Multiple Methods for Regional- to Mine-scale Targeting, Pataz gold field, northern Peru

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* Appendix and Tables 1–5 [indicated in the text and listed at the end of the paper] are Supplementary Papers; copies may be obtained from the Geological Society of Australia's website (www.gsa.org.au), the Australian Journal of Earth Sciences website (www.ajes.com.au) or from the National Library of Australia's Pandora archive (<http://nla.gov.au/nla.arc-25194>).

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Table 1 Results of XRD analysis of samples from Vijus-Santa Filomena area.

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Table 1 Results of XRD analysis of samples from Vijus-Santa Filomena area.

Way point	Sample No	WGS84E				Unit	Location	Qtz	Alb	Kfp	Mica	Kaol	Mont	Pyr	Spl	Gna	Apy	Sco	Jar	Hem	Goe	Cct	Sid	Cht	Alu	Heul	Anhy	Bar	Gyp	
		E	N	E	N																									
Quartz-carbonate-sulfide veins																														
17	206577	207223	9146783	207453	9147155	Vijus	Asnapampa	A	Tr	A	A				D	Tr		A				A		Tr					Tr	
6	206571	207164	9146787	207394	9147159	Vijus	Asnapampa	D	Tr		A			Tr			Tr-A	A						A				Tr?	A	
6	206572	207164	9146787	207394	9147159	Vijus	Asnapampa	A-SD			SD				Tr	Tr		D	Tr							Tr-A			Tr-A	
27	206584	208700	9145356	208930	9145728	Maranon	Santa Filomena	A			A			D							Tr	Tr	A	A						
42	206592	208596	9145409	208826	9145781	Maranon	Santa Filomena	CD										CD	Tr								Tr		Tr-A	
48	206596	207697	9145703	207927	9146075	Maranon	Santa Filomena	SD										D									Tr		Tr	
Alteration in fault plus qtz-scorodite vein																														
30	206587	208756	9145413	208986	9145785	Maranon	Santa Filomena	Tr-A			A			D							Tr		A	A	Tr					
45	206595	208479	9145410	208709	9145782	Maranon	Santa Filomena	A		Tr	D							A										Tr	A	
Alteration in faults																														
7	206573	207167	9146744	207397	9147116	Vijus	Asnapampa	D			A-SD	Tr														A				
18	206578	208149	9145915	208379	9146287	Maranon	Revolcadoro	A		A	CD				Tr						Tr							Tr	CD	
20	206579	208231	9146038	208461	9146410	Vijus	Revolcadoro	A	A		D							Tr						A					A	
22	206581	208334	9145917	208564	9146289	Vijus	Revolcadoro	SD			D									Tr				A					A	
22	206582	208334	9145917	208564	9146289	Vijus	Revolcadoro	D			SD			A	Tr			A	Tr					Tr				Tr	SD	
23	206583	208341	9145905	208571	9146277	Vijus	Revolcadoro	A-SD	Tr		A		A																A	
44	206594	208529	9145408	208759	9145780	Maranon	Santa Filomena	A-SD		Tr	A																		SD	
37	206789	207954	9145101	208184	9145473	Maranon	Santa Filomena	D			A													A					A	
41	206591	208541	9145410	208771	9145782	Maranon	Santa Filomena	A		Tr	D				Tr			SD	SD											
42	206593	208596	9145409	208826	9145781	Maranon	Santa Filomena	A										A		D	A				Tr				SD	

Way point	Sample No	E	N	E	N	Unit	Location	Qtz	Alb	Kfp	Mica	Kaol	Mont	Pyr	Spl	Gna	Apy	Sco	Jar	Hem	Goe	Cct	Sid	Cht	Alu	Heul	Anhy	Bar	Gyp
WGS84E																													
District-scale alteration																													
39	206590	207608	9145191	207838	9145563	Maranon	Santa Filomena	D			SD	A																	
366	217025	205002	9147420	205232	9147792	Maranon	Shicun	D	D	Tr	SD													A					
367	217026	204972	9147022	205202	9147394	Maranon	Shicun	SD	SD		A										A		A						
368	217027	204806	9146804	205036	9147176	Maranon	Shicun	D	D	Tr	SD										Tr		A					Tr	
369	217028	204670	9146618	204900	9146990	Maranon	Shicun	CD	CD	Tr	CD												A					Tr	
370	217029	204965	9146588	205195	9146960	Maranon	Shicun	SD	SD	A	D												A					Tr	
371	217030*	205867	9145031	206097	9145403	Maranon	Vijus	CD	CD	A	CD												A						

