APPENDIX B-1
GENESIS PROJECT GEOCHEMISTRY ADDENDUM SUMMARY

INTRODUCTION

Appendix B-1 provides additional information regarding the static testing methods used for the Genesis waste rock characterization described in **Appendix B**. This information is provided to clarify issues regarding interpretation of static test data during BLM review of the Geomega reports.

This appendix summarizes information provided in *Addendum to the Newmont Genesis Project Characterization of Wall Rock and Waste Rock Chemistry* report (Geomega 2009) which was prepared to:

- Clarify the acid-base accounting (ABA) method used in the indicated report;
- Describe the differences between SVL Analytical Inc. (SVL) modified Sobek and Nevada modified Sobek;
- Compare the results from the SVL modified Sobek with the net carbonate value (NCV);
- Clarify acid generating potential for Composite 34; and
- Update the field oxidation test data.

Geomega estimated the acid generating potential of waste rock at the Genesis site using data collected by Newmont Metallurgical Services (NMS) and SVL. Newmont Mining Corporation (NMC) uses the NCV test method as an indicator for acid generating or acid-neutralizing potential. This method was developed by NMS (Bucknam 2003) for operational testing, and has been standardized as the American Society for Testing and Materials (ASTM) method E1915-07 (ASTM 2007). To validate the accuracy of NCV results, the SVL modified Sobek ABA and other static and kinetic tests were performed as well. Because the SVL modified Sobek ABA tests were not conducted following the Nevada modified Sobek method (Reclamation Research Unit and Schafer and Associates 1987), the differences between both modified Sobek testing methods are discussed below.

STATIC TESTING PROGRAM

In order to develop a representative characterization of mine waste rock chemistry, samples from each NCV, lithology, and alteration type to be mined in the Genesis complex were collected from exploration drilling rejects. From 3,400 boreholes in and around the deposit, 15,000 individual samples were analyzed for NCV, from which 533 samples were composited according to similar NCV, lithology, and alteration types into 34 composite samples. Genesis waste rock is differentiated into six NCV types within the study area, following the NMC standard NCV classification system (**Table B-1-1**).

TABLE B-1-1 Net Carbonate Value (NCV) Type Classification			
Code	**Classification**	**NCV Range (%)**	**Alteration Type**
1	Acidic	-5 < NCV ≤ -1	US, UCD
2	Slightly acidic	> -1 NCV ≤ -0.1	US, UCD
3	Inert/neutral	> -0.1 NCV < 0.1	US, OS, UCD
4	Slightly basic	≥ 0.1 NCV < 1	US, OS, UCD
5	Basic	≥ 1 NCV < 5	US, OS, OC
6	Highly basic	NCV ≥ 5	OC, OCD, UC

US = Unoxidized siliceous; UCD = Unoxidized carbonate decalcified; OS = Oxidized siliceous; OC = Oxide carbonate; OCD = Oxide carbonate decalcified; UC = Unoxidized carbonate.

Source: Geomega 2009

All major combinations of lithology, alteration, and NCV type present at the Genesis complex are represented in this suite with the associated waste rock tonnage (**Table B-1-2**).

TABLE B-1-2 Relationship of Genesis Lithology, Alteration, and NCV Types				
Lithology	**Alteration Type**	**NCV Type**	**Composite ID**	**Waste Rock (Mt)**
Siliceous rock	Oxide siliceous (OS)	Inert/neutral	**15**, **16**, 18, **19**, **20**, 24	17.9
		Slightly basic	13, 17, 22, **23**	95.0
		Basic	14, **21**	9.5
	Unoxidized siliceous (US)	Acidic	28, **30**	6.5
		Slightly acidic	**31**, 32, 35	5.0
		Inert/neutral	29	2.0
		Slightly basic	33	5.8
		Basic	**34**	1.9
Carbonate rock	Oxide carbonate (OC)	Basic	**3**	7.0
		Highly basic	**1**, 2, **4**	103.0
	Oxide carbonate decalcified (OCD)	Inert/neutral	**5**, **7**, **11**	26.0
		Slightly basic	**6**, **8**, 12	90.7
		Highly basic	**10**	28.0
	Unoxidized carbonate (UC)	Highly basic	25	19.0
	Unoxidized carbonate decalcified (UCD)	Acidic	**26**	10.7
		Slightly acidic	**27**	13.0
TOTAL				**440.5**

Composite IDs in **highlighted bold** were used for kinetic tests.
Mt = Million tons; NCV = Net Carbonate Value
[1] Total tonnage does not include 9Mt of waste rock from the Bluestar Ridge Pit.

Source: Modified from Table 2-2 (Geomega 2009)

Several static tests were conducted on splits of the 34 composite samples, including NCV, ABA, paste pH, peroxide acid generation (PAG), and acid-neutralization potential acidity (ANPA), while biological acid production potential (BAPP) was conducted on 28 composite samples that excluded all five of the Code 6 and one of Code 5 samples (Geomega 2008). Twenty of the 34 samples representing major combinations of lithology, alteration, and NCV type present at the Genesis complex were selected for humidity cell and field oxidation tests (Geomega 2008).

Acid-Base Accounting Methods

Net Carbonate Value

The process of calculating NCV differs from the Sobek method of ABA (Sobek *et al.* 1978) because acid-neutralizing potential (NP) and acid-generating potential (AP) are determined by combustion infrared absorption spectrometry, ASTM method E 1915-07 (ASTM 2007). NCV determination is based on units of percent , due to the availability of certified standard reference materials with known , content, for quality assurance and compliance purposes (Bucknam 2003; ASTM 2007).

Total carbon and sulfur analyses are performed by oxidation of carbon- and sulfur-containing samples to carbon dioxide (,) and sulfur dioxide (), with combustion in a stream of oxygen, utilizing a LECO furnace. A sample (0.25 g) is combusted at 1,350°C or higher to produce , and , which is measured using infrared absorption. For residual sulfur from pyrolysis, a sample (0.25 g) is initially roasted to remove sulfide and then analyzed for sulfur. The sulfur analysis is performed by oxidation of sulfur-containing samples to in a stream of oxygen, using a LECO furnace. The sample is initially roasted in an oven at 550°C for one hour and then combusted at 1,350°C or higher.

