Complete Analytical Data for Samples of Jurassic Igneous Rocks in the Bald Mountain Mining District, Nevada

By Edward A. du Bray

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Introduction

The purpose of this report is to present all analytical data obtained for samples of Jurassic intrusive rocks collected in the Bald Mountain mining district of northern Nevada during field studies conducted between 2004–2006 and to make those data available to an ongoing petrogenetic study of these rocks.

Late Jurassic intrusive rocks in the Bald Mountain mining district of northern Nevada are spatially and genetically associated with significant coeval gold deposits. A volumetrically dominant monzogranite, the 159-Ma Bald Mountain stock, has distinctive petrographic features but is otherwise geochemically indistinguishable from other northern Nevada intrusive rocks. The monzogranite has very low opaque oxide mineral abundances and contains almost no magnetite, features diagnostic of a reduced intrusion. The stock contains distinctive, 1-cm-long K-feldspar, plagioclase, and round quartz phenocrysts, as well as biotite, in a fine-grained groundmass. The stock is associated with a set of compositionally indistinguishable quartz-feldspar porphyry dikes as well as basaltic andesite dikes, both of which are essentially coeval with the stock. The porphyry dikes contain a phenocryst assemblage identical to that of the stock, though less abundant, in an aphanitic groundmass. Porphyritic basaltic andesite dikes consist of an intersertal intergrowth of plagioclase, hornblende, and (or) biotite in an aphanitic groundmass. The Bald Mountain district also contains rare Jurassic lamprophyre dikes and aplite sills. Petrographic features, geochemical data, and limited geochronology suggest that the lamprophyre dikes and aplite sills are unrelated to other intrusive rocks and mineral deposits in the district. Geochemical data, especially for trace and rare earth elements, suggest that the Bald Mountain stock, quartz-feldspar porphyry dikes, and basaltic andesite dikes are petrogenetically related and associated with back-arc subduction processes along the west margin of Jurassic North America.

In the Bald Mountain district, gold deposit genesis was accompanied by hypogene phyllic alteration and silicification and supergene argillic alteration, principally a consequence of pyrite oxidation in the weathering environment. These alteration processes obscure primary petrographic features of all Bald Mountain intrusive rocks rendering protolith identification problematic. However, relative abundances of immobile trace elements (especially Cr, Ni, Ta, and Yb) in unaltered Bald Mountain district rocks are diagnostic for each of the five rock types and easily allow identification of the altered equivalents. Alteration processes caused silica and volatile abundances to increase significantly, probably in response to groundmass silicification and growth of volatile-rich minerals such as clay, sericite, calcite, pyrite, and iron hydroxide minerals. In contrast, alkali element abundances were markedly reduced, probably as a consequence of feldspar and biotite destruction.

Geologic relations suggest that magma represented by the Bald Mountain stock was reduced by assimilation of carbonaceous Paleozoic sedimentary rocks that host the intrusion. Magma reduction favors exsolution of H_2S-rich fluids that preferentially transport gold relative to base metals. Globally, reduced intrusions are associated with gold deposits that also include unusual abundances of Bi, Mo, Sn, and W, but not base metals. Relations among reduced intrusions, their exsolved fluids, and abundances of gold versus base metals are very much in accord with empirical evidence that relatively reduced, ilmenite-series, back-arc igneous rocks, such as those exposed in the Bald Mountain district, are associated with reduced-intrusion Au, Bi, Mo, Sn, and W deposits. In contrast, relatively oxidized, magnetite series, magmatic arc rocks are associated with Cu, Cu-Mo, and Cu-Au porphyry deposits, such as those that occur elsewhere in northern Nevada.

During field studies, 50 samples of surficial outcrops (table 1) and an additional 58 samples of drill core (table 2) were collected for subsequent laboratory analysis. Petrographic data (table 3) were acquired for 47 samples. Geochemical analyses (table 4) were acquired for 74 samples (fig. 1).

Analytical Methods

Relative abundances of minerals were determined in 16 samples by counting at least 1,000 points on stained slabs (Laniz and others, 1964) under a binocular microscope. Petrographic characteristics of these and an additional 29 samples were made using a standard petrographic microscope. All whole-rock chemical analyses (74 samples) were performed in analytical laboratories of SGS Minerals, Toronto, Canada. Major oxide abundances (recalculated to 100 percent, volatile-free) were determined by wavelength dispersive X-ray fluorescence spectrometry. Trace element abundances were determined by a combination of inductively coupled plasma–atomic emission and inductively coupled plasma–mass spectrometry. Analytical methods are described by Taggart (2002).

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Table 1. Status and treatment of Jurassic igneous rock surficial samples collected in the Bald Mountain mining district

Sample	N Lat	W Long	Chem	TS	St Slab	Ref	Unit	Comments
202980	39.9442	-115.5685	√	√	√		S	Bald Mountain stock, North Water Canyon
202981	39.9462	-115.5563	√	√	√		S	Bald Mountain stock, North Water Canyon
202982	39.9184	-115.4987	√	√			?	altered rock from road cut east of Horseshoe pit
202983	39.9674	-115.5903	√	√			L	lamprophyre
203024	39.9468	-115.5936	√	√			QFP(a)	RBM pit quartz-feldspar porphyry dike
203025	39.9708	-115.5907	√	√			A	Numbers pit aplite sill
203026	39.9633	-115.5903	√	√			QFP(a)	quartz porphyry dike
203027	39.9680	-115.5915	√	√			A(a)	Numbers pit aplite sill
203028	39.9435	-115.5419	√				S(a)	Top pit, Jurassic intrusive rock
203029	39.9435	-115.5420	√				S(a)	Top pit, Jurassic intrusive rock
203030	39.9445	-115.5456	√	√	√		S	Bald Mountain stock at observation point above Top pit
203031	39.9407	-115.5636	√	√	√		S	Bald Mountain stock near west contact, on haul road
203032	39.9427	-115.5545	√	√	√		S	Bald Mountain stock about midway up haul road
203033	39.9396	-115.5775	√	√			AD	mafic dike just east of North Water Cyn road junction with haul road
203034	39.9490	-115.5710	√	√			QFP	fine grained K-feldspar porphyry dike, cuts stock in North Water Canyon
203035	39.9502	-115.5738	√	√	√		S	Bald Mountain stock, near west end
203036	39.9548	-115.5759	√	√			QFP	dike of Bald Mountain stock composition
203037	39.9565	-115.5776	√	√	√		S	Bald Mountain stock
203038	39.9545	-115.5669	√	√	√		S	Bald Mountain stock
203039	39.9479	-115.5661				√		banded quartz veins in Bald Mountain stock
203040	39.9460	-115.5624	√	√	√		S	Bald Mountain stock
203041	39.9460	-115.5624	√	√			EN	mafic enclave in Bald Mountain stock
203042	39.9433	-115.5623	√	√	√		S	Bald Mountain stock
203043	39.9459	-115.5521	√	√			S(a)	Bald Mountain stock
203044	39.9505	-115.5652	√	√	√		S	Bald Mountain stock
203051	39.9425	-115.5478	√	√			S(a)	altered Bald Mountain stock
203052	39.9416	-115.5493	√	√			S(a)	altered Bald Mountain stock
203053	39.9365	-115.5586	√	√	√		S	weathered Bald Mountain stock
203054	39.9045	-115.5367		√			T?	ashy tuff
203055	39.9238	-115.5315	√	√			QFP(a)	altered quartz-feldspar porphyry dike
203056	39.9200	-115.5098	√	√			QFP(a)	altered quartz-feldspar porphyry dike
203057	39.9151	-115.4925	√	√			QFP(a)	quartz-feldspar porphyry dike
203058	39.9606	-115.5946	√	√			QFP(a)	Bald Mountain quartz-feldspar porphyry dike
203088	39.9551	-115.5816	√	√			QFP	Quartz-feldspar porphyry dike
203089	39.9566	-115.5777	√	√	√		S	Bald Mountain stock
203090	39.9490	-115.5697	√	√	√		S	Bald Mountain stock
203091	39.9417	-115.5654	√	√			AD	mafic dike intruding stock
203092	39.9428	-115.5608	√	√	√		S	Bald Mountain stock
203093	39.9487	-115.5563	√	√	√		S	Bald Mountain stock
203094	39.9492	-115.5417	√	√			A(a)	silicified aplite dike
203095	39.9269	-115.5408	√	√			AD(a)	altered basaltic andesite dike
203096	39.9222	-115.5189	√	√			QFP(a)	quartz-feldspar porphyry dike
203097	39.9255	-115.5700	√	√			AD(a)	altered basaltic andesite dike
203098	39.9492	-115.5760	√	√			AD	mafic dike cutting Bald Mountain stock on LJ haul road
203099	39.9686	-115.5771	√	√			AD(a)	altered basaltic andesite dike in LJ pit
203100	39.9658	-115.5875	√	√			QFP(a)	granitic dike
203101	39.9653	-115.5876	√	√			A	aplite sill
203102	39.9643	-115.5876	√	√			AD	basaltic andesite dike near Numbers pits
203103	39.9161	-115.4948	√	√			QFP(a)	altered quartz-feldspar porphyry dike near Bida pit
203104	39.9126	-115.4879	√	√			QFP(a)	altered quartz-feldspar porphyry dike east of Bida pit

chem= major and trace element analysis
TS= thin section
St Slab= stained slab for modal analysis
Ref= reference sample

