APPENDIX

Table A-1 List of samples and laboratory test

Sample No.	Lat(D)	Lat(M)	Lat(S)	Lon(D)	Lon(M)	Lon(S)	Zone	Locality	Rock	TS	PS	XR	GC	OA	W1	W2	RE	S	O	FI	KA
A01TK001	27	18	37.8	66	19	9.8		Capillitas NE	granite			1									
A01TK002	27	18	37.8	66	19	9.8		Capillitas NE	granite			1									
A01TK003	26	35	55	66	57	9.7		Lagna Blanca	granite			1									
A01TK004	26	35	56.8	66	57	17.2		Lagna Blanca	granite			1									
A01TK005	26	35	56.8	66	57	17.2		Lagna Blanca	granite			1									
A01TK006	26	9	25.4	67	4	25		Lagna Grande	weatherd granite			1									
A01TK007	26	9	25.4	67	4	25		Lagna Grande	meta sediments	1											
A01TK008	26	15	30	67	4	14.7		Lagna Grande	granite			1									
A01TK010	26	17	38.6	67	5	32.8		Lagna Grande	meta sediments	1											
A01TK011	25	18	35	66	20	55.4	Zone-27	El Acay	quartz vein				1						1	1	
A01TK012	25	18	35	66	20	55.4	Zone-27	El Acay	granite				1								
A01TK013	25	18	11.6	66	20	4.9	Zone-27	El Acay	Qz vein				1						1	1	
A01TK014	24	29	14.4	66	11	10.3	Zone-27	El Acay	meta sediments			1									
A01TK015	24	15	34	66	28	11	Zone-26	Incachule	ignimbrite			1									
A01TK016	24	15	58	66	28	33.4	Zone-26	Incachule	ignimbrite			1									
A01TK017	24	14	14.4	66	29	25.5	Zone-26	Incachule	ignimbrite			1									
A01TK018	24	17	5.8	66	28	1.3	Zone-26	Incachule	ignimbrite			1									
A01TK019	24	16	56.2	66	27	57.9	Zone-26	Incachule	ignimbrite?			1									
A01TK020	25	0	26.7	66	40	21.9	Zone-31	Vicuna Muerta	granite			1									
A01TK021	25	0	35.8	66	40	6.1	Zone-31	Vicuna Muerta	granite			1									
A01TK022	25	8	45.4	66	45	48.5	Zone-31	Viuna Muerta	porphyry			1	1								
A01TK023	25	9	7.5	66	45	52.8	Zone-31	Viuna Muerta	porphyry			1									
A01TK024	25	16	17.4	66	48	10.9	Zone-31	Viuna Muerta	granite			1									
A01TK025	24	49	19.1	66	46	39.1	Zone-31	Diablillos	andesite?			1									
A01TK026	24	50	27.9	66	47	59.6	Zone-31	Diablillos	andesite?			1									
A01TK027	24	50	28.9	66	48	0.6	Zone-31	Diablillos	brecciated quartz			1	1								
A01TK028	24	49	20.7	66	46	59.9	Zone-31	Diablillos	phyllite			1									
A01TK029	24	15	52.4	65	50	52	Zone-28	Pancho Arias	porphyry			1									
A01TK030	24	15	56	65	50	53.7	Zone-28	Pancho Arias	porphyry	1			1								
A01TK031	24	15	29	65	50	40.3	Zone-28	Pancho Arias	Qz vein				1						1	1	
A01TK033	23	13	18.8	65	38	9.8	Zone-15	El Aguilar	quartzite						1						
A01TK034	23	1	55.5	65	37	36.2	Zone-15	El Aguilar	limestone			1									
A01TK035	22	37	0.7	66	3	18.2	Zone-7	Pan de Azucar	dacite			1									
A01TK036	22	37	0.7	66	3	18.2	Zone-7	Pan de Azucar	slag					1							
A01TK037	22	36	56.3	66	3	10.3	Zone-7	Pan de Azucar	dacite			1									
A01TK038	22	45	50.7	66	5	53.6	Zone-8	Tupiza	sandstone?	1		1									
A01TK040	22	47	31.5	65	32	50.6	Zone-11	La Pricima	red shale			1			1						
A01TK041	22	52	16.5	66	8	20.8	Zone-9	Rachaite	dacite			1									
A01TK042	22	52	24	66	8	19.9	Zone-9	Rachaite	Qz vein				1								
A01TK043	22	52	24	66	8	19.9	Zone-9	Rachaite	dacite			1									
A01TK044	22	52	16.5	66	7	56.3	Zone-9	Rachaite	dacite			1									
A01TK045	22	52	21.7	66	7	53.6	Zone-9	Rachaite	andesitic dyke?			1									
A01TK046	22	52	23.6	66	7	49	Zone-9	Rachaite	dacite			1									

Sample No.	Lat(D)	Lat(M)	Lat(S)	Lon(D)	Lon(M)	Lon(S)	Zone	Locality	Rock	TS	PS	XR	GC	OA	W1	W2	RE	S	O	FI	KA
A01TK047	22	52	26.4	66	7	46.7	Zone-9	Rachaite	dacite			1									
A01TK048	22	52	30	66	7	44.1	Zone-9	Rachaite	dacite			1									
A01TK049	22	52	35.4	66	7	40.2	Zone-9	Rachaite	dacite			1									
A01TK050	22	52	39.8	66	7	37.8	Zone-9	Rachaite	dacite			1									
A01TK051	22	52	38.1	66	7	46.1	Zone-9	Rachaite	dacite			1									
A01TK052	23	38	55.2	66	17	14.2	Zone-18	La Colorada	shale			1									
A01TK053	23	38	56.2	66	17	11.5	Zone-18	La Colorada	meta diorite?	1		1									
A01TK054	23	38	51.6	66	17	22.5	Zone-18	La Colorada	shale?			1									
A01TK055	23	38	50.1	66	17	24.9	Zone-18	La Colorada	volcanics?			1									
A01TK056	23	38	59.7	66	17	32.2	Zone-18	La Colorada	shale?			1									
A01TK058							Zone-43	Agua Rica	clay			1									
A01TK059							Zone-43	Agua Rica	clay			1									
A01TK060							Zone-43	Agua Rica	clay			1									
A01YH001	26	55	26.9	66	45	52.7	Zone-42	Vaca Vizcana	andesite porphyry		1										
A01YH002	26	55	26.9	66	45	52.7	Zone-42	Vaca Vizcana	andesite porphyry	1											
A01YH003	26	50	23.3	65	35	8.7	Zone-46	El Alisar	dacite porphyry			1									
A01YH004	26	50	23.3	65	35	8.7	Zone-46	El Alisar	dacite porphyry		1		1								
A01YH007	24	25	35.7	66	19	12.6	Zone-27	Organullo Sur	andesite	1											
A01YH008	24	15	55.0	65	50	13.7	Zone-28	Pancho Arias	granite(float)				1								
A01YH009	24	15	30.9	65	50	48.8	Zone-28	Pancho Arias	altered greywacke	1											
A01YH010	24	15	29.1	65	50	40.8	Zone-28	Pancho Arias	silicified greywacke		1		1	1							
A01YH011	24	15	29.1	65	50	40.8	Zone-28	Pancho Arias	altered granite	1											
A01YH012	25	18	1.7	66	21	3.1	Zone-27	El Acay	altered rock			1									
A01YH013	23	8	4.0	65	40	53.7	Zone-15	Rio Grande	shale				1								
A01YH014	23	7	58.3	65	41	3.2	Zone-15	Rio Grande	shale				1								
A01YH015	23	7	46.9	65	41	27.3	Zone-15	Rio Grande	shale				1								
A01YH016	23	7	49.9	65	41	33.2	Zone-15	Rio Grande	shale and s.s.				1								
A01YH017	23	7	51.2	65	41	16.5	Zone-15	Rio Grande	shale				1								
A01YH018	23	7	49.5	65	41	20.7	Zone-15	Rio Grande	shale				1								
A01YH019	22	22	16.7	65	36	40.6	Zone-2	Belgica	siltstone				1								
A01YH020	22	22	19.7	65	36	37.9	Zone-2	Belgica	siltstone				1								
A01YH021	22	17	12.0	65	36	18.3	Zone-2	Pumahushi	siltstone				1								
A01YH022	22	18	6.8	65	36	19.2	Zone-2	Sol del Mayo	siltstone				1								
A01YH023	22	23	50.9	65	17	3.2	Zone-3	Abra del Condor	sandstone				1								
A01YH024	22	23	4.9	65	5	20.0	Zone-3	Paltoroa	slate				1								
A01YH025	22	23	18.0	65	4	25.4	Zone-3	La Cienaga	siltstone				1								
A01YH026	22	23	45.9	65	4	56.4	Zone-3	Paltoroa	siltstone				1								
A01YH027	22	24	20.6	65	6	7.1	Zone-3	Cerro Morado	siltstone				1								
A01YH028	22	24	24.5	65	7	27.7	Zone-3	Cerro Morado	siltstone				1								
A01YH029	22	24	57.1	65	10	22.1	Zone-3	Cerro Morado	siltstone				1								
A01YH030	22	24	18.6	65	14	14.3	Zone-3	San Francisco	slate				1								
A01YH031	22	23	52.8	65	15	37.0	Zone-3	San Francisco	slate				1								
A01YH032	22	24	4.8	65	15	33.9	Zone-3	Santa Rosa	slate				1								
A01YH033	22	21	30.6	65	47	58.7	Zone-1	Chocoite	siltstone				1								
A01YH034	22	20	5.9	65	48	10.8	Zone-1	Chocoite	siliceous siltstone				1								

Sample No.	Lat(D)	Lat(M)	Lat(S)	Lon(D)	Lon(M)	Lon(S)	Zone	Locality	Rock	TS	PS	XR	GC	OA	W1	W2	RE	S	O	FI	KA
A01YH035	22	20	5.9	65	48	10.8	Zone-1	Chocoite	andesite				1								
A01YH036	22	19	37.0	65	48	29.9	Zone-1	Chocoite	slate				1								
A01YH037	22	19	50.0	65	49	34.8	Zone-1	La Gateada	slate				1								
A01YH038	22	6	0.0	65	48	55.3	Zone-1	Cienagillas	slate				1								
A01YH039	22	6	21.0	65	47	58.0	Zone-1	Cienagillas	slate				1								
A01YH040	22	6	30.6	65	46	48.4	Zone-1	Cienagillas	slate				1								
A01YH041	22	7	55.8	65	44	41.5	Zone-1	Cienagillas	slate				1								
A01YH042	22	36	56.6	66	3	22.0	Zone-7	Pan de Azucar	dacite				1								
A01YH043	22	45	49.9	66	5	55.3	Zone-8	Tupiza	slate				1								
A01YH044	22	49	32.0	65	32	10.1	Zone-11	La Puricima	slate				1								
A01YH045	22	49	26.2	65	32	8.0	Zone-11	La Puricima	slate				1								
A01YH046	22	52	43.7	65	43	40.1	Zone-15	La Candelaria	siltstone				1								
A01YH047	22	52	38.5	65	43	37.4	Zone-15	La Candelaria	siltstone				1								
A01YH048	22	52	44.9	66	7	46.5	Zone-9	Rachaite	argillaceous rock				1								
A01YH049	22	52	45	66	7	46.1	Zone-9	Rachaite	altered rock				1								
A01YH050	22	52	29.2	66	7	52.8	Zone-9	Rachaite					1								
A01YH051	23	38	48.4	66	17	25.0	Zone-18	La Colorada	schistoze rock				1								
A01YH052	23	38	49.1	66	17	25.5	Zone-18	La Colorada	schistoze rock				1								
A01YH053	23	38	50	66	17	25.8	Zone-18	La Colorada	hornfels				1								
A01YH054	23	38	50.7	66	17	23.4	Zone-18	La Colorada	sandstone				1								
A01YH055	23	38	51.5	66	17	19.8	Zone-18	La Colorada	schistoze rock				1								
A01YH056	23	38	52.5	66	17	16.9	Zone-18	La Colorada	hornfels				1								
A01YH057	23	41	21.7	66	20	26.3	Zone-18	Limeca	slate				1								
A01YH058	23	41	25.3	66	20	11.0	Zone-18	Limeca	slate				1								
A01YH059	23	41	26.6	66	20	3.1	Zone-18	Limeca	slate				1								
A01YH060	23	41	22.1	66	19	57.1	Zone-18	Limeca	slate				1								
A01YH061	23	41	16.2	66	19	50.9	Zone-18	Limeca	slate				1								
A01YH062	23	41	10.9	66	19	44.3	Zone-18	Limeca	slate				1								
A01YH063	23	41	7.8	66	19	39.9	Zone-18	Limeca	slate				1								
A01YH064	23	39	59	65	42	0.2	Zone-22	Tusca	slate				1								
A01KN002	26	14	52.1	66	52	47.9	Zone-39	Lagna Salitre	monozodiorite	1					1						1
A01KN004	26	50	23.9	65	35	10.7	Zone-46	El Alisal	dacite porphyry	1											
A01KN005	26	50	23.5	65	35	11.1	Zone-46	El Alisal	dacite porphyry	1					1						1
A01KN006	26	50	13.2	65	35	13.5	Zone-46	El Alisal	rhyolite	1					1						
A01KN007	25	18	41	66	21	2.6	Zone-34	Brealito	Qz vein				1						1	1	
A01KN010	24	29	8.4	66	10	54.5	Zone-27	El Acay	limestone gossan				1								
A01KN011	24	29	8.4	66	10	54.5	Zone-27	El Acay	altered sandstone			1									
A01KN014	24	15	37.6	66	28	12.1	Zone-26	Incachule	Sb ore					1							
A01KN015	24	15	37.6	66	28	12.1	Zone-26	Incachule	hydrothermal breccia				1								
A01KN016	24	15	40.2	66	28	15.7	Zone-26	Incachule	ignimbrite	1		1									
A01KN017	24	15	43.1	66	28	14.5	Zone-26	Incachule	ignimbrite			1									
A01KN018	24	15	48.2	66	28	11.2	Zone-26	Incachule	ignimbrite	1											
A01KN020	24	15	45.6	66	28	11.6	Zone-26	Incachule	ignimbrite			1									
A01KN021	24	15	45.6	66	28	11.6	Zone-26	Incachule	hydrothermal breccia				1								
A01KN022	24	15	57.7	66	28	33.8	Zone-26	Incachule	ignimbrite			1									

