1.13		0.74		1.87		419		58.4	360.6
HDS-332 (2092 TO 2097)B	Concha	8.4	1.08		0.98		2.06		408		64.4	343.6
HDS569_1061-1066	Concha	9.38	0.04		0.04	U	0.04		53		1.2	53.0
HDS569_1104-1109	Concha	8.31	0.04		0.04	U	0.04		4.3		1.2	4.3
HDS452_1150-1155	Concha	7.63	0.04		0.04	U	0.04		192		1.2	192.0
HDS467_961-967	Concha	8.73	0.04		0.04	U	0.04		509		1.2	509.0
HDS437_1177-1182	Concha	11.32	0.04		0.04	U	0.04		435		1.2	435.0
HDS437_1207-1212	Concha	8.87	0.04		0.04	U	0.04		465		1.2	465.0
HDS437_1352-1357	Concha	8.45	0.04		0.04	U	0.04		348		1.2	348.0
HDS437_1437-1442-FD	Concha	8.33	0.04		0.04	U	0.04		879		1.2	879.0
HDS446_1125-1130	Concha	9.07	0.04		0.04	U	0.04		328		1.2	328.0
HDS446_1150-1155	Concha	8.98	0.04		0.04	U	0.04		422		1.2	422.0
HDS446_1175-1180	Concha	10.89	0.04		0.04	U	0.04		589		1.2	589.0
HDS446_1205-1210	Concha	8.28	0.04		0.04	U	0.04		461		1.2	461.0
HDS463_1083-1088	Concha	9.01	0.04		0.04	U	0.04		322		1.2	322.0
HDS463_1103-1110	Concha	8.92	0.04		0.04	U	0.04		277		1.2	277.0
HDS463_1140-1147	Concha	8.86	0.05		0.04	U	0.04		480		1.2	480.0
HDS477_1227-1232	Concha	7.75	0.04		0.04	U	0.04		579		1.2	579.0
HDS477_1302-1307	Concha	7.42	0.04		0.04	U	0.04		547		1.2	547.0
HDS477_1332-1337	Concha	7.37	0.04		0.04	U	0.04		150		1.2	150.0
HDS569_1131-1136	Concha	8.37	0.04		0.04	U	0.04		271		1.2	271.0
HDS569_1193-1198	Concha	7.72	0.04		0.04	U	0.04		370		1.2	370.0
HDS569_1208-1213	Concha	7.79	0.04		0.04	U	0.04		442		1.2	442.0
HDS729_1330-1335	Concha	8.41	0.04		0.04	U	0.04		370		1.2	370.0
HDS729_1405-1410	Concha	7.53	0.04		0.04	U	0.04		495		1.2	495.0
HDS437_1223-1228	Concha	10.94	0.04		0.04	U	0.04		482		1.2	482.0
HDS437_1472-1477	Concha	7.32	0.04		0.04	U	0.04		971		1.2	971.0
HDS477_1352-1357	Concha	8.3	0.04		0.04	U	0.04		813		1.2	813.0
HDS569_1273-1278	Concha	7.39	0.04		0.04	U	0.04		873		1.2	873.0
HDS569_1313-1318	Concha	7.55	0.04		0.04	U	0.04		1040		1.2	1040.0
HDS437_1437-1442	Concha	10.16	0.04		0.04	U	0.04		920		1.2	920.0
HDS452_1161.5-1165	Concha	8.55	0.04		0.04	U	0.04		280		1.2	280.0
HDS467_1178.5-1182	Concha	8.99	0.04		0.04	U	0.04		275		1.2	275.0
HDS467_1232-1237	Concha	8.83	0.05		0.04	U	0.04		263		1.4	261.0
HDS467_922.5-928	Concha	10.64	0.04		0.04	U	0.04		528		1.2	528.0
HDS504_1112-1117	Concha	8.31	0.04		0.04	U	0.04		332		1.2	332.0
HDS-512_3022-3027_080221	Concha	10.13	0.171		0.04	U	0.17		511		5.3	505.7
HDS-516_3838-3843_080221	Concha	9.29	11.5		0.4	U	11.4		214		357	-143.0
HDS-517_3574-3579_080221	Concha	8.95	0.106		0.04	U	0.086		66.9		2.7	64.2
HDS-518_4083-4088_080221	Concha	7.45	0.07		0.04	U	0.059		907		1.8	905.2
HDS-523_3150-3155_080221	Concha	10.28	1.65		1.98		3.63		466	J	114	352.0
HDS-525_4601-4606_080221	Concha	11.27	0.332		0.04	U	0.347		77.8	J	10.8	67.0
HDS-531_3438-3443_080221	Concha	11.41	0.124		0.04	U	0.125		38.9	J	3.9	35.0
HDS-534_3390-3395_080221	Concha	10.11	16.3		0.4	U	16		186		501	-315.0
HDS-534_3390-3395-FD_080221	Concha	9.25	18.6		0.4	U	16.2		180		507	-327.0
HDS-537_3878-3883_080221	Concha	11.49	0.04	U	0.04		0.044		8.5	J	1.4	7.1
HDS-544_4018-4023_080221	Concha	8.53	0.382		0.04	U	0.42		820		13.1	806.9
HDS-550_3567-3572_080221	Concha	7.7	0.04	U	0.04	U	0.04	U	910		1.2	908.8
HDS-556_3576-3581_080221	Concha	10.14	0.604		0.04	U	0.55		232		17.2	214.8