S-Bald Mtn stock
S(a)-altered Bald Mtn stock
EN-enclave in Bald Mtn stock
QFP-quartz-feldspar porphyry dike
QFP(a)-altered quartz-feldspar porphyry dike
L-lamprophyre dike
A-aplite sill/dike
A(a)-altered aplite sill/dike
AD-andesite dike
AD(a)-altered andesite dike
T-tuff
?-indeterminate

Table 2. Status and treatment of Jurassic igneous rock drill-core samples collected in the Bald Mountain mining district

sample no	North lat	West long	chem	ts	Ref	Alt'n Rank	Unit	Description
DDH3-1/180	39.96862	-115.58951				5	AP(a)?	tan hard silicic, fine porphyry, quartz eyes only, feldspar and mafic silicates gone?, coarse pyrite/feox
DDH3-1/226	39.96862	-115.58951	√	√	√	4	AP(a)	white hard silicic, porphyry, 2 mm quartz eyes, feldspar phenocrysts, finer than QFP, silicic, with coarse pyrite/feox, no sign of mafic silicates
DDH3-2/184	39.96862	-115.58950			√	5	AP(a)?	tan hard silicic, fine porphyry, 1 mm quartz eyes, feldspar and mafic silicates gone?, coarse pyrite/feox
DDH3-2/96	39.96862	-115.58950			√	5	AP(a)?	lightly silicified fine-grained porphyry, 1 mm quartz eyes, euhedral pyrite/feox
DDH5-01/98	39.96080	-115.59872	√	√	√	5	QFP(a)	white clay altered quartz-feldspar porphyry, coarse and medium quartz eyes, feldspar gone to clay, early quartz-sericite-pyrite alteration?, cut by thin quartz veins
DDH5-3/120	39.96111	-115.59776		√		6		tan soft rock, texture gone, phenocrysts?, early quartz-sericite-pyrite then severe weathering to feox and clays?
DDH5-11/112	39.96072	-115.59889	√	√	√	4	QFP(a)	tan, oxidized but fairly hard, some feldspar, primary texture preserved, 2 sizes quartz phenocrysts, no mafic silicates, less severe weathering than many samples
DDH5-11/116	39.96072	-115.59889		√				quartz vein cutting DDH5-11/112-type rock
DDHT1/398	39.94133	-115.54280	√	√	√	4	QFP(a)	porphyry texture well preserved, feldspars to clay, tan matrix, relatively hard, ghosts of biotite? altered brick red matrix
DDHT2	39.94074	-115.54261				5	QFP(a)	clay altered porphyry, mostly broken, lots feox and clay
DDHT3	39.94053	-115.54289				6	QFP(a)	highly altered, fractured, clay-rich
DDHT4	39.94107	-115.54336				6	QFP(a)	clay altered QFP, mostly soft type
DDHT5/151	39.94049	-115.54339	√	√	√	4	L	biotite visible, feldspar phenocrysts visible, this is a less altered pocket within softer clay type
DDHT7/145	39.94126	-115.54417	√	√	√	3	S(a)	quite fresh, biotite, feldspars shine, freshest QFP, local pocket within clay altered QFP, some feox/hydroxide on fractures
DDHT7/397	39.94126	-115.54417	√	√	√	6	S(a)	clay altered QFP, soft, lower feox than adjacent rock
DDHT8	39.94087	-115.54455				6	QFP(a)	clay altered QFP, crumbly to coherent, moderate feox
DDH9/20	39.94097	-115.54226			√		S(a)	crumbly, texture and biotite intact, weathered, tan quartz-feldspar granitoid of Bald Mountain stock, feldspar clay altered
DDHT9/147	39.94097	-115.54226	√	√	√	5	S(a)	white clay altered, pervasive feox but this domain is less altered, biotite survives
DDHT10/136	39.94088	-115.54379			√	3	S	fresh looking, shiny biotite and feldspars, but crumbly, weak weathering without acid alteration? K-feldspars <0.5 cm, ~ equigranular
DDHT11/178	39.94122	-115.54168	√	√	√	4	S(a)	hard silicic QFP, pocket in soft clay type, feldspar ghosts=white clay, matrix=fine silica, gray=pyrite?, low pyrite
LJC-001/1565	39.96887	-115.57673	√	√	√	4	AP(a)	white silicified fine porphyry, thin quartz veinlts with pyrite, less altered than many samples, cut by quartz veins
LJC-3/206	39.96970	-115.57754			√	3	AP?	gray sparse porphyritic dike, quite fresh, strong, biotite relatively fresh? very fine grained biotite-bearing dike, looks like Bald Mountain stock matrix
LJC3/208	39.96970	-115.57754	√	√		4	AD(a)	green alteration along fractures in gray porphyry, altered, chlorite (green) on gray, very fine grained biotite-bearing dike, looks like Bald Mountain stock matrix
LJC6/257	39.96861	-115.57750	√	√	√	4	AD(a)	very fine grained pyritic dike (12') with rare 2 mm quartz phenocrysts, quite fresh, strong, biotite relatively fresh?
LJC06/261	39.96861	-115.57750			√	5		very fine grained pyritic dike (12') with rare 2 mm quartz phenocrysts and pyrite, dark gray-green, aphanitic, low feox
LJC08/132	39.97080	-115.57698	√	√		4	AD(a)	dark aphanitic dike, quite fresh, some quartz eyes 2 mm, sparse veinlets, no pyrite, very similar to LJC09/91
LJC08/172	39.97080	-115.57698	√	√	√	4	AD(a)	very fine grained dike, sparse pyrite and quartz, some quartz veinlets, gray aphanatic, 2 mm quartz eyes, low pyrite and feox
LJC09/82	39.97048	-115.57662			√	5		bleached and a bit rusty aplite dike (18"), quartz eyes sparse, some pyrite
LJC09/91	39.97048	-115.57662	√	√	√	6	AD(a)	rusty aphanitic dike, rare quartz eyes, seems mafic, attracts pyrite then feox, lots of disseminated pyrite, 6-7' thick
LJC10/89	39.97023	-115.57690	√	√	√	6	AD(a)	rusty aphanitic felsic dike, quartz eyes, some veinlets
LJC10/208	39.97023	-115.57690	√	√	√	3	AD(a)	green-gray freshest aplite dike, sparse quartz eyes, some feldspars visible in matrix, low feox (on fractures), pyrite
LJC10/94	39.97023	-115.57690			√	5		rusty felsic dike, aphanitic, banding or compositional layering 40 degrees to core angle, source of layering unknown
RBMC1/496	39.94658	-115.59333	√	√	√		QFP(a)	white intensely altered (clay) quartz eye, K-feldspar (ghost) porphyry with quartz veins
RBMC1/539	39.94658	-115.59333			√	4	QFP(a)	silicic, QFP, breccia with pyrite-quartz, strong, well preserved, very pyrite rich, medium grained breccia
RBMC1/564	39.94658	-115.59333			√	5	QFP(a)	white intensely clay altered, silica matrix?, low pyrite, quartz eye, K-feldspar (ghost) porphyry with quartz veins
RBMC1/569	39.94658	-115.59333	√	√	√	5	QFP(a)	white intensely clay altered porphyry, quartz eye, K-feldspar (ghost) porphyry with quartz veins, 2 sizes quartz, massive clay matrix
RBMC1/761	39.94658	-115.59333			√	5	QFP(a)	white, intensely altered clay, quartz eye, K-feldspar (ghost) porphyry with quartz veins, silicified with spectacular quartz vein stockwork
RBMC1/794	39.94658	-115.59333	√	√	√	4	QFP(a)	white intensely clay altered porphyry, quartz eye, K-feldspar (ghost), with quartz veins, silicified with spectacular quartz vein stockwork, breccia, 2 sizes quartz, massive clay matrix
RBMC1/806	39.94658	-115.59333			√			white, intensely altered clay, quartz eye, K-feldspar (ghost) porphyry with quartz veins, with minor pyrite, silicified with spectacular quartz vein stockwork, breccia
RBMC2/238	39.94630	-115.59236		√	√			very fine grained biotite granodiorite, very altered, all biotite repalced by pyrite
RBMC2/276	39.94630	-115.59236			√	4		gray biotitic very fine grained rock, high pyrite, seems mafic, very altered
RBMC2/281	39.94630	-115.59236			√	5	QFP(a)	aphanitic dike, veined but massive texture, seems mafic, silica-pyrite altered diabase? See also RBMC2/276

Table 2. Status and treatment of Jurassic igneous rock drill core samples collected in the Bald Mountain mining district —Continued.