Mineral Abbreviations: Qtz (quartz), Alb (albite), Kfp (K-feldspar), Kaol (kaolinite), Mont (montmorillonite), Pyr (pyrite), Spl (sphalerite), Gna (galena), Apy (arsenopyrite), Sco (scorodite), Jar (jarosite), Hem (haematite), Goe (goethite), Cct (calcite), Sid (siderite), Cht (chlorite), Alu (alunite), Heul (heulandite), Anhy (anhydrite), Bar (barite), Gyp (gypsum)

XRD abundance codes: D (dominant), CD (co-dominant), SD (subdominant, >20%), A (accessory, 5 to 20%), Tr (trace, <5%).

Table 2 SEM analyses of white mica and clay minerals from mineralised quartz-carbonate-sulfide veins, Vijus-Santa Filomena area.

				cations														Mol															
ANALYSIS	Location	Context	Description	%SiO ₂	%Al ₂ O ₃	%TiO ₂	%FeO	%MgO	%MnO	%CaO	%K ₂ O	%Na ₂ O	Total%	Si	Al	Ti	Fe	Mg	Mn	Ca	K	Na	sum	Total O	Mg+Fe	Si+Al+Ti	K+Na+Ca	Fe+Mg+Mn	Fe+Mn+Ti	SiO ₂ /Al ₂ O ₃	K ₂ O/Al ₂ O ₃	Notes	
SANTA FILOMENA																																	
06 67M 2 SER3	DDH30x07-06, 67.0M	vein margin	colourless clay	42.27	31.36	0.29	2.39	1.53		0.16	9.92	0.32	88.17	6.13	5.36	0.03	0.29	0.33		0.02	1.84	0.09	14.09	21.97	0.31	11.52	1.95	0.62		2.291	0.343		
06 67M_2_SER5	DDH30x07-06, 67.0M	vein margin	colourless clay	45.54	30.49	0.28	1.72	1.36			10.27		89.87	6.44	5.08	0.03	0.20	0.29			1.85		13.89	22.00	0.25	11.55	1.85	0.49		2.539	0.365		
06 67M 2 SER6	DDH30x07-06, 67.0M	vein margin	colourless clay	42.37	31.09	0.41	3.21	1.86			10.36	0.26	89.85	6.44	5.09	0.04	0.39	0.40			1.91	0.07	14.21	21.99	0.40	11.44	1.98	0.79		2.317	0.362		
06 67M 1 SER2	DDH30x07-06, 67.0M	alteration halo	colourless clay	46.02	31.10	0.21	2.13	1.55		0.14	10.01	0.26	91.90	6.39	5.09	0.02	0.25	0.32			0.02	1.86	0.07	14.02	22.00	0.29	11.50	1.95	0.57		2.516	0.367	
06 67M 1 SER3	DDH30x07-06, 67.0M	alteration halo	colourless clay	44.19	30.82	0.41	3.31	1.56			10.58		91.12	6.25	5.14	0.04	0.39	0.33			1.91		14.06	21.99	0.36	11.43	1.91	0.72		2.437	0.372		
06 67M 1 SER4	DDH30x07-06, 67.0M	alteration halo	colourless clay	45.91	31.41	0.28	2.77	1.58		0.14	10.69		92.60	6.35	5.12	0.03	0.32	0.33		0.02	1.89		14.06	21.99	0.33	11.50	1.91	0.65		2.485	0.369		
06 67M 1 SER5	DDH30x07-06, 67.0M	alteration halo	colourless clay	44.35	31.78	0.40	3.98	2.24			9.95	0.28	93.07	6.14	5.19	0.04	0.46	0.46			1.76	0.07	14.12	21.97	0.46	11.37	1.83	0.92		2.372	0.340		
06 67M_1_SER6	DDH30x07-06, 67.0M	alteration halo	colourless clay	44.55	31.88	0.46	2.45	1.36			10.71		91.64	6.23	5.25	0.05	0.29	0.28			1.91		14.01	21.98	0.29	11.53	1.91	0.57		2.376	0.365		
06 67M 2 SER2	DDH30x07-06, 67.0M	vein margin	colourless clay	44.36	32.23	0.39	2.47	1.42		0.15	9.99	0.41	91.51	6.19	5.30	0.04	0.29	0.30		0.02	1.78	0.11	14.03	21.99	0.30	11.53	1.91	0.59		2.340	0.336		