For acid-insoluble carbon, a sample is treated with boiling hydrochloric acid (HCl, 20%) to remove carbonate minerals. The remaining residue is washed with deionized (DI) water, filtered, and dried. The dried residue (0.25 g) is then analyzed for carbon using combustion, with a LECO furnace at 1,350°C or higher. The NP is calculated based on the carbonate carbon content, which is determined either by the difference between total carbon (CTOT) and residual carbon after reaction with HCl (CAI), per the following equations:

NP (% CO) = 3.67 x % carbonate carbon content **(1)**

NP (%,) = 3.67 x (CTOT - CAI) **(2)**

AP is determined from sulfide sulfur by the difference between total sulfur (STOT) and sulfur after pyrolysis at 550°C (SAP), as follows:

AP (%,) = 1.37 x % sulfide sulfur **(3)**

AP (%,) = 1.37 x (STOT - SAP) **(4)**

NCV is calculated by subtracting AP from NP, as follows:

NCV (%,) = NP – AP **(5)**

Negative NP and AP are corrected to zero before NCV calculation. The results of NCV, NP, and AP in percent can be converted to parts per thousand calcium carbonate (ppt) by multiplying by 22.7. Net neutralization potential (NNP) and NP/AP ratios were then calculated using Equations 1 thru 5 (above).

SVL Modified Sobek Method

ABA determines the AP and NP of a sample (Sobek *et al.* 1978), as does NCV. The SVL modified Sobek method is different from the Nevada modified Sobek for determining the sulfur content, as discussed below.

To determine NP, the SVL modified Sobek method measures the percentage of carbonates present in a sample by treating the sample with a known excess of standardized HCl (SVL 2009a). Fizz testing is initially conducted to determine the amount of sample to be used (as an alternative to fizz testing, total carbon obtained from a LECO analyzer can be used to determine the sample amounts). The sample and HCl are heated for a minute to insure that the reaction between the acid and carbonates goes to completion. The amount of unconsumed acid is determined by titration with standardized sodium hydroxide (NaOH), to pass pH 8.3.

The SVL modified Sobek method for AP is established by determining three forms of sulfur content: total sulfur, non-extractable sulfur, and non-sulfate sulfur (SVL 2009a, 2009b). Total sulfur is determined from analysis of a 0.2 g sample that has undergone 200-mesh screening (0.074 mm). The sample is then combusted at 1,350°C or higher using a LECO furnace. Non-extractable sulfur is determined after digestion with 2N nitric acid ( ) in a water bath at 95°C for six hours; the sample is then filtered, cleaned using hot DI until pH ≥ 5, air -dried overnight, and analyzed by a LECO analyzer. Non-sulfate sulfur is determined after digestion with hot DI water at 95°C for six hours; the sample is then filtered and analyzed by a LECO analyzer. Sulfate sulfur is determined from the difference between total sulfur and non-sulfate sulfur. AP is determined from sulfide sulfur by the difference between STOT, non-extractable sulfur (Non-extract S), and sulfate sulfur ( ), as follows:

AP (% CO) = 1.37 x % sulfide sulfur **(6)**

AP (% CO) = 1.37 x (STOT – Non-extract S – **(7)**

NNP is calculated by subtracting AP from NP. The results of NNP, NP, and AP in percent , can be converted to ppt by multiplying by 22.7.

Nevada Modified Sobek Method

The Nevada Bureau of Land Management (BLM) prefers that waste rock samples be characterized using the Nevada modified Sobek method (Reclamation Research Unit and Schafer and Associates 1987). This version describes procedures to determine total sulfur, total sulfur after hot DI water leach, total sulfur after HCl treatment, total sulfur after treatment of a crushed sample, and NP.

To determine NP, the amount of carbonates present in a sample is measured by treating a sample with a known excess of standardized HCl (SVL 2009a). Fizz testing is conducted to insure the addition of sufficient acid to react with all carbonates. To avoid overestimating NP, this modified Sobek procedure

uses several ranges of acid volumes and concentrations, added on the basis of the degree of fizz observed when the sample reacts with one or two drops of HCl. If a low fizz rating is observed, two grams of sample are reacted with 40 mL of 0.1 Molar HCl and heated to near boiling until the reaction ceases. If the titrated volume of NaOH is <3 mL to obtain a pH 7.0, a higher concentration of acid is used. More intense fizzing necessitates the addition of a greater volume of acid and/or higher concentrations of acid prior to titration. The sample and HCl are heated until the reaction between the acid and carbonates goes to completion. The solution is diluted to 125 mL and boiled for one minute, and then back-titrated with 0.1 Molar or 0.5 Molar NaOH, to pH 7.0. The equivalent of the samples is obtained by determining the amount of unconsumed acid by titration with standardized NaOH, to pH 7.0.

Total sulfur of an untreated sample is determined from analysis of a 0.5 g sample that has undergone 60-mesh screening (0.25 mm). The sample is then combusted at 1,350°C or higher using a LECO furnace. A stream of oxygen is passed through the sample during the heating period and is released and measured using infrared absorption. Hot DI water leaches soluble sulfate that may form in the oxidized waste rocks, for example, melanterite (.) and rozenite (.) but not alunite ($()_2(OH)_6$) or jarosite ($()_2(OH)_6$) (Reclamation Research Unit and Schafer and Associates 1987). After hot DI water treatment, the sample is then combusted at 1,350°C or higher using a LECO furnace.

Hot DI-extractable sulfur = STOT - STOT after hot DI leach **(8)**

Total sulfur after HCl and treatments is determined from splits of the samples that have undergone 100-mesh screening (0.149 mm). After digestion with HCl and , the samples are filtered, cleaned with DI water (until electrical conductivity is <100 µmhos/cm), air-dried overnight, and then combusted at 1,350°C or higher using a LECO furnace. The HCl-extractable sulfur includes acid-dissociable sulfides (e.g., pyrrhotite, chalcopyrite, and sphalerite) and less-soluble sulfates (e.g., gypsum or anhydrite). The -extractable sulfur contains mostly pyrite.

HCl-extractable sulfur = STOT after hot DI leach - STOT after HCl treatment **(9)**

Residual sulfur = STOT after treatment **(10)**

Pyrite sulfur = STOT after HCl treatment - Residual sulfur **(11)**

AP is calculated using Equation 6. NNP is calculated by subtracting AP from NP. The results of NNP, NP, and AP in percent can be converted to ppt by multiplying by 22.7.

Method Comparison: SVL modified Sobek method versus Nevada Modified Sobek Method

The SVL modified Sobek method is different from the Nevada modified Sobek for determining three forms of sulfur content. The SVL modified Sobek method uses acid () digestion and hot DI water extraction on two splits of a sample before roasting to determine sulfide content, while the Nevada modified Sobek uses a two-acid (and HCl) digestion method. In addition, the process of calculating sulfide content is different between the two methods (discussed above). To determine NP, the SVL modified Sobek method measures the amount of unconsumed acid by titration with NaOH to pass pH 8.3, while the Nevada modified Sobek uses the end titration pH of 7.0.