sample no	North lat	West long	chem	ts	Ref	Altn Rank	Unit	Description
RBMC2/297	39.94630	-115.59236		√	√	5	QFP(a)	very altered aphanitic dike, no phenocrysts, seems mafic, low pyrite
RBMC2/302	39.94630	-115.59236	√	√	√	4		very altered, very fine grained granodiorite?, low pyrite, no phenocrysts, aphanitic matrix
RBMC2/374	39.94630	-115.59236		√	√	5	QFP(a)	silica veined QFP, tan matrix and white feldspars, 1-mm-spaced quartz veins (<0.1mm) in rock like RBMC1
RBMC3/236	39.94693	-115.59352	√	√	√	5		dark aphanitic dike, dark matrix, white feldspar 2 mm, significantly pyrite altered
RBMC3/287	39.94693	-115.59352			√	5	QFP(a)	high clay, kaolinite?, low pyrite, bright white, medium-grained dike, white, clay + sericite + silica altered rock
RBMC3/316	39.94693	-115.59352		√	√	5	QFP(a)	high pyrite, white medium-grained rock
RBMC3/560	39.94693	-115.59352	√	√		4	QFP(a)	white clay altered quartz-feldspar porphyry, matrix is silicic-gray (fine pyrite?)
RBMC3/569	39.94693	-115.59352			√	5	QFP(a)	white/pink clay altered 2 sizes quartz eye porphyry, no feldspar ghosts, moderately altered
RBMC3/691	39.94693	-115.59352		√	√	5	QFP(a)	same as RBMC3/569, 2 sizes quartz phenocryst types, strong white clay after feldspar and matrix, matrix is quite hard, both clay and fine silica?
RBMC3/726	39.94693	-115.59352	√	√	√	4	QFP(a)	coarse 2 sizes quartz-feldspar phenocryst porphyry, white, hard (silica in matrix), texture preserved, white feldspar ghosts, quite altered, abundant fine pyrite in groundmass
RBMC4/244	39.94685	-115.59299			√	4	QFP(a)	white, fresh pyrite, medium grained, phenocrysts?, white clay after feldspar
RBMC4/252	39.94685	-115.59299			√	4	QFP(a)	high pyrite, white medium-grained rock
RBMC4/457	39.94685	-115.59299	√	√	√	4	QFP(a)	pale tan/white, coherent, clay quartz-feldspar altered porphyry, 5 and 2 mm quartz eyes, feldspar gone, clay after sericite, quartz veinlets, abundant pyrite, Fe stained fractures
RBMC4/507	39.94685	-115.59299	√	√	√	4	QFP(a)	white coherent clay altered quartz-feldspar porphyry, very altered, abundant pyrite, Fe-stained fractures
RBMC4/599	39.94685	-115.59299			√	6	QFP(a)	white soft clay altered quartz-feldspar porphyry, 2 and 5 mm quartz eyes, feldspar ghosts, abundant pyrite, Fe-stained fractures
TDC2/1341	39.94366	-115.53879	√	√	√	5	QFP(a)	clay altered, feldspar/quartz porphyry, quite altered, 2 sizes quartz phenocrysts
	Alt'n rank: Alteration-rank scale from 1 to 10 in which 1 is perfectly fresh (like a glassy volcanic), and 10 is perfectly leached and all texture gone. Questionable for fresh looking hard samples that may in fact be highly alt vs. crumbly kind (grain							
		margins attacked) that have fresh minerals.						
	chem= major and trace element analysis						S-Bald Mtn stock	
	TS= thin section						S(a)-altered Bald Mtn stock	
	Ref= reference sample						QFP(a)-altered quartz-feldspar porphyry dike	
							L-lamprophyre dike	
							A-aplite sill/dike	
							A(a)-altered aplite sill/dike	
							AD(a)-altered andesite dike	

Table 3. Petrographic characteristics of Jurassic igneous rock surficial samples in the Bald Mountain mining district, Nevada

		MODE							AVERAGE GRAIN SIZE (mm)							GROUNDMASS		texture	accessory
Sample	Unit	quartz	K-feldspar	plagioclase	biotite	hornblende	clinopyroxene	opaques	quartz	K-feldspar	K-feldspar phenocrysts	plagioclase	biotite	hornblende	opaques	mineral(s)	grain size (mm)		minerals
202980	S	34.0	15.2	40.5	10.3			tr	5	0.5	10-20	5	0.5-1			q, kf	0.1	hg, p	zirc, ap
202981	S	22.3	34.3	34.1	9.3			tr	2-5		10-40	2	1		<0.1	q, kf	0.1	hg, p	al, zirc, ap
202982	?	1-2							1							q, ser	<0.1		
202983	L				1	30	5	0.5						1	<0.01	chl, ser			ap
203024	QFP(a)	5		5					0.5			0.2-0.5				q, fldspr	<0.1	p	
203025	A	2		3				1	0.5			0.8			0.2-0.5	q, fldspr, ser	<0.1	p	
203026	QFP(a)	5		10				3	1			3			0.1-0.5	q, fldspr, ser	<0.1	p	
203027	A(a)	2						3	0.5						0.2	q, fldspr, ser	<0.1	p	
203030	S	25.2	32.8	32.0	10.0	tr		tr	4		5-10	2.5	0.8	0.5	0.02	q, kf	0.1	hg, p	zirc, ap, al
203031	S	23.5	28.7	39.6	8.2	tr		tr	5		10-30	3	0.5	0.1-0.3	0.05	q, kf	0.1	hg, p	zirc, ap, sp
203032	S	21.6	17.5	49.8	11.1	tr		tr	3		5	4	0.8	0.2-0.4		q, kf	0.1	hg, p	zirc, ap, sp
203033	AD	X		X		X		X	0.5			0.4		0.1-0.3	0.1	fldspr, hb		p	
203034	QFP	X	X	X	7.0				0.5		6	1	0.5			q, fldspr	0.05	p	ap, zirc, sp, al
203035	S	21.7	24.4	42.2	11.7	tr		tr	3		15	4	0.8	0.5-1	0.05	q, kf	0.1-0.4	hg, p	ap, zirc, sp
203036	QFP	X	X	X	5	5	0.5		0.5		10	1.5	0.2-0.5	0.5	0.03	q, kf , opq	0.01	p	ap, zirc
203037	S	24.9	25.6	38.8	10.7	tr		tr	4		5-10	4	0.5	0.2		q, kf	0.05	hg, p	ap, al, zirc, sp
203038	S	24.9	20.2	42.2	12.0	0.7			4		10	4	1	0.5-1		q, kf	0.1	hg, p	ap, zr
203040	S	28.7	26.0	37.5	7.8	tr			4		5-20	5	1	0.2		q, kf	0.2	hg, p	ap, zr
203041	EN	X	X	X	7	10		tr	0.4	1-4		2	0.3	0.5	0.1			hg, p	ap, zr, sp, al
203042	S	29.0	22.1	41.9	7.0			tr	4		2-20	5	1		0.1	q, kf	0.1	hg, p	ap, zr
203043	S(a)	X	X	X	7	1		tr	3		10	2.5	0.8	0.5	0.1	q, kf	0.05-0.1	hg, p	ap, zr, al
203044	S	30.9	24.8	35.3	9.0	tr			4		10-30	4	1	0.2	0.1	q, kf	0.2	hg, p	ap, zr, al
203051	S(a)	X		X					2			2				q, kf	0.1	p	ap
203052	S(a)	X	X	X				tr	0.5	0.5-1.5		3				q, fldspr	0.2	hg	ap, zirc, sp
203053	S	18.2	21.3	50.5	10.0	tr		tr	4	0.5-2		4	0.5	0.5	0.1	q, kf	0.4	hg	ap, zr, al
203054	T?		aphanitic/aphyric rock, glass shards													q, fldspr			
203055	QFP(a)	X							0.5							q, fldspr	<0.1	p	
203056	QFP(a)	X		X	X				3			3	0.3			q, fldspr	<0.1	p	zr
203057	QFP(a)	X		X					0.4			1				q, fldspr	<0.1	p	
203058	QFP(a)	X		X	X				2			2.5	0.5			q, fldspr	<0.1	p	zr, ap
203088	QFP	1	1	3		10			0.5		20	2		0.4		q, fldspr,hb	<0.2	p	zr, sp2
203089	S	24.2	23.3	40.1	12.4	tr		tr	2	0.1	10	3	0.7	0.4	0.05	q, kf	0.2	hg, p	ap, zr, al
203090	S	28.1	20.2	42.4	9.3			0.3	3	0.2	20	2	1		0.1	q, kf	0.2	hg, p	zr, ap
203091	AD			X		X		X				0.5		0.1		fldspr, hb	<0.1	p	
203092	S	23.8	21.9	42.5	11.9	tr		tr	2.5	0.1	8	3	0.5	0.2	0.1	q, kf	0.1	hg, p	zr, ap
203093	S	25.2	25.2	38.9	10.7	0.7		tr	2.5	0.2	10	4	1	0.5	0.1	q, kf	0.2	hg, p	zr, ap, al
203094	A(a)	3		5					0.7			2				q, fldspr,ser	<0.1	p	zr
203095	AD(a)	1		2					1			2				q, fldspr,ser	<0.1	p	
203096	QFP(a)	1		5					3			2				q, fldspr	<0.1	p	zr
203097	AD(a)																	i	
203098	AD			X	X	X		tr				0.6	0.2	0.5		q		i	ap, zr, sp2
203099	AD(a)			X		X		3				0.3			0.05	q	0.1	i	
203100	QFP(a)	X		X	X				0.3			1	0.5					hg, s	ap, al
203101	A	2		1				tr	0.8			1			0.2	q, fldspr	<0.1	p	
203102	AD			X				X										i	zr
203103	QFP(a)	2		X					0.3			1				q, fldspr, ser	<0.1	p	
203104	QFP(a)	1		3				1	0.4			1.5			0.05	q, fldspr, ser	<0.2	p	zr