Table A-1
Acid Base Accounting Results

			Acid Base Accounting Results									
Sample ID	Lithology	NAG pH	Pyritic Sulfur		Sulfate Sulfur		Total Sulfur		Acid Neutralization Potential		Acid Generation Potential	Net Neutralization Potential
			%		%		%					
Units		*Standard Units (s.u.)*							t/kt		t/kt	t/kt
HDS-559_3764-3769_080221	Concha	2.19	30		0.6	U	30.2		63.2		945	-881.8
HDS-560_3328-3333_080221	Concha	9.29	0.06		0.05		0.113		302		3.5	298.5
HGS_010_3690.2-3690.9_092421	Concha	8.14	0.13		0.09		0.14		311		4.4	306.6
HGS_010_3900.2-3900.7_092421	Concha	7.52	0.04		0.04	U	0.04		952		1.2	950.8
HGS_010_4003.1-4003.8_092421	Concha	7.51	0.06		0.04	U	0.08		934		2.4	931.6
HDS-332 (3391.5 TO 3395.5)	Concha	7.3	5.27		2.92		8.19		160		256	-96.0
HDS-332 (3395.5 TO 3399)	Concha	7.4	3.1		1.62		4.72		110		148	-38.0
HDS-332 (3417 TO 3422)	Concha	8.2	3.32		1.28		4.6		213		144	69.0
HDS-332 (3422 TO 3427)	Concha	8.1	2.14		0.94		3.08		433		96.3	336.7
HDS-332 (3447 TO 3450)	Concha	8.1	1.91		1.51		3.42		335		107	228.0
HDS-332 (3459 TO 3464)	Concha	7.6	8.52		3.66		12.2		223		381	-158.0
HDS-332 (3464 TO 3467)	Concha	8.2	0.47		0.24		0.71		166		22.2	143.8
HDS-332 (3477 TO 3482)	Concha	8.4	0.18		0.21		0.39		196		12.2	183.8
HDS-332 (3487 TO 3492)	Concha	8.3	0.45		0.49		0.94		346		29.4	316.6
HDS-332 (3497 TO 3502)	Concha	8.4	0.2		0.18		0.38		110		11.9	98.1
HDS-332 (3502 TO 3507)	Concha	8.4	0.59		0.23		0.82		118		25.6	92.4
HDS-332 (3527 TO 3532)	Concha	8.5	0.2		0.1		0.3		68		9.38	58.6
HDS-332 (3532 TO 3537)	Concha	8.5	0.1		0.03		0.13		269		4.06	264.9
HDS-332 (3537 TO 3542)	Concha	8.6	0.14		0.02		0.16		346		5	341.0
HDS-332 (3547 TO 3555)	Concha	8.5	0.06		0.03		0.09		283		2.81	280.2
HDS-332 (3564 TO 3567)	Concha	8.4	0.02		0.01		0.03		106		0.94	105.1
HDS-332 (3572 TO 3577)	Concha	8.4	0.06		0.04		0.1		88		3.13	84.9
HDS-332 (3577 TO 3582)	Concha	8.4	0.23		0.17		0.4		288		12.5	275.5
HDS-332 (3587 TO 3592)	Concha	8.5	0.1		0.07		0.17		150		5.31	144.7
HDS-332 (3612 TO 3617)	Concha	8.6	0.04		0.01		0.05		281		1.56	279.4
HDS-332 (3622 TO 3627)	Concha	8.9	0.03		0.01	U	0.03		333		0.94	332.1
HDS-332 (3677 TO 3682)	Concha	8.5	0.12		0.03		0.15		391		4.69	386.3
HDS-332 (3687 TO 3692)	Concha	8.5	0.12		0.04		0.16		378		5	373.0
HDS-332 (3707 TO 3712)	Concha	8.4	0.06		0.01	U	0.05		501		1.56	499.4
HDS-332 (3732 TO 3737)	Concha	8.5	0.27		0.07		0.34		433		10.6	422.4
HDS-332 (3777 TO 3780.5)	Concha	10.5	0.09		0.01		0.1		833		3.13	829.9
HDS-332 (3802 TO 3807)	Concha	8.3	0.2		0.01	U	0.2		708		6.25	701.8
HDS-332 (3832 TO 3837)	Concha	11.6	0.01	U	0.01	U	0.01	U	703		0.3125	702.7
HDS-332 (3847 TO 3852)	Concha	11.8	0.01	U	0.01	U	0.01	U	906		0.3125	905.7
HDS-332 (3897 TO 3902)	Concha	11.7	0.01	U	0.02		0.02		510		0.63	509.4
HDS-364 (3491 TO 3496)	Concha	11.5	0.11		0.01	U	0.11		910		3.44	906.6
HDS-364 (3580 TO 3586)	Concha	9.2	0.08		0.01	U	0.08		526		2.5	523.5
HDS-364 (3592 TO 3598)	Concha	9.2	0.27		0.07		0.34		623		10.6	612.4
HDS-364 (3602 TO 3608)	Concha	8.8	0.15		0.05		0.2		465		6.25	458.8
HDS-364 (3642 TO 3647)	Concha	8.8	1.63		0.05		1.7		398		53.1	344.9
HDS-364 (3787 TO 3792)	Concha	11.6	0.07		0.01	U	0.02		910		0.63	909.4
HDS-364 (3807 TO 3812)	Concha	11.8	0.14		0.01	U	0.1		936		3.13	932.9
HDS-364 (3857 TO 3862)	Concha	10.7	0.17		0.05		0.22		524		6.88	517.1
HDS-364 (3897 TO 3902)	Concha	8.8	0.17		0.13		0.3		205		9.38	195.6
HDS-364 (3932 TO 3937)	Concha	11.7	0.34		0.01		0.35		665		10.9	654.1
HDS-364 (3952 TO 3957)	Concha	11.3	0.18		0.01	U	0.16		528		5	523.0
HDS-512_2439-2444_080221	Epitaph	7.37	0.04	U	0.04	U	0.04	U	937		1.2	935.8
HDS-513_2311-2316_080221	Epitaph	6.88	1.29		11.8		13.1		202		410	-208.0
HDS-513_2590-2595_080221	Epitaph	8.89	0.75		9.31		10.4		131		326	-195.0
HDS-513_2685-2690_080221	Epitaph	8.35	0.269		0.04	U	0.278		944		8.7	935.3
HDS-523_2148-2153_080221	Epitaph	7.64	0.04	U	0.04	U	0.04	U	923	J	1.2	921.8
HDS-523_2423-2428_080221	Epitaph	11.44	0.264		0.04	U	0.301		703	J	9.4	693.6
HDS-523_2805-2810_080221	Epitaph	10.23	0.243		0.04	U	0.262		93.7	J	8.2	85.5
HDS-527_2658-2663_080221	Epitaph	11.06	1.01		0.09		1.09		420	J	34.2	385.8
HDS-527_2772-2777_080221	Epitaph	10.29	0.7		0.07		0.771		465	J	24.1	440.9
HDS-553_2428-2433_080221	Epitaph	7.42	0.106		0.06		0.163		986		5.1	980.9
HDS-558_2140-2145_080221	Epitaph	7.45	0.04	U	0.04	U	0.04	U	915		1.2	913.8
HDS-332 (2407 TO 2412)	Epitaph	11.3	0.04		0.01	U	0.01	U	951		0.3125	950.7
HDS-332 (2422 TO 2427)	Epitaph	11.2	0.08		0.01	U	0.01	U	936		0.3125	935.7
HDS-332 (2467 TO 2472)	Epitaph	10.4	0.04		0.01	U	0.01	U	961		0.3125	960.7
HDS-332 (2472 TO 2477)	Epitaph	11.2	0.04		0.01	U	0.01	U	971		0.3125	970.7
HDS-332 (2487 TO 2492)	Epitaph	11.5	0.06		0.01	U	0.01	U	936		0.3125	935.7
HDS-332 (2492 TO 2497)A	Epitaph	11	0.07		0.01	U	0.01	U	961		0.3125	960.7
HDS-332 (2492 TO 2497)B	Epitaph	8.1	0.09		0.01	U	0.01	U	963		0.3125	962.7
HDS-332 (2512 TO 2517)	Epitaph	8.1	0.04		0.01	U	0.01	U	919		0.3125	918.7
HDS-332 (2542 TO 2547)	Epitaph	8.7	0.42		0.01		0.43		605		13.4	591.6
HDS-332 (2562 TO 2567)	Epitaph	8.4	0.19		0.01	U	0.18		749		5.63	743.4
HDS-332 (2599 TO 2604)	Epitaph	8.4	1.55		0.61		2.18		349		68.1	280.9
HDS-332 (2632 TO 2637)	Epitaph	8.7	0.27		0.01	U	0.25		485		7.81	477.2
HDS-332 (2657 TO 2662)	Epitaph	8.6	0.13		0.01	U	0.1		420		3.13	416.9
HDS-332 (2662 TO 2667)	Epitaph	8.5	0.32		0.03		0.35		379		10.9	368.1
HDS-332 (2692 TO 2697)	Epitaph	8.6	0.01		0.01	U	0.01	U	915		0.3125	914.7
HDS-332 (2697 TO 2702)	Epitaph	8.5	0.02		0.01	U	0.01	U	891		0.3125	890.7
HDS-332 (2702 TO 2707)	Epitaph	8.6	0.04		0.01	U	0.03		673		0.94	672.1
HDS-332 (2717 TO 2722)	Epitaph	8.4	0.21		0.02		0.23		374		7.19	366.8
HDS-332 (2752 TO 2757)	Epitaph	10.6	0.09		0.01	U	0.07		948		2.19	945.8
HDS-332 (2763 TO 2767)	Epitaph	8.5	0.3		0.06		0.37		684		11.6	672.4
HDS-332 (2787 TO 2792)	Epitaph	8.5	0.77		0.12		0.89		430		27.8	402.2
HDS-332 (2792 TO 2797)	Epitaph	8.4	0.37		0.1		0.5		739		15.6	723.4
HDS-332 (2797 TO 2802)	Epitaph	8.5	0.53		0.01	U	0.53		540		16.6	523.4
HDS-332 (2823 TO 2826)	Epitaph	7.7	10.9		5.1		16.9		293		528	-235.0
HDS-332 (2826 TO 2830)	Epitaph	8.5	2.23		0.32		2.57		544		80.3	463.7
HDS-332 (2837 TO 2842)	Epitaph	8.4	1.25		0.35		1.6		671		50	621.0
HDS-332 (2872 TO 2877)	Epitaph	8.3	5.6		0.66		6.26		311		196	115.0
HDS-332 (2887 TO 2892)	Epitaph	9.9	1.38		0.17		1.55		135		48.4	86.6
HDS-332 (2892 TO 2897)	Epitaph	10.1	1.22		0.22		1.44		121		45	76.0