Sample No.	Lat(D)	Lat(M)	Lat(S)	Lon(D)	Lon(M)	Lon(S)	Zone	Locality	Rock	TS	PS	XR	GC	OA	W1	W2	RE	S	O	FI	KA
A01KN023	24	15	57.7	66	28	33.8	Zone-26	Incachule	Qz vein				1								
A01KN024	24	16	5.1	66	28	23.6	Zone-26	Incachule	Qz vein				1								
A01KN025	24	16	5.1	66	28	23.6	Zone-26	Incachule	ignimbrite			1									
A01KN027	24	16	55.3	66	28	0	Zone-26	Incachule	sinter				1								
A01KN028	25	0	6	66	40	16.6	Zone-31	Vicuna Muerta	quartz porphyry	1											
A01KN028-2							Zone-31	Vicuna Muerta	quartz porphyry												1
A01KN033	24	50	33.7	66	48	7.7		Centenario	talus deposit				1								
A01KN034	24	50	33.7	66	48	7.7		Centenario	talus deposit				1								
A01KN035	24	50	31.1	66	48	4.6		Centenario	hematite breccia				1								
A01KN039	24	15	45.4	65	50	55.2	Zone-28	Pancho Arias	porphyry			1									
A01KN040	24	15	54.6	65	50	53.1	Zone-28	Pancho Arias	porphyry	1											
A01KN041	24	15	54.2	65	50	50	Zone-28	Pancho Arias	diorite	1											
A01KN042	24	15	40.3	65	50	56.5	Zone-28	Pancho Arias	granite	1											
A01KN047	23	12	21.6	65	43	1.4	Zone-15	El Aguilar	skarn		1										
A01KN048	23	7	7	65	40	47	Zone-15	Rio Grande	slate							1					
A01KN051	23	7	51.2	65	41	17.3	Zone-15	Rio Grande	slate							1					
A01KN052	23	7	50.8	65	41	18	Zone-15	Rio Grande	banded Py ore									1			
A01KN053	23	7	51.2	65	41	16.4	Zone-15	Rio Grande	massive Py ore									1			
A01KN054	22	22	18.5	65	36	35.2	Zone-2	Belgica	Ba ore									1			
A01KN055	22	22	18.5	65	36	35.2	Zone-2	Belgica	Ga ore									1			
A01KN057	22	17	14	65	36	13.7	Zone-2	Pumahushi	Ga ore									1			
A01KN058	22	17	14	65	36	13.7	Zone-2	Pumahushi	Ba ore									1			
A01KN059	22	18	7.4	65	36	16.9	Zone-2	Sol de Mayo	Ba ore									1			
A01KN060	22	18	7.4	65	36	16.9	Zone-2	Sol de Mayo	Ga ore									1			
A01KN062	22	23	24.1	65	5	29	Zone-5	La Cienaga	slate							1					
A01KN063	22	23	24.1	65	5	29	Zone-5	La Cienaga	Ba ore									1			
A01KN064	22	23	24.1	65	5	29	Zone-5	La Cienaga	Ga-Ba ore									1			
A01KN066	22	23	17.9	65	4	27.2	Zone-5	La Cienaga	Qz vein										1	1	
A01KN067	22	23	17.6	65	4	24.2	Zone-5	La Cienaga	slate							1					
A01KN068	22	24	4.4	65	15	33.9	Zone-3	Santa Rosa	Ba ore									1			
A01KN069	22	24	4.4	65	15	33.9	Zone-3	Santa Rosa	Ga-Ba ore									1			
A01KN070	22	23	54.2	65	15	40.3	Zone-3	Santa Rosa	slate							1					
A01KN071	22	19	37.5	65	48	30.6	Zone-1	La Gateada								1					
A01KN072	22	6	15.7	65	46	6.2	Zone-1	-	slate							1					
A01KN073	22	37	4.3	66	3	16.5	Zone-7	Pan de Azucar	altered dacite			1									
A01KN074	22	37	1.3	66	3	18.3	Zone-7	Pan de Azucar	dacite							1					
A01KN074-2	22	37	1.3	66	3	18.3	Zone-7	Pan de Azucar	Ga-SP ore		1							1			
A01KN074-3	22	37	1.3	66	3	18.3	Zone-7	Pan de Azucar	quartz										1	1	
A01KN075	22	42	24.2	66	5	58.8	Zone-7	Tupiza	slate							1					
A01KN076	22	45	49.4	66	5	54.9	Zone-7	Tupiza	Sp-Ga-Py ore		1							1			
A01KN077	22	49	32.6	65	32	10.5	Zone-11	La Pricima	Ba-Ch-Oc ore												
A01KN078	22	49	33.9	65	32	16.4	Zone-11	La Pricima	Ba-Ch-Oc ore									1			
A01KN079	22	49	35.8	65	32	23.9	Zone-11	La Pricima	slate							1					
A01KN080	22	49	12.5	65	31	55	Zone-11	Rumicruz	Ba-Oc ore									1			
A01KN081	22	49	15	65	31	45.7	Zone-11	Rumicruz	slate												

Sample No.	Lat(D)	Lat(M)	Lat(S)	Lon(D)	Lon(M)	Lon(S)	Zone	Locality	Rock	TS	PS	XR	GC	OA	W1	W2	RE	S	O	FI	KA
A01KN082	22	52	39.1	65	43	40.2	Zone-15	La Candelaria	Qz vein										1	1	
A01KN083	22	52	36.3	65	43	41.4	Zone-15	La Candelaria	Ga ore		1							1			
A01KN084	22	52	29.7	66	7	38.7	Zone-9	Rachaite	altered andesite			1									
A01KN085	22	52	23.7	66	7	48.5	Zone-9	Rachaite	altered andesite			1									
A01KN086	22	52	24	66	7	43.5	Zone-9	Rachaite	altered andesite			1									
A01KN087	22	52	23.3	66	7	49.3	Zone-9	Rachaite	andesite			1									
A01KN088	22	52	21.9	66	7	52.7	Zone-9	Rachaite	Qz-Gal-Sp ore		1			1							
A01KN089	22	52	24.5	66	7	52.5	Zone-9	Rachaite	altered andesite			1									
A01KN094	23	41	19.2	66	20	29.2	Zone-18	-	sandstone/slate							1					
A01KN097	23	40	0.2	65	42	2.9	Zone-22	Tusca	Ba-Ga-Ch ore									1			
A01KN098	23	40	0.2	65	42	2.9	Zone-22	Tusca	Ba ore									1			
A01KN100	22	44	50.8	65	53	6.1		Cochinoca	dacite						1						
A01RT001	27	15	22.3	66	40	20.7	Zone-43	Agua Tapada	Qz porphyry	1											
A01RT002	27	18	30.6	66	39	40.2	Zone-43	Farallon Negro	Qz vein				1								
A01RT005	27	19	47.2	66	36	20.7	Zone-43	Bajo de la Alumbrera	porphyry					1							
A01RT010	27	22	25.2	66	16	40.5	Zone-43	Agua Rica	feldspartoid porphyry			1									
A01RT011	27	22	31.2	66	16	14.1	Zone-43	Agua Rica	porphyry		1			1							
A01RT012	27	22	26.8	66	16	48	Zone-43	Agua Rica	hydrothermal brecia			1									
A01RT013	27	22	26.2	66	17	8.4	Zone-43	Agua Rica	feldspartoid porphyry			1									
A01RT014	27	20	29.8	66	22	52.7	Zone-43	Capillitas	rhyolite-dacite porphyry			1									
A01RT015	26	55	27	66	45	52.7	Zone-42	Vaca Vizcana	andesitic porphyry		1	1	1								
A01RT016	26	55	33.9	66	45	56.1	Zone-42	Vaca Vizcana	andesitic porphyry			1	1								
A01RT017	26	55	35.1	66	45	56.1	Zone-42	Vaca Vizcana	granite		1	1	1								
A01RT018	26	55	41.2	66	45	55.3	Zone-42	Vaca Vizcana	andesitic porphyry				1								
A01RT019	26	14	54.7	66	52	48.6	Zone-39	Laguna Salitre	Qz vein					1							
A01RT020	26	14	54.7	66	52	48.6	Zone-39	Laguna Salitre	Qz vein		1										
A01RT022	26	50	14.4	65	34	38.5	Zone-46	El Alisal	andesitic porphyry			1									
A01RT023	26	50	14.4	65	34	38.5	Zone-46	El Alisal	andesitic porphyry	1											
A01RT024	26	50	23.1	65	35	8.8	Zone-46	El Alisal	andesitic porphyry			1									
A01RT025	26	50	24	65	35	9.5	Zone-46	El Alisal	andesitic porphyry	1			1								
A01RT026	26	50	22.4	65	34	54	Zone-46	El Alisal	andesitic porphyry			1									
A01RT027	26	50	25.8	65	34	51.2	Zone-46	El Alisal	andesitic porphyry			1									
A01RT028	26	50	28.7	65	34	49.9	Zone-46	El Alisal	andesitic porphyry			1									
A01RT030							Zone-46	El Alisal	andesitic porphyry		1		1								
A01RT031	25	18	35	66	20	55.3	Zone-34	Brealito	Qz vein				1								
A01RT032							Zone-34	Brealito	brecciated granite		1		1								
A01RT033	24	29	11.8	66	10	59.7	Zone-27	El Acay	sedimentary rock			1	1								
A01RT034	24	29	12.6	66	10	57.8	Zone-27	El Acay	sedimentary rock			1	1								
A01RT035	24	29	10.7	66	10	55.4	Zone-27	El Acay	Qz vein		1		1								
A01RT036	24	23	44.1	66	19	17.1	Zone-27	Oruganullo	Qz vein		1			1							
A01RT037	24	23	44.1	66	19	17.1	Zone-27	Oruganullo						1							
A01RT038	24	25	1.4	66	19	22.6	Zone-27	Oruganullo	ignimbrite	1											
A01RT039	24	23	41	66	19	5	Zone-27	Oruganullo	andesitic dacite?			1									
A01RT040	24	23	41.9	66	19	3.7	Zone-27	Oruganullo	andesitic dacite?			1									
A01RT041	24	25	34.4	66	19	12.3	Zone-27	Oruganullo	andesitic porphyry	1		1									

Sample No.	Lat(D)	Lat(M)	Lat(S)	Lon(D)	Lon(M)	Lon(S)	Zone	Locality	Rock	TS	PS	XR	GC	OA	W1	W2	RE	S	O	FI	KA
A01RT042	24	20	31.7	66	20	45.9	Zone-27	Oruganullo	andesite?	1											
A01RT043	25	0	39.3	66	40	5.6	Zone-31	Vicuna Muerta	granite			1									
A01RT044	25	0	39.3	66	40	5.6	Zone-31	Vicuna Muerta	Qz vein				1								
A01RT045	25	0	28.9	66	40	17	Zone-31	Vicuna Muerta	Qz vein				1								
A01RT046	25	8	45.1	66	45	48.8	Zone-31	Inca Viejo	porphyry				1								
A01RT047	25	9	7.5	66	45	52.7	Zone-31	Inca Viejo	porphyry	1											
A01RT049	25	16	17.6	66	48	10.9	Zone-31	Diablillos	tuff breccia			1									
A01RT049'	25	16	17.6	66	48	10.9	Zone-31	Diablillos	tuff breccia			1									
A01RT050	25	19	34.2	66	47	46.9	Zone-31	Condor Yacu	granite				1								
A01RT051	25	19	35.3	66	47	47.4	Zone-31	Condor Yacu	granite	1			1								
A01RT052	24	49	21.6	66	46	40.3		Centenario	white clay			1									
A01RT053	24	49	22.5	66	46	41		Centenario	volcanic breccia				1								
A01RT054	24	49	25.1	66	46	44.1		Centenario	volcanic breccia			1									
A01RT055	24	50	27.2	66	47	58.8		Centenario	volcanic breccia?				1								
A01RT056	24	50	30.7	66	48	1.9		Centenario	volcanic breccia?				1								
A01RT057	24	50	30.5	66	48	2		Centenario	sandostone			1									
A01RT059	23	9	27.1	65	42	25.3	Zone-15	Esperanza	Ga-SP ore		1										
A01RT060	23	12	21.5	65	43	1.4	Zone-15	El Aguilar	quartzite		1										
A01RT062	23	7	51.2	65	41	16.4	Zone-15	Rio Grande	slate							1					
A01RT064	22	22	26.9	65	36	23.3	Zone-2	Belgica	Ba ore		1										
A01RT065	22	17	14.1	65	36	16.6	Zone-2	Pumahuasi	Ba ore		1										
A01RT067	22	23	18	65	4	25.4	Zone-5	La Cienaga	Ba-Qz vein		1										
A01RT069	22	22	21	65	49	46	Zone-1	La Gateada	Qz vein		1							1			
A01RT070	22	37	1.6	66	3	18.2	Zone-7	Pan de Azucar	Qz vein		1		1								
A01RT071	22	37	1.6	66	3	18.2	Zone-7	Pan de Azucar	andesite			1									
A01RT072	22	36	56.1	66	3	19.1	Zone-7	Pan de Azucar	andesite			1									
A01RT073	22	42	20.5	66	5	55.8	Zone-7	Pan de Azucar	andesite			1									
A01RT074	22	45	49.4	66	5	55	Zone-8	Tupiza	Qz-Cal vein		1										
A01RT077	22	49	32.4	65	32	10.7	Zone-11	La Purisima	slate			1									
A01RT080	22	52	39.6	65	43	38.8	Zone-15	La Candelaria	shale/fine sand	1			1								
A01RT081	22	52	29.8	66	7	52.1	Zone-9	Rachaite	dacite			1									
A01RT082	22	52	29.8	66	7	52.1	Zone-9	Rachaite	Qz vein									1			
A01RT083	22	52	48.3	66	7	50.4	Zone-9	Rachaite	ignimbrite(float)	1											
A01RT084	22	52	44.9	66	7	46.5	Zone-9	Rachaite	dacite			1									
A01RT085	22	52	40.8	66	7	48.9	Zone-9	Rachaite	andesite dyke	1			1								
A01RT086	22	44	50.8	65	53	6.1		Cochinoca	acidic volcanic rock	1											
A01RT090	23	53	34.9	65	28	8.5	Zone-24	Chorrillos	Qz-vein					1							
AG01	Drill core #3070, 57.2m						Zone-15	El Aguilar	slate				1								
AG02	Drill core #3070, 65.0m						Zone-15	El Aguilar	slate				1								
AG03	Drill core #3070, 70.1m						Zone-15	El Aguilar	slate				1								
AG04	Drill core #3070, 75.0m						Zone-15	El Aguilar	slate				1								
AG05	Drill core #3070, 81.7m						Zone-15	El Aguilar	slate				1								
AG06	Drill core #3070, 87.3m						Zone-15	El Aguilar	slate				1								
AG07	Drill core #3070, 93.9m						Zone-15	El Aguilar	slate				1								
AG08	Drill core #3070, 97.2m						Zone-15	El Aguilar	slate				1								

Sample No.	Lat(D)	Lat(M)	Lat(S)	Lon(D)	Lon(M)	Lon(S)	Zone	Locality	Rock	TS	PS	XR	GC	OA	W1	W2	RE	S	O	FI	KA
AG09	Drill core #3070, 103.4m						Zone-15	El Aguilar	slate				1								
AG10	Drill core #3070, 109.2m						Zone-15	El Aguilar	slate				1								
AG11	Drill core #3070, 115.0m						Zone-15	El Aguilar	slate				1								
AG12	Drill core #3070, 118.5m						Zone-15	El Aguilar	slate				1								
AG13	Drill core #3070, 124.6m						Zone-15	El Aguilar	slate				1								
AG14	Drill core #3070, 130.45m						Zone-15	El Aguilar	slate				1								
AG15	Drill core #3070, 133.7m						Zone-15	El Aguilar	slate				1								
AG16	Drill core #3070, 140.6m						Zone-15	El Aguilar	slate				1								
AG17	Drill core #3070, 146.7m						Zone-15	El Aguilar	slate				1								
AG18	Drill core #3070, 152.7m						Zone-15	El Aguilar	slate				1								
AG19	Drill core #3070, 155.7m						Zone-15	El Aguilar	slate				1								
AG20	Drill core #3070, 163.65m						Zone-15	El Aguilar	slate				1								
AG21	Drill core #3070, 169.75m						Zone-15	El Aguilar	slate				1								
AG22	Drill core #3070, 175.0m						Zone-15	El Aguilar	slate				1								
AG23	Drill core #3070, 178.9m						Zone-15	El Aguilar	slate				1								
AG24	Drill core #3070, 188.0m						Zone-15	El Aguilar	slate				1								
AG25	Drill core #3070, 191.05m						Zone-15	El Aguilar	slate				1								
AG26	Drill core #3070, 196.25m						Zone-15	El Aguilar	slate				1								
AG27	Drill core #3070, 199.3m						Zone-15	El Aguilar	slate				1								
AG28	Drill core #3070, 205.4m						Zone-15	El Aguilar	slate				1								
AG29	Drill core #3070, 211.5m						Zone-15	El Aguilar	slate				1								
AG30	Drill core #3070, 217.6m						Zone-15	El Aguilar	slate				1								
AG31	Drill core #3070, 220.7m						Zone-15	El Aguilar	slate				1								
AG32	Drill core #3070, 224.5m						Zone-15	El Aguilar	slate				1								
AG33	Drill core #3070, 233.0m						Zone-15	El Aguilar	slate				1								
AG34	Drill core #3070, 239.0m						Zone-15	El Aguilar	slate				1								
AG35	Drill core #3070, 242.6m						Zone-15	El Aguilar	slate				1								
AG36	Drill core #3070, 248.4m						Zone-15	El Aguilar	slate				1								
AG37	Drill core #3070, 253.4m						Zone-15	El Aguilar	slate				1								
AG38	Drill core #3070, 260.5m						Zone-15	El Aguilar	slate				1								
AG39	Drill core #3070, 265.1m						Zone-15	El Aguilar	slate				1								
AG40	Drill core #3070, 273.45m						Zone-15	El Aguilar	slate				1								
AG41	Drill core #3070, 276.5m						Zone-15	El Aguilar	slate				1								
AG42	Drill core #3070, 282.1m						Zone-15	El Aguilar	slate				1								
AG43	Drill core #3070, 288.7m						Zone-15	El Aguilar	slate				1								
AG44	Drill core #3070, 291.5m						Zone-15	El Aguilar	slate				1								
AG45	Drill core #3070, 297.3m						Zone-15	El Aguilar	slate				1								
AG46	Drill core #3070, 303.0m						Zone-15	El Aguilar	slate				1								
AG47	Drill core #3070, 305.8m						Zone-15	El Aguilar	slate				1								
AG48	Drill core #3070, 312.15m						Zone-15	El Aguilar	slate				1								
AG49	Drill core #3070, 318.0m						Zone-15	El Aguilar	slate				1								
AG50	Drill core #3070, 321.0m						Zone-15	El Aguilar	slate				1								
AG51	Drill core #3070, 327.2m						Zone-15	El Aguilar	slate				1								
AG52	Drill core #3070, 331.95m						Zone-15	El Aguilar	slate				1								
AG53	Drill core #3070, 337.45m						Zone-15	El Aguilar	slate				1								