S-Bald Mtn stock	Groundmass minerals:		Accessory minerals:	hg, hypidiomorphic granular
S(a)-altered Bald Mtn stock	q-quartz		zirc-zircon	p, porphyritic
EN-enclave in Bald Mtn stock	fldspr-feldspar		ap-apatite	i, intersertal
QFP-quartz porphyry dike	ser-sericite		al-allanite	s, seriate
QFP(a)-altered quartz porphyry dike	kf-K-feldspar		sp-titanite	
L-lamprophyre dike	hb-hornblende		sp2- secondary titanite	
A-aplite sill/dike	opq-opaques			
A(a)-altered aplite sill/dike				
AD-andesite dike	X-present			
AD(a)-altered andesite dike	tr-trace			
T-tuff?				

Table 4. Whole-rock geochemical data for samples of Jurassic igneous rocks in the Bald Mountain mining district, Nevada.

Major oxide compositions, in weight percent, recalculated to 100%, volatile free. Trace element data in parts per million.

Field No.	Unit	Sample Description	SiO_2	TiO_2	Al_2O_3	FeO	MnO	MgO	CaO	Na_2O	K_2O	P_2O_5	LOI	Ag	As	Ba	Be	Bi	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	Ga	Gd	Ge	Hf	Ho	In	La	Li	Lu	Mo	Nb	Nd	Ni	Pb	Pr	Rb	Sc	Sm	Sn	Sr	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
202980	S	Bald Mountain stock	72.05	0.36	14.45	2.32	0.05	1.00	1.99	3.20	4.48	0.09	0.7	<1	<30	658	<5	0.1	<0.2	64.8	5.5	152	4.3	<5	3.28	2.08	0.99	16	4.41	1	4	0.64	<0.2	37.2	46	0.26	<2	15	26.9	13	21	7.18	169	<5	4.9	3	261	1.4	0.52	14	0.6	0.25	4.69	32	10	17.7	2	23	113
202981	S	Bald Mountain stock	70.86	0.46	14.72	2.67	0.04	1.21	2.23	3.45	4.26	0.11	0.95	<1	<30	703	<5	<.1	<0.2	55.1	6.8	170	3.4	15	3.7	2.43	1.12	17	4.38	2	5	0.73	<0.2	31.6	47	0.31	<2	17	25.1	16	16	6.45	153	5	4.9	3	336	1.6	0.61	13.1	<0.5	0.32	4.94	44	5	20.9	2.5	16	156
202983	L	lamprophyre dike	50.24	0.47	10.38	10.29	0.14	22.33	4.73	0.94	0.31	0.16	6.4	<1	<30	195	<5	0.1	<0.2	36.4	91.2	1350	2.3	243	1.73	1.21	0.72	10	2.55	<1	2	0.36	<0.2	20.8	58	0.14	<2	8	16.8	1480	<5	4.23	7.9	9	2.9	3	133	<0.5	0.31	4.5	<0.5	0.14	0.72	65	2	9.1	1.1	79	87.6
203024	QFP(a)	quartz porphyry dike	80.85	0.57	17.77	0.18	0.00	0.14	0.12	0.07	0.15	0.15	6.3	<1	<30	92.3	<5	0.2	<0.2	44.2	<0.5	20	0.5	<5	3.02	1.47	1.16	21	5.46	1	5	0.51	<0.2	16.3	30	0.18	3	17	32.8	<5	14	7.5	4.3	6	6.6	2	118	1.4	0.68	13.3	<0.5	0.19	8.97	66	2	13.5	1.6	8	172
203025	A	aplite sill	75.71	0.01	14.68	0.97	0.00	0.10	0.12	4.38	3.99	0.04	1.05	<1	90	132	6	1.2	0.5	23.2	<0.5	<10	3.6	18	3.61	0.98	0.08	27	3.92	3	3	0.47	<0.2	10.7	<10	<0.05	<2	26	10.1	<5	14	2.86	217	<5	3.5	9	35.7	3.5	0.72	6.8	1.1	0.1	4.54	6	1	19.1	0.6	36	33
203026	QFP(a)	quartz porphyry dike	72.83	0.48	16.26	2.05	0.00	0.60	4.45	0.07	3.12	0.13	6.45	<1	110	143	<5	0.2	<0.2	66.1	5.4	20	6.2	56	4.14	2.57	1.09	19	5.11	1	3	0.79	<0.2	33.2	40	0.29	<2	15	27.2	13	13	7.35	126	6	5.1	2	60.5	1.3	0.75	14.8	0.7	0.36	3.74	46	2	25.6	2.7	13	108
203027	A(a)	aplite sill	80.43	0.03	14.22	0.87	0.00	0.14	0.18	0.06	4.02	0.04	2.15	<1	320	1550	<5	0.5	<0.2	10.5	<0.5	30	1.8	32	3.49	1.26	0.1	25	3.1	2	2	0.52	<0.2	5.8	<10	0.07	<2	24	5.6	<5	6	1.51	135	<5	2.4	<1	6.7	3.4	0.65	4.4	1	0.15	5.49	8	4	20.5	0.9	16	32.2
203028	S(a)	intrusive rock??	81.89	0.48	16.93	0.14	0.00	0.11	0.06	0.04	0.32	0.04	5.75	<1	<30	54.9	<5	17.7	<0.2	59.9	0.6	20	2.4	6	1.61	0.88	0.82	20	2.85	2	4	0.28	<0.2	28.3	30	0.12	<2	16	24.6	<5	<5	7.09	14.9	<5	4.2	14	72	1.6	0.38	13.4	<0.5	0.12	2.62	46	16	7.4	1.1	<5	123
203029	S(a)	intrusive rock??	87.39	0.43	8.88	2.61	0.00	0.18	0.19	0.00	0.12	0.20	3.65	<1	690	239	<5	26.7	1.6	61.6	7.2	20	1.7	25	2.97	1.55	0.77	10	3.99	2	4	0.54	<0.2	32.2	50	0.13	6	10	27.8	16	12	7.43	5.5	<5	4.5	10	118	0.7	0.56	8.3	2.3	0.18	6.19	30	26	20.4	1.4	107	125
203030	S	Bald Mountain stock	68.92	0.55	15.18	3.04	0.05	1.49	2.71	3.08	4.86	0.13	1.2	<1	<30	854	<5	0.3	<0.2	88.8	7.1	30	10.9	<5	3.38	1.9	1.22	18	4.52	2	3	0.63	<0.2	46.3	70	0.23	<2	14	31.7	8	16	9.35	167	6	5.3	4	424	1.2	0.65	14.8	0.8	0.26	3.67	54	1	18.5	2	38	113
203031	S	Bald Mountain stock	71.91	0.36	14.73	2.16	0.04	0.99	2.36	3.61	3.73	0.13	0.7	<1	<30	471	5	<0.1	<0.2	55.8	4.9	20	4.1	<5	3.21	1.79	0.9	18	3.92	2	2	0.59	<0.2	26.9	50	0.22	<2	13	20.8	7	22	6	154	<5	4.2	3	273	1.6	0.61	11.4	0.8	0.25	4.04	35	<1	18.3	2	27	70.2
203032	S	Bald Mountain stock	70.85	0.53	14.07	2.94	0.05	1.58	2.66	3.19	4.01	0.13	1.3	<1	<30	640	<5	0.2	<0.2	61.1	6.8	20	4.6	<5	2.72	1.52	0.93	15	3.81	2	2	0.51	<0.2	31.1	50	0.18	<2	12	24	9	11	6.48	139	6	4.4	4	272	0.9	0.52	9.2	<0.5	0.21	1.99	48	4	16.1	1.6	23	60.2
203033	AD	andesite dike	55.78	1.03	16.40	6.60	0.11	6.86	7.72	3.11	2.13	0.25	1.6	<1	<30	506	<5	<0.1	<0.2	65.6	35	180	22.5	<5	3.95	2.36	1.51	20	5.38	3	4	0.76	<0.2	31.9	70	0.29	<2	9	29.7	104	6	7.75	157	17	5.8	16	591	0.6	0.76	6.6	0.6	0.32	1.98	153	<1	23.3	2.4	62	154
203034	QFP	fine-grained K-feldspar porphyry dike	71.41	0.37	14.61	1.99	0.03	1.51	1.85	3.81	4.27	0.15	1.25	<1	<30	725	7	<0.1	<0.2	74.4	6.8	60	4.5	<5	2.75	1.59	1.22	20	4.43	3	4	0.51	<0.2	39.4	50	0.15	<2	16	28.9	11	11	8.05	164	5	5.1	5	501	1.5	0.6	11.5	<0.5	0.19	4.3	40	1	16.3	1.5	16	119
203035	S	Bald Mountain stock	70.89	0.43	14.87	2.52	0.04	1.30	2.53	3.40	3.89	0.12	0.75	<1	<30	745	<5	<0.1	<0.2	88	6.9	30	6.4	<5	3.57	2.22	1.18	20	4.98	2	6	0.7	<0.2	47	60	0.3	<2	15	33.3	10	16	9.38	172	6	5.8	4	344	1.4	0.72	16.6	0.7	0.31	3.36	48	1	21.7	2.4	25	201
203036	QFP	dike of Bald Mountain stock composition	69.51	0.41	14.70	2.80	0.04	1.52	2.78	3.51	4.52	0.21	0.55	<1	<30	1220	6	0.1	<0.2	147	7.2	10	6.4	11	3.61	1.79	2.05	20	6.85	2	4	0.62	<0.2	75.8	50	0.19	<2	17	56.3	<5	12	16	176	7	9	10	1300	1.4	0.85	19.5	0.5	0.22	8.24	58	2	18.9	1.6	21	123