Table A-1
Acid Base Accounting Results

			Acid Base Accounting Results									
Sample ID	Lithology	NAG pH	Pyritic Sulfur		Sulfate Sulfur		Total Sulfur		Acid Neutralization Potential		Acid Generation Potential	Net Neutralization Potential
			%		%		%					
Units		*Standard Units (s.u.)*							*t/kt*		*t/kt*	*t/kt*
HDS-332 (2919 TO 2921.5)	Epitaph	7.6	12.9		7.33		21		159		656	-497.0
HDS-332 (2921.5 TO 2924)	Epitaph	8.6	1		0.25		1.25		300		39.1	260.9
HDS-332 (2924 TO 2927)	Epitaph	8.6	0.57		0.04		0.61		219		19.1	199.9
HDS-332 (2930 TO 2935)A	Epitaph	8.5	3.36		0.32		3.68		320		115	205.0
HDS-332 (2930 TO 2935)B	Epitaph	8.5	2.27		0.39		2.66		365		83.1	281.9
HDS-332 (2943 TO 2947)	Epitaph	8.3	3.98		1.69		5.76		310		180	130.0
HDS-332 (3005 TO 3009)	Epitaph	8.5	2.52		0.09		2.62		221		81.9	139.1
HDS-332 (3009 TO 3012)	Epitaph	8.4	2.36		0.06		2.43		209		75.9	133.1
HDS-332 (3022 TO 3027)	Epitaph	8.5	0.21		0.01	U	0.21		143		6.56	136.4
HDS-332 (3027 TO 3032)	Epitaph	8.5	1.88		0.22		2.1		248		65.6	182.4
HDS-332 (3032 TO 3037.5)	Epitaph	8.2	5.79		3.82		10.1		243		316	-73.0
HDS-332 (3043 TO 3045)	Epitaph	7.9	18		2.63		20.8		179		650	-471.0
HDS-332 (3057.5 TO 3060)	Epitaph	7.7	10.1		1.25		11.7		300		366	-66.0
HDS-332 (3060 TO 3064)	Epitaph	8.2	3.85		0.92		4.83		233		151	82.0
HDS-332 (3064 TO 3067)	Epitaph	8.2	3.25		0.67		3.93		335		123	212.0
HDS-516_4483-4488_080221	Epitaph	8.03	0.393		0.05		0.438		628		13.7	614.3
HDS-518_4555-4560_080221	Epitaph	8.15	0.356		0.04	U	0.346		757		10.8	746.2
HDS-528_3862-3867_080221	Epitaph	6	0.222		0.04	U	0.215		20.7	J	6.7	14.0
HDS-332 (4087 TO 4092)	Epitaph	9.1	0.1		0.01	U	0.09		971		2.81	968.2
HDS-364 (4277 TO 4282)A	Epitaph	11	0.43		0.09		0.52		136		16.3	119.7
HDS-364 (4277 TO 4282)B	Epitaph	10.9	0.5		0.07		0.57		151		17.8	133.2
HDS-364 (4317 TO 4322)	Epitaph	2.3	2.69		0.53		3.22		73		101	-28.0
HDS-364 (4402 TO 4407)	Epitaph	8.6	0.03		0.01		0.04		650		1.25	648.8
HDS-364 (4422 TO 4427)	Epitaph	10.4	0.26		0.02		0.28		166		8.75	157.3
HDS-364 (4437 TO 4442)	Epitaph	10.6	0.31		0.04		0.35		156		10.9	145.1
HDS-364 (4492 TO 4497)	Epitaph	2.4	1.77		0.38		2.15		33		67.2	-34.2
HDS-364 (4552 TO 4557)	Epitaph	2.9	0.96		0.23		1.19		32		37.2	-5.2
HDS-364 (4597 TO 4602)	Epitaph	2.1	3.05		0.68		3.74		27		117	-90.0
HDS-364 (4682 TO 4687)	Epitaph	8.6	2.15		0.37		2.53		125		79.1	45.9
HDS-364 (4687 TO 4692)	Epitaph	8.3	1.74		0.39		2.14		79		66.9	12.1
HDS-517_1441-1446_080221	Hardshell Volcanics	9.81	0.215		0.04	U	0.207		48.7	J	6.5	42.2
HDS-517_1441-1446-FD_080221	Hardshell Volcanics	10.83	0.174		0.04	U	0.195		32.8	J	6.1	26.7
HDS-537_1920-1925_080221	Hardshell Volcanics	2.63	0.696		0.1		0.793		4.9	J	24.8	-19.9
HDS-541_1470-1475_080221	Hardshell Volcanics	8.56	1		0.23		1.23		33.4	J	38.4	-5.0
HDS-543_2050-2055_080221	Hardshell Volcanics	2.84	0.887		0.12		1.01		26.8	J	31.5	-4.7
HDS-546_685-690_080221	Hardshell Volcanics	8.98	0.335		0.04	U	0.366		154		11.4	142.6
HDS-556_1970-1975_080221	Hardshell Volcanics	8.52	1.07		0.04	U	1.09		5.4		34.1	-28.7
HGS_010_2002.8-2003.5_092421	Hardshell Volcanics	2.8	0.71		0.42		1.04		7.6		32.5	-24.9
HGS_010_2302-2302.8_092421	Hardshell Volcanics	3.28	0.29		0.14		0.4		12.7		12.5	0.2
HGS_010_2401.1-2402_092421	Hardshell Volcanics	2.2	2.14		1.18		3.11		14.4		97.3	-82.9
HGS_010_2428.2-2429_092421	Hardshell Volcanics	2.08	3.27		1.69		4.49		20.2		140	-119.8
HGS_010_2503.6-2504.5_092421	Hardshell Volcanics	2.13	3.59		2.27		4.71		17.5		147	-129.5
HGS-011_1101.5-1103_092821	Hardshell Volcanics	2.75	0.65		0.27	J	0.93		3.1		29.0625	-26.0
HGS-011_2004-2004.9_092821	Hardshell Volcanics	2.34	1.67		0.69	J	2.36		15		73.75	-58.8
HDS-332 (218 TO 222)	Hardshell Volcanics	7.1	0.84		0.39		1.24		22		38.8	-16.8
HDS-332 (222 TO 227)	Hardshell Volcanics	7.1	0.66		0.42		1.1		26		34.4	-8.4
HDS-332 (237 TO 242)	Hardshell Volcanics	2.8	0.86		0.25		1.11		14		34.7	-20.7
HDS-332 (252 TO 257)	Hardshell Volcanics	2.6	0.8		0.25		1.05		11		32.8	-21.8
HDS-332 (272 TO 277)	Hardshell Volcanics	8.3	0.41		0.12		0.53		37		16.6	20.4
HDS-332 (317 TO 322)A	Hardshell Volcanics	7.4	0.33		0.04		0.37		28		11.6	16.4
HDS-332 (317 TO 322)B	Hardshell Volcanics	7.4	0.27		0.05		0.32		35		10	25.0
HDS-332 (327 TO 332)	Hardshell Volcanics	6.3	0.2		0.05		0.26		15		8.13	6.9
HDS-332 (362 TO 367)	Hardshell Volcanics	8.9	0.24		0.05		0.3		74		9.38	64.6
HDS-332 (382 TO 387)	Hardshell Volcanics	8.4	0.83		0.09		0.93		99		29.1	69.9
HDS-332 (397 TO 402)	Hardshell Volcanics	8.5	0.8		0.06		0.87		85		27.2	57.8
HDS-332 (417 TO 422)	Hardshell Volcanics	8.5	0.17		0.01		0.19		140		5.94	134.1
HDS-332 (427 TO 432)	Hardshell Volcanics	9.6	0.01		0.01	U	0.01	U	139		0.3125	138.7
HDS-332 (432 TO 437)	Hardshell Volcanics	8.8	0.11		0.01	U	0.11		220		3.44	216.6
HDS-332 (437 TO 442)	Hardshell Volcanics	9.3	0.63		0.05		0.69		44		21.6	22.4
HDS-332 (442 TO 447)	Hardshell Volcanics	8.7	0.8		0.15		0.96		46		30	16.0
HDS-332 (457 TO 462)	Hardshell Volcanics	8.3	0.98		0.07		1.06		88		33.1	54.9
HDS-332 (467 TO 472)	Hardshell Volcanics	2.4	1.99		0.27		2.27		34		70.9	-36.9
HDS-332 (507 TO 512)	Hardshell Volcanics	2.4	2.04		0.28		2.42		39		75.6	-36.6
HDS-332 (547 TO 552)	Hardshell Volcanics	2.6	0.88		0.28		1.26		20		39.4	-19.4
HDS-332 (567 TO 572)	Hardshell Volcanics	2.4	1.46		0.41		1.89		19		59.1	-40.1
HDS-332 (587 TO 592)	Hardshell Volcanics	6.8	1.04		0.39		1.43		216		44.7	171.3
HDS-332 (612 TO 617)	Hardshell Volcanics	2.2	2.12		0.65		2.77		19		86.6	-67.6
HDS-332 (625 TO 629)	Hardshell Volcanics	6.1	1		1.22		2.24		86		70	16.0
HDS-332 (672 TO 677)	Hardshell Volcanics	10.8	0.9		0.14		1.05		228		32.8	195.2
HDS-332 (737 TO 742)	Hardshell Volcanics	2.7	0.96		0.1		1.06		41		33.1	7.9
HDS-332 (742 TO 747)	Hardshell Volcanics	2.3	1.11		0.18		1.29		17		40.3	-23.3
HDS-332 (782 TO 787)	Hardshell Volcanics	5.6	4.93		1.91		6.84		42		214	-172.0
HDS-332 (792 TO 797)	Hardshell Volcanics	2.7	0.62		0.11		0.73		16		22.8	-6.8
HDS-332 (822 TO 827)	Hardshell Volcanics	2.5	0.71		0.08		0.79		10		24.7	-14.7
HDS-332 (852 TO 857)	Hardshell Volcanics	2.7	0.55		0.13		0.68		8		21.3	-13.3
HDS-332 (892 TO 897)	Hardshell Volcanics	7.4	0.04		0.01		0.05		14		1.56	12.4
HDS-332 (902 TO 907)	Hardshell Volcanics	5.7	0.06		0.01		0.07		13		2.19	10.8
HDS-332 (932 TO 937)	Hardshell Volcanics	8.4	0.96		0.22		1.18		84		36.9	47.1
HDS-332 (937 TO 942)	Hardshell Volcanics	2.6	0.59		0.12		0.71		11		22.2	-11.2
HDS-332 (942 TO 947)	Hardshell Volcanics	8.5	0.46		0.08		0.54		33		16.9	16.1
HDS-332 (952 TO 957)	Hardshell Volcanics	8.4	0.55		0.1		0.65		33		20.3	12.7
HDS-332 (977 TO 982)	Hardshell Volcanics	8.3	1.26		0.12		1.38		774		43.1	730.9
HDS-332 (982 TO 987)	Hardshell Volcanics	8.6	1.55		0.06		1.61		545		50.3	494.7
HDS-332 (992 TO 997)	Hardshell Volcanics	8.7	0.27		0.03		0.3		221		9.38	211.6
HDS-332 (1002 TO 1007)	Hardshell Volcanics	8.5	0.1		0.02		0.12		838		3.75	834.3
HDS-332 (1042 TO 1047)	Hardshell Volcanics	3.6	0.35		0.03		0.38		17		11.9	5.1