Sample No.	Lat(D)	Lat(M)	Lat(S)	Lon(D)	Lon(M)	Lon(S)	Zone	Locality	Rock	TS	PS	XR	GC	OA	W1	W2	RE	S	O	FI	KA
AG54	Drill core #3070, 343.55m						Zone-15	El Aguilar	slate				1								
AG55	Drill core #3070, 346.6m						Zone-15	El Aguilar	slate				1								
AG56	Drill core #3070, 354.25m						Zone-15	El Aguilar	slate				1								
AG57	Drill core #3070, 358.8m						Zone-15	El Aguilar	slate				1								
AG58	Drill core #3070, 361.85m						Zone-15	El Aguilar	slate				1								
AG59	Drill core #3070, 366.9m						Zone-15	El Aguilar	slate				1								
AG60	Drill core #3070, 372.65m						Zone-15	El Aguilar	slate				1								
AG61	Drill core #3070, 378.4m						Zone-15	El Aguilar	slate				1								
AG62	Drill core #3070, 384.8m						Zone-15	El Aguilar	slate				1								
AG63	Drill core #3070, 390.0m						Zone-15	El Aguilar	slate				1								
AG64	Drill core #3070, 393.05m						Zone-15	El Aguilar	slate				1								
AG65	Drill core #3070, 394.05m						Zone-15	El Aguilar	slate				1								
AG66	Drill core #3070, 399.4m						Zone-15	El Aguilar	slate				1								
AG67	Drill core #3070, 403.3m						Zone-15	El Aguilar	slate				1								
AG68	Drill core #3070, 408.8m						Zone-15	El Aguilar	slate				1								
AG69	Drill core #3070, 415.6m						Zone-15	El Aguilar	slate				1								
AG70	Drill core #3070, 421.55m						Zone-15	El Aguilar	slate				1								
AG71	Drill core #3070, 428.1m						Zone-15	El Aguilar	slate				1								
AG72	Drill core #3070, 434.2m						Zone-15	El Aguilar	slate				1								
AG73	Drill core #3070, 442.0m						Zone-15	El Aguilar	slate				1								
AG74	Drill core #3244, 630.2m						Zone-15	El Aguilar	slate				1								
AG75	Drill core #3244, 637.2m						Zone-15	El Aguilar	slate				1								
AG76	Drill core #3244, 640.3m						Zone-15	El Aguilar	slate				1								
AG77	Drill core #3244, 642.6m						Zone-15	El Aguilar	slate				1								
AG78	Drill core #3070, 169.5m						Zone-15	El Aguilar	slate							1					
AG79	Drill core #3070, 295.0m						Zone-15	El Aguilar	Sp-Ga ore									1			
AG80	Drill core #3070, 383.0m						Zone-15	El Aguilar	Sp-Ga ore									1			
AG81	Drill core #3070, 422.0m						Zone-15	El Aguilar	Sp-Ga ore							1					
23C237	Mina El Aguilar underground						Zone-15	El Aguilar	Sp-Ga ore									2			
760SP83S	Mina El Aguilar underground						Zone-15	El Aguilar	Sp-Ga ore									1			
S77ME86S	Mina El Aguilar underground						Zone-15	El Aguilar	Sp-Ga ore									2			
90ME846	Mina El Aguilar underground						Zone-15	El Aguilar	Sp-Ga ore									1			
SECCIOR	Mina El Aguilar underground						Zone-15	El Aguilar	Sp-Ga ore									2			
LC01	Drill core #2, 219m						Zone-18	La Colorada	Po ore									1			
LC02	Drill core #3, 38.5m						Zone-18	La Colorada	andesite	1											
LC03	Drill core #3, 74m						Zone-18	La Colorada	Po ore		1										
LC04	Drill core #4, 124m						Zone-18	La Colorada	Po ore									1			
LC05	Drill core #4, 139m						Zone-18	La Colorada	andesite	1											
LC06	Drill core #5, 114m						Zone-18	La Colorada	Po ore		1										
25175							Zone-47	El Pago	porphyry			1									
25264							Zone-47	El Pago	porphyry			1									
26405							Zone-47	El Pago	porphyry			1									
67588							Zone-47	El Pago	basement			1									
5618							Zone-47	El Pago	basement			1									
26434							Zone-47	El Pago	basement			1									

Sample No.	Lat(D)	Lat(M)	Lat(S)	Lon(D)	Lon(M)	Lon(S)	Zone	Locality	Rock	TS	PS	XR	GC	OA	W1	W2	RE	S	O	FI	KA
25214							Zone-47	El Pago	basement			1									
23277							Zone-47	El Pago	lamprophyre			1									
23281							Zone-47	El Pago	lamprophyre			1									
25173							Zone-47	El Pago	lamprophyre			1									
01013001								Distrito Rangel	carbonatite								1				
01013002								Distrito Rangel	carbonatite								1				
01013003								Distrito Rangel	carbonatite								1				
01013004								Distrito Rangel	Qz-Cal vein								1				

Table A-2 Result of the laboratory test (microscopic observation of rock and ore samples)

(1) Rock sample

Sampe No.	Locality	Rock name		Primary mineral												Secondary mineral						
		Field observation	Microscopic observation	qz	Kf	pl	ho	mu	bt	cpx	opx	zi	sph	ap	op	chl	leu	seri	ill	smc	ep	cs
A01TK007	Lagna Grnade	meta sediments	medium grained quartz sandstone (weakly metamorphosed)	◎	△	·		×							·							
A01TK010	Lagna Grnade	meta sediments	medium grained quartz sandstone (metamorphosed)	◎	△	·		△							·							
A01TK030	Pancho Arias	porphyry	dacite (altered)	◎	△	○			△						×							
A01TK038	Tupiza	sandstone?	fine grained quartz sandstone(metamorphosed)	◎	·	·		△							·							
A01TK053	La Colorada	meta dacite?	meta andesite (metamorphosed)	◎		△		△							·	○						
A01YH002	Vuca Viscana	andesite porphyry	pyroxene and hornblende bearing andesite (weakly metamorphosed)	○	·	○	·		△						·	·						
A01YH007	Organullo sur	andesite	dacite (altered)	○	×	○			·					×	·	·						△
A01YH009	Pancho Arias	altered greywacke	muscovite and biotite hornfels	·		·		○	○						×							
A01YH011	Pancho Arius	altered granite	meta granite porphyry	○	·	○		△	△				·	×	·	×	·					
A01KN002	Lagna Salitle	monzodiorite	fine grannied gabbro			◎				○	△				△							
A01KN004	El Alisal	dacite porphyry	dacitic tuff	○	·	◎			○						△	×		×		×		
A01KN005	El Alisal	dacite porphyry	dacitic tuff	○	·	◎			○						△							
A01KN006	El Alisal	rhyolite	rhyolitic tuff	○	○	◎	△		○						·							
A01KN016	Incachule	ignimbrite	dacitic welded tuff	◎	·	○			○						·	×						
A01KN018	Incachule	ignimbrite	dacitic tuff	○		○			○						△							
A01KN028	vicuna Muerta	quartz porphyry	quartz porphyry	◎	△	○			○						·	×	×					
A01KN040	Pancho Arias	porphyry	meta quartz porphyry	◎	△	◎			○				·		·							
A01KN041	Pancho Arias	diorite	quart diorite	○	·	◎	○		×				·				·					
A01KN042	Pancho Arias	granite	granite? (altered)	○	○?	○?			○?					·	·	○						
A01RT001	Agua Tapada	quartz porphyry	quartz porphyry? (altered)	○	△?	○?		△	△?					×	·	△		△		·		△
A01RT023	El Alisal	andesitic porphyry	dacite (altered)	○	·	○	△							×	△	△		·				△
A01RT025	El Alisal	andesitic porphyry	dacitic tuff (weakly welded)	△	·	◎			△					×	△			△		·		
A01RT038	Organullo	ignimbrite	ignimbrite (weakly welded)	△	△	○			○			×		×	△	△		△		△		·
A01RT041	Organullo	andesitic porphyry	porphyrite?	○	·	◎			△					×	△	·		·		·		
A01RT042	Organullo	andesite	dacitic tuff	◎	△	○			·					×	△	○		·		△		
A01RT047	Inca Viejo	porphyry	quartz porphyry	◎	△	△	·		△					×	△	○				△		
A01RT051	Condor Yacu	granite	mylonite	◎	·	·	·	△	△			×		×	△	·		○			·	
A01RT080	La Candelaria	shale/fine sandstone	shale/fine sandstone	◎	·	△			·						△				△			
A01RT083	Ruchaite	ignimbrite	glassy biotite andesite	·	△	◎			○			×		·	△							
A01RT085	Ruchuite	andesite dyke	andesite	·	△	◎			○			×		·	△	△		△		·		
A01RT086	Cochinoca	acidic volcanic rock	meta granite	○	△	○			○			×	·	·	△	○		○		·	△	
3-03850	La Colorada	andesite	biotite-muscovite-anthophyllite schist	○	△	○?	△	△	◎						△	·						
4-13900	La Colorada	andesite	meta gabbro	×		○	◎		·	○			·	·	△	△		△		·		△

Legend ◎ abundant; ○ common; △ minor; · rare

Primary mineral qz:quartz, kf:k-feldspar ,pl:plagioclase, ho:hornblende, mu:muscovite, bt:biotite, cpx:celino pyroxene, opx:ortho pyroxene, zi:zircon, sph:sphene, ap:apatite, op:opaque minerals (mainly iron oxide),

Secondary mineral chl:chlorite, leu:leucoxene, seri:sericite, ill:illite, smc:smectite, ep:epidote, cs:calcite, sid/ank:siderite/ankerite

(2) Ore sample

Sampe No.	Locality	Rock name		Primary mineral											Secondary mineral							Ore mineral											
		Field observation	Microscopic observation	qz	Kf	pl	ho	mu	bi	cpx	opx	zi	sph	ap	op	chl	leu	serl	smc	ep	cs	sig/ank	mgt	hem	spi	ilm	py	mc	gn	X1	sp	wur	lim	cp	X2
A01YH001	Vaca Viscana	andesite porphyry	dacite	△		◎			△						・	△							△			×	・						・		
A01YH004	El Alisar	dacite porphyry	greywacke	◎		△			△						・	△		△		△			・				△			×					
A01YH010	Panco Alias	silicified greywacke	quartzite	○	・	・									△			◎									○								
A01KN047	El Aguilar	skarn	wollastonite?-quartz skarn	◎	△		○			△					△														・		△			×	
A01KN074-2	Pan de Azucar	Ga-Sp ore	Ga-Wuz-Sp ore	○											◎												・		◎		○	◎			
A01KN076	Tupiza	Sp-Ga-Py ore	Py-Sp(-Cp)	△											◎						○						◎				○			△	・
A01KN083	La Candelaria	Ga ore	Sp-Ga ore	◎											○			・											・		△		△		
A01KN088	Rachite	Qz-Ga-Sp ore	Py-spinel?-Ga-Ap	・											○						◎				△		◎		・						Asp
A01RT011	Agua Rica	porpyry	Py-Qz vein	◎											○			・			・						○			stan? ×	×		・	×	Ag
A01RT015	Vaca Viscana	andesite porphyry	biotite amphibolite bearing granodiorite			◎	△		○				・	・	△	・				・	・		△											
A01RT017	Vaca Viscana	granite	Py disseminated meta granite	○	○	△			○			×		・	△	・											△			tet? ×	×			×	
A01RT020	Lagna Salitre	Qz vein	jasperoid	◎											◎									○									○		
A01RT030	El Alisar	andesite porphyry	hornblende biotite andesite	○		◎	○		○														・											
A01RT032	Breslito	brecciated granite	mylonitized granite	◎	○	○			○					×	×	・		△			◎			×										
A01RT035	Organullo	Qz vein	weathered Cal-Qz vein	◎												△			△					×									△	
A01RT036	Organullo	Qz vein	brecciated pyrite bearing silicified rock	◎														・									◎							
A01RT059	Esperanzu	Ga-Sp ore	sulphide ore	○		△												△									・		◎	・	◎			△	
A01RT060	El Aguilar	quartzite	Ga-Sp(-Py-Cp)-sericite Qz vein	◎														○									・		○		○			・	
A01RT064	Belgica	Ba ore	Py disseminated siltstone	◎		○										・		△	△								○								
A01RT065	Pumahuasi	Ba ore	Py bearing shale	○	△	△									△			○									△								
A01RT067	La Cienaga	Ba-Qz ore	Py-Cp-Ga-Sp-Ank ore												◎							◎					○		・		・			○	
A01RT069	La Gateada	Qz vein	Ga-Sp-Py-Cp-Qz vein	◎											○												・		○		△			・	
A01RT070	Pan de Azucar	Qz vein	Py-Sp-Qz vein	△											◎												◎		△		○				
A01RT074	Tupiza	Qz-Cal vein	Py-Stan?-Sp-Cp ore	△											◎						◎						◎	△		stan? ○	・			・	
3-07400	La Colorada	Po ore	Py-Cp ore	○					△						◎	◎							△			・	◎				・			△	
5-11400	La Colorada	Po ore	Po?-Cp-Chl-Ph ore	△					○						◎	○							×			・				Po (hex)				△	

Legend
Rock name: Ga:galena, Sp:sphalerite, Py:pyrite, Ba: barite, Po:pyrrohtite, Cp: chalcopyrite, Qz:quartz, Cal:calcite, Ank:ankerite, Stan:stannite, Wuz:wurtzite, Asp:arsenopyriye,
Primary mineral: qz:quartz, kf:k-feldspar ,pl:plagioclase, ho:hornblende, mu:muscovite, bi:biotite, cpx:cline pyroxene, opx:ortho pyroxene, zi:zircon, sph:sphene, ap:apatite, op:opaque minerals (mainly iron oxide),
Secondary mineral: chl:chlorite, leu:leucoxene, ser:sericite, ill:illite, smc:smectite, ep:epidote, ca:calcite, sid/ank:siderite/ankerite
Ore mineral: mgt:magnetite, ilm:ilmenite, py:pyrite, mc:marcasite, gn:galena, sp:sphalelite, lim:limonite or goethite, cp:chalcopyrite, X1:unidetified phase 1, X2:unidetified phase 2, spi:spinel, hem:hematite, stan:stannite, tet:tetrahedrite, Po(hex):pyrrotite(hexgonal?), Asp:arsenopyrite, wur:wurtzite, cov:coveline,
Ag:Ag-mineral

Table A-3 Result of the laboratory test (X-ray diffraction)