203037	S	Bald Mountain stock	70.71	0.44	14.91	2.54	0.04	1.25	2.80	3.33	3.86	0.12	0.75	<1	<30	764	<5	<0.1	<0.2	99.8	6.7	30	5.2	<5	3.53	2.15	1.2	19	5.14	2	4	0.67	<0.2	52.2	60	0.24	<2	14	36.2	8	14	10.9	152	6	5.7	2	350	1.2	0.76	17.6	0.7	0.27	3.97	46	<1	20.8	2.2	27	126
203038	S	Bald Mountain stock	70.65	0.49	14.62	2.78	0.05	1.36	2.91	3.37	3.63	0.13	0.55	<1	<30	654	<5	<0.1	<0.2	100	6.8	20	4.2	<5	3.28	1.86	1.23	18	4.97	2	5	0.62	<0.2	52.9	60	0.24	<2	13	36.2	8	17	10.5	141	5	5.8	3	343	0.9	0.67	18.5	0.6	0.25	2.56	46	<1	18.9	2	32	148
203040	S	Bald Mountain stock	72.70	0.33	14.20	2.03	0.03	1.00	1.95	3.56	4.08	0.11	0.65	<1	<30	552	<5	<0.1	<0.2	54.2	4.7	20	4	<5	2.71	1.52	0.89	18	3.48	2	3	0.48	<0.2	29.5	60	0.18	<2	11	21.6	8	16	6.06	155	<5	4	3	263	1	0.52	11.4	<0.5	0.21	4.59	34	2	15.8	1.6	21	79.6
203041	EN	mafic enclave in Bald Mountain stock	63.45	0.66	15.09	4.65	0.13	4.14	3.99	3.99	3.72	0.18	1.1	<1	<30	717	<5	<0.1	<0.2	54	16.5	160	6.6	10	4.64	2.71	1.46	19	5.76	2	4	0.87	<0.2	25.5	90	0.35	<2	14	28.3	60	13	6.81	164	11	6	6	335	1	0.87	7.6	0.7	0.39	2.18	83	2	28.1	3.1	63	135
203042	S	Bald Mountain stock	72.24	0.37	14.37	2.24	0.03	1.10	2.17	3.60	3.75	0.13	0.75	<1	<30	562	<5	<0.1	<0.2	53.8	5	20	5.4	<5	2.81	1.67	0.93	18	3.91	2	3	0.55	<0.2	29	60	0.19	<2	13	21.3	7	19	5.94	152	5	4	3	281	1.3	0.56	11.6	0.6	0.23	2.96	36	7	17.3	1.7	25	76.7
203043	S	Bald Mountain stock	72.14	0.36	14.17	2.20	0.04	1.02	1.99	3.32	4.64	0.11	0.65	<1	<30	597	<5	<0.1	<0.2	76.2	4.7	20	3.1	<5	3.79	2.29	0.93	17	4.68	2	3	0.7	<0.2	40.5	40	0.34	<2	14	28.8	<5	21	8.19	141	<5	5.3	2	248	1.6	0.69	19	0.6	0.32	4.49	34	1	22	2.5	26	77.3
203044	S	Bald Mountain stock	72.34	0.37	14.23	2.04	0.03	1.13	2.34	3.29	4.12	0.12	0.8	<1	<30	883	<5	<0.1	<0.2	51.4	5	20	5.5	<5	2.88	1.67	1.08	18	3.83	2	3	0.53	<0.2	27.1	50	0.21	<2	13	21.3	8	16	5.8	149	5	4.1	4	330	1.1	0.53	12.8	0.6	0.23	3.12	39	2	16.7	1.9	26	103
203051	S(a)	altered Bald Mountain stock	73.79	0.57	17.41	2.32	0.05	0.25	4.93	0.05	0.47	0.15	8.8	<1	310	572	<5	0.2	<0.2	74.3	5.3	30	5.9	<5	3.58	2.14	1.23	20	4.86	1	5	0.68	<0.2	35.3	30	0.26	5	14	28.8	6	20	7.75	24.7	6	5.1	3	27.5	1.1	0.7	13.7	0.6	0.27	4.82	50	6	20.3	2.1	32	159
203052	S(a)	altered Bald Mountain stock	64.23	0.68	15.75	2.38	0.06	1.92	5.68	2.92	6.19	0.19	1.3	<1	<30	888	<5	<0.1	<0.2	150	6.7	30	5.7	<5	4.51	2.47	1.6	20	7.52	2	4	0.85	<0.2	79.1	30	0.24	2	15	54.9	20	9	16.1	204	10	8.7	5	543	1	0.99	19	0.5	0.32	3.73	71	3	25	2.2	26	119
203053	S	weathered Bald Mountain stock	67.32	0.56	16.21	2.70	0.05	1.38	3.71	3.65	4.28	0.13	1.55	<1	<30	855	<5	<0.1	<0.2	101	6.9	50	8.3	<5	3.07	1.65	1.53	20	4.93	2	3	0.56	<0.2	53.5	70	0.19	<2	14	36.5	<5	25	10.7	157	8	5.7	2	462	0.8	0.67	18.5	0.6	0.21	2.07	63	<1	16.7	1.7	40	113
203055	QFP(a)	quartz porphyry dike	73.87	1.17	15.63	7.90	0.00	0.31	0.27	0.05	0.60	0.20	6.4	<1	430	118	<5	0.1	<0.2	65.1	5.2	270	1.4	73	2.01	1.51	0.79	17	2.66	2	5	0.41	<0.2	34.6	30	0.24	<2	9	26.2	9	9	7.35	28.6	9	3.7	3	197	0.6	0.38	8.2	<0.5	0.21	3.94	128	9	12.8	1.8	9	176
203056	QFP(a)	quartz-feldspar porphyry dike	75.39	0.54	18.23	2.65	0.00	0.28	0.19	0.18	2.39	0.15	10.5	<1	1050	1020	<5	0.3	0.3	88.9	4.2	20	2	15	2.46	1.55	0.89	18	4.25	2	4	0.48	<0.2	41.8	10	0.23	<2	14	31.9	12	12	9.24	83.8	<5	5.6	4	83.8	1.2	0.55	12.2	4.8	0.23	5.41	62	4	15.1	1.8	11	137
203057	QFP(a)	nearly aphyric dike: Rat pit type	75.91	0.44	15.94	2.59	0.04	0.52	0.31	0.06	4.04	0.15	3.5	<1	190	230	<5	0.2	1.9	67.6	8.3	40	4.4	8	3.45	2.01	1.08	20	4.55	2	4	0.66	<0.2	34.7	20	0.21	<2	11	27.6	36	21	8.41	161	6	5.3	5	83.9	1.1	0.68	13.8	19.9	0.25	5.52	51	5	22.1	1.8	101	136
203058	QFP(a)	quartz-feldspar porphyry dike	73.80	0.52	16.17	2.87	0.00	0.73	1.20	0.06	4.51	0.15	3.5	<1	830	360	<5	0.5	<0.2	86.8	5	10	8	57	3.59	2.11	1.04	17	5.19	1	4	0.69	<0.2	46.9	20	0.25	<2	12	32.7	<5	10	9.35	146	6	5.7	7	26.1	1	0.74	15.7	1.2	0.27	4.45	47	3	20.5	2.3	16	126
203088	S(dike)	quartz-feldspar porphyry dike	67.39	0.46	14.84	2.00	0.04	1.90	4.10	2.77	6.27	0.23	2.04	<1	<30	1350	6	0.6	<0.2	142	7.3	10	8.4	<5	3.49	1.62	2.22	18	6.65	3	4	0.62	<0.2	74.1	30	0.22	<2	17	56.7	9	11	15	197	8	8.3	12	1300	1.4	0.82	16.9	0.6	0.24	6.21	62	60	17.1	1.5	21	139
203089	S	Bald Mountain stock	70.72	0.46	14.94	2.69	0.06	1.22	2.53	3.21	4.03	0.14	0.6	<1	<30	670	<5	1.1	<0.2	46.9	6.5	20	7.5	8	3.46	2.01	1.2	19	4.28	2	5	0.67	<0.2	23.8	80	0.34	<2	14	20.4	13	25	6.92	172	6	4.8	6	297	1.3	0.65	11.3	0.8	0.31	4.01	39	4	19.6	1.8	50	188
203090	S	Bald Mountain stock	71.72	0.45	14.63	2.44	0.04	1.35	1.99	3.54	3.71	0.14	1.03	<1	<30	495	6	0.1	<0.2	92.1	6.4	20	8.2	<5	3.26	1.73	1.23	20	4.77	2	5	0.61	<0.2	49.7	80	0.26	<2	8	33.5	12	18	9.17	164	6	5.4	3	283	1.3	0.68	12.5	0.6	0.25	3.59	37	12	17.4	1.6	21	184
203091	AD	andesite dike	56.88	1.11	15.94	6.36	0.09	7.12	6.22	3.38	2.59	0.31	1.29	<1	<30	569	<5	0.1	<0.2	79.3	30.8	290	30.7	<5	4.27	2.22	1.82	19	6.12	3	5	0.84	<0.2	40	160	0.31	<2	12	34.9	144	6	9.53	191	17	6.7	3	539	0.8	0.88	8.5	0.6	0.33	2.58	127	1	22	2	51	210
203092	S	Bald Mountain stock	71.53	0.39	14.53	2.55	0.04	1.18	2.26	3.36	4.02	0.14	0.75	<1	<30	644	5	<0.1	<0.2	72.3	5.9	30	6.3	<5	3.43	1.84	1.11	19	4.65	2	5	0.71	<0.2	38.1	80	0.33	<2	15	28.2	12	19	8.39	163	5	5.3	3	302	1.6	0.75	14.4	0.5	0.31	4.5	35	2	21	2	20	176
203093	S	Bald Mountain stock	69.38	0.48	15.40	2.96	0.06	1.46	2.53	3.50	4.09	0.14	0.81	<1	<30	738	<5	0.4	<0.2	58.4	7.5	20	9.7	<5	3.7	2.01	1.35	20	4.7	2	4	0.75	<0.2	30.3	160	0.31	<2	16	24	13	21	7.67	171	6	5.2	5	354	1.4	0.72	12.8	0.7	0.32	4.09	44	4	21.4	2.1	46	147