FIELD OXIDATION TESTS

Twenty composite samples were tested for field oxidation tests (**Table B-1-2**). A total of 335 leachate samples were collected during the 2.6 year field oxidation tests and the results reported in **Appendix B** are updated below.

SUMMARY OF RESULTS

Acid-Base Accounting Methods

Net Carbonate Value

The NCV of the 34 composite samples ranged from -1.9 percent to 13.9 percent , (NNP at -42 to 314 ppt), covering Codes 1 to 6 (**Table B-1-3**). Composites 18, 20, 26, 27, 28, 29, 30, 31, 32, and 35 showed negative NCV or NNP values, characteristic of Codes 1 and 2, although Composites 18, 20, and 29 are classified as Code 3. Of the 34 samples, 18 did not demonstrate AP, and NP values ranged from 0 percent to 13.9 percent (314 ppt).

Guidelines from the United States BLM (1996) indicate that it is not likely that material with a NNP >20 ppt and an NP/AP ratio >3 will generate acid. If the material has an NP/AP ratio <1 and/or a NNP <-20 ppt , it is considered as acid-generating. In cases where the NNP is between -20 and 20 ppt or the NP/AP ratio is between 1 and 3, the material is not necessarily acid generating; BLM (1996) guidance recommends additional evaluation. The NNP cutoff of 20 ppt is equivalent to 0.88 percent , which approximately represents the upper limit (1%) of the NMC standard NCV class of "slightly basic" (Code 4). Of the 34 composite samples, 9 from all Codes 5 and 6 and one of the eight Code 4 samples (Composites 1, 2, 3, 4, 10, 12, 14, 21, 25, and 34) met or exceeded the BLM criteria (**Table B-1-3**). However, results from 21 of the 34 Genesis composite samples from Codes 2 through 4 were "uncertain" and 3 samples from Code 1 (Composites 26, 28, and 30) were considered as acid-generating based on the static test results.

SVL Modified Sobek Method

The NNP of the 34 composite samples ranged from -1.5 percent to 15.9 percent (-33.4 to 362 ppt), covering Codes 1 to 6 (**Table B-1-4**). Of the 34 composite samples, 18 (Composites 5, 6, 7, 8, 11, 12, 15, 16, 17, 18, 19, 20, 21, 26, 27, 28, 30, and 35) showed negative NNP values. Nine samples had NCV ≤ -0.1 percent (characteristic of Codes 1 and 2) while the remaining 9 samples (Composites 5, 6, 7, 11, 15, 16, 17, 19, and 20) have NCV between -0.1 and 0 percent (characteristic of Code 3). Six of the 34 samples demonstrated AP below the detection limit (<0.01%) and NP values ranged from <0.01 percent to 15.9 percent , (362 ppt). Six of the 34 samples (Composites 1, 2, 3, 4, 25, and 32) met or exceeded the BLM criteria; 26 samples were "uncertain"; and 2 samples (Composites 26 and 28) were acid-generating based on the static test results (**Table B-1-4**).

Table B-1-3. Net carbonate value results from the Genesis samples by NMS.

Composite ID	NCV Type	Total Sulfur (% S)	SAP (% S)	Sulfide Sulfur (% S)	Total Carbon (% C)	CAI (% C)	Carbonate (% C)	NP (% CO_2)	NP (ppt $CaCO_3$)	AP (% CO_2)	AP (ppt $CaCO_3$)	NCV (% CO_2)	NCV* (ppt $CaCO_3$)	NP/AP**
1	Code 6	0.11	0.17	<0.01	3.52	0.14	3.38	12.41	282	<0.01	<0.3	12.4	282 N	1241 N
2	Code 6	0.22	0.26	<0.01	4.29	0.63	3.66	13.44	305	<0.01	<0.3	13.4	305 N	1344 N
3	Code 5	0.26	0.23	0.03	0.96	0.15	0.81	2.98	68	0.04	1.0	2.9	67 N	70 N
4	Code 6	0.31	0.34	<0.01	4.06	0.29	3.77	13.85	314	<0.01	<0.3	13.9	314 N	1385 N
5	Code 3	0.09	0.13	<0.01	0.56	0.54	0.02	0.07	1	<0.01	<0.3	0.07	1 U	7 N
6	Code 4	0.18	0.21	<0.01	0.71	0.64	0.07	0.26	6	<0.01	<0.3	0.3	6 U	26 N
7	Code 3	0.13	0.13	<0.01	0.34	0.32	0.02	0.06	1	<0.01	<0.3	0.06	1 U	6 N
8	Code 4	0.12	0.14	<0.01	1.42	1.36	0.06	0.21	5	<0.01	<0.3	0.2	5 U	21 N
10	Code 6	0.17	0.21	<0.01	1.45	0.03	1.42	5.22	118	<0.01	<0.3	5.2	118 N	522 N
11	Code 3	0.37	0.38	<0.01	0.24	0.23	0.01	0.05	1	<0.01	<0.3	0.05	1 U	5 N
12	Code 4	0.52	0.55	<0.01	0.40	0.14	0.26	0.95	21	<0.01	<0.3	0.9	21 N	95 N
13	Code 4	0.03	0.06	<0.01	0.11	0.07	0.04	0.14	3	<0.01	<0.3	0.1	3 U	14 N
14	Code 5	0.02	0.05	<0.01	0.57	0.13	0.44	1.61	37	<0.01	<0.3	1.6	37 N	161 N
15	Code 3	0.07	0.09	<0.01	0.26	0.26	<0.01	<0.01	<0.3	<0.01	<0.3	0.01	0 U	1 A-ND
16	Code 3	0.07	0.09	<0.01	0.5	0.51	<0.01	<0.01	<0.3	<0.01	<0.3	0	0 U	1 A-ND
17	Code 4	0.10	0.14	<0.01	0.83	0.79	0.04	0.16	4	<0.01	<0.3	0.2	4 U	16 N
18	Code 3	0.37	0.21	0.16	0.18	0.13	0.05	0.19	4	0.2	5.0	-0.03	-1 U	0.9 A
19	Code 3	0.18	0.14	0.04	0.41	0.38	0.03	0.11	2	0.05	1.2	0.05	1 U	1.9 U
20	Code 3	0.26	0.2	0.06	0.94	0.94	0.003	0.01	0	0.08	1.8	-0.07	-2 U	0.1 A
21	Code 5	0.50	0.37	0.13	1.15	0.69	0.5	1.70	39	0.2	4.0	1.5	35 N	10 N
22	Code 4	0.04	0.07	<0.01	0.2	0.17	0.03	0.12	3	<0.01	<0.3	0.1	3 U	12 N
23	Code 4	0.07	0.1	<0.01	0.3	0.18	0.09	0.32	7	<0.01	<0.3	0.3	7 U	32 N
24	Code 3	0.08	0.1	<0.01	0.3	0.27	0.02	0.07	1	<0.01	<0.3	0.07	1 U	7 N
25	Code 6	1.58	1.4	0.18	3.2	0.41	2.8	10.27	233	0.3	5.7	10.0	227 N	41 N
26	Code 1	2.37	0.99	1.38	0.6	0.54	0.01	0.04	1	1.9	43.0	-1.9	-42 A	0.0 A
27	Code 2	0.86	0.43	0.43	0.8	0.81	0.01	0.04	1	0.6	13.3	-0.5	-12 U	0.1 A
28	Code 1	1.61	0.25	1.36	0.2	0.2	0.02	0.08	2	1.9	42.2	-1.8	-40 A	0.0 A
29	Code 3	1.22	0.59	0.63	1.6	1.41	0.21	0.79	18	0.9	19.6	-0.08	-2 U	0.9 A
30	Code 1	1.67	0.28	1.39	0.6	0.59	0.04	0.16	4	1.9	43.2	-1.7	-40 A	0.1 A
31	Code 2	1.17	0.39	0.78	0.5	0.29	0.17	0.62	14	1.1	24.2	-0.4	-10 U	0.6 A
32	Code 2	1.09	0.42	0.67	1	0.88	0.17	0.61	14	0.9	20.9	-0.3	-7 U	0.7 A
33	Code 4	1.37	0.55	0.82	0.6	0.22	0.35	1.28	29	1.1	25.4	0.2	4 U	1.1 U
34	Code 5	1.51	0.71	0.80	1	0.04	0.96	3.50	80	1.1	24.9	2.4	55 N	3.2 N
35	Code 2	0.98	0.3	0.68	0.23	0.17	0.06	0.22	5	0.9	21.0	-0.7	-16 U	0.2 A