06 50.6M 2 SER2	DDH30x07-06, 50.6M	proximal alteration	colourless clay	43.75	31.88	0.75	4.21	2.50			10.35	0.44	93.80	6.04	5.19	0.08	0.49	0.51			1.82	0.12	14.30	21.95	0.50	11.31	1.94	1.00		2.333	0.352		
06 50.6M 2 SER3	DDH30x07-06, 50.6M	proximal alteration	colourless clay	46.01	32.59	0.53	3.77	2.85			10.66	0.27	96.60	6.14	5.12	0.05	0.42	0.57			1.81	0.07	14.20	21.98	0.50	11.31	1.88	0.99		2.400	0.355		
06 50.6M 2 SER5	DDH30x07-06, 50.6M	proximal alteration	colourless clay	45.94	32.99	0.27	3.42	1.19			11.13	0.40	95.30	6.21	5.26	0.03	0.39	0.24			1.92	0.10	14.15	21.99	0.32	11.50	2.02	0.63		2.367	0.366		
06 50.6M 2 SER6	DDH30x07-06, 50.6M	proximal alteration	colourless clay	46.49	33.47	0.45	1.87	1.07			11.00	0.48	94.90	6.26	5.31	0.05	0.21	0.22			1.89	0.13	14.07	21.99	0.22	11.62	2.02	0.43		2.361	0.357		
SF4_1_SER6	DDH30x07-06, 167.5M	proximal alteration	colourless clay	47.48	33.04		1.01	1.27			10.36	0.31	93.38	6.37	5.27		0.11	0.26			1.79	0.08	13.88	22.01	0.19	11.64	1.87	0.37		2.422	0.340		
SF4_1_SER8	DDH30x07-06, 167.5M	proximal alteration	colourless clay	49.40	33.39	0.22	0.97	1.12			10.77		95.97	6.49	5.17	0.02	0.11	0.22			1.80		13.81	21.99	0.17	11.68	1.80	0.33		2.515	0.350		
SF4_2_SER2	DDH30x07-06, 167.5M	proximal alteration	colourless clay	48.52	31.29	0.50	1.90	1.57			10.60		94.35	6.54	4.97	0.05	0.21	0.31			1.82		13.90	22.00	0.26	11.56	1.82	0.52		2.636	0.368		
SF4_2_SER3	DDH30x07-06, 167.5M	proximal alteration	colourless clay	47.10	32.05	0.28	0.98	1.18			10.44		92.18	6.45	5.17	0.03	0.11	0.24			1.82		13.82	21.99	0.18	11.65	1.82	0.35		2.498	0.353		
06 50.6M SER1	DDH30x07-06, 50.6M	distal alteration	colourless clay	45.95	32.26	0.26	1.83	1.32			10.69		92.23	6.34	5.24	0.03	0.21	0.27			1.88		13.97	22.00	0.24	11.61	1.88	0.48		2.421	0.360		
06 50.6M 5 SER2	DDH30x07-06, 50.6M	distal alteration	colourless clay	45.97	32.21		2.81	1.71		0.15	11.07	0.44	94.45	6.26	5.17		0.32	0.35		0.02	1.92	0.12	14.16	22.00	0.34	11.43	2.06	0.67		2.426	0.373		
06 50.6M 5 SER3	DDH30x07-06, 50.6M	distal alteration	colourless clay	45.41	32.32	0.50	2.43	2.46			10.36	0.46	93.75	6.18	5.33	0.05	0.28	0.30			1.80	0.12	14.06	21.99	0.29	11.56	1.92	0.58		2.324	0.338		
06 50.6M 5 SER4	DDH30x07-06, 50.6M	distal alteration	colourless clay	44.63	33.07	0.68	2.85	1.52			10.31	0.52	93.64	6.12	5.34	0.07	0.33	0.31			1.80	0.14	14.11	21.99	0.32	11.53	1.94	0.40		2.294	0.338		
06 50.6M 5 SER6	DDH30x07-06, 50.6M	distal alteration	colourless clay	47.78	34.59	0.19	0.69	0.58			10.47	0.29	94.62	6.36	5.43	0.02	0.08	0.11			1.78	0.07	13.85	22.00	0.10	11.81	1.85	0.19		2.348	0.328		