Table A-1
Acid Base Accounting Results

			Acid Base Accounting Results									
Sample ID	Lithology	NAG pH	Pyritic Sulfur		Sulfate Sulfur		Total Sulfur		Acid Neutralization Potential		Acid Generation Potential	Net Neutralization Potential
			%		%		%					
Units		*Standard Units (s.u.)*							*t/kt*		*t/kt*	*t/kt*
HDS-332 (1057 TO 1062)	Hardshell Volcanics	8.5	0.01	U	0.01	U	0.01	U	130		0.3125	129.7
HDS-332 (1062 TO 1067)	Hardshell Volcanics	8.5	0.08		0.01	U	0.08		109		2.5	106.5
HDS-332 (1117 TO 1122)	Hardshell Volcanics	8.2	2.37		0.34		2.71		144		84.7	59.3
HDS-332 (1152 TO 1157)	Hardshell Volcanics	8.8	0.41		0.08		0.49		64		15.3	48.7
HDS-332 (1167 TO 1172)	Hardshell Volcanics	8.3	0.6		0.13		0.73		98		22.8	75.2
HDS-332 (1177 TO 1182)	Hardshell Volcanics	8	0.69		0.18		0.87		80		27.2	52.8
HDS-332 (1182 TO 1187)	Hardshell Volcanics	8.5	1.28		0.21		1.49		61		46.6	14.4
HDS-332 (1187 TO 1192)	Hardshell Volcanics	8.9	0.43		0.06		0.49		79		15.3	63.7
HDS-332 (1207 TO 1212)	Hardshell Volcanics	8.9	0.25		0.03		0.28		121		8.75	112.3
HDS-332 (1282 TO 1287)	Hardshell Volcanics	9.3	0.18		0.01		0.19		73		5.94	67.1
HDS-332 (1302 TO 1307)	Hardshell Volcanics	8.6	1.14		0.15		1.29		80		40.3	39.7
HDS-332 (1317 TO 1322)	Hardshell Volcanics	3	0.59		0.15		0.74		44		23.1	20.9
HDS-332 (1327 TO 1332)	Hardshell Volcanics	2.6	0.93		0.22		1.15		18		35.9	-17.9
HDS-332 (1337 TO 1342)	Hardshell Volcanics	9.2	0.88		0.2		1.08		49		33.8	15.2
HDS-332 (1352 TO 1357)	Hardshell Volcanics	2.4	2.02		0.29		2.31		60		72.2	-12.2
HDS-332 (1377 TO 1382)	Hardshell Volcanics	8.4	0.51		0.12		0.63		22		19.7	2.3
HDS-332 (1397 TO 1402)	Hardshell Volcanics	3.1	0.36		0.03		0.39		14		12.2	1.8
HDS-332 (1462 TO 1467)	Hardshell Volcanics	10.2	0.31		0.03		0.34		40		10.6	29.4
HDS-332 (1497 TO 1507)	Hardshell Volcanics	7.8	0.19		0.03		0.22		16		6.88	9.1
HDS-364 (957 TO 962)	Hardshell Volcanics	2.2	1.96		0.96		2.95		21		92.2	-71.2
HDS-364 (982 TO 987)	Hardshell Volcanics	8.6	0.34		0.05		0.39		74		12.2	61.8
HDS-364 (987 TO 992)	Hardshell Volcanics	8.3	1.36		0.18		1.54		68		48.1	19.9
HDS-364 (992 TO 997)	Hardshell Volcanics	8.5	0.92		0.15		1.07		69		33.4	35.6
HDS-364 (997 TO 1002)	Hardshell Volcanics	2.4	2.08		0.41		2.51		56		78.4	-22.4
HDS-364 (1062 TO 1067)	Hardshell Volcanics	2.2	2.29		0.31		2.62		16		81.9	-65.9
HDS-364 (1077 TO 1082)	Hardshell Volcanics	2.2	1.53		0.16		1.7		12		53.1	-41.1
HDS-364 (1142 TO 1146)	Hardshell Volcanics	2.5	0.86		0.28		1.17		6		36.6	-30.6
HDS-364 (1146 TO 1152)A	Hardshell Volcanics	2.1	2.28		0.32		2.63		9		82.2	-73.2
HDS-364 (1146 TO 1152)B	Hardshell Volcanics	2.1	2.1		0.33		2.46		11		76.9	-65.9
HDS-364 (1172 TO 1177)	Hardshell Volcanics	2.4	1.03		0.19		1.23		10		38.4	-28.4
HDS-364 (1217 TO 1222)	Hardshell Volcanics	2.3	2.08		0.06		2.16		24		67.5	-43.5
HDS-364 (1252 TO 1257)	Hardshell Volcanics	2.4	0.92		0.15		1.07		7		33.4	-26.4
HDS-364 (1267 TO 1272)	Hardshell Volcanics	2.1	2.47		0.19		2.69		13		84.1	-71.1
HDS-364 (1292 TO 1297)	Hardshell Volcanics	2.2	1.08		0.46		1.54		7		48.1	-41.1
HDS-364 (1427 TO 1432)	Hardshell Volcanics	8.2	0.39		0.05		0.44		190		13.8	176.2
HDS-364 (1502 TO 1507)	Hardshell Volcanics	8.3	0.63		0.08		0.71		59		22.2	36.8
HDS-364 (1717 TO 1722)	Hardshell Volcanics	8.7	0.04		0.02		0.06		121		1.88	119.1
HDS-364 (1757 TO 1762)	Hardshell Volcanics	8.5	1.5		0.28		1.78		131		55.6	75.4
HDS-364 (1772 TO 1777)	Hardshell Volcanics	8.4	0.83		0.22		1.05		121		32.8	88.2
HDS-364 (1814 TO 1819)	Hardshell Volcanics	8.1	4.94		2.26		7.26		78		227	-149.0
HDS-364 (1836 TO 1841)	Hardshell Volcanics	8.4	0.6		0.18		0.78		15		24.4	-9.4
HDS-364 (1892 TO 1899)	Hardshell Volcanics	2	2.49		1.52		4.02		15		126	-111.0
HDS-364 (1961 TO 1966)	Hardshell Volcanics	8.1	0.84		0.6		1.44		16		45	-29.0
HDS-364 (2207 TO 2212)	Hardshell Volcanics	2.1	1.45		0.23		1.68		20		52.5	-32.5
HDS583_703-708	Hardshell Volcanics	7.54	0.04		0.04	U	0.08		1.5		2.6	1.2
HDS437_1105-1110	Hardshell Volcanics	6.85	0.23		0.07		0.3		2.8		9.4	-6.6
HDS437_1055-1060	Hardshell Volcanics	6.71	0.04		0.21		0.21		2.8		6.6	-3.8
HDS437_1055-1060-FD	Hardshell Volcanics	6.36	0.04		0.04	U	0.04		2.6		1.2	2.6
HDS569_1014.5-1020.5	Hardshell Volcanics	2.95	0.29		0.22		0.51		6.1		15.9	-9.7
HDS569_943-948	Hardshell Volcanics	5.65	0.04		0.04	U	0.04		1.3		1.2	1.3
HDS569_993-998	Hardshell Volcanics	5.68	0.04		0.04	U	0.04		1.3		1.2	1.3
HDS569_993-998-FD	Hardshell Volcanics	5.9	0.04		0.04	U	0.04		0.8		1.2	1.2
HDS674_1370-1375	Hardshell Volcanics	6.99	0.04		0.04	U	0.04		77.5		1.2	77.5
HDS768_898-903	Hardshell Volcanics	6.11	0.04		0.04	U	0.04		0.8		1.2	1.2
HDS484_722-727	Hardshell Volcanics	9.06	0.04		0.04	U	0.04		5.9		1.2	5.9
HDS504_962-967	Hardshell Volcanics	5.8	0.04		0.05		0.05		1		1.5	1.2
HDS673_868.5-878	Hardshell Volcanics	6.81	0.06		0.04	U	0.05		8.4		1.7	6.8
HDS672_361-366	Hardshell Volcanics	5.81	0.06		0.06		0.28		0.3		8.7	-8.7
HDS672_396-401	Hardshell Volcanics	5.63	0.09		0.07		0.28		0.3		8.8	-8.8
HDS673_705-709.5	Hardshell Volcanics	6.19	0.06		0.04	U	0.13		1		4	-3.0
HDS767_566-571	Hardshell Volcanics	7.01	0.14		0.06		0.37		0.3		11.6	-11.6
HDS768_804-809	Hardshell Volcanics	2.55	0.5		0.09		0.6		0.8		18.6	-17.9
HDS767_588-593	Hardshell Volcanics	5.66	0.04		0.04	U	0.04		0.3		1.2	1.2
HDS767_616-621	Hardshell Volcanics	5.78	0.09		0.04	U	0.11		0.3		3.6	-3.6
HDS-553_3725-3730_080221	Horquilla1	7.79	0.04	U	0.04	U	0.04	U	435		1.2	433.8
HGS_010_201.5-202.2_092421	Meadow Valley Andesite	8.79	0.04	U	0.04	U	0.04	U	45		1.2	43.8
HGS_010_403.5-404.6_092421	Meadow Valley Andesite	8.41	0.65		0.28		0.86		60.8		27	33.8
HGS_010_501.5-502.3_092421	Meadow Valley Andesite	8.04	0.07		0.04	U	0.04		49.9		1.3	48.6
HGS-011_500-501_092821	Meadow Valley Andesite	7.75	0.04	U	0.04	UJ	0.04	U	25.5		1.2	26.0
HGS-011_804-805_092821	Meadow Valley Andesite	7.85	0.04	U	0.04	UJ	0.04	U	25.5		1.2	26.0
HDS-332 (22 TO 27)	Meadow Valley Andesite	7.7	0.01	U	0.01	U	0.01	U	21		0.3125	20.7
HDS-332 (117 TO 122)	Meadow Valley Andesite	8	0.08		0.06		0.37		11		11.6	-0.6
HDS-332 (137 TO 142)	Meadow Valley Andesite	7.9	0.01		0.01		0.04		10		1.25	8.8
HDS-332 (147 TO 152)	Meadow Valley Andesite	6.9	0.08		0.04		0.27		10		8.44	1.6
HDS-332 (162 TO 167)	Meadow Valley Andesite	6.4	0.03		0.02		0.12		8		3.75	4.3
HDS-332 (167 TO 172)	Meadow Valley Andesite	7.5	0.01		0.01		0.06		12		1.88	10.1
HDS-332 (172 TO 177)	Meadow Valley Andesite	7.6	0.01		0.02		0.08		12		2.5	9.5
HDS-364 (0 TO 5)	Meadow Valley Andesite	8.5	0.1		0.03		0.19		26		5.94	20.1
HDS-364 (487 TO 492)	Meadow Valley Andesite	8.5	0.07		0.07		0.14		110		4.38	105.6
HDS-364 (85 TO 90)	Meadow Valley Andesite	8.9	0.04		0.06		0.21		31		6.56	24.4
HDS-364 (90 TO 95)	Meadow Valley Andesite	8.7	0.07		0.06		0.25		19		7.81	11.2
HDS-364 (95 TO 100)	Meadow Valley Andesite	9	0.01	U	0.02		0.02		173		0.63	172.4
HDS-364 (180 TO 185)	Meadow Valley Andesite	8.6	0.25		0.04		0.99		28		30.9	-2.9
HDS-364 (260 TO 265)	Meadow Valley Andesite	9.6	0.01	U	0.01	U	0.01	U	558		0.3125	557.7
HDS-364 (447 TO 452)	Meadow Valley Andesite	7.5	0.01	U	0.01	U	0.01	U	33		0.3125	32.7
HDS-364 (527 TO 532)	Meadow Valley Andesite	2.7	1.53		0.11		1.65		41		51.6	-10.6