203094	A(a)	silicified aplite dike	81.20	0.08	14.03	0.04	0.02	0.17	2.72	<0.02	1.70	0.04	5.52	<1	<30	68.4	<5	<0.1	<0.2	4.1	<0.5	<10	0.9	<5	3.63	2.61	0.23	15	2.34	1	3	0.83	<0.2	3.5	70	0.49	<2	30	5.3	6	7	1.15	53.2	6	1.8	8	47.2	4.2	0.51	13.6	<0.5	0.44	4.81	5	3	24.8	3.1	<5	65.9
203095	AD(a)	andesite dike	62.61	1.18	17.54	4.63	0.12	0.52	11.85	<0.02	1.17	0.37	13.7	<1	220	79.9	<5	0.2	0.4	77.5	29.3	290	6.1	45	4.16	2.28	1.8	18	6.27	2	4	0.79	<0.2	37.5	50	0.34	<2	11	34.9	116	10	9.16	32.3	17	6.9	3	24.3	0.8	0.87	9.1	1.4	0.34	3.42	120	5	23.2	2	302	178
203096	QFP(a)	quartz-feldspar porphyry dike	79.60	0.54	16.07	2.16	0.02	0.30	0.13	<0.02	1.11	0.07	6.03	<1	350	179	<5	1	<0.2	44	0.9	30	2	37	2.27	1.46	0.67	19	2.83	1	5	0.46	<0.2	25	30	0.23	2	11	16.3	9	19	5.3	49.6	<5	3.6	3	38.8	1.1	0.41	8.3	1	0.22	4.71	49	5	14	1.5	<5	206
203097	AD(a)	andesite dike	65.54	0.91	17.62	4.13	0.08	2.70	7.16	<0.02	1.58	0.28	10.2	<1	190	387	<5	0.7	<0.2	54.4	21.3	170	8.5	33	3.06	1.61	1.19	18	4.33	1	4	0.6	<0.2	27.8	80	0.25	<2	13	23.4	85	8	6.21	52.5	13	4.5	2	104	0.9	0.6	8.3	<0.5	0.24	3.68	101	5	16.4	1.4	72	184
203098	AD	andesite dike	56.86	1.01	15.93	6.39	0.13	5.98	7.37	3.19	2.89	0.24	3.86	<1	<30	646	5	0.2	<0.2	62.6	28	260	34.6	<5	3.97	2.32	1.68	18	5.35	3	4	0.77	<0.2	31.3	130	0.31	<2	9	28.5	120	<5	7.43	221	19	5.7	15	464	0.6	0.76	7.5	0.8	0.31	2.65	139	3	21.5	2	44	165
203099	AD(a)	andesite dike	58.97	0.97	15.60	6.15	0.12	6.43	7.02	<0.02	4.41	0.34	14.1	<1	120	626	<5	<0.1	<0.2	72.1	27.3	310	18	63	3.23	1.6	1.45	15	5.01	2	3	0.65	<0.2	37.1	20	0.24	3	6	30.6	148	10	7.9	170	14	5.3	3	345	0.6	0.69	8.3	1.4	0.25	3.49	105	6	16.6	1.5	51	149
203100	QFP(a)	granitic dike	61.26	1.07	17.33	4.88	0.08	3.34	5.72	3.08	2.97	0.29	6.21	<1	50	755	<5	0.9	<0.2	70.2	18.9	30	16.6	17	3.48	1.79	1.43	18	4.92	2	4	0.65	<0.2	36.9	90	0.24	<2	14	29.6	16	9	7.42	126	14	5.1	16	396	0.9	0.68	8	0.8	0.25	2.06	113	3	17.8	1.6	61	193
203101	A	aplite sill	77.66	0.06	13.06	1.01	<0.01	0.20	0.16	4.55	3.28	0.03	0.72	<1	190	302	<5	1.4	<0.2	32.6	1	<10	1.9	21	6.56	4.04	0.23	18	4.76	2	3	1.35	<0.2	14.8	<10	0.64	2	18	15	<5	14	3.01	92.2	<5	3.7	2	82.9	3.1	0.95	9.9	0.7	0.67	7.13	6	2	41.1	4.4	<5	56.4
203102	AD	andesite dike	58.31	1.14	16.15	6.47	0.10	6.94	5.53	1.71	3.35	0.30	6.3	<1	<30	584	<5	1.2	<0.2	85.5	28.7	260	55.6	72	4.35	2.27	1.92	17	6.73	3	4	0.84	<0.2	42.6	120	0.31	2	9	39.4	62	8	9.7	174	19	7.2	29	485	0.8	0.94	9.4	1.8	0.32	3.49	132	4	22	2	100	171
203103	QFP(a)	quartz-feldspar porphyry dike	75.62	0.44	19.69	0.37	<0.01	0.35	0.23	<0.02	3.18	0.12	10.5	<1	60	421	<5	0.2	<0.2	54.3	<0.5	40	2.4	<5	1.61	0.98	0.57	19	2.61	2	4	0.33	<0.2	28.3	30	0.17	<2	10	22.9	26	19	5.7	137	6	3.2	4	82.7	0.9	0.34	9.9	2.2	0.15	3.89	43	3	9.7	1	13	142
203104	QFP(a)	quartz-feldspar porphyry dike	80.98	0.45	15.37	0.41	0.01	0.36	0.13	<0.02	2.16	0.13	4.59	<1	50	527	<5	0.2	<0.2	59.7	<0.5	30	3.2	<5	2.19	1.27	0.92	18	3.67	2	4	0.43	<0.2	31.2	50	0.21	<2	11	25.5	5	17	6.33	92.8	5	4.2	4	174	0.9	0.47	10.9	0.7	0.19	5.5	40	4	13	1.3	<5	142
DDH3-1/226	A(a)	quartz-pyrite-bearing aplite	77.91	0.02	14.92	2.42	0.00	0.43	0.15	0.07	4.02	0.05	2.75	5	550	867	<5	1.5	0.6	15.1	4.5	<10	4.6	18	3.07	1.05	0.11	26	3	4	3	0.45	<0.2	7.3	20	0.08	<2	23	6.8	6	16	1.97	147	<5	2.7	1	24.5	3.8	0.56	3.9	1.1	0.14	6.41	<5	3	17.2	0.8	348	36.5
DDH5-01/98	QFP(a)	dike with quartz phenocrysts	68.31	0.43	13.49	2.63	0.02	0.82	10.08	0.08	4.02	0.12	8.9	2	1330	490	<5	1.4	<0.2	65.3	5.8	10	8.6	105	3.03	1.86	0.8	15	4.08	2	3	0.58	<0.2	33.6	<10	0.26	<2	12	25.2	<5	9	7.12	141	6	4.4	4	147	1	0.6	13.9	1.2	0.25	5.01	62	7	18.1	2	25	123
DDH5-11/112	QFP(a)	quartz-feldspar porphyry dike	72.98	0.52	16.02	3.20	0.00	1.29	1.33	0.05	4.47	0.14	3.7	4	1670	372	<5	1.3	0.3	85.8	6.8	10	11.5	68	4.23	2.65	1.06	20	5.32	2	4	0.77	<0.2	44.5	20	0.32	<2	16	33.6	<5	15	9.32	192	7	6.2	9	21.6	1.4	0.76	18.2	1.4	0.37	7	57	9	25.6	2.8	91	145
DDHT1/398	QFP(a)	feldspar porphyry dike	67.54	0.61	19.83	1.27	0.05	0.19	9.55	0.05	0.73	0.18	12	<1	130	348	<5	8.6	0.4	98.7	8.5	20	3.2	14	4.57	2.8	1.52	23	6.36	<1	6	0.86	<0.2	55.9	40	0.35	19	17	41.1	<5	37	11.6	45.2	8	7.2	2	13.5	1.3	0.86	20.4	3.6	0.36	4.44	58	17	27.4	3	53	219
DDHT5/151	L	biotite-bearing intrusive rock	36.32	1.17	22.52	1.37	0.15	1.81	35.52	0.05	0.98	0.11	25.6	<1	230	197	<5	0.4	<0.2	10.8	19.6	30	6.7	18	1.95	1.41	0.14	16	2.06	<1	7	0.38	0.3	4.6	30	0.16	14	13	7	<5	<5	1.51	62.1	9	1.7	52	42.4	2.1	0.31	18.7	0.7	0.19	12.5	24	221	17.5	1.5	30	261
DDHT7/145	S(a)	Bald Mountain stock	62.50	0.60	15.27	3.55	0.10	1.32	9.17	2.73	4.60	0.16	6.45	<1	<30	1020	<5	1.3	<0.2	99.8	10.2	30	11.3	6	4.69	2.99	1.26	17	6.05	2	6	0.92	<0.2	49.4	40	0.37	5	15	36.3	12	17	10.5	151	8	6.7	4	318	1.2	0.85	16.6	0.8	0.39	3.44	56	22	28.1	3	34	215
DDHT7/397	S(a)	altered quartz-feldspar porphyry	74.05	0.67	22.94	0.92	0.00	0.16	0.41	0.03	0.61	0.20	7.4	<1	110	28.1	<5	0.2	<0.2	109	2.9	20	4.9	<5	3.32	1.95	1.22	27	5.23	2	5	0.64	<0.2	48.5	30	0.22	10	15	36.2	<5	9	10.5	41.9	6	6	6	7.9	1.1	0.69	18.1	<0.5	0.25	3.96	69	17	18.6	2.1	16	170
DDHT9/147	S(a)	Bald Mountain stock	71.32	0.66	17.88	2.83	0.02	1.32	0.20	0.33	5.32	0.11	4.5	3	70	985	<5	5.9	<0.2	98.2	5.8	40	33.5	141	4.03	2.09	1.61	23	6.16	2	6	0.69	<0.2	49.9	30	0.3	2	17	44.2	14	21	11.7	233	9	8.5	4	135	1.6	0.86	21.8	16.2	0.29	6.55	54	4	18.6	2.4	86	208