06 50.6M 1 SER1	DDH30x07-06, 50.6M	distal alteration	colourless clay	44.42	33.19	0.71	2.56	1.47			10.68	0.44	93.39	6.11	5.38	0.07	0.29	0.30			1.87	0.12	14.17	21.97	0.30	11.56	1.99	0.59		2.275	0.349		
06 50.6M 1 SER2	DDH30x07-06, 50.6M	distal alteration	colourless clay	44.13	32.11	0.46	2.04	1.15		0.14	10.56	0.45	90.99	6.21	5.32	0.05	0.24	0.24		0.02	1.90	0.12	14.10	21.98	0.24	11.58	2.04	0.48		2.336	0.357		
06 50.6M 1 SER3	DDH30x07-06, 50.6M	distal alteration	colourless clay	48.45	32.13	0.58	2.37	1.68			11.13	0.28	98.60	6.41	5.01	0.06	0.26	0.33			1.88	0.07	14.02	22.01	0.30	11.48	1.95	0.59		2.563	0.378		
06 50.6M 1 SER4	DDH30x07-06, 50.6M	distal alteration	colourless clay	45.74	34.50	0.50	2.45	1.59			10.87	0.44	96.00	6.11	5.43	0.05	0.27	0.32			1.85	0.11	14.14	21.99	0.30	11.59	1.96	0.59		2.254	0.342		
SF4_1_SER1	DDH30x07-06, 167.5M	distal alteration	colourless clay	47.06	31.87	0.37	1.05	1.19			10.44	0.23	95.25	6.43	5.13	0.04	0.12	0.24			1.82	0.06	13.84	21.99	0.18	11.60	1.88	0.36		2.510	0.355		
SF4_1_SER2	DDH30x07-06, 167.5M	distal alteration	colourless clay	47.71	31.92	0.42	1.72	1.49			10.61	0.26	93.99	6.45	5.09	0.04	0.19	0.30			1.83	0.07	13.97	22.00	0.25	11.58	1.90	0.49		2.541	0.361		
SF4_1_SER3	DDH30x07-06, 167.5M	distal alteration	colourless clay	47.35	31.83	0.26	1.45	1.44			10.85		93.34	6.50	5.03	0.03	0.16	0.29			1.88		13.89	21.99	0.23	11.56	1.88	0.45		2.587	0.375		
SF4_1_SER4	DDH30x07-06, 167.5M	distal alteration	colourless clay	47.22	32.56	0.30	1.24	1.30			10.54		93.25	6.41	5.21	0.03	0.14	0.26			1.82		13.87	22.01	0.20	11.65	1.82	0.40		2.465	0.351		
sf167.5 iii1	DDH30x07-06, 167.5M	proximal alteration	colourless clay	47.43	33.00	0.26	1.29	1.20			10.36	0.31	93.76	6.38	5.24	0.03	0.15	0.24			1.78	0.08	13.90	21.99	0.20	11.66	1.86	0.39		2.443	0.341		
sf167.5 iii3	DDH30x07-06, 167.5M	proximal alteration	colourless clay	46.33	32.50	0.30	1.54	1.20			10.42	0.31	92.57	6.36	5.25	0.03	0.18	0.25			1.82	0.08	13.97	22.00	0.22	11.64	1.90	0.43		2.423	0.348		
sf167.5 iii5	DDH30x07-06, 167.5M	proximal alteration	colourless clay	47.15	32.05	0.88	1.27	0.98			9.90		91.83	6.47	5.18	0.03	0.15	0.20			1.73		13.81	21.99	0.18	11.68	1.73	0.35		2.501	0.335		
sf167.5 iii7	DDH30x07-06, 167.5M	proximal alteration	colourless clay	51.54	29.86	0.32	1.48	1.24			9.42	0.31	94.12	6.85	4.87	0.03	0.16	0.25			1.60	0.08	13.63	22.00	0.21	11.55	1.68	0.41		2.934	0.342		
sf167.5 iii8	DDH30x07-06, 167.5M	proximal alteration	colourless clay	47.88	31.29	0.25	1.68	1.24			8.56	0.29	91.18	6.56	5.06	0.03	0.19	0.25			1.50	0.08	13.67	22.00	0.22	11.65	1.58	0.44					