No.	Locality	Rock	Q	Cr	Ga	Hb	Pl	K-f	Bt	Sm	Ch	S/M	S	P	H	K	D	Ca	Hl	Gy	Na-ja	Na-al	Al	Py	Cp	Gh	An	Rt
A01TK014	El Acay	meta sediment	◎										◎			◎												○
A01YH012	El Acay	altered rock	◎									○		◎														
A01KN011	El Acay	altered sandstone	◎					○					○			+												
A01RT033	El Acay	sedimentary rock	◎				◎						○			+												
A01RT034	El Acay	sedimentary rock	◎			△	◎	◎																				
A01TK058	Agua Rica	soil	△												○													
A01TK059	Agua Rica	soil				+	◎	○			+																	
A01TK060	Agua Rica	soil	○											◎								○						
A01RT010	Agua Rica	feldspartoid porphyry	◎											○									◎					
A01RT012	Agua Rica	hydrothermal breccia	◎										◎															
A01RT013	Agua Rica	feldspartoid porphyry	◎				◎	○					○			+												
A01TK001	Capillitas NE	granite	◎				◎						◎															
A01TK002	Capillitas NE	granite	◎				○					+				+				+								
A01RT052	Centenario	white clay	◎																	◎	△		△					
A01RT054	Centenario	volcanic breccia	◎										○	△							+	◎						
A01RT057	Centenario	sandstone	◎											+							+	◎						
A01TK025	Centenario	andesite?	◎				+						△								+	○						
A01TK026	Centenario	andesite?	◎																		○	◎						
A01TK027	Centenario	brecciated quartz	◎								○		◎															
A01TK028	Centenario	phyllite	◎				△					+									△							
A01RT049	Diablillos	tuff breccia	◎				+					△								+								
A01RT049'	Diablillos	tuff breccia	◎				◎						○															
A01YH003	El Alisar	dacite porphyry	◎				◎																					
A01RT022	El Alisar	andesitic porphyry	◎				◎						△															
A01RT024	El Alisar	andesitic porphyry	◎				◎				+		△															
A01RT026	El Alisar	andesitic porphyry	△				◎	○			+																	
A01RT027	El Alisar	andesitic porphyry	○				◎						△															
A01RT028	El Alisar	andesitic porphyry	◎				◎	○				△				○												
A01TK015	Incachule	ignimbrite	◎													◎				△				△				
A01TK016	Incachule	ignimbrite	◎				○	○			△		○															
A01TK017	Incachule	ignimbrite	◎	△			○	○		+			◎						◎									
A01TK018	Incachule	ignimbrite																										
A01TK019	Incachule	ignimbrite	◎					○		+			◎			△												
A01KN016	Incachule	ignimbrite	◎					○					△			+												
A01KN017	Incachule	ignimbrite	◎					○				△																
A01KN020	Incachule	ignimbrite	◎													○												
A01KN022	Incachule	ignimbrite	◎					○				△																
A01KN025	Incachule	ignimbrite	◎										◎			+												
A01TK052	La Colorada	shale	◎								◎		◎							◎								
A01TK053	La Colorada	meta diorite?	◎																									
A01TK054	La Colorada	shale			△											+												
A01TK055	La Colorada	volcanics?	◎																							○		
A01TK056	La Colorada	shale ?					○						◎			+				+								
A01RT077	La Purisima	shale	◎				◎	◎					○															
A01TK003	Lagna Blanca	granite	◎				◎	◎					◎															
A01TK004	Lagna Blanca	granite	◎																									

No.	Locality	Rock	Q	Cr	Ga	Hb	Pl	K-f	Bt	Sm	Ch	S/M	S	P	H	K	D	Ca	Hl	Gy	Na-ja	Na-al	Al	Py	Cp	Gh	An	Rt
A01TK005	Lagna Blanca	granite	△				+											◎										
A01TK006	Lagna Blanca	weathered granitod	◎	△			○	○					△															
A01TK008	Lagna Grande	granite	◎				◎	◎					◎															
A01TK034	El Aguilar	limestone	△															◎										
A01RT014	Capillitas	rhyolite-dacite porphyry	◎											△														
A01RT039	Organullo	andesitic dacite	◎									◎									○							
A01RT040	Organullo	andesitic dacite	◎													○												
A01RT041	Organullo	andesitic porphyry	◎				◎	△																				
A01TK035	Pan de Azucar	dacite	◎										◎															
A01TK037	Pan de Azucar	dacite	◎									◎															○	
A01KN073	Pan de Azucar	altered dacite	◎										○								○							
A01RT071	Pan de Azucar	andesite	◎										◎								+							
A01RT072	Pan de Azucar	andesite	◎					△				○																
A01RT073	Pan de Azucar	andesite	◎										◎			△												
A01TK029	Pancho Arias	porphyry	◎				△	○					△			△												
A01KN084	Rachaite	altered andesite	◎									△					○				△							
A01KN085	Rachaite	altered andesite	◎					△				○				+					△							
A01KN086	Rachaite	altered andesite	◎					△		△		△									+							
A01KN087	Rachaite	andesite	◎				○	△			○	△																
A01KN089	Rachaite	altered andesite	◎				△	△		+			△			+												
A01TK041	Rachaite	dacite	◎					○								△					○							
A01TK043	Rachaite	dacite	◎					△		△																		
A01TK044	Rachaite	dacite	◎				△				+	○																
A01TK045	Rachaite	andesite dyke ?	◎				○	◎			△																	
A01TK046	Rachaite	dacite	◎					△				△									△							
A01TK047	Rachaite	dacite	◎									○															+	
A01TK048	Rachaite	dacite	◎					△				△				△					△							
A01TK049	Rachaite	dacite	◎					○				+	○			○												
A01TK050	Rachaite	dacite	◎									○				○												
A01TK051	Rachaite	dacite	◎									○				○					△							
A01RT081	Rachaite	dacite	◎									○				+				○	+			○				
A01RT084	Rachaite	dacite	◎									+				+												
A01TK039	La Pricima	shale	◎				○						◎			○												
A01TK040	La Pricima	red shale	◎				○						○															
A01TK038	Tupiza	sandstone	◎				◎				○		△															
A01RT015	Vaca Vizcana	andesite porphyry	○				◎	○																				
A01RT016	Vaca Vizcana	andesite porphyry	◎				◎	○			+																	
A01RT017	Vaca Vizcana	granite	◎				◎	○					△															
A01TK020	Vicuna Muerta	granite	◎				○	○					○			+												
A01TK021	Vicuna Muerta	granite	◎				◎	○					○															
A01TK022	Vicuna Muerta	porphyry	◎				◎						◎								△							
A01TK023	Vicuna Muerta	porphyry	◎										◎								○							
A01TK024	Vicuna Muerta	granite	◎									+									○							
A01RT043	Vicuna Muerta	granite	◎				◎	◎					△															
25175	El Pago	porphyry	◎				◎		△															△				
26264	El Pago	porphyry	○					△			○	+												○	△			
26405	El Pago	porphyry	◎					○					△															

No.	Locality	Rock	Q	Cr	Ga	Hb	Pl	K-f	Bt	Sm	Ch	S/M	S	P	H	K	D	Ca	Hl	Gy	Na-ja	Na-al	Al	Py	Cp	Gh	An	Rt
67588	El Pago	basement	○				◎				○		○					△			+			△				
5618	El Pago	basement	◎				+						○		+													
26434	El Pago	basement	◎				△		◎				○											△	+			
25214	El Pago	basement	◎				○		◎		△													+	+			
23277	El Pago	lamprophyre				○	◎		+		+													○	+			
23281	El Pago	lamprophyre	+			○	○		○		△													△	△			
25173	El Pago	lamprophyre				△	△		◎															○				

Q: Quartz, Hb: Hornblende, Bt: biotite, Pl: Plagioxclase, Ch: Chlorite, P: Pyrophyllite, Ca: Calcite, Na-ja: Na-Jalosite, Py: Pyrite, Gh:goethite
Cr: Cristobalite, K-f:K-feldspar, S/M: Sericite/Smectite mixed layer mineral, H: Halloysite, Hl: Halite Na-al: Na-Alunite,
Ga: Garnet, Sm: Smectite, S: Sericite, K: Kaolinite, D: diaspore, Gy: Gypsum, Al: Alinite, An: Anatase, Rt: Rutile, Cp: Chalcopyrite

◎: abundant
○: common
△: minor
+: rare

Table A-4 Result of the laboratory test (geochemical analysis)