DDHT11/178	S(a)	phyllic altered quartz-feldspar porphyry	81.53	0.50	16.54	0.28	0.00	0.23	0.07	0.05	0.78	0.01	5.25	<1	<30	62.8	<5	69.4	<0.2	47.3	<0.5	30	3.8	<5	1.98	1.35	0.5	20	2.51	3	5	0.41	<0.2	27.1	40	0.2	4	16	17.1	<5	13	5.12	54.9	<5	2.9	5	24.5	1.6	0.38	13	1	0.22	4.63	47	22	12.5	1.7	<5	170
LJC-001/1565	A	pyrite-bearing aplite	75.98	0.02	14.87	0.58	0.00	0.20	0.91	4.19	3.19	0.05	1.4	<1	70	274	9	0.4	<0.2	12.7	<0.5	<10	2.7	39	3.28	1.05	0.07	24	3.1	3	2	0.45	<0.2	5.7	<10	0.05	<2	26	5.8	<5	21	1.6	156	<5	2.4	4	50.4	3.7	0.59	4.4	0.8	0.1	7.07	<5	1	18	0.6	10	32.1
LJC3/208	AD(a)	andesite dike	56.93	1.13	16.59	5.40	0.10	5.99	11.75	0.15	1.61	0.36	18.3	<1	60	192	<5	0.3	<0.2	83.5	27.4	220	7.2	31	3.52	2.14	1.47	16	5.65	1	4	0.68	<0.2	42.3	110	0.25	<2	9	36.2	136	9	9.62	46.7	15	6	3	294	0.7	0.75	11.4	<0.5	0.26	4.43	122	1	20	2.2	72	156
LJC6/257	AD(a)	andesite dike	57.60	0.99	15.84	6.15	0.10	5.69	7.24	2.85	3.21	0.33	9	<1	<30	814	<5	<0.1	<0.2	83	26.4	190	11	17	3.67	2.02	1.58	16	5.43	2	4	0.65	<0.2	42	70	0.22	<2	9	34.7	126	14	9.32	103	14	6.2	3	454	0.6	0.75	10.8	0.7	0.24	3.86	111	<1	19.7	1.9	52	140
LJC08/132	AD(a)	andesite dike	59.52	1.02	16.02	6.41	0.06	6.52	7.86	0.12	2.11	0.36	10.8	<1	<30	435	<5	0.2	<0.2	83.9	23.5	230	9.1	24	3.66	2.11	1.53	17	5.59	1	4	0.65	<0.2	44.4	120	0.24	<2	10	36.3	153	9	9.58	64.3	15	6.2	4	100	0.7	0.77	12	<0.5	0.26	5.02	124	1	20.8	2	92	177
LJC08/172	AD(a)	andesite dike	56.53	1.05	15.62	5.50	0.11	5.31	12.28	0.10	3.17	0.33	15.2	<1	30	2250	<5	<0.1	<0.2	76.4	22.9	200	12.9	29	3.43	1.96	1.46	16	5.37	2	4	0.67	<0.2	39.5	80	0.23	<2	8	33	133	7	9.13	101	14	5.7	3	354	0.6	0.73	11.3	0.6	0.26	4.62	118	1	19.7	2	44	158
LJC09/91	AD(a)	andesite dike	58.55	1.01	16.03	6.12	0.09	5.54	6.48	3.27	2.56	0.35	9	<1	<30	2160	<5	0.7	<0.2	88.3	27.2	220	9.5	45	3.76	2.18	1.61	17	5.69	2	4	0.7	<0.2	44.5	80	0.24	<2	9	36.6	149	12	9.67	83.6	15	6.5	3	434	0.7	0.77	11.7	0.7	0.27	4.32	126	<1	21.4	2.1	53	164
LJC10/89	AD(a)	andesite dike	59.32	0.99	15.88	5.90	0.12	0.98	12.59	0.07	3.81	0.34	11	<1	2130	337	<5	<0.1	<0.2	89.5	25.4	220	13.9	10	3.6	2	1.6	17	5.59	2	4	0.68	<0.2	44.5	20	0.26	<2	9	37.1	125	10	9.99	148	14	6.7	4	67.6	0.7	0.79	11.9	1.8	0.28	5.88	121	8	21.5	2	45	168
LJC10/208	AD(a)	andesite dike	57.30	0.97	15.44	6.04	0.11	6.92	7.30	1.85	3.74	0.34	13.4	<1	<30	1060	<5	<0.1	<0.2	81.8	23.6	200	18.2	14	3.43	1.96	1.45	15	5.2	2	4	0.62	<0.2	40.8	70	0.23	<2	9	33.4	129	14	9.39	116	13	6.1	3	563	0.6	0.75	10.8	0.9	0.25	4.17	108	<1	18.6	1.9	52	148
RBMC1/496	QFP(a)	altered quartz-K-feldspar porphyry dike	84.11	0.45	14.09	0.48	0.00	0.18	0.30	0.06	0.18	0.15	5.05	<1	<30	83.8	<5	0.1	<0.2	60.5	2.6	20	2.5	36	3.05	1.61	1.17	17	5.12	3	5	0.53	<0.2	27.9	30	0.29	8	13	30.9	5	<5	7.64	7.3	<5	5.5	2	6.6	1.1	0.65	14.7	<0.5	0.22	7.8	46	5	15.9	1.8	17	173
RBMC1/569	QFP(a)	altered quartz-K-feldspar porphyry dike	81.15	0.51	16.29	1.08	0.01	0.21	0.36	0.04	0.18	0.15	6.3	<1	<30	221	<5	0.1	0.3	39	7.6	20	1.2	18	4.05	2.19	0.93	20	6.46	2	4	0.71	<0.2	14.2	20	0.26	16	16	31	<5	<5	6.75	6.6	7	7.1	5	6.5	1.3	0.8	14.1	<0.5	0.29	5.81	54	6	20.9	2.1	78	104
RBMC1/794	QFP(a)	altered quartz-K-feldspar porphyry dike	69.15	0.64	17.12	2.39	0.06	2.07	7.84	0.06	0.50	0.18	11.6	<1	80	83.9	<5	1.2	0.5	44.2	4.8	90	2.7	55	4.16	2.5	0.97	20	5.19	3	4	0.81	<0.2	17.6	20	0.36	19	12	25.3	10	47	6.18	13.8	9	5.3	16	56.8	1	0.8	13.3	<0.5	0.32	6.93	71	16	26.2	2.7	34	120
RBMC2/302	?	very fine grained altered granodiorite	42.66	0.64	14.50	19.57	0.17	1.80	19.82	0.06	0.73	0.05	15.6	<1	40	39.9	<5	2.1	0.2	47.1	1.3	70	61	<5	3.28	2.32	1.11	15	4.01	4	3	0.69	0.3	30.6	10	0.25	5	6	22.2	<5	8	5.82	40	10	3.9	32	27.6	<0.5	0.61	7.3	<0.5	0.29	2.28	133	7	27.5	2.1	82	90.2
RBMC3/236	?	altered fine-grained pyrite-bearing dike	81.33	0.52	16.12	1.60	0.00	0.12	0.17	0.04	0.05	0.04	6.9	<1	340	31.9	<5	1.5	0.2	42.6	4.5	20	1.3	33	2.52	1.38	0.63	18	3.1	3	4	0.46	<0.2	22.4	20	0.16	27	14	16.8	15	9	4.9	1.9	<5	2.9	11	98.4	1.3	0.47	14.9	1.1	0.19	11.3	49	16	14.6	1.5	27	127
RBMC3/560	QFP(a)	quartz-feldspar porphyry w/abundant pyrite	83.56	0.25	14.10	1.73	0.00	0.12	0.05	0.04	0.07	0.07	5.9	<1	<30	207	<5	0.2	<0.2	44.4	16.3	<10	0.4	13	1.84	1.06	0.6	15	3.03	2	2	0.33	<0.2	29.2	40	0.13	<2	13	20.3	11	19	6.07	3.8	<5	3.7	2	317	1.4	0.4	10.7	<0.5	0.14	4.77	24	2	11	1.1	25	62.9
RBMC3/726	QFP(a)	altered quartz-feldspar porphyry w/abundant pyrite	79.24	0.29	15.27	0.96	0.02	0.82	2.21	0.04	1.07	0.07	6.1	<1	60	68	<5	0.2	0.3	61.8	1.7	10	2.2	10	3.27	2.12	0.9	17	4.14	2	3	0.66	<0.2	30.8	30	0.3	3	13	24.2	<5	25	6.77	38.2	5	4.7	4	67.9	1.3	0.6	17.5	<0.5	0.3	7.62	27	6	20.1	2.3	38	103
RBMC4/457	QFP(a)	altered quartz-feldspar porphyry w/abundant pyrite	76.84	0.50	15.77	3.83	0.04	0.36	2.35	0.04	0.12	0.14	7.3	<1	60	548	<5	0.4	<0.2	74.6	7.4	10	1.4	34	4.31	2.48	1.18	18	5.33	2	5	0.8	<0.2	39.5	30	0.31	<2	14	30.4	6	16	8.54	5.1	6	5.4	3	19.1	1.2	0.77	16.1	<0.5	0.33	7.82	52	4	25.4	2.5	42	167
RBMC4/507	QFP(a)	altered quartz-feldspar porphyry w/abundant pyrite	71.01	0.61	19.14	3.20	0.00	0.23	2.87	0.12	2.63	0.18	6.65	<1	80	3100	<5	0.2	<0.2	81.3	6.5	20	5.1	18	3.52	2.11	1.06	22	4.79	1	4	0.69	<0.2	41.5	30	0.26	<2	15	32.8	5	16	9.13	75.8	9	5.6	2	67.7	1.4	0.71	17.4	<0.5	0.28	5.76	57	5	20.7	2.3	8	118
TDC2/1341	QFP(a)	altered quartz-feldspar porphyry	80.52	0.47	17.10	0.89	0.00	0.16	0.27	0.05	0.41	0.13	5.85	<1	310	95.2	<5	2.3	<0.2	68.4	7.4	20	4.1	5	3.22	1.93	1.03	21	4.47	2	4	0.58	<0.2	35	40	0.23	5	14	27.1	7	17	7.83	25.3	<5	5	4	5.3	1.5	0.68	13.5	1.3	0.26	5.56	65	24	18.9	1.9	28	102