Table 3 Results of stress modelling, Pataz district.

<i>Lavasen not included</i>						
CLASS	SY From	SY To	Area km²	Area%	No_Points*	Points%*
6	-69953480	-69036568	24.5	3.9	143	19.1
5	-69980484	-69953480	61.1	9.8	318	42.6
4	-70007489	-69980484	607.2	97.5	701	93.8
3	-70034493	-70007489	619.2	99.4	737	98.7
2	-70061497	-70034493	621.1	99.7	742	99.3
1	-70856696	-70061497	622.9	100.0	747	100.0
<i>Lavasen included</i>						
CLASS	SY From	SY To	Area km²	Area%	No_Points*	Points%*
7	-69931986.77	-69037496	15.2	2.4	103	13.8
6	-69956657.93	-69931986.77	28.4	4.6	178	23.8
5	-69981329.09	-69956657.93	68.6	11.0	370	49.5
4	-70006000.25	-69981329.09	600.7	96.4	695	93.0
3	-70030671.41	-70006000.25	618.0	99.2	738	98.8
2	-70055342.57	-70030671.41	620.7	99.6	742	99.3
1	-70852464	-70055342.57	622.9	100.0	747	100.0

*Vein abundance was determined by creating points at 100 m intervals along the veins and counting the number of points in a designated area. The cell size used for raster calculations was 25x25 m. Points that are closer than 25 m from each other were not counted twice.

Table 4 SEM analyses of white mica and clay, batholith-hosted proximal alteration.