(1) Geochemistry for rock chip samples

Sample No.	Locality	Rock name	Au (g/t)	Ag ppm	Al (%)	As ppm	Ba ppm	Be ppm	Bi ppm	Ca (%)	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe (%)	K (%)	Mg (%)	Mn ppm	Mo ppm	Na (%)	Ni ppm	P ppm	Pb ppm	S (%)	Sb ppm	Sr ppm	Ti (%)	V ppm	W ppm	Zn ppm	Hg ppb
A01TK011	El Acay	quartz vein	<0.005	1	0.06	<5	10	<0.5	<2	0.01	<0.5	<1	12	76	0.31	0.01	<0.01	15	1	0.03	3	<10	23	0.01	<5	4	<0.01	1	<10	6	<10
A01TK012	El Acay	granite	<0.005	259	5.13	35	970	2	10	0.18	<0.5	5	23	3.24%	4.05	1.26	0.89	355	1	1.17	12	1m	78	0.23	<5	104	0.12	70	<10	366	10
A01TK013	El Acay	quartz vein	<0.005	1.3	1.66	<5	10	<0.5	<2	0.06	<0.5	<1	21	128	5.45	0.04	<0.01	5	1	1.35	3	70	4	<0.01	<5	<1	0.04	213	<10	21	<10
A01TK022	Vicuna Muerta	porphyry	0.006	0.3	5.82	100	370	1.5	<2	0.65	<0.5	<1	20	2070	1.95	2.04	0.79	1300	12	3.65	3	6510	74	0.17	<5	243	0.1	77	<10	56	<10
A01TK027	Diablillos	hypogene quartz	0.02	0.5	5	85	170	<0.5	<2	0.08	<0.5	<1	11	60	5.67	1.74	0.05	5	2	0.8	1	690	296	5.39	10	472	0.03	88	<10	4	<10
A01TK050	Pancho Arias	porphyry	0.01	0.5	6.24	<5	900	0.5	<2	0.6	<0.5	12	11	1210	3.75	5.39	0.49	2300	110	1.54	4	540	20	0.5	<5	253	0.24	62	<10	28	<10
A01TK051	Pancho Arias	quartz vein	<0.005	<0.5	4.32	<5	480	0.5	<2	0.05	<0.5	1	23	68	0.47	5.3	0.12	25	250	0.27	5	440	8	0.22	<5	162	0.1	23	<10	8	<10
A01TK052	Pachaste	quartz vein	<0.005	<0.5	0.46	30	40	1	<2	0.15	<0.5	2	18	12	0.26	0.11	0.02	245	<1	0.05	3	10	10	0.05	45	48	0.03	5	<10	118	10
A01YH004	El Alisar	dacite porphyry	0.02	<0.5	5.64	<5	70	3	<2	0.41	<0.5	<1	13	9	0.75	0.83	0.56	70	3	3.68	1	440	161	0.2	<5	339	0.09	37	<10	34	<10
A01YH008	Pancho Arias	granite	<0.005	0.5	6.53	<5	430	0.5	<2	0.03	<0.5	<1	8	47	4.24	2.8	0.19	15	5	0.15	1	260	<2	0.68	<5	179	0.08	53	30	5	<10
A01YH010	Pancho Arias	silicified greywacke	<0.005	<0.5	6.5	5	580	0.5	<2	0.14	<0.5	7	65	197	1.92	5.18	0.77	120	318	0.67	16	570	6	0.73	<5	120	0.22	68	<10	380	<10
A01YH013	Rio Grande	shale	<0.005	<0.5	7.05	<5	2640	2	<2	0.09	<0.5	2	53	32	1.4	2.96	0.62	110	27	1.31	1	720	68	0.13	<5	95	0.23	117	<10	24	<10
A01YH014	Rio Grande	shale	<0.005	<0.5	7.06	5	1000	2	<2	0.02	0.5	2	68	71	1.25	3.28	0.72	155	7	0.72	4	400	52	0.02	<5	76	0.45	307	<10	44	<10
A01YH015	Rio Grande	shale	<0.005	<0.5	7.99	15	770	2.5	<2	0.12	<0.5	10	78	32	3.43	3.42	1.09	365	<1	0.89	31	370	28	0.22	<5	38	0.44	112	<10	1361	<10
A01YH016	Rio Grande	shale/sandstone	0.005	<0.5	5.4	5	2110	3.5	<2	0.06	<0.5	35	51	122	5.16	1.06	0.26	295	2	0.93	127	1050	52	1.65	5	166	0.26	65	<10	86	<10
A01YH017	Rio Grande	shale	<0.005	<0.5	7.72	<5	1030	2	<2	0.2	<0.5	3	81	11	2.71	3.53	0.9	335	1	0.95	4	430	20	0.18	<5	99	0.46	218	<10	42	<10
A01YH018	Rio Grande	shale	0.01	1	3.65	5	140	3	<2	0.54	<0.5	2	21	21	2.67	0.46	0.41	225	<1	1.61	6	630	72	0.13	<5	164	0.24	49	<10	34	<10
A01YH019	Belgica	siltstone	<0.005	<0.5	4.69	12	2100	1	<2	0.27	0.5	4	15	12	1.21	1.11	0.3	185	<1	0.91	5	1270	306	0.1	<5	964	0.18	42	<10	698	10
A01YH020	Belgica	siltstone	<0.005	<0.5	2.48	15	960	<0.5	<2	0.34	<0.5	3	16	55	3.31	0.34	0.05	790	<1	0.98	11	1530	18	0.03	5	49	0.04	12	<10	210	<10
A01YH021	Pumahuasi	siltstone	<0.005	<0.5	7.69	25	510	2	<2	0.14	0.5	15	66	28	4.5	2.57	1.04	445	<1	0.92	34	400	54	0.67	<5	75	0.22	92	<10	654	<10
A01YH022	Sol del Mayo	siltstone	<0.005	<0.5	6.71	15	690	2	<2	0.14	0.5	2	27	9	0.84	2.02	0.18	15	<1	1.34	9	320	12	<0.01	<5	177	0.24	65	<10	862	<10
A01YH023	Abra del Condor	sandstone	<0.005	<0.5	5.51	10	540	2	<2	0.14	<0.5	3	27	17	1.49	2.59	0.28	120	<1	0.75	7	690	64	<0.01	<5	80	0.28	53	<10	58	<10
A01YH024	Paloma	salt	<0.005	<0.5	6.25	5	270	0.5	<2	0.14	<0.5	5	45	10	4.04	1.23	0.93	315	1	1.59	28	670	22	<0.01	<5	55	0.24	74	<10	38	<10
A01YH025	La Cienaga	siltstone	<0.005	<0.5	4.98	5	1210	1.5	<2	0.16	<0.5	1	14	10	0.59	2.56	0.18	15	<1	0.65	7	810	136	0.03	<5	53	0.23	66	<10	60	<10
A01YH026	Paloma	siltstone	<0.005	0.5	9.55	5	350	1.5	<2	0.1	<0.5	11	45	17	5.3	1.47	1.12	320	<1	1.26	42	560	18	0.03	<5	56	0.34	102	<10	110	10
A01YH027	Cerro Morado	siltstone	<0.005	<0.5	7.9	5	780	2.5	<2	0.09	<0.5	14	72	30	4.87	2.57	0.91	240	<1	0.8	46	550	16	<0.01	<5	56	0.36	99	<10	72	<10
A01YH028	Cerro Morado	siltstone	<0.005	<0.5	8.09	<5	610	2.5	<2	0.18	<0.5	15	66	20	3.89	2.74	1.12	370	<1	1.09	37	640	20	<0.01	<5	66	0.3	177	<10	60	20
A01YH029	Cerro Morado	siltstone	<0.005	<0.5	8.14	10	610	2	<2	0.09	<0.5	5	68	44	4.01	2.9	0.95	335	<1	0.67	34	300	28	0.01	<5	43	0.31	117	<10	94	<10
A01YH030	San Francisco	salt	<0.005	<0.5	8.05	5	680	2.5	<2	0.05	<0.5	8	71	24	4.17	3.1	1.09	320	<1	0.67	36	350	16	<0.01	<5	43	0.31	117	<10	94	<10
A01YH031	San Francisco	salt	<0.005	<0.5	6.38	15	360	1.5	<2	0.04	<0.5	4	48	18	4.26	1.65	0.87	320	<1	0.8	20	310	12	<0.01	<5	62	0.22	63	<10	80	<10
A01YH032	Santa Rosa	salt	<0.005	<0.5	8.29	40	6570	3.5	<2	0.05	<0.5	17	72	113	3.48	3.91	0.37	280	<1	0.31	31	490	116	0.14	<5	97	0.19	100	<10	59	10
A01YH033	Chocolle	siltstone	<0.005	1.5	5.8	30	430	2	<2	0.6	<0.5	29	62	37	15.39	1.72	0.64	760	8	0.52	119	12000	10	0.03	<5	164	0.02	85	<10	2301	10
A01YH034	Chocolle	siliceous siltstone	<0.005	<0.5	5.82	10	690	0.5	<2	0.26	<0.5	9	31	29	2.63	0.64	0.69	135	1	3.01	30	8190	2	<0.01	<5	110	0.13	48	<10	36	<10
A01YH035	Chocolle	andesite	<0.005	<0.5	6.69	15	290	<0.5	<2	0.78	<0.5	25	74	39	6.62	0.01	2.44	575	<1	3.37	30	26200	14	<0.01	<5	203	0.59	255	<10	132	<10
A01YH036	Chocolle	slate	<0.005	<0.5	7.4	15	1520	2.5	<2	0.04	<0.5	8	66	18	4.48	2.21	0.91	250	4	0.76	43	480	8	0.21	<5	82	0.21	115	<10	72	<10
A01YH037	La Gateada	slate	<0.005	<0.5	7.95	15	510	3.5	<2	0.09	<0.5	11	72	30	4.55	2.57	0.65	270	<1	0.54	42	210	14	<0.01	<5	75	0.29	109	<10	78	10
A01YH038	Cienagillas	slate	<0.005	<0.5	6.73	5	330	1.5	<2	0.06	<0.5	8	43	27	3.17	1.64	0.33	100	<1	0.78	23	3600	16	0.01	<5	72	0.16	67	<10	26	10
A01YH039	Cienagillas	slate	<0.005	<0.5	9.09	15	530	2.5	<2	0.09	<0.5	15	76	31	5.17	2.99	0.63	270	<1	0.47	39	2301	22	<0.01	<5	76	0.32	113	<10	106	10
A01YH040	Cienagillas	slate	<0.005	<0.5	8.98	10	630	2.5	<2	0.06	<0.5	10	69	32	3.49	2.85	0.39	165	1	0.57	21	260	16	<0.01	<5	86	0.21	88	<10	106	<10
A01YH041	Cienagillas	slate	<0.005	0.5	6.48	30	340	3	<2	0.22	<0.5	9	56	36	4.93	1.45	0.53	190	1	1.04	37	490	14	<0.01	<5	86	0.21	88	<10	106	<10
A01YH042	Tin de Azogue	slate	<0.005	<0.5	6.99	55	460	3	<2	0.51	<0.5	3	19	8	2.74	1.43	0.85	260	2	0.35	4	1070	42	0.72	40	299	0.35	70	<10	24	<10
A01YH043	Tupiza	slate	<0.005	2	8.64	5	750	3.5	<2	0.04	<0.5	18	100	65	4.97	3.55	1.13	515	<1	0.59	18	370	38	<0.01	<5	70	0.35	136	<10	230	<10
A01YH044	La Pastojma	slate	<0.005	0.5	8.43	25	1140	3	<2	0.05	<0.5	73	77	39	3.88	3.11	0.83	445	<1	0.73	126	420	30	<0.01	<5	54	0.34	112	<10	160	20
A01YH045	La Pastojma	slate	<0.005	<0.5	7.26	15	760	1.5	<2	0.08	<0.5	5	59	25	4.01	2.21	0.96	205	13	1.3	37	560	28	0.09	<5	60	0.29	100	<10	56	40
A01YH046	La Candelaria	siltstone	<0.005	<0.5	7.4	20	550	2	<2	0.07	<0.5	3	58	33	3.1	2.66	0.32	50	<1	0.64	15	2201	20	0.01	<5	56	0.27	95	<10	56	<10
A01YH047	La Candelaria	siltstone	<0.005	<0.5	9.7	15	1120	3	<2	0.07	<0.5	17	103	35	3.56	3.48	0.69	405	<1	0.73	34	430	42	<0.01	<5	45	0.64	161	<10	104	<10
A01YH048	Rachaite	argillaceous rock	0.005	<0.5	7.15	40	1250	2	2	0.23	<0.5	1	21	12	0.67	3.48	0.58	200	3	0.09	2	1680	122	0.1	20	83	0.49	111	<10	18	<10
A01YH049	Rachaite	altered rock	0.01	<0.5	6.36	30	450	2	2	0.16	<0.5	1	16	11	1.47	2.12	0.76	190	13	0.19	2	650	214	0.14	35	64	0.43	92	<10	18	<10
A01YH050	Rachaite		0.025	0.5	4.77	50	190	1.5	<2	0.2	81	3	16	418	1.63	1.83	0.33	1085	2	0.02	3	810	1292	1.46	50	31	0.25	95	<10	1.22%	<10
A01YH051	La Colorada	schistose rock	<0.005	1	3.8	20	10	<0.5	2	0.06	<0.5	35	38	7	6.39	0.06	0.97	455	<1	0.011	9	190	10	<0.01	<5	<1	0.16	39	<10	60	<10
A01YH052	La Colorada	schistose rock	0.01	<0.5	5.34	45	100	<0.5	<2	0.42	<0.5	55	53	56	2.166	0.12	1.21	4010	6	<0.01	25	530	83	<0.01	<5	17	0.33	85	30	74	<10
A01YH053	La Colorada	hornfels	<0.005	<0.5	4.63	10	300	0.5	<2	0.14	<0.5	12	40	6	4.93	1.12	0.57	520	1	0.07	12	500	6	<0.01	<5	21	0.26	66	<10	28	10
A01YH054	La Colorada	sandstone	<0.005	<0.5	5.71	350	120	<0.5	<2	0.16	2	12	48	623	9.7	0.24	1.42	1615	1	0.02	7	220	24	0.03	<5	102	0.28	53	<10	1090	<10
A01YH055	La Colorada	schistose rock	<0.005	<0.5	9.19	5	970	3	3	0.35	<0.5	18	73	7	4.63	3.42	1.2	375	<1	0.97	46	620	6	<0.01	<5	119	0.67	112	<10	36	<10
A01YH056	La Colorada	hornfels	<0.005	<0.5	7.95	20	700	2	<2	0.71	<0.5	14	55	6	3.39	2.11	0.83	195	<1	1.87	33	880	<2	<0.01	<5	203	0.48	94	<10	20	<10
A01YH057	Linzea	slate	<0.005	<0.5	7.99	10	450	2.5	2	0.06	<0.5	4	60	20	3.3	3.48	1.09	435	1	1.02	10	560	14	0.09	<5	59	0.34	108	<10	56	<10
A01YH058	Linzea	slate	<0.005	0.5	7.99	20	640	3	<2	0.1	<0.5	13	61	22	3.28	3.53	1.15	510	<1	0.89	30	510	4	<0.01	<5	40	0.34	130	<10	122	<10
A01YH059	Linzea	slate	<0.005	<0.5	5.56	5	330	1	<2	0.17	<0.5	4	30	10	1.6	1.46	0.56	245	<1	2.44	16	570	10	<0.01	<5	96	0.26	44	<10	32	<10
A01YH060	Linzea	slate	<0.005	0.5	8.7	10	730	3	<2	0.05	<0.5	5	76	37	4.4	4.58	0.93	425	<1	0.54	19	510	<2	0.01	<5	20	0.36	106	<10	72	<10
A01YH061	Linzea	slate	<0.005	<0.5	7.28	20	480	2.5	<2	0.17	<0.5	8	58	29	3.26	3	0.82	365	<1	0.05	29	500	10	<0.01	<5	55	0.34	106	<10	52	<10
A01YH062	Linzea	slate	<0.005	0.5	8.27	45	660	2.5	<2	0.07	<0.5	7	76	13	4.41	3.78	1.08	290	<1	0.43	18	480	12	0.01	<5	91	0.42	82	<10	68	<10
A01YH063	Linzea	slate	<0.005	<0.5	7.99	5	460	2.5	<2	0.18	<0.5	8	63	19	4.27	2.42	1.3	565	<1	1.86	14	750	6	0.04	<5	56	0.31	140	<10	100	30
A01YH064	Tinco	slate	<0.005	<0.5	9.87	50	540	2	<2	0.2	<0.5	5	52	25	2.7	2.62	0.55	90	<1	0.99	20	470	22	0.01	<5	8	0.01	11	<10	2	<10
A01KN007	Stratito	quartz vein	<0.005	0.5	0.17	<5	<10	<0.5	<2	0.04	<0.5	<1	14	7	0.08	0.05	0.01	55	<1	0.03	1	10	<2	<0.01	<5	8	0.01	11	<10	2	<10
A01KN010	El Acay	limestone gossan	<0.005	1	4.25	5	1220	6	<2	0.24	4.5	308	17	71	11	1.63	0.32	>10000	4	0.74	266	1150	921	0.05	<5	225	0.15	50	<10	4010	10
A01KN015	Incachola	quartz vein	0.025	4	2.48	265	190	3.5	<2	0.13	<0.5	1	35	7	0.46	1.57	0.15	2201	14	0.12	4	170	10	0.031	105	37	0.1	29	<10	16	30
A01KN021	Incachola	quartz vein	0.02	<0.5	2.04	1915	140	3.5	<2	0.11	<0.5	5	45	8	0.84	1.02	0.08	50	53	0.09	8	190	10	0.42	115	49	0.1	27	<10	24	210
A01KN023	Incachola	quartz-pyrite vein	<0.005	<0.5	4.84	>10000	40	2	<2	0.16	<0.5	8	38	9	5.78	0.41	0.18	25	3	0.01	11	580	16	6.08	260	40	0.24	80	<10	92	1060
A01KN024	Incachola	quartz vein	1.26	12	1.94	7105	140	3	<2	0.05	<0.5	<1	31	9	5.18	1.53	0.06	50	12	0.06	<1	190	10	0.48	195	46	0.06	37	<10	32	120
A01KN027	Incachola	silica sinter	0.01	<0.5	0.59	190	490	53	2	>25	<0.5	3	5	5	1.54	0.22	0.21	5280	<1	0.16	1	190	12	0.05	25	1035	0.03	7	<10	6	<10
A01KN033	Centenario	talus deposit	0.035	<0.5	6.12	125	60	1	<2	2.6	<0.5	4	32	41	1.95	1.79	0.24	85	3	0.05	7	610	56	4.54	<5	369	0.16	76	<10	30	<10
A01KN034	Centenario	talus deposit	0.005	<0.5	6.34	65	30	0.5	2	4.3	<0.5	6	17	35	2.73	1.78	0.29	90	5	0.09	7	710	112	6.55	<5	421	0.1	79	<10	20	<10
A01KN035	Centenario	hematite breccia	0.015	0.5	2.42	90	220	<0.5	<2	0.12	<0.5	1	44	120	20.43	0.81	0.07	50	4	0.28	1	640	86	1.59	<5	567	0.05	165	<10	81	<10
A01RT002	Farallon Negro	quartz vein	0.115	15	0.24	25	30	8	20	15	11.5	<1	<1	158	0.3	0.07	0.62	>10000	<1	0.02	1	20	1060	0.45	20	2256	<0.01	31	<10	2230	10
A01RT015	Vega Viscana	andesite porphyry	0.01	<0.5	7.63	5	620	1.5	<2	3.7	<0.5	15	20	44	3.7	2.41	1.26	1385	5	2.59	9	1190	16	1.05	<5	527	0.56	121	<10	80	<10
A01RT016	Vega Viscana	andesite porphyry	0.005	<0.5	7.89	<5	550	1	<2	2.6	<0.5	10	32	24	2.94	2.72	0.89	560	4	2.56	5	970	14	2.15	<5	430	0.22	88	<10	58	<10
A01RT017	Vega Viscana	granite	<0.005	<0.5	6.91	<5	270	3	<2	1.1	<0.5	8	20	8	1.58	2.22	0.75	200	3	2.65	12	590	20	0.8	<5	155	0.19	49	<10	38	<10
A01RT018	Vega Viscana	andesite porphyry	0.025	<0.5	7.85	<5	660	1.5	<2	2.1	<0.5	8	14	76	3.62	1.46	1.11	560	5	2.55	7	980	48	1.57	<5	531	0.4	81	<10	84	<10
A01RT035	El Alisal	andesite porphyry	0.01	0.5	8.02	<5	540	1.5	2	1.95	<0.5	4	7	15	1.94	1.54	0.75	205	3	2.53	1	800	12	0.97	<5	526	0.13	41	<10	32	<10
A01RT030	El Alisal	andesite porphyry	<0.005	<0.5	7.55	<5	750	2	<2	3.5	<0.5	10	9	73	3.72	1.95	0.96	900	1	2.76	5	1310	10	0.06	<5	728	0.35	80	<10	56	<10
A01RT031	Becalito	quartz vein	<0.005	1	0.08	<5	20	<0.5	2	0.02	<0.5	<1	13	22	0.23	0.01	0.01	15	1	0.01	1	<10	2	<0.01	<5	14	<0.01	11	<10	4	<10