Source: Modified from Table 3-1 of Addendum to the Newmont Genesis Project Characterization of Wall Rock and Waste Rock Chemistry, originally dated June 17, 2008; Geomega, November 18, 2009.

* Classification based on BLM criteria: A = acid generating (NCV ≤ -20 ppt $CaCO_3$); U = Uncertain (NCV is between -20 and +20 ppt CaCO3); N = Non-Acid Generating (NCV ≥ 20 ppt CaCO3)

** Classification based on US EPA (1994) criteria: A = Acid Generating (NP:AP ≤ 1); A-ND = Acid Generating but NP and AP both non-detect; U = Potentially Acid Generating or Uncertain (NP:AP is between 1 and 3); N = Acid Neutralizing (NP:AP ≥ 3)

AP = acid-generating potential.
BLM = Bureau of Land Management.
CAI = residual carbon acid, insoluble.
NCV = net carbonate value.
NMS = Newmont Metallurgical Services.
NP = acid-neutralizing potential.
SAP = residual sulfur after pyrolysis.
ppt = parts per thousand.
When % sulfide and % carbonate values are less than detection limit, AP, NP, and NP/AP are calculated using the detection limit.
All analyses were performed by NMS using the NCV method (Geomega 2008).
Note: Composite 9 was omitted from analysis.

Table B-1-4. Acid-base accounting and paste pH results from the Genesis samples, by SVL Analytical Inc.