ANALYSIS	Location	Class	Context	%SiO ₂	%Al ₂ O ₃	%TiO ₂	%FeO	%MgO	%MnO	%CaO	%K ₂ O	%Na ₂ O	Total%	Si	Al	Ti	Fe	Mg	Mn	Ca	K	Na	cation sum	Total O	Si+Al+Ti	K+Na+Ca	Mg+Fe	Fe+Mg	mol SiO ₂ /	mol K ₂ O/
4FW_4_SER1	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after feldspar	46.59	29.95		3.56	1.88		0.17	10.14	0.22	92.78	6.45	4.88		0.41	0.39		0.03	1.79	0.06	14.01	22.00	11.33	1.88	0.80	0.80	2.64	0.37
4FW_4_SER2	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after feldspar	47.69	30.33		1.90	1.80			10.84		92.55	6.55	4.91		0.22	0.37			1.90		13.95	22.00	11.46	1.90	0.59	0.59	2.67	0.39
4FW_4_SER3	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after feldspar	47.41	29.44	0.25	1.25	1.85		0.14	11.23		92.39	6.57	4.81	0.03	0.26	0.38		0.02	1.90		14.06	22.00	11.41	2.01	0.64	0.64	2.74	0.41
4FW_4_SER4	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after feldspar	46.91	26.69		2.62	1.97			10.75		92.28	6.51	4.86		0.30	0.41			1.90	0.06	14.04	22.00	11.37	1.96	0.71	0.71	2.99	0.44
4FW_3_MUS1	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after biotite	46.99	30.82	0.27	1.51	1.76			11.31		92.73	6.46	4.99	0.03	0.17	0.36			1.98		13.99	22.00	11.48	1.93	0.53	0.53	2.59	0.40
4FW_3_MUS2	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after biotite	47.11	30.32	0.47	1.79	1.83		0.14	11.15	0.37	93.18	6.47	4.91	0.05	0.21	0.37		0.02	1.95	0.10	14.08	21.99	11.43	2.07	0.58	0.58	2.64	0.40
4FW_3_MUS3	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after biotite	46.99	30.06	0.34	1.90	1.84		0.24	11.03		92.33	6.50	4.90	0.04	0.22	0.38		0.04	1.95		14.03	22.00	11.44	1.99	0.60	0.60	2.66	0.40
4FW_3_MUS4	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after biotite	47.16	30.05	0.39	1.73	1.83			11.36		92.53	6.51	4.89	0.04	0.20	0.38			2.00		14.02	22.00	11.44	2.00	0.58	0.58	2.67	0.41
4FW_2_MUS1	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after biotite	47.19	30.15	0.51	1.94	1.90			10.87		92.75	6.50	4.89	0.05	0.22	0.39			1.91		13.96	22.01	11.44	1.91	0.61	0.61	2.66	0.39
4FW_2_MUS2	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after biotite	47.43	29.85	0.43	1.85	1.93			11.37		92.96	6.52	4.84	0.04	0.21	0.40			2.00		14.01	22.00	11.40	2.00	0.61	0.61	2.70	0.41
4FW_2_MUS3	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after biotite	46.58	30.17	0.30	1.62	1.54			11.07		91.36	6.49	4.96	0.03	0.19	0.32			1.97		13.96	21.99	11.48	1.97	0.51	0.51	2.62	0.40
4FW_2_MUS4	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after biotite	46.42	29.85	0.31	1.69	1.73			11.00		90.98	6.50	4.93	0.03	0.20	0.36			1.97		13.99	21.99	11.46	1.97	0.56	0.56	2.64	0.40
4FW_1_SER1	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after feldspar	46.57	29.22		1.86	1.84			10.46		90.10	6.57	4.86		0.22	0.39			1.88		13.92	21.99	11.43	1.88	0.61	0.61	2.71	0.39
4FW_1_SER2	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after feldspar	45.63	28.22		1.90	1.77		0.23	10.72		88.71	6.56	4.78		0.23	0.38		0.04	1.97		13.96	21.98	11.34	2.01	0.61	0.61	2.75	0.41
4FW_1_SER3	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after feldspar	47.62	30.07		1.57	1.94			10.81		92.35	6.56	4.88		0.18	0.40			1.90	0.07	13.99	21.99	11.44	1.97	0.58	0.58	2.69	0.39