Table A-1
Acid Base Accounting Results

			Acid Base Accounting Results									
Sample ID	Lithology	NAG pH	Pyritic Sulfur		Sulfate Sulfur		Total Sulfur		Acid Neutralization Potential		Acid Generation Potential	Net Neutralization Potential
			%		%		%					
Units		*Standard Units (s.u.)*							*t/kt*		*t/kt*	*t/kt*
HDS-364 (567 TO 572)	Meadow Valley Andesite	8.3	1.36		0.18		1.54		69		48.1	20.9
HDS-364 (592 TO 597)	Meadow Valley Andesite	8.7	0.02		0.03		0.05		105		1.56	103.4
HDS-364 (612 TO 617)	Meadow Valley Andesite	4.6	0.37		0.06		0.43		37		13.4	23.6
HDS-364 (617 TO 622)	Meadow Valley Andesite	2.7	1.59		0.12		1.71		43		53.4	-10.4
HDS-364 (697 TO 702)	Meadow Valley Andesite	2.1	4.36		1.65		6.04		37		189	-152.0
HDS-364 (702 TO 707)	Meadow Valley Andesite	2.1	5.06		0.45		5.57		26		174	-148.0
HDS-364 (732 TO 737)	Meadow Valley Andesite	2.7	1.24		0.14		1.39		34		43.4	-9.4
HDS-364 (757 TO 762)	Meadow Valley Andesite	2.1	4.85		0.65		5.53		28		173	-145.0
HDS-364 (777 TO 782)	Meadow Valley Andesite	8.7	0.48		0.1		0.58		109		18.1	90.9
HDS-364 (802 TO 807)	Meadow Valley Andesite	8.5	0.31		0.09		0.4		113		12.5	100.5
HDS-364 (867 TO 872)	Meadow Valley Andesite	9.4	0.14		0.08		0.22		83		6.88	76.1
HDS-512_2750-2755_080221	Older Volcanics	8.8	0.141		0.04	U	0.12		81.5		3.7	77.8
HDS-516_3585-3590_080221	Older Volcanics	2.51	1.17		0.12		1.29		28		40.3	-12.3
HDS-541_2760-2765_080221	Older Volcanics	2.11	0.824		3.97		4.8		40.1	J	150	-109.9
HDS-543_2155-2160_080221	Older Volcanics	3.31	0.461		0.04	U	0.454		3.6	J	14.2	-10.6
HDS-544_2920-2925_080221	Older Volcanics	2.96	0.418		0.04	U	0.432		4.7	J	13.5	-8.8
HDS-544_3935-3940_080221	Older Volcanics	2.27	1.32		1.01		2.33		2.6		72.9	-70.3
HDS-556_2968-2973_080221	Older Volcanics	6.63	0.043		0.04	U	0.075		3.6		2.3	1.3
HGS_010_2802-2802.6_092421	Older Volcanics	2.89	0.2		0.13		0.39		6.6		12.1	-5.5
HGS_010_3509.2-3510_092421	Older Volcanics	2.39	1.41		0.51		1.57		11.9		49	-37.1
HGS-011_2804.5-2805_092821	Older Volcanics	2.31	2.19		0.36	J	2.55		13		79.6875	-66.7
HGS-011_2805.2-2805.7_092821	Older Volcanics	2.53	1.12		0.14	J	1.27		10.9		39.6875	-28.8
HGS-011_2804.5-2805_DUP_092821	Older Volcanics	2.22	2.15		0.25	J	2.39		12.7		74.6875	-62.0
HDS-332 (3097 TO 3102)	Older Volcanics	2.2	1.79		0.44		2.24		51		70	-19.0
HDS-332 (3127 TO 3132)	Older Volcanics	3	0.52		0.11		0.63		19		19.7	-0.7
HDS-332 (3147 TO 3152)	Older Volcanics	2.6	0.45		0.09		0.54		11		16.9	-5.9
HDS-332 (3152 TO 3157)	Older Volcanics	2.8	0.32		0.07		0.39		11		12.2	-1.2
HDS-332 (3162 TO 3167)	Older Volcanics	2.8	0.4		0.1		0.5		16		15.6	0.4
HDS-332 (3177 TO 3182)	Older Volcanics	8.8	0.63		0.07		0.7		58		21.9	36.1
HDS-332 (3182 TO 3187)	Older Volcanics	8.3	0.76		0.1		0.86		68		26.9	41.1
HDS-332 (3202 TO 3207)	Older Volcanics	2.9	0.33		0.12		0.45		7		14.1	-7.1
HDS-332 (3287 TO 3292)	Older Volcanics	8.3	1.11		0.2		1.32		69		41.3	27.7
HDS-332 (3292 TO 3297)	Older Volcanics	8.3	1.13		0.21		1.35		64		42.2	21.8
HDS-332 (3302 TO 3307)	Older Volcanics	8.3	1.83		0.57		2.4		65		75	-10.0
HDS-332 (3307 TO 3312)	Older Volcanics	8	2.53		0.49		3.02		103		94.4	8.6
HDS-332 (3312 TO 3322)	Older Volcanics	8.1	2.5		0.37		2.87		74		89.7	-15.7
HDS-332 (3332 TO 3337)	Older Volcanics	8.2	2.37		0.18		2.55		104		79.7	24.3
HDS-332 (3357 TO 3363)	Older Volcanics	8.2	1.9		0.46		2.36		69		73.8	-4.8
HDS-364 (2322 TO 2327)	Older Volcanics	2.6	0.76		0.18		0.94		10		29.4	-19.4
HDS-364 (2367 TO 2372)	Older Volcanics	2.4	0.85		0.42		1.27		15		39.7	-24.7
HDS-364 (2477 TO 2482)	Older Volcanics	2.4	0.83		0.33		1.16		15		36.3	-21.3
HDS-364 (2502 TO 2507)	Older Volcanics	1.9	3.13		2.17		5.32		8		166	-158.0
HDS-364 (2517 TO 2522)	Older Volcanics	2.1	1.38		0.82		2.2		10		68.8	-58.8
HDS-364 (2544 TO 2548)	Older Volcanics	2.4	1.2		0.46		1.66		11		51.9	-40.9
HDS-364 (2552 TO 2557)	Older Volcanics	2.3	1.05		0.19		1.24		10		38.8	-28.8
HDS-364 (2622 TO 2627)	Older Volcanics	3.3	1.25		0.79		2.04		46		63.8	-17.8
HDS-364 (2717 TO 2722)	Older Volcanics	2.7	1.21		0.27		1.48		17		46.3	-29.3
HDS-364 (2777 TO 2782)	Older Volcanics	2.2	2.43		0.3		2.74		13		85.6	-72.6
HDS-364 (2924 TO 2929)	Older Volcanics	2.4	1.12		0.52		1.66		11		51.9	-40.9
HDS-364 (2934 TO 2939)	Older Volcanics	3.1	0.28		0.07		0.35		12		10.9	1.1
HDS-364 (2994 TO 2999)	Older Volcanics	7.1	0.15		0.04		0.19		17		5.94	11.1
HDS-364 (3046 TO 3052)	Older Volcanics	6.9	0.25		0.09		0.34		17		10.6	6.4
HDS-364 (3072 TO 3077)	Older Volcanics	7.1	0.22		0.09		0.31		22		9.69	12.3
HDS-364 (3112 TO 3117.5)	Older Volcanics	3.4	0.67		0.1		0.77		21		24.1	-3.1
HDS-364 (3191 TO 3196)	Older Volcanics	2.6	0.47		0.26		0.73		6		22.8	-16.8
HDS-364 (3241 TO 3246)	Older Volcanics	2.8	0.33		0.25		0.58		13		18.1	-5.1
HDS-364 (3280 TO 3285)	Older Volcanics	2.9	0.36		0.12		0.48		16		15	1.0
HDS-364 (3312 TO 3317)	Older Volcanics	8.2	2.68		0.48		3.19		62		99.7	-37.7
HDS-364 (3317 TO 3322)	Older Volcanics	2.5	2.95		0.75		3.73		50		117	-67.0
HDS-364 (3365 TO 3370)	Older Volcanics	2.8	0.44		0.04		0.48		9		15	-6.0
HDS-513_1931-1936_080221	Scherrer	8.76	0.149		0.04	U	0.123		49.9		3.8	46.1
HDS-513_2122-2127_080221	Scherrer	9.05	0.282		0.04	U	0.272		41.4		8.5	32.9
HDS-523_1720-1725_080221	Scherrer	9.69	0.149		0.04	U	0.14		62		4.4	57.6
HDS-523_1730-1735_080221	Scherrer	7.58	0.145		0.04	U	0.137		902		4.3	897.7
HDS-523_1960-1965_080221	Scherrer	10.44	0.222		0.04	U	0.243		86.6	J	7.6	79.0
HDS-553_1575-1580_080221	Scherrer	7.5	0.04	U	0.04	U	0.04	U	623		1.2	621.8
HDS-553_1615-1620_080221	Scherrer	7.36	0.04	U	0.04	U	0.04	U	244		1.2	242.8
HDS-553_1690-1695_080221	Scherrer	7.44	0.04	U	0.04	U	0.04	U	894		1.2	892.8
HDS-558_1978-1983_080221	Scherrer	9.91	0.04	U	0.04	U	0.04	U	19.5		1.2	18.3
HDS-332 (2104 TO 2107)	Scherrer	8.9	0.02		0.01	U	0.03		893		0.94	892.1
HDS-332 (2110 TO 2114.5)	Scherrer	8.6	0.02		0.01	U	0.01	U	930		0.3125	929.7
HDS-332 (2131 TO 2136)	Scherrer	8	8.4		2.84		11.2		289		350	-61.0
HDS-332 (2142 TO 2147)	Scherrer	8.5	1.24		0.33		1.58		406		49.4	356.6
HDS-332 (2165 TO 2169)	Scherrer	7.8	16.2		2.64		18.9		166		591	-425.0
HDS-332 (2192 TO 2196.5)	Scherrer	8.4	3.59		1.16		4.75		396		148	248.0
HDS-332 (2232 TO 2237)	Scherrer	8.6	0.05		0.01	U	0.01	U	81		0.3125	80.7
HDS-332 (2247 TO 2252)	Scherrer	9.7	0.04		0.01	U	0.04		9		1.25	7.8
HDS-332 (2272 TO 2277)	Scherrer	8.5	0.09		0.02		0.11		18		3.44	14.6
HDS-332 (2302 TO 2307)	Scherrer	8.5	0.62		0.04		0.66		373		20.6	352.4
HDS-332 (2317 TO 2322)	Scherrer	8.4	0.72		0.01	U	0.71		346		22.2	323.8
HDS-332 (2357 TO 2362)	Scherrer	8.5	0.38		0.03		0.41		963		12.8	950.2
HDS-332 (2367 TO 2372)	Scherrer	8.5	0.36		0.04		0.4		910		12.5	897.5
HDS-515_3882-3887_080221	Scherrer	7.09	2.03		0.04	U	1.3		28.5		40.7	-12.2
HDS-523_3410-3415_080221	Scherrer	9.21	0.147		0.04	U	0.164		81.5	J	5.1	76.4
HGS_010_4131.2-4131.9_092421	Scherrer	7.94	0.27		0.06		0.29		528		9	519.0
HGS_010_4155-4155.6_092421	Scherrer	7.55	0.59		0.26		0.68		47.4		21.4	26.0

Table A-1
Acid Base Accounting Results

Sample ID	Lithology	NAG pH	Acid Base Accounting Results									
			Pyritic Sulfur		Sulfate Sulfur		Total Sulfur		Acid Neutralization Potential		Acid Generation Potential	Net Neutralization Potential
			%		%		%					
Units		*Standard Units (s.u.)*							*t/kt*		*t/kt*	*t/kt*
HGS_010_4179.6-4180.1_092421	Scherrer	7.9	0.69		0.35		0.83		80.3		26	54.3
HDS-332 (3927 TO 3932)	Scherrer	11.6	0.05		0.01	U	0.05		389		1.56	387.4
HDS-332 (3932 TO 3937)	Scherrer	11.7	0.01	U	0.02		0.02		405		0.63	404.4
HDS-332 (3937 TO 3942)	Scherrer	11.7	0.01	U	0.01		0.01		438		0.31	437.7
HDS-332 (3942 TO 3947)	Scherrer	11.6	0.06		0.01	U	0.06		341		1.88	339.1
HDS-332 (3962 TO 3967)	Scherrer	11.6	0.35		0.04		0.39		294		12.2	281.8
HDS-332 (3972 TO 3977)	Scherrer	10.6	0.63		0.14		0.77		116		24.1	91.9
HDS-332 (4002 TO 4007)	Scherrer	10.1	0.44		0.1		0.54		76		16.9	59.1
HDS-332 (4012 TO 4017)	Scherrer	11.5	0.39		0.01		0.4		610		12.5	597.5
HDS-332 (4017 TO 4022)	Scherrer	10.9	0.14		0.05		0.19		70		5.94	64.1
HDS-332 (4032 TO 4037)	Scherrer	3.1	0.42		0.17		0.59		31		18.4	12.6
HDS-364 (4002 TO 4007)	Scherrer	9.1	0.3		0.05		0.35		188		10.9	177.1
HDS-364 (4007 TO 4012)	Scherrer	10.8	0.1		0.04		0.14		56		4.38	51.6
HDS-364 (4122 TO 4127)	Scherrer	9.1	0.12		0.05		0.17		50		5.31	44.7
HDS-364 (4137 TO 4142)	Scherrer	11.3	0.21		0.02		0.23		118		7.19	110.8