Composite ID	NCV Type	Paste pH (su)	Total Sulfur (% S)	Nonextractable Sulfur (% S)	Pyrite Sulfur (% S)	Sulfate Sulfur (% S)	Carbonate (% C)	NP (% CO_2)	NP (ppt $CaCO_3$)	AP (% CO_2)	AP (ppt $CaCO_3$)	NNP (% CO_2)	NNP* (ppt $CaCO_3$)	NP/AP**
1	Code 6	8.84	<0.01	<0.01	<0.01	<0.01	3.8	13.9	316	<0.01	<0.3	13.9	316 N	1053 N
2	Code 6	8.11	<0.01	<0.01	<0.01	<0.01	3.2	11.7	265	<0.01	<0.3	11.7	265 N	883 N
3	Code 5	8.57	0.17	<0.01	0.12	0.05	1.2	4.3	96.9	0.2	3.8	4.1	93.1 N	26 N
4	Code 6	8.63	<0.01	<0.01	<0.01	<0.01	4.3	15.9	362	<0.01	<0.3	15.9	362 N	1207 N
5	Code 3	7.51	0.07	<0.01	0.02	0.05	<0.01	<0.01	<0.3	0.03	0.6	-0.03	-0.6 U	0.5 A
6	Code 4	7.28	0.11	0.02	0.03	0.06	<0.01	<0.01	<0.3	0.04	0.9	-0.04	-0.9 U	0.3 A
7	Code 3	5.66	0.08	<0.01	0.02	0.06	<0.01	<0.01	<0.3	0.03	0.6	-0.03	-0.6 U	0.5 A
8	Code 4	5.3	0.07	<0.01	0.07	<0.01	<0.01	<0.01	<0.3	0.1	2.2	-0.1	-2.2 U	0.1 A
10	Code 6	8.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3	<0.01	<0.3	<0.01	<0.3 U	1 A-ND
11	Code 3	6.8	0.23	0.02	0.05	0.16	<0.01	<0.01	<0.3	0.07	1.6	-0.07	-1.6 U	0.2 A
12	Code 4	7.59	0.37	0.08	0.09	0.2	<0.01	<0.01	<0.3	0.1	2.8	-0.1	-2.8 U	0.1 A
13	Code 4	7.8	0.02	<0.01	<0.01	0.02	<0.01	<0.01	<0.3	<0.01	<0.3	<0.01	<0.3 U	1 A-ND
14	Code 5	7.87	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.3	<0.01	<0.3	<0.01	<0.3 N	1 A-ND
15	Code 3	7.43	0.04	<0.01	0.01	0.03	<0.01	<0.01	<0.3	0.01	0.3	-0.01	-0.3 U	1.0 A
16	Code 3	7.04	0.04	<0.01	0.02	0.02	<0.01	<0.01	<0.3	0.03	0.6	-0.03	-0.6 U	0.5 A
17	Code 4	7.64	0.06	0.01	0.02	0.03	<0.01	<0.01	<0.3	0.03	0.6	-0.03	-0.6 U	0.5 A
18	Code 3	5.24	0.26	<0.01	0.07	0.19	<0.01	<0.01	<0.3	0.1	2.2	-0.1	-2.2 U	0.1 A
19	Code 3	7.01	0.12	0.01	0.03	0.08	<0.01	<0.01	<0.3	0.04	0.9	-0.04	-0.9 U	0.3 A
20	Code 3	6.99	0.17	<0.01	0.06	0.11	<0.01	<0.01	<0.3	0.08	1.9	-0.08	-1.9 U	0.2 A
21	Code 5	7.2	0.33	<0.01	0.12	0.21	<0.01	<0.01	<0.3	0.2	3.8	-0.2	-3.8 U	0.1 A
22	Code 4	7.54	0.03	<0.01	0.01	0.02	0.1	0.4	10.2	0.01	0.3	0.4	9.9 U	34 N
23	Code 4	7.47	0.04	<0.01	0.01	0.03	0.1	0.4	8.2	0.01	0.3	0.3	7.9 U	27 N
24	Code 3	7.6	0.05	<0.01	0.02	0.03	0.14	0.5	11.7	0.03	0.6	0.5	11.1 U	20 N
25	Code 6	6.82	1.28	<0.01	0.35	0.93	2.3	8.4	191	0.5	10.9	7.9	180 N	18 N
26	Code 1	4.11	2.11	0.1	1.11	0.9	0.02	0.1	1.3	1.5	34.7	-1.5	-33.4 A	0.0 A
27	Code 2	4.68	0.65	<0.01	0.3	0.35	<0.01	<0.01	<0.3	0.4	9.4	-0.4	-9.4 U	0.0 A
28	Code 1	6.24	1.41	0.02	0.77	0.62	0.02	0.1	1.5	1.1	24.1	-1	-22.5 A	0.1 A
29	Code 3	7.01	0.98	0.07	0.31	0.6	0.3	1.0	23	0.4	9.7	0.6	13.3 U	2.4 U
30	Code 1	6.1	1.44	0.02	0.82	0.6	0.2	0.7	15;3	1.1	25.6	-0.5	-10.3 A	0.6 A
31	Code 2	6.8	0.93	0.02	0.34	0.57	0.2	0.8	19.1	0.5	10.6	0.4	8.5 U	1.8 U
32	Code 2	7.44	0.84	0.03	0.48	0.33	0.6	2.0	45.9	0.7	15	1.4	30.9 N	3.1 N
33	Code 4	7.51	1.06	0.04	0.53	0.49	0.4	1.4	31.9	0.7	16.6	0.7	15.3 U	1.9 U
34	Code 5	6.99	1.18	0.03	0.47	0.68	0.4	1.5	34.4	0.6	14.7	0.9	19.7 U	2.3 U
35	Code 2	6.24	0.76	0.01	0.38	0.37	0.1	0.4	8.7	0.5	11.9	-0.1	-3.2 U	0.7 A

Source: Modified from Table 3-2 of Addendum to the Newmont Genesis Project Characterization of Wall Rock and Waste Rock Chemistry, originally dated June 17, 2008; Geomega, November 18, 2009.

* Classification based on BLM criteria: A = acid generating (NCV ≤ -20 ppt $CaCO_3$); U = Uncertain (NCV is between -20 and +20 ppt CaCO3); N = Non-Acid Generating (NCV ≥ 20 ppt CaCO3)

** Classification based on US EPA (1994) criteria: A = Acid Generating (NP:AP ≤ 1); A-ND = Acid Generating but NP and AP both non-detect; U = Potentially Acid Generating or Uncertain (NP:AP is between 1 and 3); N = Acid Neutralizing (NP:AP ≥ 3)

AP = acid-generating potential.
BLM = Bureau of Land Management.
NCV = net carbonate value.
NNP = net neutralization potential.
NP = acid-neutralizing potential.
ppt = parts per thousand.
When % sulfide and % carbonate values are less than detection limit, AP, NP, and NP/AP are calculated using the detection limit.
All analyses were performed by SVL Analytical Inc (Geomega 2008) using the SVL modified Sobek method.
Note: Composite 9 was omitted from analysis.

Summary Comparison: NCV versus SVL modified Sobek method results

The SVL modified Sobek NP generally showed good agreement with the values measured by the NCV method, with R2 = 0.91 (**Figure B-1-1**), although the SVL NP values are generally lower than the NCV and ANPA results. Using the mineralogical data, calcite and dolomite were generally detected in most samples at various content levels, except for Composites 8, 13, 18, 22, 24, 28, 29, 33, and 35. In Composites 21 and 34, dolomite was present as the dominant carbonate mineral (Geomega 2008). Dolomite is relatively slower to dissolve compared to calcite, which may be reflected by the low values of SVL NP and ANPA. Both the SVL modified Sobek NP and ANPA utilized a titration method to determine carbonate content, where the NCV method used the combustion method by converting all carbonate to .

The SVL modified Sobek AP generally showed good agreement with the values measured by the NCV method, with R2 = 0.93 (**Figure B-1-1**). Composites 10, 12, 13, 22, 23, and 24 did not demonstrate AP based on the NCV method, which was confirmed using the mineralogical data. For AP values close to the detection limit, the NCV method is likely to underestimate AP values.

The SVL modified Sobek NNP results generally showed good agreement with the NCV values, with R2 = 0.90 (**Figure B-1-1**). Differences in NCV/NNP values between two laboratories were observed, possibly due to the application of different methods and sample heterogeneity, because the ABA tests use only ~0.2 g of solid material to determine sulfur and carbonate content. For example, the NCV values of Composites 21 and 34 are 1.5 percent and 2.4 percent , respectively, but the SVL modified Sobek NNP indicated lower values of -0.2% and 0.9% , respectively (**Table B-1-5**).

Composite 34 resulted in BAPP pH <3.5 and PAG pH <4.5, indicating potential for acid generation (**Table B-1-6**). Low pH values were observed early in the humidity cell tests, but net acidity was not observed during the 20-week period. Composite 34 is classified as unoxidized siliceous (US), and as such, it comprises a small fraction of the total waste rock to be mined in the Genesis complex (~1.9 million tons of a projected total of 440.5 million tons; (**Table B-1-2**).

Field Oxidation Tests

An update to the **Appendix B** field oxidation test results is provided in **Table B-1-6**. Only one of the 20 composite samples (Composite 26) released net acidity during the 2.6 year period, with the final pH of 4.62 (**Table B-1-6**). The same sample released acidity during the humidity cell tests. Final leachate pH values for the other 19 samples ranged from 6.06 to 9.59 during the testing period.