Sample No.	Locality	Rock name	Au (ppb)	Ag ppm	Al (%)	As ppm	Ba ppm	Be ppm	Bi ppm	Ca (%)	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe (%)	K (%)	Mg (%)	Mn ppm	Mo ppm	Na (%)	Ni ppm	P ppm	Pb ppm	S (%)	Sb ppm	Sr ppm	Ti (%)	V ppm	W ppm	Zn ppm	Hg ppb
A01RT032	Brasilio	precipitated gravel	<0.005	30	7.22	<5	310	2.5	4	0.23	0.5	6	29	9770	2.22	3.13	0.96	485	2	2.07	13	680	16	<0.01	<5	83	0.25	67	<10	661	<10
A01RT033	El Acay	sedimentary rock	0.01	0.5	3.66	40	1140	1.5	2	0.18	<0.5	11	9	1511	1.39	2.79	0.24	170	4	0.08	3	270	398	0.04	10	94	0.09	42	<10	1161	<10
A01RT034	El Acay	sedimentary rock	<0.005	<0.5	6.11	40	1470	11	<2	0.11	<0.5	17	9	56	1.15	3.05	0.18	135	<1	2.12	7	490	18	0.09	<5	157	0.19	29	<10	201	<10
A01RT035	El Acay	quartz vein	<0.005	0.5	0.09	<5	<10	<0.5	<2	0.01	<0.5	<1	12	12	0.07	0.03	<0.01	35	1	0.03	<1	10	156	<0.01	<5	101	<0.01	43	<10	4.835%	40
A01RT036	Veiuna Muerta	quartz vein	<0.005	18.5	3.08	20	280	4	3	0.27	221	58	7	256	7.96	0.05	0.6	>10000	73	<0.01	51	340	7.09%	0.59	15	291	0.01	26	<10	52	110
A01RT044	Veiuna Muerta	quartz vein	<0.005	0.5	0.03	<5	<10	<0.5	<2	0.01	<0.5	<1	10	7	0.04	<0.01	<0.01	30	<1	0.01	<1	<10	76	0.01	<5	13	<0.01	<5	<10	54	<10
A01RT045	Veiuna Muerta	quartz vein	<0.005	0.5	0.03	<5	<10	<0.5	<2	0.01	<0.5	<1	10	7	0.04	<0.01	<0.01	30	<1	0.01	<1	<10	76	0.01	<5	13	<0.01	<5	<10	54	<10
A01RT046	Inca Viejo	porphyry	0.165	<0.5	7.33	50	410	2	4	0.52	0.5	1	29	2160	2.41	2.12	0.85	155	20	3.47	4	6560	227	0.43	<5	355	0.15	77	<10	1941	<10
A01RT050	Condor Yacu	granite	1.45	31	0.15	225	90	<0.5	Inst*	0.11	1.5	7	563	1.68%	3.15	0.01	0.03	100	<1	<0.01	16	Inst*	942	0.06	20	50	0.61	13	<10	274	600
A01RT051	Condor Yacu	granite	<0.005	0.5	7.15	10	310	2.5	<2	0.84	<0.5	11	36	70	2.95	2.84	0.77	495	<1	1.82	20	680	30	<0.01	<5	98	0.42	66	<10	90	10
A01RT053	Centenario	volcanic breccia	0.015	<0.5	5.43	15	50	<0.5	2	0.46	<0.5	<1	17	55	1.8	1.81	0.01	15	4	0.58	2	920	224	4.54	10	431	0.03	95	<10	10	10
A01RT054	Centenario	volcanic breccia?	0.015	0.5	5.2	45	70	<0.5	2	0.18	<0.5	<1	31	33	9.18	2.63	0.24	25	3	0.56	1	760	212	3.56	10	292	0.09	102	<10	16	<10
A01RT055	Centenario	volcanic breccia?	0.015	0.5	5.2	45	70	<0.5	2	0.18	<0.5	<1	31	33	9.18	2.63	0.24	25	3	0.56	1	760	212	3.56	10	292	0.09	102	<10	16	<10
A01RT056	Centenario	volcanic breccia?	0.05	<0.5	5.55	175	50	<0.5	<2	0.38	<0.5	<1	20	28	8.21	1.85	0.92	10	7	0.68	1	880	240	4.85	5	339	0.06	81	<10	6	10
A01RT070	Pan de Azucar	quartz vein	<0.005	1580	4.95	50	380	1.5	Inst*	6.8	11	6	26	2.83%	2.51	1.92	0.46	655	4	0.7	17	Inst*	1636	0.06	30	56	0.24	60	<10	1935	>100000
A01RT079	La Candelaria	slate	<0.005	<0.5	6.71	5	480	2	<2	0.08	<0.5	3	54	78	3.15	2.41	0.4	70	2	0.26	17	340	26	0.01	<5	54	0.25	111	<10	52	110
A01RT080	La Candelaria	slate	<0.005	<0.5	6.71	5	480	2	<2	0.08	<0.5	3	54	78	3.15	2.41	0.4	70	2	0.26	17	340	26	0.01	<5	54	0.25	111	<10	52	110
A01RT085	Rachue	andesite dyke	<0.005	<0.5	7.81	15	280	3	<2	1.25	<0.5	11	32	42	2.84	2.46	1.35	920	<1	1.87	7	1270	24	0.42	<5	391	0.52	113	<10	164	170
A01RT095	Rachue	andesite dyke	<0.005	<0.5	7.81	15	280	3	<2	1.25	<0.5	11	32	42	2.84	2.46	1.35	920	<1	1.87	7	1270	24	0.42	<5	391	0.52	113	<10	164	170
AG1	El Aguilar	slate	<0.005	0.5	5.34	20	290	2	<2	0.6	<0.5	11	32	29	2.57	1.55	0.58	420	<1	2.1	25	720	34	0.4	<5	231	0.3	58	<10	58	<10
AG2	El Aguilar	slate	<0.005	<0.5	4.73	35	180	1.5	<2	0.57	<0.5	9	27	21	2.42	0.65	0.67	535	<1	2.05	25	670	20	0.57	<5	861	0.58	3211	<10	148	<10
AG3	El Aguilar	slate	<0.005	<0.5	8.27	1440	1030	2.5	<2	0.4	<0.5	107	75	55	4.08	3.04	1.23	565	<1	1.15	144	920	18	0.55	5	136	0.61	129	<10	78	<10
AG4	El Aguilar	slate	<0.005	<0.5	8.94	70	1210	2.5	<2	0.58	<0.5	9	73	8	2.77	4.25	0.88	600	1	1.35	27	980	18	0.03	<5	151	0.56	138	<10	104	<10
AG5	El Aguilar	slate	<0.005	<0.5	7.98	35	1060	2.5	<2	0.43	<0.5	10	75	19	3.37	3.76	1.06	800	<1	0.47	20	700	26	0.1	<5	180	0.38	61	<10	150	<10
AG6	El Aguilar	slate	<0.005	<0.5	6.64	15	540	2	<2	0.64	<0.5	5	42	12	2.59	1.45	0.91	650	<1	2.51	15	670	28	<0.01	<5	61	0.59	138	<10	124	<10
AG7	El Aguilar	slate	0.045	<0.5	9.59	80	1200	3.5	<2	0.18	<0.5	25	107	39	4.54	4.77	1.16	500	<1	0.58	42	500	18	<0.01	<5	61	0.59	138	<10	124	<10
AG8	El Aguilar	slate	0.005	<0.5	5.76	55	210	2	<2	0.35	<0.5	13	40	79	4.58	1.55	0.9	305	1	1.27	47	780	28	1.34	<5	101	0.33	62	<10	96	2230
AG9	El Aguilar	slate	0.01	<0.5	8.42	35	1190	3	<2	0.43	<0.5	18	86	55	4.7	4.13	1.19	480	<1	1.04	53	520	24	0.42	<5	112	0.59	235	<10	112	410
AG10	El Aguilar	slate	0.01	<0.5	8.76	15	1010	2.5	<2	0.32	0.5	17	73	56	4.11	3.82	1.1	460	<1	1.06	44	470	16	0.39	<5	112	0.55	209	<10	104	280
AG11	El Aguilar	slate	<0.005	<0.5	5.18	15	240	1.5	<2	0.95	<0.5	7	30	17	2.18	0.79	0.53	465	<1	2.24	14	710	42	0.13	<5	239	0.34	42	<10	126	300
AG12	El Aguilar	slate	<0.005	<0.5	4.84	10	180	1.5	<2	0.58	<0.5	8	28	37	2.64	0.58	0.59	310	<1	2.23	20	680	34	0.53	<5	201	0.25	56	<10	86	300
AG13	El Aguilar	slate	<0.005	<0.5	7.82	40	1110	3	<2	0.37	<0.5	16	75	26	4.24	4.04	0.99	405	<1	1.18	40	680	22	0.26	<5	144	0.58	112	<10	100	160
AG14	El Aguilar	slate	<0.005	<0.5	7.14	15	620	2	<2	0.36	2	25	54	77	5.06	2.2	1.13	635	<1	1.69	55	900	68	0.43	<5	1161	0.66	70	<10	3601	90
AG15	El Aguilar	slate	<0.005	0.5	4.14	<5	400	0.5	2	0.5	<0.5	6	24	8	2.15	1.3	0.64	545	<1	1.05	13	580	46	<0.01	<5	1149	0.23	20	<10	82	170
AG16	El Aguilar	slate	<0.005	<0.5	4.39	<5	230	1	2	0.92	1.5	7	24	22	2.16	0.79	0.61	350	<1	1.48	14	830	36	0.15	<5	2231	0.22	32	<10	198	230
AG17	El Aguilar	slate	<0.005	<0.5	7.39	10	500	3	6	0.91	<0.5	19	55	31	4.07	2.13	1.03	550	<1	2.31	35	930	40	0.59	<5	263	0.43	76	<10	102	250
AG18	El Aguilar	slate	<0.005	<0.5	9.04	10	800	2.5	<2	0.5	<0.5	22	76	42	5.12	3.6	1.32	500	<1	1.27	44	830	24	0.92	<5	1225	0.54	103	<10	108	380
AG19	El Aguilar	slate	<0.005	<0.5	8.02	25	1200	2.5	<2	0.17	<0.5	15	753	30	3.76	3.73	1.06	440	<1	0.86	40	430	22	0.56	<5	98	0.5	171	<10	106	30
AG20	El Aguilar	slate	<0.005	1	8.52	25	600	2	<2	3.2	<0.5	14	95	24	3.13	2.11	1.59	1140	4	2.05	22	810	36	0.4	<5	500	0.68	128	<10	202	80
AG21	El Aguilar	slate	<0.005	0.5	9.67	15	1230	3.5	<2	0.18	<0.5	18	81	36	4.56	4.65	1.22	355	<1	1.03	46	500	14	0.7	<5	93	0.61	154	<10	124	60
AG22	El Aguilar	slate	<0.005	<0.5	10.35	20	1530	3	<2	0.22	<0.5	18	90	35	4.65	4.61	1.35	540	<1	1.05	47	440	32	0.57	<5	99	0.54	146	<10	152	20
AG23	El Aguilar	slate	<0.005	<0.5	9.27	5	1010	3	<2	0.16	<0.5	14	87	16	4.33	4.02	1.06	260	<1	0.35	42	430	8	0.74	<5	44	0.53	152	<10	84	20
AG24	El Aguilar	slate	<0.005	<0.5	8.03	15	860	3	<2	0.76	<0.5	14	65	26	3.67	3	0.91	325	1	1.62	33	640	24	0.5	<5	1525	0.52	119	<10	96	100
AG25	El Aguilar	slate	<0.005	<0.5	7.91	15	750	2.5	<2	0.65	<0.5	13	56	20	3.26	2.5	0.93	435	<1	2.15	26	770	28	0.31	<5	181	0.54	87	<10	126	40
AG26	El Aguilar	slate	<0.005	2.5	9.86	5	1360	2.5	<2	0.24	<0.5	17	91	31	4.98	4.66	1.21	575	<1	0.89	43	530	16	0.59	<5	109	0.62	129	<10	126	40
AG27	El Aguilar	slate	<0.005	<0.5	8.11	5	810	2.5	<2	0.52	<0.5	15	62	27	3.7	2.84	1	390	<1	1.61	35	620	26	0.55	<5	180	0.51	89	<10	92	30
AG28	El Aguilar	slate	<0.005	2	7.08	<5	710	2	4	0.52	<0.5	13	55	15	3.22	2.4	0.61	335	<1	1.19	35	590	16	0.32	5	100	0.44	72	<10	68	40
AG29	El Aguilar	slate	<0.005	<0.5	7.34	5	760	2.5	<2	0.5	0.5	16	63	33	3.59	2.61	0.97	440	4	1.18	33	580	38	0.35	<5	136	0.45	74	<10	76	20
AG30	El Aguilar	slate	<0.005	<0.5	7.2	<5	980	2	<2	0.27	<0.5	14	76	28	3.92	2.2	0.98	335	1	0.64	33	360	46	0.27	5	83	0.51	98	<10	90	10
AG31	El Aguilar	slate	<0.005	<0.5	9.74	15	1180	3.5	<2	0.52	<0.5	17	96	31	4.06	5.81	1.19	415	1	0.89	44	540	50	0.34	5	238	0.5	109	<10	100	10
AG32	El Aguilar	slate	<0.005	<0.5	8.55	50	970	2.5	<2	0.28	0.5	22	86	35	5.2	3.51	1.12	375	1	0.79	44	480	20	0.65	<5	97	0.52	101	<10	100	30
AG33	El Aguilar	slate	<0.005	1	7.95	<5	900	2	<2	0.36	0.5	12	71	19	3.42	3.28	1	425	4	1.11	31	580	34	0.35	<5	136	0.56	109	<10	80	<10
AG34	El Aguilar	slate	<0.005	0.5	6.27	<5	520	2	<2	1.15	0.5	10	40	20	2.7	1.96	0.77	280	3	1.1	22	430	22	0.4	<5	79	0.32	62	<10	56	50
AG35	El Aguilar	slate	<0.005	1.5	6.67	15	1180	2.5	<2	0.32	<0.5	8	50	22	2.57	2.26	0.73	460	11	1.09	26	740	32	0.25	<5	71	0.39	73	<10	68	<10
AG36	El Aguilar	slate	<0.005	0.5	6.58	20	770	2	<2	0.37	<0.5	9	33	30	2.82	1.66	0.72	945	4	0.61	18	860	90	0.34	<5	147	0.28	45	<10	76	20
AG37	El Aguilar	slate	<0.005	<0.5	4.62	40	470	2	<2	2.3	0.5	5	33	10	4.14	2.45	1.08	2020	31	1.37	24	630	144	0.31	<5	245	0.47	90	<10	966	10
AG38	El Aguilar	slate	<0.005	2.5	8.08	25	980	3.5	<2	1.3	2.5	10	96	12	4.14	2.45	1.08	2020	31	1.37	24	630	144	0.31	<5	245	0.47	90	<10	1536	30
AG39	El Aguilar	slate	<0.005	0.5	6.16	5	950	2.5	<2	0.75	<0.5	14	60	27	4.63	2.9	1.12	1775	11	0.6	34	540	32	0.23	<5	136	0.41	74	<10	1536	30
AG40	El Aguilar	slate	<0.005	<0.5	7.84	15	540	2	2	0.73	<0.5	15	81	36	3.36	3.88	0.9	875	5	0.19	43	700	14	0.72	<5	100	0.47	135	<10	96	10
AG41	El Aguilar	slate	<0.005	<0.5	7.95	75	290	2	<2	0.47	<0.5	12	90	34	4.82	4.38	0.97	1295	11	0.35	39	440	22	1.06	<5	53	0.51	65	<10	98	20
AG42	El Aguilar	slate	<0.005	3	5.03	115	400	2	<2	1.25	<0.5	18	53	40	4.85	2.2	1.03	1720	2	0.28	24	770	76	1.33	<5	53	0.51	65	<10	158	10
AG43	El Aguilar	slate	<0.005	1.5	5.7	30	370	2	<2	1.15	3	10	83	151	8.46	1.91	1.67	5120	<1	1.18	20	430	1366	1.89	35	122	0.4	96	<10	336	10
AG44	El Aguilar	slate	0.005	1.5	4.42	35	800	1.5	2	0.83	0.5	16	59	101	4.14	1.75	0.81	1360	4	0.32	31	780	446	0.65	5	84	0.23	48	<10	106	<10
AG45	El Aguilar	slate	<0.005	0.5	8.16	5	1050	4.5	<2	2.5	<0.5	5	69	18	3.66	2.06	0.83	1895	2	1.47	20	730	120	0.13	<5	382	0.68	78	<10	118	60
AG46	El Aguilar	slate	<0.005	<0.5	9.4	85	2190	3	<2	0.39	0.5	20	105	26	3.9	4.79	1.17	1005	1	0.39	46	600	34	0.43	10	80	0.54	137	<10	90	10
AG47	El Aguilar	slate	<0.005	<0.5	6.23	20	1020	2	<2	0.68	<0.5	11	52	30	3.34	2.73	0.77	810	3	0.3	29	680	40	0.44	5	48	0.35	82	<10	156	10
AG48	El Aguilar	slate	<0.005	<0.5	11.45	40	1460	3.5	2	0.43	0.5	16	79	35	4.91	4.68	1.51	870	1	0.37	57	680	40	0.55	<5	53	0.64	202	<10	196	<10
AG49	El Aguilar	slate	<0.005	<0.5	9.83	15	960	3.5	2	2	0.5	11	49	35	3.84	2.09	1.45	1605	1	3.87	25	540	116	0.12	<5	666	0.42	89	<10	520	<10
AG50	El Aguilar	slate	<0.005	<0.5	10.82	20	940	3	2	0.56	<0.5	18	78	34	4.99	3.06	1.46	1225	<1	0.74	55	760	46	0.53	<5	61	0.65	209	<10	150	<10
AG51	El Aguilar	slate	<0.005	0.5	6.65	160	320	2.5	2	0.66	2.5	18	36	35	3.76	2.49	0.98	535	4	0.85	36	880	148	0.67	<5	104	0.56	82	<10	358	<10
AG52	El Aguilar	slate	<0.005	0.5	8.64	70	670	3.5	<2	0.45	0.5	20	71	48	4.67	4.16	1.26	770	1	0.83	53	630	122	0.58	<5	1011	0.52	157	<10	286	<10
AG53	El Aguilar	slate	<0.005	<0.5	9.74	60	730	4	8	0.5	<0.5	21	73	54	5.07	4.55	1.4	825	2	0.93	57	710	156	0.65	<5	1184	0.58	169	<10	246	<10
AG54	El Aguilar	slate	<0.005	<0.5	7.51	25	1030	3	<2	1.05	<0.5	11	53	71	3.78	2.32	1.12	755	<1	2.05	29	690	76	0.25	<5	263	0.5	104	<10	158	<10
AG55	El Aguilar	slate	<0.005	0.5	8.64	20	580	2.5	<2	0.74	0.5	19	66	49	5.19	4.04	1.39	640	<1	0.68	49	590	64	0.61	<5	82	0.54	117	<10	452	<10
AG56	El Aguilar	slate	0.005	<0.5	8	35	2640	2.5	<2	0.81	<0.5	13	52	13	3.39	2.64	1.07	690	<1	1.17	29	760	138	0.23	<5	82	0.47	159	<10	110	<10
A057	El Aguilar	slate	<0.005	<0.5	7.83	20	1470	2	<2	1.15	<0.5	12	44	16	3.02	1.78	0.94	1610	<1	2.61	30	730	60	0.18	<5	209	0.54	85	<10	62	<10
A058	El Aguilar	slate	<0.005	<0.5	6.97	10	1370	1.5	<2	0.8	<0.5	9	42	17	3.01	1.63	0.88	1565	<1	2.59	22	710	42	0.2	<5	177	0.48	82	<10	92	<10
A059	El Aguilar	slate	<0.005	<0.5	8.64	40	770	3	<2	0.28	1.5	9	59	23	3.37	3.8	1.03	2870	<1	1.09	41	640	100	0.36	<5	86	0.59	155	<10	1365	<10
AG60	El Aguilar	slate	<0.005	1.5	7.08	40	870	1.5	<2	0.56	1.5	10	42	38	4.52	2.45	1.18	>10000	11	1.16	28	750	386	0.11	<5	195	0.43	98	<10	758	<10
AG61	El Aguilar	slate	0.34	36	5.42	330	310	2	<2	0.67	369	22	72	80	6.99	2.8	0.82	>10000	3	0.25	18	410	1.96%	5.95	35	56	0.32	68	20	14.05%	1300
AG62	El Aguilar	slate	0.055	53	5.11	210	320	3	<2	3.2	220	8	23	141	5.95	0.7	0.72	>10000	12	0.04	36	430	3.90%	2.94	95	143	0.29	286	<10	6.98%	2290
AG63	El Aguilar	slate	0.03	38	6.99	495	40	3	<2	0.58	150	18	38	128	5.49	2.92	1.01	2260	3	1.06	35	600	1.46%	5.07	70	107	0.27	162	<10	5.93%	3100
AG64	El Aguilar	slate	<0.005	<0.5	9.26	100	140	4.5	<2	2.3	1.5	14	60	43	4.16	2.61	1.28	5390	<1	1.23	36	690	3061	1.06	<5	310	0.36	204	<10	648	30
AG65	El Aguilar	slate	0.01	<0.5	9.06	55	490	2.5	<2	0.63	1	15	59	25	4.5	4.08	1.23	1270	<1	0.29	41	550	561	0.64	<5	55	0.49	232	<10	438	<10
AG66	El Aguilar	slate	0.005	<0.5	8.71	30	1370	2	<2	0.53	<0.5	14	60	22	4.98	3.88	1.22	1140	<1	0.61	37	520	82	0.55	<5	481	0.46	132	<10	252	578
AG67	El Aguilar	slate	<0.005	<0.5	8.59	35	600	3	<2	2.8	0.5	16	64	44	4.83	1.71	1.24	855	3	3.53	43	2840	92	0.7	<5	2691	0.46	162	<10	234	10
AG68	El Aguilar	slate	<0.005	0.5	9.62	25	1180	2.5	2	0.38	2	15	79	27	4.45	4.12	1.33	540	<1	0.21	45	530	24	0.49	<5	63	0.55	295	<10	188	<10
AG69	El Aguilar	slate	<0.005	1	8.15	20	880	3	<2	0.4	6.5	17	77	60	4.52	3.53	1.2	470	2	0.67	51	500	66	0.58	<5	52	0.45	297	<10	712	<10
AG70	El Aguilar	slate	<0.005	0.5	9.22	5	790	3.5	<2	0.78	<0.5	16	89	44	4.58	3.47	1.4	515	1	1.06	43	950	42	0.43	<5	167	0.68	156	<10	172	<10
AG71	El Aguilar	slate	<0.005	<0.5	9.74	20	630	4	<2	1.25	<0.5	15	90	37	4.89	3.03	1.28	600	2	2.46	41	810	46	0.35	<5	186	0.57	143	<10	132	<10
AG72	El Aguilar	slate	<0.005	0.5	9.73	15	560	2	<2	0.38	<0.5	20	78	33	4.71	3.44	1.33	500	<1	1.05	47	600	18	0.3	<5	901	0.5	138	<10	20	<10