4FW_1_SER4	Glorita; Gloria #2 vein; footwall	Flat vein alteration	sericite after feldspar	47.01	30.14		1.89	1.51			10.76	0.21	91.60	6.53	4.93		0.22	0.31			1.91	0.06	13.96	22.00	11.46	1.97	0.53	0.53	2.65	0.39
11FW_1_MUS1	Jimena #3 vein; footwall	Flat vein alteration	sericite after biotite	47.78	28.67	0.80	1.60	1.81			10.68		91.53	6.64	4.70	0.08	0.19	0.37			1.89		13.87	22.01	11.42	1.89	0.56	0.56	2.83	0.40
11FW_1_MUS2	Jimena #3 vein; footwall	Flat vein alteration	sericite after biotite	45.08	28.81	1.16	2.00	1.58		0.20	10.62		89.48	6.45	4.86	0.12	0.24	0.34		0.03	1.94		13.98	22.00	11.43	1.97	0.58	0.58	2.66	0.40
11FW_1_MUS3	Jimena #3 vein; footwall	Flat vein alteration	sericite after biotite	46.97	28.72	0.46	1.44	1.67			10.77		90.13	6.63	4.78	0.07	0.17	0.35			1.94		13.92	22.00	11.46	1.94	0.52	0.52	2.78	0.41
11FW_1_MUS4	Jimena #3 vein; footwall	Flat vein alteration	sericite after biotite	46.82	29.57	0.27	1.36	1.76		0.15	10.70		90.86	6.55	4.88	0.03	0.16	0.37		0.02	1.91		13.92	21.99	11.46	1.93	0.53	0.53	2.69	0.39
11FW_3_SER1	Jimena #3 vein; footwall	Flat vein alteration	sericite after feldspar	45.01	29.54		1.28	1.14			10.45	0.23	87.87	6.51	5.03		0.15	0.25			1.93	0.07	13.94	21.99	11.54	2.00	0.40	0.40	2.59	0.38
11FW_3_SER2	Jimena #3 vein; footwall	Flat vein alteration	sericite after feldspar	45.61	29.61		1.75	1.44			10.91		89.75	6.49	4.96		0.21	0.31			1.98		13.95	22.00	11.45	1.98	0.52	0.52	2.62	0.40
11FW_3_SER3	Jimena #3 vein; footwall	Flat vein alteration	sericite after feldspar	46.41	31.56		1.08	1.06			11.28		91.31	6.46	5.18		0.13	0.22			2.00		13.99	22.00	11.64	2.00	0.35	0.35	2.50	0.39
11FW_3_SER4	Jimena #3 vein; footwall	Flat vein alteration	sericite after feldspar	46.44	30.48	0.17	1.56	1.50			11.12	0.25	91.46	6.47	5.01	0.02	0.18	0.31			1.98	0.07	14.04	21.99	11.50	2.05	0.49	0.49	2.59	0.40
11FW_3_SER5	Jimena #3 vein; footwall	Flat vein alteration	sericite after feldspar	45.75	30.17		1.62	1.28			11.25		90.42	6.47	5.03		0.19	0.27			2.03		13.99	22.00	11.50	2.03	0.46	0.46	2.58	0.40
8AVN_3_SER1	Glorita vein	NNW vein	fg sericite	48.86	31.39	0.21	2.09	1.12		0.17	11.09		95.42	6.51	4.93	0.02	0.23	0.22		0.02	1.88		13.81	21.99	11.46	1.90	0.45	0.45	2.65	0.38
8AVN_3_SER2	Glorita vein	NNW vein	fg sericite	48.39	30.81	0.26	2.59	1.18			11.43		94.67	6.54	4.91	0.03	0.29	0.24			1.97		13.98	22.00	11.48	1.97	0.53	0.53	2.67	0.40
8AVN_3_SER3	Glorita vein	NNW vein	fg sericite	46.43	29.42		2.55	1.17			10.84		90.61	6.55	4.89		0.30	0.25			1.95		13.94	22.00	11.44	1.95	0.55	0.55	2.68	0.40
8AVN_3_SER4	Glorita vein	NNW vein	fg sericite	48.09	30.34		2.36	1.25			11.23		93.60	6.56	4.88		0.27	0.25			1.96		13.92	21.99	11.44	1.96	0.52	0.52	2.69	0.40
8AVN_3_SER5	Glorita vein	NNW vein	fg sericite	46.68	28.07	0.27	2.68	1.24			10.64		89.25	6.67	4.73	0.03	0.32	0.26			1.94		13.95	21.99	11.43	1.94	0.58	0.58	2.83	0.41
8AVN_3_SER6	Glorita vein	NNW vein	fg sericite	46.99	29.87	0.28	2.63	1.14		0.19	10.94		92.42	6.51	4.88	0.03	0.30	0.24		0.03	1.93		13.92	21.99	11.42	1.96	0.54	0.54	2.67	0.40
8AVN_3_SER7	Glorita vein	NNW vein	fg sericite	46.91	29.95	0.20	1.84	1.17			10.98		90.71	6.57	4.95	0.02	0.22	0.24			1.96		13.94	22.00	11.46	1.95	0.46	0.46	2.68	0.40