Table B-1-5. Summary of acid-base accounting results from the Genesis samples.

Composite ID	NCV Type	NMS NP (% CO_2)	NMS NP (ppt $CaCO_3$)	SVL NP (% CO_2)	SVL NP (ppt $CaCO_3$)	NMS ANPA (% CO_2)	NMS AP (% CO_2)	NMS AP (ppt $CaCO_3$)	SVL AP (% CO_2)	SVL AP (ppt $CaCO_3$)	NMS NCV (% CO_2)	NMS NCV (ppt $CaCO_3$)	SVL NNP (% CO_2)	SVL NNP (ppt $CaCO_3$)
1	Code 6	12.41	282	13.9	316.0	12.2	<0.01	<0.3	<0.01	<0.3	12.4	282	13.9	316
2	Code 6	13.44	305	11.7	265.0	10.8	<0.01	<0.3	<0.01	<0.3	13.4	305	11.7	265
3	Code 5	2.98	68	4.3	96.9	3.2	0.04	1.0	0.2	3.8	2.9	67	4.1	93.1
4	Code 6	13.85	314	15.9	362.0	14.1	<0.01	<0.3	<0.01	<0.3	13.9	314	15.9	362
5	Code 3	0.07	1	<0.01	<0.3	0.4	<0.01	<0.3	0.03	0.60	0.07	1	-0.03	-0.6
6	Code 4	0.26	6	<0.01	<0.3	0.3	<0.01	<0.3	0.04	0.90	0.3	6	-0.04	-0.9
7	Code 3	0.06	1	<0.01	<0.3	0.1	<0.01	<0.3	0.03	0.60	0.06	1	-0.03	-0.6
8	Code 4	0.21	5	<0.01	<0.3	0.2	<0.01	<0.3	0.1	2.2	0.2	5	-0.1	-2.2
10	Code 6	5.22	118	<0.01	<0.3	3.6	<0.01	<0.3	<0.01	<0.3	5.2	118	<0.01	<0.3
11	Code 3	0.05	1	<0.01	<0.3	0.4	<0.01	<0.3	0.07	1.60	0.05	1	-0.07	-1.6
12	Code 4	0.95	21	<0.01	<0.3	1.1	<0.01	<0.3	0.1	2.8	0.9	21	-0.1	-2.8
13	Code 4	0.14	3	<0.01	<0.3	0.3	<0.01	<0.3	<0.01	<0.3	0.1	3	<0.01	<0.3
14	Code 5	1.61	37	<0.01	<0.3	1.9	<0.01	<0.3	<0.01	<0.3	1.6	37	<0.01	<0.3
15	Code 3	<0.01	<0.3	<0.01	<0.3	0.2	<0.01	<0.3	0.01	0.30	0	0	-0.01	-0.3
16	Code 3	<0.01	<0.3	<0.01	<0.3	0.2	<0.01	<0.3	0.03	0.60	0	0	-0.03	-0.6
17	Code 4	0.16	4	<0.01	<0.3	0.3	<0.01	<0.3	0.03	0.60	0.2	4	-0.03	-0.6
18	Code 3	0.19	4	<0.01	<0.3	0.1	0.2	5.0	0.1	2.2	-0.03	-1	-0.1	-2.2
19	Code 3	0.11	2	<0.01	<0.3	0.2	0.05	1.24	0.04	0.90	0.05	1	-0.04	-0.9
20	Code 3	0.01	0	<0.01	<0.3	0.2	0.08	1.83	0.08	1.90	-0.07	-2	-0.08	-1.9
21	Code 5	1.70	39	<0.01	<0.3	0.9	0.2	4.0	0.2	3.8	1.5	35	-0.2	-3.8
22	Code 4	0.12	3	0.4	10.2	0.2	<0.01	<0.3	0.01	0.30	0.1	3	0.4	9.9
23	Code 4	0.32	7	0.4	8.2	0.6	<0.01	<0.3	0.01	0.30	0.3	7	0.3	7.9
24	Code 3	0.07	1	0.5	11.7	0.7	<0.01	<0.3	0.03	0.60	0.07	1	0.5	11.1
25	Code 6	10.27	233	8.4	191.0	3.8	0.3	5.7	0.5	10.9	10.0	227	7.9	180
26	Code 1	0.04	1	0.1	1.3	0.1	1.9	43.0	1.5	34.7	-1.9	-42	-1.5	-33.4
27	Code 2	0.04	1	<0.01	<0.3	0.2	0.6	13.3	0.4	9.4	-0.5	-12	-0.4	-9.4
28	Code 1	0.08	2	0.1	1.5	0.1	1.9	42.2	1.1	24.1	-1.8	-40	-1	-22.5
29	Code 3	0.79	18	1.0	23.0	0.7	0.9	19.6	0.4	9.7	-0.08	-2	0.6	13.3
30	Code 1	0.16	4	0.7	15;3	0.5	1.9	43.2	1.1	25.6	-1.7	-40	-0.5	-10.3
31	Code 2	0.62	14	0.8	19.1	0.7	1.1	24.2	0.5	10.6	-0.4	-10	0.4	8.5
32	Code 2	0.61	14	2.0	45.9	1.1	0.9	20.9	0.7	15.0	-0.3	-7	1.4	30.9
33	Code 4	1.28	29	1.4	31.9	1.2	1.1	25.4	0.7	16.6	0.2	4	0.7	15.3
34	Code 5	3.50	80	1.5	34.4	1.3	1.1	24.9	0.6	14.7	2.4	55	0.9	19.7
35	Code 2	0.22	5	0.4	8.7	0.6	0.9	21.0	0.5	11.9	-0.7	-16	-0.1	-3.2

ANPA = acid-neutralization potential acidity.

AP = acid-generating potential.

NCV = net carbonate value.

NMS = Newmont Metallurgical Services.

NNP = net neutralization potential.

NP = acid-neutralizing potential.

ppt = parts per thousand.

SVL = SVL Analytical Inc.

Table B-1-6. Summary of various static and kinetic testing results for the Genesis samples.