APPENDIX B

SPLP DATA

Table B-1
SPLP Analytical Results

		Constituent:	Antimony		Arsenic		Barium		Beryllium		Cadmium		Chromium		Fluoride		Lead		Mercury		Nickel		Selenium		Thallium	
Source	**Lithology**	*Aquifer Water Quality Standard*	0.006		0.05		2		0.004		0.005		0.1		4		0.05		0.002		0.1		0.05		0.002	
		Sample ID:	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Schafer 2018	Concha	HDS-332 1592-1597	0.0437		0.0009		0.0030	U			0.0007		0.0100	U	0.1000		0.1130		0.0002	U	0.0080	U	0.0220		0.0002	
Schafer 2018	Concha	HDS-332 1767-1770	0.0281		0.0003		0.0030	U			0.0001	U	0.0100	U	0.1800		0.0117		0.0002	U	0.0080	U	0.0003		0.0001	U
Schafer 2018	Concha	HDS-332 1837-1842	0.0025		0.0017		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0001	U	0.0001	U
Schafer 2018	Concha	HDS-332 1867-1872	0.0006		0.0015		0.0240				0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0001	U	0.0001	U
Schafer 2018	Concha	HDS-332 1912-1917	0.0006		0.0007		0.0030	U			0.0001	U	0.0100	U	0.0600		0.0001	U	0.0002	U	0.0080	U	0.0002		0.0001	U
Schafer 2018	Concha	HDS-332 2012-2016	0.0028		0.0090		0.0030	U			0.0001	U	0.0100	U	0.5400		0.0001	U	0.0002	U	0.0080	U	0.0001	U	0.0001	U
Schafer 2018	Concha	HDS-332 2082-2087	0.0137		0.0013		0.0030	U			0.0001	U	0.0100	U	0.1900		0.0002		0.0002	U	0.0080	U	0.0002		0.0001	U
Schafer 2018	Concha	HDS-332 3391.5-3395.5	0.0098		0.0004		0.0030	U			0.0001	U	0.0100	U	0.0700		0.0943		0.0002	U	0.0080	U	0.0007		0.0003	
Schafer 2018	Concha	HDS-332 3447-3450	0.0076		0.0004		0.0030	U			0.0001	U	0.0100	U	0.1000		0.0742		0.0002	U	0.0080	U	0.0026		0.0001	U
Schafer 2018	Concha	HDS-364 3952-3957	0.0025		0.0008		0.0030	U			0.0001	U	0.0100	U	0.0900		0.0004		0.0002	U	0.0080	U	0.0005		0.0001	U
Schafer 2018	Concha	HDS-364-3434-3442	0.0097		0.0022		0.0590				0.0001	U	0.0100	U	0.1900		0.0004		0.0002	U	0.0080	U	0.0062		0.0001	U
Newfields (2022b)	Concha	HDS437_1177-1182	0.003	U	0.0085		0.0010		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS437_1223-1228	0.003	U	0.0067		0.0010		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS437_1472-1477	0.003	U	0.0030	U	0.0019		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS452_1150-1155	0.0101		0.0273		0.0015		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS452_1150-1155-FD	0.0095		0.0265		0.0015		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS463_1103-1110	0.0045		0.0360		0.0010		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS463_1140-1147	0.0111		0.0205		0.0010		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS467_1232-1237	0.0034		0.0058		0.0010		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS477_1302-1307	0.003	U	0.0030	U	0.0037		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS477_1352-1357	0.003	U	0.0138		0.0010		0.0002	U	0.0004		0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS504_1112-1117	0.003	U	0.0303		0.0010		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Concha	HDS-517_1441-1446_100821	0.003	U	0.0068		0.0040		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Concha	HDS-523_1720-1725_100821	0.003	U	0.0030	U	0.0030	U	0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Concha	HDS-537_2105-2110_100821	0.0428		0.0030	U	0.0020		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Concha	HDS-550_2003-2008 -DUP_100821	0.003	U	0.0037		0.0110		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0188		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Concha	HDS-550_2003-2008_100821	0.003	U	0.0030	U	0.0100		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0098		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Concha	HDS-560_2042-2047_100821	0.0071		0.0030	U	0.0100		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Concha	HDS-560_2042-2047-DUP_100821	0.0069		0.0030	U	0.0090		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS569_1061-1066	0.003	U	0.0170		0.0027		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0060		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Concha	HDS569_1273-1278	0.003	U	0.0030	U	0.0046		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Concha	HGS_010_4003.1-4003.8_100821	0.0036		0.0030	U	0.0130		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0004		0.0010	U	0.0050	U	0.0010	
Schafer 2018	Epitaph	HDS-332 2407-2412	0.0019		0.0006		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0002		0.0002	U	0.0080	U	0.0008		0.0001	U
Schafer 2018	Epitaph	HDS-332 2542-2547	0.0076		0.0024		0.0030	U			0.0001	U	0.0100	U	0.0600		0.0001	U	0.0002	U	0.0080	U	0.0005		0.0001	U
Schafer 2018	Epitaph	HDS-332 2662-2667	0.0013		0.0072		0.0230				0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0001	U	0.0001	U
Schafer 2018	Epitaph	HDS-332 2697-2702	0.0009		0.0006		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0004		0.0002	U	0.0080	U	0.0087		0.0001	U
Schafer 2018	Epitaph	HDS-332 2887-2892	0.0016		0.0015		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0002		0.0002	U	0.0080	U	0.0005		0.0001	U
Schafer 2018	Epitaph	HDS-332 2924-2927	0.002		0.0061		0.0150				0.0001	U	0.0100	U	0.0500	U	0.0010		0.0002	U	0.0080	U	0.0009		0.0001	U
Schafer 2018	Epitaph	HDS-332 3032-3037.5	0.0155		0.0011		0.0110				0.0020		0.0100	U	0.0500	U	0.6060		0.0002	U	0.0080	U	0.0110		0.0001	U
Newfields (2022a)	Epitaph	HDS-512_2750-2755_100821	0.003	U	0.0030	U	0.0040		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0080		0.0010	
Newfields (2022a)	Epitaph	HDS-513_1931-1936_100821	0.003	U	0.0076		0.0060		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Epitaph	HDS-513_2122-2127_100821	0.003	U	0.0034		0.0190		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0090		0.0010	
Newfields (2022a)	Epitaph	HDS-518_4555-4560_100821	0.003	U	0.0044		0.0060		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Epitaph	HDS-523_1960-1965_100821	0.003	U	0.0030	U	0.0020		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Epitaph	HDS-523_2148-2153_100821	0.003	U	0.0030	U	0.0030	U	0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Epitaph	HDS-528_3862-3867_100821	0.003	U	0.0030	U	0.0010		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Epitaph	HDS-553_1615-1620_100821	0.003	U	0.0030	U	0.0030	U	0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Epitaph	HDS-558_2140-2145_100821	0.003	U	0.0030	U	0.0040		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0050	U	0.0010	
Schafer 2018	Scherrer	HDS-332 2110-2114.5	0.0009		0.0011		0.0340				0.0001	U	0.0100	U	0.0700		0.0001	U	0.0002	U	0.0080	U	0.0001		0.0001	U
Schafer 2018	Scherrer	HDS-332 2131-2136	0.0077		0.0002	U	0.0150				0.0001	U	0.0100	U	0.1400		0.0784		0.0002	U	0.0080	U	0.0005		0.0001	U
Schafer 2018	Scherrer	HDS-332 2165-2169	0.0128		0.0002	U	0.0030	U			0.0001	U	0.0100	U	0.0600		0.0794		0.0002	U	0.0080	U	0.0057		0.0001	U