Sample No.	Locality	Rock name	Au (ppb)	Ag ppm	Al (%)	As ppm	Ba ppm	Be ppm	Bi ppm	Ca (%)	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe (%)	K (%)	Mg (%)	Mn ppm	Mo ppm	Na (%)	Ni ppm	P ppm	Pb ppm	S (%)	Sb ppm	Sr ppm	Ti (%)	V ppm	W ppm	Zn ppm	Hg ppb
AG73	El Aguilar	slate	<0.005	<0.5	3.64	5	310	0.5	<2	0.58	<0.5	6	31	6	1.74	0.93	0.63	540	<1	3.23	12	890	20	0.01	<5	1261	0.34	40	<10	62	<10
AG74	El Aguilar	slate	<0.005	1.5	1.27	<5	510	0.5	<2	0.29	<0.5	2	13	34	0.26	0.5	0.06	140	16	0.46	2	<10	190	0.04	<5	24	0.02	31	<10	20	<10
AG75	El Aguilar	slate	<0.005	<0.5	0.85	<5	440	<0.5	<2	0.08	<0.5	<1	13	12	0.16	0.47	0.05	45	2	0.34	<1	<10	58	<0.01	<5	12	0.03	21	<10	18	<10
AG76	El Aguilar	slate	<0.005	1	2.87	5	1910	<0.5	<2	0.09	<0.5	1	20	48	0.14	1.55	0.03	25	15	1.3	<1	100	74	0.02	<5	371	0.03	13	<10	261	<10
AG77	El Aguilar	slate	<0.005	<0.5	7.54	5	1790	2.5	<2	0.19	<0.5	6	65	12	2.47	3.17	0.79	400	4	1.72	20	740	261	0.03	<5	331	0.21	68	<10	261	<10

(2) Ore assay

Sample No.	Locality	Mineralization	Au (g/t)	Ag (ppm)	Al (%)	Ba (ppm)	Be (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)	Co (ppm)	Cr (ppm)	Cu (ppm)	Fe (%)	K (%)	Mg (%)	Mn (ppm)	Mo (ppm)	Na (%)	Ni (ppm)	Pb (%)	Sr (ppm)	Ti (%)	V (ppm)	Zn (ppm)
A01TK036	Pan de Azucar	slag	0.08	649	0.6	<100	<10	<20	0.05	2520	<10	10	1880	12.65	<0.1	<0.05	400	<10	<0.05	10	7.96	50	<0.05	<10	36300
A01YH010	Pancho Arias	altered granite	0.02	5	11.25	200	<10	<20	7.65	10	30	10	50	8.75	0.5	3.1	1580	<10	2.2	<10	0.065	780	0.85	300	2120
A01KN014	Incachule	Qz-Sb ore	0.03	<1	0.6	<100	<10	<20	0.2	<10	<10	30	<10	0.25	0.1	<0.05	30	10	0.1	<10	<0.001	<10	<0.05	<10	20
A01KN088	Rachaite	Qz-Gal-Sp ore	0.04	12	0.65	500	<10	<20	29.5	150	<10	<10	10	2.6	<0.1	0.65	14080	<10	<0.05	<10	1.71	810	<0.05	<10	25000
A01RT005	Bajo de la Alumbrera	porphyry	0.46	<1	3.55	200	<10	<20	0.15	<10	10	10	3440	16.05	3	0.35	720	10	0.25	10	0.002	60	0.05	160	200
A01RT011	Agua Rica	porphyry	0.11	<1	5.1	400	<10	<20	<0.05	<10	10	40	4510	4.6	1.8	0.15	40	1050	0.25	30	0.025	100	0.05	80	100
A01RT019	Laguna Salitre	Qz vein	0.5	142	1.35	<100	<10	60	0.15	50	<10	20	2130	3.25	0.5	0.3	1960	<10	0.05	<10	6.03	10	<0.05	100	31800
A01RT036	Organullo	Qz vein	2.86	27	2.45	100	<10	1600	<0.05	<10	10	40	1530	11.85	0.6	<0.05	<10	<10	0.05	30	0.064	420	<0.05	20	320
A01RT037	Organullo	Qz vein	5.38	33	0.55	<100	<10	1300	<0.05	<10	10	30	3570	15.85	0.1	<0.05	<10	10	<0.05	30	0.048	130	<0.05	<10	260
A01RT090	Colmro	Qz vein	1.63	<1	4.55	100	<10	<20	0.1	<10	<10	40	50	1.5	1.2	0.15	30	<10	0.1	10	0.013	10	0.1	30	160

(b) Geochemistry for Ordovician sedimentary rocks and Tertiary igneous rocks

Sample No.	Locality	Rock	Al2O3 (%)	BaO (%)	CaO (%)	Cr2O3 (%)	Fe2O3 (%)	K2O (%)	MgO (%)	MnO (%)	Na2O (%)	P2O5 (%)	SiO2 (%)	SrO (%)	TiO2 (%)	LOI (%)	TOTAL (%)	As ppm	Al (%)	Au ppm	Ba ppm	Be ppm	Bi ppm	Ca (%)	Cd ppm	Ce ppm	Cr ppm	Cu ppm	Fe (%)	K (%)	Mg (%)	Mn ppm	Mo ppm	Na (%)	Ni ppm	P ppm	Pb ppm	S (%)	Sb ppm	Sc ppm	Ti (%)	V ppm	W ppm	Zn ppm	Hg ppb	S (%)	C (%)
A01TK033	El Aguilar	qu WS#4	4.29	0.11	0.06	<0.01	0.33	2.2	<0.01	0.01	0.33	0.02	91.73	<0.01	0.09	0.43	99.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
A01TK040	Rumicurz	red shale	3.4	0.01	0.42	<0.01	1.8	1.24	0.19	0.09	0.27	0.06	70.85	0.01	0.27	6	99.77	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
A01KN002	Laguna Seibira	monzodiorite	15.64	0.08	3.58	<0.01	4.42	2.82	1.27	0.07	3.28	0.24	53.55	0.06	0.49	2.87	99.47	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
A01KN005	El Alcal	dacite porphyry	17.15	0.04	0.15	0.01	2.47	9.05	1.48	0.02	0.80	0.18	64.81	0.01	0.79	1.47	99.56	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
A01KN006	El Alcal	rhyolite	17.02	0.07	0.09	0.01	0.49	2.7	0.17	0.17	3.7	0.02	69.85	0.12	0.09	0.5	99.07	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
A01KN048	Rio Grande	slate	20.53	0.12	0.12	<0.01	5.8	4.57	2.21	0.08	1.01	0.12	58.42	<0.01	0.9	4.02	98.7	<0.5	8.45	35	880	2.5	<2	0.06	<0.5	6	65	19	3.69	3.29	1.13	490	1	0.84	13	380	10	0.01	20	64	3.47	97	<10	124	<10	0.01	0.28
A01KN051	Rio Grande	slate	17.83	0.14	1.8	0.02	4.3	5.05	2.06	0.04	0.93	0.13	60.78	0.01	0.79	5.84	99.82	<0.5	9.46	<5	11.80	3	<2	1.25	<0.5	7	84	29	2.83	4.18	1.14	295	8	0.83	29	640	20	0.38	30	160	0.29	188	<10	62	<10	0.54	0.3
A01KN043	La Cienaga	slate	17.05	0.06	0.2	0.02	5.87	3.23	2.06	0.06	1.39	0.14	58.45	<0.01	0.82	4.72	98.57	<0.5	8.09	5	540	2.5	<2	0.12	<0.5	17	72	41	5.0	2.39	1.24	410	<1	1.15	48	540	28	<0.01	<5	70	0.33	96	<10	140	10	<0.01	0.15
A01KN067	La Cienaga	slate	17.16	0.08	0.36	0.02	5.99	4.87	1.24	0.05	1.05	0.21	61.25	0.01	0.93	5.68	98.69	<0.5	7.83	25	900	6.5	<2	0.23	<0.5	17	90	36	3.71	3.87	0.87	280	31	0.9	43	530	29	0.93	<5	79	0.26	136	<10	180	30	1.06	0.84
A01KN070	SantaElena	slate	19.01	0.05	0.17	0.01	7.11	3.9	2.4	0.05	1.18	0.13	59.04	<0.01	0.84	4.23	99.02	<0.5	8.61	5	540	3	<2	0.1	<0.5	11	79	30	4.31	3.01	1.28	335	1	0.94	32	600	24	<0.01	<5	71	0.27	101	<10	96	<10	<0.01	0.08
A01KN071	La Gaseosa	slate	19.59	0.07	0.11	<0.01	6.43	4.11	1.75	0.04	0.94	0.14	59.46	<0.01	0.82	5.18	98.64	0.8	8.31	15	680	2.5	<2	0.06	<0.5	7	68	17	3.77	3.09	0.89	715	<1	0.8	30	420	20	0.26	<5	77	0.26	95	<10	96	<10	0.01	0.06
A01KN072	Zona-1	slate	20.57	0.08	0.14	0.01	5.02	3.95	0.58	0.01	0.48	0.06	61.6	<0.01	0.87	5.88	99.21	<0.5	9.07	5	540	2.5	<2	0.06	<0.5	5	69	41	3.05	2.94	0.3	90	1	0.44	15	160	34	<0.01	<5	96	0.27	98	<10	44	<10	0.01	0.23
A01KN074	Pan de Azucar	dacite	0.68	0.15	0.03	<0.01	0.25	0.11	<0.01	<0.01	<0.01	0.03	97.02	<0.01	0.04	1.02	99.82	0.5	0.27	<5	1340	4	<2	0.02	<0.5	<1	27	11	0.19	0.06	<0.01	15	<1	<0.01	2	90	80	0.08	30	74	0.33	9	<10	10	10	0.08	0.04
A01KN075	Tuqza	slate	20.13	0.06	0.17	0.02	5.08	4.49	2.19	0.07	0.91	0.12	59.22	<0.01	0.84	4.17	99.5	1	8.69	5	590	3	<2	0.09	<0.5	26	83	52	4.0	3.19	1.09	435	1	0.73	46	400	22	<0.01	<5	85	0.37	107	<10	394	<10	<0.01	0.08
A01KN079	Rumicurz	slate	18.68	0.07	0.13	0.02	6.7	3.84	1.77	0.04	1.51	0.12	62.53	<0.01	1	4.21	99.82	<0.5	8.51	5	690	2.5	<2	0.07	<0.5	12	76	33	3.54	2.92	0.83	200	<1	1.18	37	490	18	<0.01	<5	58	0.38	109	<10	112	10	<0.01	0.19
A01KN094	Zona-18	sandstone/slate	15.33	0.04	0.25	<0.01	4.62	3.2	1.63	0.06	2.02	0.19	68.27	<0.01	0.81	7.9	99.21	<0.5	7.24	20	480	2	<2	0.19	<0.5	5	52	18	2.92	2.54	0.97	390	<1	1.67	9	640	12	0.05	<5	64	0.24	72	<10	44	<10	0.05	0.07
A01KN100	Cochasca	dacite	14.42	0.03	1.18	0.02	4.80	4.29	2.02	0.08	2.1	0.19	68.56	0.02	0.72	2.32	99.84	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
A078	El Aguilar	slate	19.22	0.14	0.28	0.02	7.03	4.87	2.3	0.04	1.12	0.19	59.01	<0.01	0.95	3.13	98.47	2	8.44	15	1080	3	<2	0.21	<0.5	16	77	42	4.19	3.81	1.18	250	1	0.92	41	510	19	0.62	<5	90	0.53	140	<10	124	<10	1.02	0.1
A081	El Aguilar	slate	19.16	0.09	0.97	0.02	7.06	4.29	2.34	0.06	1.18	0.2	58.64	<0.01	0.88	5.17	99.58	<0.5	8.79	10	700	3.5	<2	0.83	1	14	78	36	4.2	3.63	1.25	465	3	1.03	37	730	32	0.41	<5	92	0.45	161	<10	256	<10	0.77	0.12
A01RT042	Rio Grande	slate	4.47	<0.01	44.53	0.01	3.11	0.2	1.63	0.22	<0.01	0.14	14.96	0.03	0.14	30.48	99.84	<0.5	2.55	5	10	0.5	2	>25	<0.5	5	20	30	1.81	0.16	0.29	2140	<1	0.07	11	520	22	0.21	10	277	0.12	41	<10	52	<10	0.17	9.3