		Static Test Results							Kinetic Test Results					
		NCV Type			Paste pH	MWMP	ABA Class[a,e]		PAG	BAPP	Humidity Cell Class	Humidity Cell Class	Field Oxidation Class	Field Oxidation Class
Composite ID	Location/ Alteration Type	NCV value[a] (% CO_2)	NCV value[a] (ppt $CaCO_3$)	NNP value[b] (ppt $CaCO_3$)	(su)	pH[e] (su)	NP/AP[a]	NCV[a] (ppt $CaCO_3$)	Final pH[d] (su)	Final pH[d] (su)	Final pH[c] (su)	Net Alkalinity[c] (mg/kg)	Final pH[f] (su)	Net Alkalinity[f] (mg/kg)
1	Bluestar	Code 6			8.84	8.24	Not potentially acid generating	Not potentially acid generating	Not acid producing	Not tested		Not acid producing		Not acid producing
Waste rock	OC	12.41	282	316			1241	282	8.42		7.11	801.6	6.85	2639
2	Genesis 1	Code 6			8.11	8.11	Not potentially acid generating	Not potentially acid generating	Not acid producing	Not tested	Not tested	Not tested	Not tested	Not tested
Waste rock	OC	13.4	305	265			1344	305	8.48					
3	Genesis 2	Code 5			8.57	8.26	Not potentially acid generating	Not potentially acid generating	Not acid producing	Not acid producing		Not acid producing		Not acid producing
Waste rock	OC	2.94	67	93			70	67	10.02	7.52	7.55	567.9	8.3	2875
4	Genesis 3	Code 6			8.63	8.32	Not potentially acid generating	Not potentially acid generating	Not acid producing	Not tested		Not acid producing		Not acid producing
Waste rock	OC	13.9	315	362			1385	315	7.93		7.98	786.3	9.38	2404
5	Bobcat	Code 3			7.51	8.19	Uncertain	Uncertain	Not acid producing	Not acid producing		Not acid producing		Not acid producing
Waste rock	OCD	0.07	1.5	-0.6			7	1.5	6.94	3.64	7.94	501.3	9.56	2391
6	Bobcat	Code 4			7.28	8.11	Uncertain	Uncertain	Not acid producing	Not acid producing		Not acid producing		Not acid producing
Waste rock	OCD	0.26	5.8	-0.9			26	5.8	7.44	3.66	7.46	692.5	6.32	2391
7	Genesis 1	Code 3			5.66	7.4	Uncertain	Uncertain	Not acid producing	Acid producing		Acid producing		1
Waste rock	OCD	0.06	1.3	-0.6			6	1.3	4.67	3.43	4.45	-85.6	8.59	1
8	Genesis 1	Code 4			5.3	7.18	Uncertain	Uncertain	Not acid producing	Acid producing		Acid producing		Not acid producing
Waste rock	OCD	0.21	4.7	-2.2			21	4.7	4.81	3.46	3.79	-129.6	7.49	1276

Table B-1-6. Summary of various static and kinetic testing results for the Genesis samples.

		Static Test Results							Kinetic Test Results					
		NCV Type			Paste pH	MWMP	ABA Class[a,e]		PAG	BAPP	Humidity Cell Class	Humidity Cell Class	Field Oxidation Class	Field Oxidation Class
Composite ID	Location/ Alteration Type	NCV value[a] (% CO_2)	NCV value[a] (ppt $CaCO_3$)	NNP value[b] (ppt $CaCO_3$)	(su)	pH[c] (su)	NP/AP[a]	NCV[a] (ppt $CaCO_3$)	Final pH[d] (su)	Final pH[d] (su)	Final pH[c] (su)	Net Alkalinity[c] (mg/kg)	Final pH[f] (su)	Net Alkalinity[f] (mg/kg)
10	Genesis 2	Code 6			8.07	8.79	Not potentially acid generating	Not potentially acid generating	Not acid producing	Not tested		Not acid producing		Not acid producing
Waste rock	OCD	5.22	118.6	<0.3			522	118.6	7.88		7.61	743.8	6.47	3419
11	Genesis 3	Code 3			6.8	7.92	Uncertain	Uncertain	Not acid producing	Not acid producing		Not acid producing		Not acid producing
Waste rock	OCD	0.05	1.1	-1.6			5	1.1	6.49	3.67	7.74	219.2	9.51	1999
12	Genesis 3	Code 4			7.59	8.34	Not potentially acid generating	Not potentially acid generating	Not acid producing	Not acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	OCD	0.95	21.5	-2.8			95	21.5	8.44	3.68				
13	Bluestar	Code 4			7.8	8.43	Uncertain	Uncertain	Not acid producing	Not acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	OS	0.14	3.3	<0.3			14	3.3	7.31	3.7				
14	Bluestar	Code 5			7.87	8	Not potentially acid generating	Not potentially acid generating	Not acid producing	Not tested	Not tested	Not tested	Not tested	Not tested
Waste rock	OS	1.61	36.7	<0.3			161	36.7	8.51					
15	Bobcat	Code 3			7.43	8.65	Uncertain	Uncertain	Not acid producing	Not acid producing		Not acid producing		Not acid producing
Waste rock	OS	0.01	0.2	-0.3			1	0.2	6	3.55	7.59	487.5	6.37	2076
16	Bobcat	Code 3			7.04	8.61	Uncertain	Uncertain	Not acid producing	Not acid producing		Not acid producing		Not acid producing
Waste rock	OS	0	0	-0.6			1	0	5.54	3.53	7.7	185.3	9.59	1833
17	Bobcat	Code 4			7.64	9.16	Uncertain	Uncertain	Not acid producing	Not acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	OS	0.16	3.6	-0.6			16	3.6	6.55	3.71				

Table B-1-6. Summary of various static and kinetic testing results for the Genesis samples.