8AVN_3_SER8	Glorita vein	NNW vein	fg sericite	47.42	31.03		1.90	1.13			10.82		91.38	6.52	5.03		0.22	0.23			1.90		13.90	22.00	11.55	1.90	0.45	0.45	2.60	0.38
31HW_4_MUS1	Consuelo; Consuelo vein HW alteration	NNW vein alteration	sericite after biotite	46.97	30.27	0.39	1.11	1.39			10.96		91.21	6.54	4.97	0.04	0.13	0.29			1.95		13.92	22.00	11.55	1.95	0.42	0.42	2.64	0.39
31HW_4_MUS3	Consuelo; Consuelo vein HW alteration	NNW vein alteration	sericite after biotite	46.53	29.40	0.23	1.05	1.72			10.88		89.82	6.58	4.90	0.02	0.12	0.36			1.96		13.94	22.00	11.50	1.96	0.48	0.48	2.69	0.40
31HW_4_SER2	Consuelo; Consuelo vein HW alteration	NNW vein alteration	sericite after feldspar	48.80	31.89		1.08	1.37			11.21		94.46	6.54	5.04		0.12	0.27			1.92		13.89	22.01	11.58	1.92	0.39	0.39	2.60	0.38
31HW_4_SER3	Consuelo; Consuelo vein HW alteration	NNW vein alteration	sericite after feldspar	47.90	29.22		1.73	1.90			11.13	0.31	92.20	6.62	4.76		0.20	0.39			1.96	0.08	14.01	21.99	11.38	2.04	0.59	0.59	2.79	0.41
31HW_4_SER4	Consuelo; Consuelo vein HW alteration	NNW vein alteration	sericite after feldspar	47.21	32.05		1.06	1.25			11.10		92.53	6.47	5.18		0.12	0.25			1.94		13.96	22.00	11.65	1.94	0.37	0.37	2.50	0.38
31HW_4_SER5	Consuelo; Consuelo vein HW alteration	NNW vein alteration	sericite after feldspar	48.20	30.40		1.32	1.68		0.26	10.26		92.31	6.60	4.91		0.15	0.34		0.04	1.79		13.83	22.00	11.51	1.83	0.49	0.49	2.70	0.37
31HW_4_SER6	Consuelo; Consuelo vein HW alteration	NNW vein alteration	sericite after feldspar	47.60	31.27		1.23	1.29			10.82		92.29	6.53	5.05		0.14	0.26			1.89		13.87	21.99	11.58	1.89	0.40	0.40	2.59	0.38
31WR_3_SER2	Consuelo; Consuelo vein wallrock clast	NNW vein alteration	sericite after feldspar	46.52	31.04	0.22	1.03	1.34		0.23	10.59	0.25	91.08	6.48	5.09	0.02	0.12	0.28		0.03	1.88	0.07	13.97	22.00	11.59	1.98	0.40	0.40	2.55	0.37
31WR_3_SER3	Consuelo; Consuelo vein wallrock clast	NNW vein alteration	sericite after feldspar	49.14	31.83		1.32	1.81		0.14	10.85		95.26	6.53	4.98		0.15	0.36		0.02	1.84		13.88	21.99	11.51	1.86	0.51	0.51	2.62	0.37
31WR_3_SER4	Consuelo; Consuelo vein wallrock clast	NNW vein alteration	sericite after feldspar	55.12	27.96		1.16	0.77			9.66	0.24	94.72	7.23	4.32		0.13	0.15			1.62	0.06	13.51	22.00	11.55	1.68	0.28	0.28	3.35	0.37
31WR_3_SER5	Consuelo; Consuelo vein wallrock clast	NNW vein alteration	sericite after feldspar	55.73	25.26		1.48	1.89			9.71		93.89	7.29	3.95		0.16	0.37			1.64		13.51	22.01	11.34	1.64	0.53	0.53	3.75	0.42
31WR_3_SER6	Consuelo; Cons																													

Table 5 Average and range of selected elements from 8 whole rock geochemical samples of granodiorite from the Patatz district.

Element	Average	Range	LLD*
K ₂ O (%)	2.55	2.25 to 3.19	0.01
Al ₂ O ₃ (%)	15.23	14.46 to 15.72	0.01
Au (ppb)	1	<1 to 5	1
Cu (ppm)	4.9	2 to 10	1
Pb (ppm)	12.4	8 to 16	5
Bi (ppm)	<2	<2 only	2
Mn (%)	0.08	0.06 to 1.00	0.001
Sb (ppm)	0.66	0.3 to 1.0	0.1
W (ppm)	0.5	<1 to 3	1
As (ppm)	2.4	1 to 4	1
Rb (ppm)	100	70 to 120	10
Te (ppm)	n.d.	n.d.	
Tl (ppm)	n.d.	n.d.	
3K/Al	0.55	0.49 to 0.72	
(Rb+Cs/Th) _N	1.57	0.86 to 2.07	

*LLD = lower level of detection n.d. no data