S-Bald Mtn stock
S(a)-altered Bald Mtn stock
EN-enclave in Bald Mtn stock
QFP-quartz porphyry dike
QFP(a)-altered quartz porphyry dike
L-lamprophyre dike
A-aplite sill/dike
A(a)-altered aplite sill/dike
AD-andesite dike
AD(a)-altered andesite dike
T-tuff
?-indeterminate

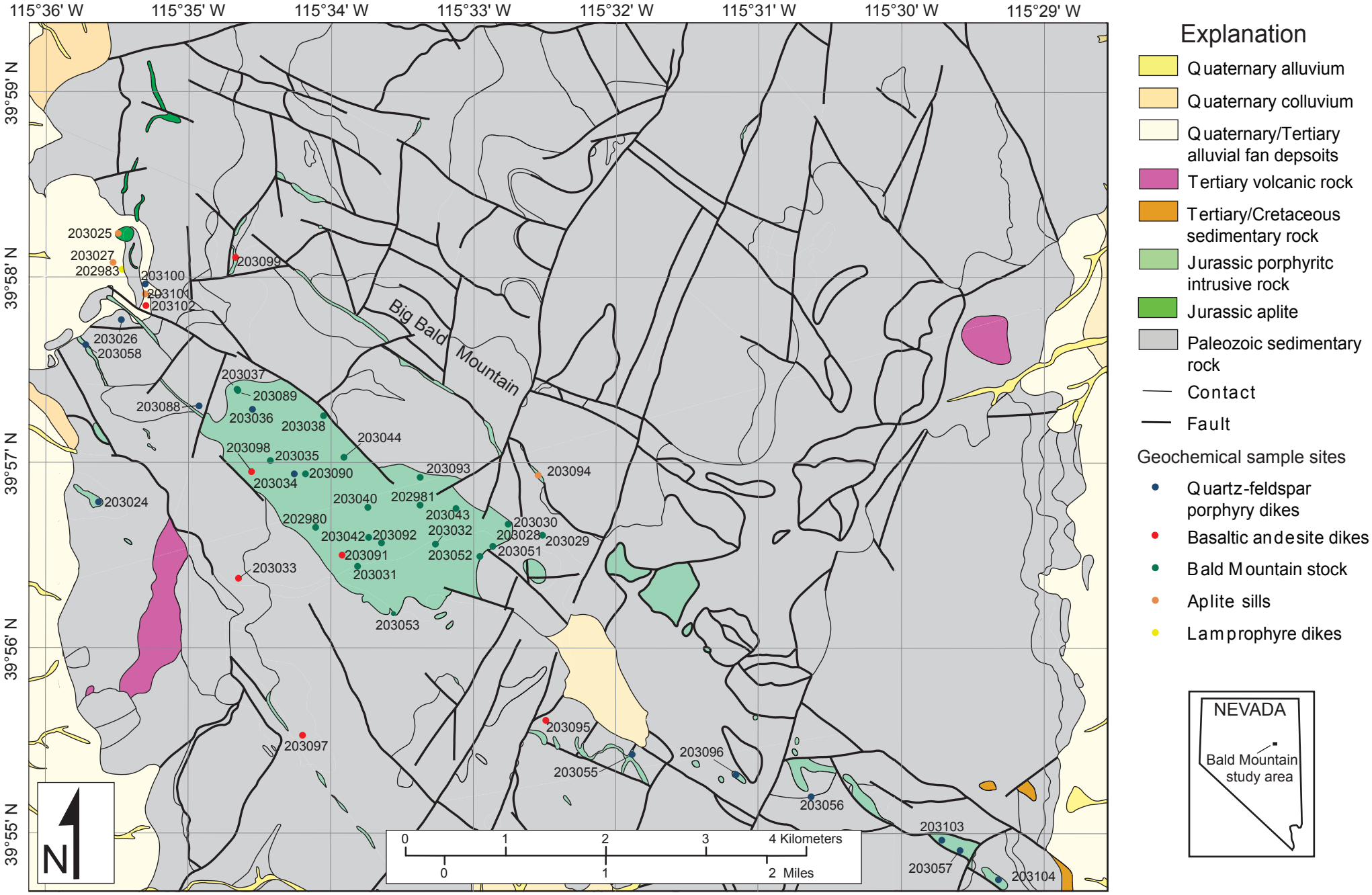

Figure 1. Generalized geologic map of the Bald Mountain mining district, Nevada (modified from Nutt and Hart, 2004). Black dots identify geochemical sample sites. Contacts, thin black lines. Faults, heavy black lines.