Schafer 2018	Scherrer	HDS-332 2192-2196.5	0.0187		0.0007		0.0030	U			0.0001	U	0.0100	U	0.1500		0.0230		0.0002	U	0.0080	U	0.0029		0.0001	U
Schafer 2018	Scherrer	HDS-332 2247-2252	0.0006		0.0014		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0011		0.0002	U	0.0080	U	0.0002		0.0001	U
Newfields (2022a)	Scherrer	HDS-513_2685-2690_100821	0.003	U	0.0030	U	0.0060		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Scherrer	HDS-523_3015-3020_100821	0.0733		0.0030	U	0.0030	U	0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Scherrer	HDS-523_3410-3415_100821	0.003	U	0.0030	U	0.0060		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Scherrer	HDS-531_3438-3443_100821	0.003	U	0.0030	U	0.0030	U	0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Scherrer	HDS-553_2648-2653_100821	0.0067		0.0030	U	0.0030	U	0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Scherrer	HGS_010_4179.6-4180.1_100821	0.003	U	0.0030	U	0.0030	U	0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0007		0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Scherrer	GS_010_4179.6-4180.1-DUP_10082	0.003	U	0.0030	U	0.0080		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0050		0.0002	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS484_722-727	0.0054		0.1270		0.0041		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0470		0.0002	U	0.0010	U	0.0050	U	0.0010	
Schafer 2018	Hardshell Volcanics	HDS-491 1117-1127	0.0047		0.0062		0.0470				0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0065		0.0007	
Schafer 2018	Hardshell Volcanics	HDS-491 1667-1677	0.0051		0.0083		0.0030	U			0.0001	U	0.0100	U	0.1600		0.0025		0.0002	U	0.0080	U	0.0004		0.0001	U
Schafer 2018	Hardshell Volcanics	HDS-496 1447-1457	0.0013		0.0015		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0003		0.0001	U
Schafer 2018	Hardshell Volcanics	HDS-496 2607-2617	0.0005		0.0009		0.0030	U			0.0001	U	0.0100	U	0.1800		0.0004		0.0002	U	0.0080	U	0.0001	U	0.0001	U
Schafer 2018	Hardshell Volcanics	HDS-498 1987-1995	0.0021		0.0024		0.0030	U			0.0001	U	0.0100	U	0.0800		0.0002		0.0002	U	0.0080	U	0.0001	U	0.0001	U
Newfields (2022b)	Hardshell Volcanics	HDS504_962-967	0.003	U	0.0030	U	0.0048		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0090		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022a)	Hardshell Volcanics	HDS-517_3574-3579_100821	0.003	U	0.0030	U	0.0020		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0010	U	0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Hardshell Volcanics	HDS-546_685-690_100821	0.0077		0.0030	U	0.0050		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010		0.0002	U	0.0010	U	0.0050	U	0.0015	
Newfields (2022b)	Hardshell Volcanics	HDS569_943-948	0.0042		0.0059		0.0068		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0150		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS569_993-998	0.003	U	0.0036		0.0207		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0100		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS583_703-708	0.393		0.1540		0.0017		0.0002	U	0.0004		0.0020	U	0.5000	U	0.5830		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS672_361-366	0.003	U	0.0030	U	0.0086		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0080		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS672_396-401	0.0039		0.0030	U	0.0155		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0490		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS673_868.5-878	0.0082		0.0468		0.0042		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0260		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS674_1370-1375	0.0048		0.0849		0.0037		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.0030		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS767_566-571	0.0118		0.0232		0.0161		0.0003		0.0002	U	0.0040		0.5000	U	0.2990		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS767_588-593	0.0088		0.0121		0.0128		0.0002	U	0.0002	U	0.0030		0.5000	U	0.5520		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022b)	Hardshell Volcanics	HDS767_616-621	0.0107		0.0108		0.0108		0.0002	U	0.0002	U	0.0020	U	0.5000	U	0.1210		0.0002	U	0.0010	U	0.0050		0.0010	
Newfields (2022a)	Meadow Valley Andesite	HGS_010_201.5-202.2_100821	0.003	U	0.0077		0.0080		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0004		0.0010	U	0.0050	U	0.0010	
Newfields (2022a)	Meadow Valley Andesite	HGS_010_403.5-404.6_100821	0.003	U	0.0054		0.0350		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
Schafer 2018	Meadow Valley Volcanics	HDS-491 542-552	0.0004	U	0.0011		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0001		0.0001	U
Schafer 2018	Meadow Valley Volcanics	HDS-491 722-732	0.0007		0.0008		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0001		0.0001	U
Schafer 2018	Meadow Valley Volcanics	HDS-496 175-185	0.0043		0.0109		0.0030	U			0.0001	U	0.0100	U	0.0700		0.0001	U	0.0002	U	0.0080	U	0.0001		0.0001	U
Schafer 2018	Meadow Valley Volcanics	HDS-496 255-265	0.0012		0.0035		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0001		0.0001	U
Schafer 2018	Meadow Valley Volcanics	HDS-496 722-732	0.0012		0.0053		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0002		0.0002	U	0.0080	U	0.0007		0.0001	U
Schafer 2018	Meadow Valley Volcanics	HDS-496 75-84.5	0.0005		0.0181		0.0030	U			0.0001	U	0.0100	U	0.1600		0.0001	U	0.0002	U	0.0080	U	0.0001		0.0001	U
Schafer 2018	Meadow Valley Volcanics	HDS-498 252-262	0.0066		0.0020		0.0220				0.0001	U	0.0100	U	0.0900		0.0001	U	0.0002	U	0.0080	U	0.0003		0.0015	
Schafer 2018	Meadow Valley Volcanics	HDS-498 342-352	0.0026		0.0144		0.0080				0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0002		0.0001	U
Schafer 2018	Meadow Valley Volcanics	HDS-498 67-77	0.0004	U	0.0026		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0001		0.0001	U
Schafer 2018	Old Volcanics	HDS-332 3307-3312	0.002		0.0029		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0002		0.0002	U	0.0080	U	0.0007		0.0001	U
Schafer 2018	Old Volcanics	HDS-500 3662-3670	0.0033		0.0031		0.0030	U			0.0001	U	0.0100	U	0.0500	U	0.0003		0.0002	U	0.0080	U	0.0025		0.0001	U
Schafer 2018	Old Volcanics	HDS-501 3942-3957	0.001		0.0002	U	0.0040				0.0011		0.0100	U	0.0500	U	0.0001	U	0.0002	U	0.0080	U	0.0039		0.0023	
Newfields (2022a)	Old Volcanics	HDS-512_3022-3027_100821	0.003	U	0.0030	U	0.0020		0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0100		0.0010	
Newfields (2022a)	Old Volcanics	HDS-556_3576-3581_100821	0.003	U	0.0209		0.0030	U	0.0002	U	0.0002	U	0.0015	U	0.5000	U	0.0010	U	0.0002	U	0.0010	U	0.0050	U	0.0010	
		Geometric Mean	0.0037		0.0036		0.0044		0.0002		0.0002		0.0036		0.2260		0.0014		0.0002		0.0024		0.0019		0.0004	