Composite ID	Location/ Alteration Type	Static Test Results							Kinetic Test Results					
		NCV Type			Paste pH	MWMP	ABA Class[a,e]		PAG	BAPP	Humidity Cell Class	Humidity Cell Class	Field Oxidation Class	Field Oxidation Class
		NCV value[a] (% CO_2)	NCV value[a] (ppt $CaCO_3$)	NNP value[b] (ppt $CaCO_3$)	(su)	pH[c] (su)	NP/AP[a]	NCV[a] (ppt $CaCO_3$)	Final pH[d] (su)	Final pH[d] (su)	Final pH[c] (su)	Net Alkalinity[c] (mg/kg)	Final pH[f] (su)	Net Alkalinity[f] (mg/kg)
18	Genesis 1	Code 3			5.24	6.28	Uncertain	Uncertain	Acid producing	Acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	OS	-0.03	-0.6	-2.2			0.9	-0.6	3.73	3.24				
19	Genesis 1	Code 3			7.01	8.54	Uncertain	Uncertain	Not acid producing	Acid producing		Not acid producing		Not acid producing
Waste rock	OS	0.05	1.2	-0.9			1.9	1.2	4.89	3.48	7.84	146.3	6.5	1537
20	Genesis 1	Code 3			6.99	8.39	Uncertain	Uncertain	Not acid producing	Not acid producing		Not acid producing		Not acid producing
Waste rock	OS	-0.07	-1.6	-1.9			0.1	-1.6	5.34	3.59	7.83	333.3	6.5	2122
21	Genesis 1	Code 5			7.2	8.31	Not potentially acid generating	Not potentially acid generating	Not acid producing	Not acid producing		Not acid producing		Not acid producing
Waste rock	OS	1.52	35	-3.8			9.6	35	5.75	3.73	7.02	179.2	6.41	2187
22	Genesis 2	Code 4			7.54	8.64	Uncertain	Uncertain	Not acid producing	Not acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	OS	0.12	2.8	9.9			12	2.8	5.8	3.59				
23	Genesis 2	Code 4			7.47	8.67	Uncertain	Uncertain	Not acid producing	Not acid producing		Not acid producing		Not acid producing
Waste rock	OS	0.32	7.3	7.9			32	7.3	7.67	3.58	7.22	707.2	6.3	2011
24	Genesis 3	Code 3			7.6	7.73	Uncertain	Uncertain	Not acid producing	Not acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	OS	0.07	1.5	11			7	1.5	6.94	3.55				
25	Genesis 1/3	Code 6			6.82	7.68	Not potentially acid generating	Not potentially acid generating	Not acid producing	Not tested	Not tested	Not tested	Not tested	Not tested
Waste rock	UC	10	228	180			40.8	228	8.22					

Table B-1-6. Summary of various static and kinetic testing results for the Genesis samples.

		Static Test Results							Kinetic Test Results					
		NCV Type			Paste pH	MWMP	ABA Class[a,e]		PAG	BAPP	Humidity Cell Class	Humidity Cell Class	Field Oxidation Class	Field Oxidation Class
Composite ID	Location/ Alteration Type	NCV value[a] (% CO_2)	NCV value[a] (ppt $CaCO_3$)	NNP value[b] (ppt $CaCO_3$)	(su)	pH[c] (su)	NP/AP[a]	NCV[a] (ppt $CaCO_3$)	Final pH[d] (su)	Final pH[d] (su)	Final pH[c] (su)	Net Alkalinity[c] (mg/kg)	Final pH[f] (su)	Net Alkalinity[f] (mg/kg)
26	Genesis 1/3	Code 1			4.11	3	Acid producing	Acid producing	Acid producing	Acid producing		Acid producing		Acid producing
Waste rock	UCD	-1.85	-42.1	-33.4			0	-42.1	2.44	2.2	2.24	-11648.9	4.62	-3886
27	Genesis 1	Code 2			4.68	4.75	Uncertain	Uncertain	Acid producing	Acid producing		Acid producing		Not acid producing
Waste rock	UCD	-0.54	-12.4	-9.4			0.1	-12.4	3.25	3.3	2.81	-803.2	6.51	656
28	Bobcat	Code 1			6.24	6.38	Acid producing	Acid producing	Acid producing	Acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	US	-1.78	-40	-22.5			0	-40	2.41	2.01				
29	Bobcat	Code 3			7.01	8.01	Uncertain	Uncertain	Acid producing	Acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	US	-0.08	-1.7	13.3			0.8	-1.7	3.2	3.4				
30	Genesis 1	Code 1			6.1	6.48	Acid producing	Acid producing	Acid producing	Acid producing		Acid producing		Not acid producing
Waste rock	US	-1.75	-40	-10.3			0.1	-40	2.42	2.22	2.33	-3361.6	6.06	524
31	Genesis 1	Code 2			6.8	7.61	Uncertain	Uncertain	Acid producing	Acid producing		Acid producing		Not acid producing
Waste rock	US	-0.44	-10	8.5			0.6	-10	2.89	3.48	2.62	-1009.5	6.66	1101
32	Genesis 1	Code 2			7.44	8.04	Uncertain	Uncertain	Acid producing	Acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	US	-0.31	-7	30.9			0.7	-7	3.26	3.47				
33	Genesis 1	Code 4			7.51	8.14	Uncertain	Uncertain	Acid producing	Acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	US	0.16	3.7	15.3			1.1	3.7	3.25	3.39				

Table B-1-6. Summary of various static and kinetic testing results for the Genesis samples.

		Static Test Results							Kinetic Test Results					
		NCV Type			Paste pH	MWMP	ABA Class[a,e]		PAG	BAPP	Humidity Cell Class	Humidity Cell Class	Field Oxidation Class	Field Oxidation Class
Composite ID	Location/ Alteration Type	NCV value[a] (% CO_2)	NCV value[a] (ppt $CaCO_3$)	NNP value[b] (ppt $CaCO_3$)	(su)	pH[c] (su)	NP/AP[a]	NCV[a] (ppt $CaCO_3$)	Final pH[d] (su)	Final pH[d] (su)	Final pH[c] (su)	Net Alkalinity[c] (mg/kg)	Final pH[f] (su)	Net Alkalinity[f] (mg/kg)
34	Genesis 1	Code 5			6.99	7.53	Not potentially acid generating	Not potentially acid generating	Acid producing	Acid producing		Not acid producing		Not acid producing
Waste rock	US	2.41	55	19.7			3.2	55	3.32	3.43	6.66	181.3	6.36	1669
35	Genesis 3	Code 2			6.24	4.89	Uncertain	Uncertain	Acid producing	Acid producing	Not tested	Not tested	Not tested	Not tested
Waste rock	US	-0.71	-16	-3.2			0.2	-16	2.81	3.06				

[a]Newmont Metallurgical Services
[b]SVL Analytical Inc. (2007)
[c]McClelland Laboratories Inc.
[d]Little Bear Laboratories Inc.
[e]BLM (1996)
[f]Based on the field oxidation data during the 2.6 year test.
su = standard units.
ppt = parts per thousand.
When % sulfide and % carbonate values are less than detection limit, NP/AP is calculated using the detection limit.
Alteration types: OS (oxide siliceous), US (unoxidized siliceous), OC (oxide carbonate), OCD (oxide carbonate decalcified), UC (unoxidized carbonate), UCD (unoxidized carbonate decalcified).
Note: Composite 9 was omitted from analysis.

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_____**2009b**. Total sulfur, total carbon. SVL 4097 version 4.0. Kellog, ID: SVL Analytical Inc.