NPAG non potentially acid generating
U Denotes that the concentration was below the detection limit
NOTE: Detection limit was used in the mean calculation when the result was non-detect

Table B-2
SPLP Geometric Means by Formation (Unweighted)
and
Weighted Based on Percentage of Waste Rock in Years 0-5

		Antimony		Arsenic		Barium		Beryllium		Cadmium		Chromium		Fluoride		Lead		Mercury		Nickel		Selenium		Thallium	
FORMATION	**Years 0-5**	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted	Mean unweighted	Weighted
Concha	53.5%	0.0048	0.0025	0.0037	0.0020	0.0032	0.0017	0.0002	0.0001	0.0002	0.0001	0.0032	0.0017	0.2985	0.1597	0.0014	0.0007	0.0002	0.0001	0.0020	0.0011	0.0023	0.0013	0.0005	0.0003
Epitaph	3.2%	0.0028	0.0001	0.0026	0.0001	0.0047	0.0002	0.0002	0.0000	0.0002	0.0000	0.0034	0.0001	0.1847	0.0059	0.0009	0.0000	0.0002	0.0000	0.0025	0.0001	0.0027	0.0001	0.0004	0.0000
Scherrer	27.4%	0.0047	0.0013	0.0015	0.0004	0.0051	0.0014	0.0002	0.0001	0.0001	0.0000	0.0033	0.0009	0.2388	0.0654	0.0026	0.0007	0.0002	0.0001	0.0024	0.0007	0.0022	0.0006	0.0004	0.0001
Hardshell volcanics	1.3%	0.0051	0.0001	0.0081	0.0001	0.0061	0.0001	0.0002	0.0000	0.0002	0.0000	0.0031	0.0000	0.3180	0.0041	0.0075	0.0001	0.0002	0.0000	0.0017	0.0000	0.0025	0.0000	0.0006	0.0000
Meadow Valley Volcanics	14.5%	0.0014	0.0002	0.0043	0.0006	0.0054	0.0008	0.0002	0.0000	0.0001	0.0000	0.0071	0.0010	0.0919	0.0133	0.0002	0.0000	0.0002	0.0000	0.0055	0.0008	0.0003	0.0000	0.0002	0.0000
Older Volcanics	0.2%	0.0023	0.0000	0.0026	0.0000	0.0029	0.0000	0.0002	0.0000	0.0002	0.0000	0.0047	0.0000	0.1256	0.0003	0.0004	0.0000	0.0002	0.0000	0.0035	0.0000	0.0032	0.0000	0.0005	0.0000
	Total SPLP weighted by Formation, Years 0-5		0.0042		0.0032		0.0041		0.0002		0.0002		0.0038		0.2488		0.0016		0.0002		0.0026		0.0020		0.0004
		AWQS	0.006		0.05		2		0.004		0.005		0.1		4		0.05		0.002		0.1		0.05		0.002

AWQS = Aquifer Water Quality Standard
all concentrations in mg/L
Mean unweighted columns are the geometric means of the SPLP analyses for each formation
Weighted columns weigh the mean results by the percentage of the rock type anticipated in years 0-5.

Table B-3
Humidity Cell Test Results

Rock Type	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Fluoride	Lead	Mercury	Nickel	te/Nitrite	Selenium	Thallium
AWQS	**0.006**	**0.050**	**2**	**0.004**	**0.0050**	**0.10**	**4**	**0.050**	**0.0020**	**0.100**	**10.0**	**0.050**	**0.002**
Concha Limestone	0.0050	0.0003	0.0056	0.0001	0.0033	0.0114	0.1061	0.0300	0.0002	0.0080	0.0212	0.0077	0.0001
Concha Limestone	0.0004	0.0077	0.0056	0.0001	0.0001	0.0114	0.1993	0.0001	0.0002	0.0080	0.0216	0.0002	0.0001
Epitaph Limestone	0.0007	0.0004	0.0061	0.0001	0.0001	0.0114	0.1068	0.0001	0.0002	0.0080	0.0203	0.0001	0.0001
Hardshell Volcanics	0.0004	0.0029	0.0107	0.0001	0.0005	0.0114	0.0979	0.0005	0.0002	0.0110	0.0200	0.0051	0.0014
Meadow Valley Volcanics	0.0005	0.0004	0.0058	0.0001	0.0001	0.0114	0.1007	0.0003	0.0002	0.0080	0.0204	0.0001	0.0001

All concentrations in mg/L
Concentrations are geometric means of 174 weeks of HCT testing for NPAG rock samples only.