Sample No.	Locality	Rock	Ag (ppm)	As (ppm)	Ce (ppm)	Co (ppm)	Cs (ppm)	Cu (ppm)	Dy (ppm)	Er (ppm)	Eu (ppm)	Ga (ppm)	Gd (ppm)	Hf (ppm)	Ho (ppm)	La (ppm)	Lu (ppm)	Mo (ppm)	Nd (ppm)	Ni (ppm)	Pb (ppm)	Pr (ppm)	Rb (ppm)	Sm (ppm)	Sn (ppm)	Sr (ppm)	Ta (ppm)	Tb (ppm)	Th (ppm)	Tl (ppm)	Tm (ppm)	U (ppm)	V (ppm)	W (ppm)	Y (ppm)	Yb (ppm)	Zn (ppm)	Zr (ppm)
A01TK033	El Aguilar	quartzite	<1	950	20.3	1.5	1.1	20	1.4	0.7	0.3	4	1.6	7	0.2	11	0.3	1	8.5	5	20	2.3	62.6	1.6	1	77	<0.5	0.2	2	<0.5	0.3	0.5	10	1	6	0.7	20	348
A01TK040	Rumicurz	red shale	<1	248	40.5	5	5.8	15	2.9	1.3	0.6	5	4	10	0.5	18.5	0.2	6	20.5	10	190	5	50.4	4.5	5	176.5	<0.5	0.5	5	<0.5	0.7	0.5	20	1	14	1.4	245	489
A01KN002	Laguna Seibira	monzodiorite	1	795	50	6	1.2	30	3.4	1.8	1.1	19	3.7	5	0.8	27.5	0.2	13	21	10	10	5.8	99.8	4	2	413	0.5	0.6	6	<0.5	0.2	1	40	1	19	2	95	220
A01KN005	El Alcal	dacite porphyry	1	570	58	6	1.7	180	4.6	2.5	0.9	20	5	8	0.9	30	0.5	16	23.5	15	15	6.3	224	4.9	4	166.5	1	0.8	11	0.5	0.4	2.5	55	12	26.5	2.6	59	347
A01KN006	El Alcal	rhyolite	1	731	48.5	11.5	0.4	93	4	2	1.3	20	4.8	5	0.7	24.5	0.3	15	22	10	8	5.4	68.4	4.9	3	902	0.5	0.7	8	<0.5	0.2	1	65	1	21	2.1	70	216
A01KN048	Rio Grande	slate	2	940	74.5	4.5	6.7	20	5.9	3.1	1.3	26	6.1	4	1.1	39.5	0.5	19	31	15	19	9.8	195.5	6.3	5	96.5	1.5	1	15	0.5	0.4	3	70	2	30.5	3.2	140	164.5
A01KN051	Rio Grande	slate	2	1140	69	6	11	30	4.2	2.1	1.1	25	5.1	5	0.7	36.5	0.4	15	29.5	20	20	7.8	234	5.8	6	180.5	1.5	0.7	14	0.5	0.3	4	135	2	22	2.3	120	161
A01KN067	La Cienaga	slate	1	574	68	15	6.8	40	5.4	3	1.2	22	6.2	6	0.9	29.5	0.4	14	28.5	30	30	7.7	126.5	6.2	3	99.5	1	0.9	13	<0.5	0.4	2.5	75	1	28	3	140	195.5
A01KN087	La Cienaga	slate	1	791	87	13	6.8	35	6.2	3.2	1.3	22	6.9	6	1.1	43.5	0.5	16	36	30	25	9.5	203	7.7	4	101.5	1.5	1	18	0.5	0.5	3.5	105	2	33	3.4	200	224
A01KN070	SantaElena	slate	2	555	84.5	9.5	6.9	30	5.6	2.8	1.3	26	6.7	4	1	46	0.5	16	35.5	25	20	9.5	178	7.4	5	91.6	1.5	0.9	15	0.5	0.4	2.5	80	2	29	2.8	100	159.5
A01KN071	La Gaseosa	slate	6	613	84	7.5	10.7	15	5.9	3.1	1.3	25	6.7	4	1	43.5	0.5	16	34	25	20	9.5	202	7.1	4	114	1.5	1	15	0.5	0.5	3.5	75	3	31	3.1	110	157
A01KN072	Zona-1	slate	6	567	66	4.5	7.4	45	6.1	3.3	1.5	27	7.1	6	1.1	44	0.5	16	36	15	30	9.9	183	8.1	5	170.5	1.5	1.1	18	0.5	0.5	2.5	75	3	33	3.5	55	226
A01KN074	Pan de Azucar	dacite	11	1305	48	0.5	13.6	45	1.5	0.7	0.2	4	2.3	12	0.2	29	0.1	20	17.5	5	50	5	7.2	2.6	3	142.5	2.5	0.3	10	<0.5	0.1	2.5	5	4	7	0.7	10	552
A01KN075	Tuqza	slate	27	558	118	23.5	7.7	50	5.6	2.8	1.2	26	6.1	4	1	42.5	0.4	17	36	35	20	10.4	195.3	7.4	5	111.5	1.5	0.9	13	0.5	0.4	2.5	80	3	28	2.8	450	139.5
A01KN079	Rumicurz	slate	16	742	105.5	11	6.5	35	5.7	3.2	1.4	25	6.1	6	1.1	58	0.5	17	38.5	25	20	11.1	169	8.9	5	97.9	1.5	1	18	0.5	0.5	3	85	2	30.5	3.1	120	212
A01KN094	Zona-18	sandstone/slate	5	490	72.5	5	4.1	10	5.4	2.9	1.2	20	6	5	1	35.5	0.5	15	30	15	5	7.8	144	6.2	127	99.2	1.5	0.9	13	<0.5	0.4	2.5	55	2	30	3.1	40	308
A01KN100	Volcan	dacite	<1	393	71	11	3.7	30	5.6	2.8	1.3	19	5.6	8	1.1	35.5	0.4	14	30.5	20	35	8.1	144.5	6.7	7	239	1.5	0.9	13	<0.5	0.5	2.5	55	1	31.5	3.1	95	319
A078	El Aguilar	slate	<1	1135	98	15	9.6	45	7	3.2	1.4	28	7.6	9	1.2	50	0.6	17	39.5	25	20	10.7	219	8.3	4	120.5	1.5	1.1	17	0.5	0.5	3.5	100	3	36	3.6	135	205
A081	El Aguilar	slate	<1	786	84.5	13.5	10.8	35	6	3.2	1.4	25	6.1	5	1.1	41	0.5	15	36.5	25	30	10.6	232	8.2	5	112.5	1.5	1	18	0.5	0.5	3.5	110	2	32	3.2	255	215
A01RT042	Rio Grande	slate	<1	29.5	30.5	0.5	0.8	20	3.4	2.1	0.9	7	6	1	1	16	0.4	2	16.5	30	15	4	12.8	4.6	4	394	<0.5	0.8	4	<0.5	0.4	1.5	35	1	33	2.8	80	69

(4) Geochemistry for cabonatite

Sample No.	Rock	Ce (ppm)	Dy (ppm)	Er (ppm)	Eu (ppm)	Gd (ppm)	Ho (ppm)	La (ppm)	Lu (ppm)	Nd (ppm)	Pr (ppm)	Sm (ppm)	Tb (ppm)	Th (ppm)	Tm (ppm)	U (ppm)	Y (ppm)	Yb (ppm)	Nb (ppm)	Ta (ppm)	Th (ppm)
1013001	carbonatite	5.5	1.5	0.9	0.8	1	0.3	3	0.2	3	0.8	0.8	0.1	1	0.1	1.5	8	1.6	8	1	1
1013002	carbonatite	5	1.1	0.9	0.1	0.9	0.2	3	0.1	2.5	0.7	0.8	0.1	<1	0.1	1.5	6.5	1.2	12	2	2
1013003	carbonatite	4	1	0.6	0.5	0.7	0.2	2.5	0.1	2.5	0.6	0.6	0.1	<1	0.1	1.5	6.5	1.1	10	1	2
1013004	Qz-Cal vein	3	0.3	0.1	<0.1	0.3	<0.1	2	<0.1	1.5	0.4	0.3	<0.1	<1	<0.1	<0.5	1	0.1	6	<1	1

Table A-5 Result of the laboratory test (sulphur and oxigen isotope)

(1) Sulphur

Sample	Locality	Mineral	$d^{34}S$(‰)
A01KN052	Rio Grande	pyrrhotite	8.0
A01KN053	Rio Grande	pyrrhotite	11.3
A01KN054	Belgica	barite	16.9
A01KN055	Belgica	galena	-1.9
A01KN057	Pumahushi	galena	1.7
A01KN058	Pumahushi	barite	15.8
A01KN059	Sol del Mayo	barite	10.5
A01KN060	Sol del Mayo	galena	0.0
A01KN063	La Cienaga	barite	15.1
A01KN064	La Cienaga	galena	12.8
A01KN068	Santa Rosa	barite	25.6
A01KN069	Santa Rosa	galena	-2.5
A01KN074-2	Pan de Azucar	galena	0.9
A01KN076	Tupiza	sphalerite	9.2
A01KN078	Rumi Cruz-Prisima	barite	16.4
A01KN080	Rumi Cruz-Prisima	barite	17.7
A01KN083	La Candelaria	galena	2.8
A01KN097	Tusca Colorado	galena	3.6
A01KN098	Tusca Colorado	barite	18.5
AG79	Mina Aguilar	bulk	14.3
AG80	Mina Aguilar	bulk	20.5
A01RT069	La Gateada	galena	2.5
A01RT082	Rachite	galena	4.4
23C237	Mina Aguilar	sphalerite	19.5
23C237	Mina Aguilar	galena	24.1
760SP83S	Mina Aguilar	sphalerite	22.1
S77ME86S	Mina Aguilar	sphalerite	23.7
S77ME86S	Mina Aguilar	galena	26.1
90ME846	Mina Aguilar	sphalerite	17.7
Seccior	Mina Aguilar	sphalerite	13.8
Seccior	Mina Aguilar	galena	17.7
2-21900	La Colorada	pyrrhotite	10.8
4-12400	La Colorada	pyrrhotite	10.2

(2) Oxigen

Sample	Locality	Mineral	$d^{18}O$(‰)
A01TK011	Abra de Akay	quartz	14.6
A01TK013	Abra de Akay	quartz	13.2
A01TK031	Panco Arias	quartz	10.7
A01KN007	Cerro de Lagunas	quartz	15.5
A01KN066	La Cienaga	quartz	15.3
A01KN074-3	Pan de Azucar	quartz	20.5
A01KN082	La Candelaria	quartz	12.6

Table A-6 Result of laboratory test (fluid inclusion)

Sample No.	Locality	Mineral	Homog. T. (°C)	NaCl diss. T(°C)	Eq. NaCl (wt%)
A01TK031	Pancho Arias	Quartz	358.8		
			325.0		
			385.8		
			403.7		
			353.1		
			362.7		
			363.9		
			380.5		
			404.9		
			364.8		
			377.9		
				511.1	61.3
				540.0	65.3
			av. 371.0		

Table A-7 Result of laboratory test (K-Ar dating)

Sample No.	Locality	Rock or mineral	Isotopic Age (Ma)	Ar-40 (scc/g×10^{-5})	%Ar-40	%K
A01KN002	Lagna Salitre	monzodiorite	29.1±0.7	0.052	52.0	0.46
				0.053	49.1	0.46
A01KN005	El Arisal	dacite	8±0.2	0.072	83.1	2.29
				0.070	81.6	2.28
A01Kn101	vicuna Muerta	sanidine	18.9±0.5	0.599	63.5	8.25
				0.616	66.5	8.22

Table A-8 List of mineral occurrences in the survey area

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
1	JUJUY	Z-01	Abra Colorada	Chocoite	22°15'	65°47'	Cu-Fe-Mn	Vein-form		Fe:31-49%		Ordovician	Dacitic porphyries, sandstones and shales	Cochinoca-Escaya Complex
2	JUJUY	Z-01	Chocoite	Chocoite	22°20'30"	65°46'43"	Cu	Vein				Ordovician	Dacitic porphyries, sandstones and shales	Cochinoca-Escaya Complex
3	JUJUY	Z-01	Hornillos (Cerro Escaya)	Cerro Escaya	22°15'06"	65°46'21"	Cu	Vein				Ordovician	Dacitic porphyries, sandstones and shales	Cochinoca-Escaya Complex
4	JUJUY	Z-01	La Gateada	Cerrillos	22°22'23.5"	65°49'44.7"	Pb	Vein	quartz, pyrite, chalcopyrite, sphalerite, galena, chalcosite, covelline, hematite, limonite, oxilone			Ordovician	Sandstones, shales	Cochinoca-Escaya Complex
5	JUJUY	Z-01	Yangaso	Cieneguillas	22°08'54"	65°49'06"	Cu	Vein				Ordovician	Quartzitic sandstones and shales	Cochinoca-Escaya Complex
6	JUJUY	Z-02	6 de Noviembre	Pumahuasi	22°15'33"	65°37'21"	Fe	Vein-form	hematite, limonite			Ordovician	Sandstone,siltstone and shale	Acoite Formation
7	JUJUY	Z-02	9 de Julio	Pumahuasi	22°18'	65°34'	Pb-Zn-Ag							
8	JUJUY	Z-02	Barrios	Pumahuasi	22°15'	65°31'	Pb	Simple veins				Ordovician	Sandstones, shales	Acoite Formation
9	JUJUY	Z-02	Caricasini	Pumahuasi	22°20'33"	65°36'23"	Barite-Pb	Simple veins	barite, galena			Ordovician	Sandstones and shales	Acoite Formation
10	JUJUY	Z-02	Cerro Colorado	Pumahuasi	22°26'01"	65°37'33"	Pb-Zn	Simple veins	limonite, galena, barite			Ordovician	Sandstones and shales	Acoite Formation
11	JUJUY	Z-02	Chanaccite	Pumahuasi	22°17'18"	65°38'00"	Pb-Zn	Simple veins	galena, ankerite, barite, hematite, cerussite, anglesite, sphalerite, pyrite			Ordovician	Sandstones and shales	Acoite Formation
12	JUJUY	Z-02	Constancia-La Casualidad	Pumahuasi	22°15'	65°40'	Fe	Simple veins						
13	JUJUY	Z-02	Corralito Blanco	La Quiaca	22°12'01"	65°36'25"	Cu	Simple veins				Ordovician	Sandstones and shales	Acoite Formation
14	JUJUY	Z-02	General Leman	Pumahuasi	22°22'01"	65°37'07"	Pb-Zn	Simple veins in faults	galena, sphalerite, cerussite, anglesite, barite, limonite			Ordovician	Sandstones and shales	Acoite Formation
15	JUJUY	Z-02	Isabel	Pumahuasi	22°15'	65°36'	Pb-Zn	Simple veins in faults	limonite, barite, galena, quartz			Ordovician	Sandstones, shales	Acoite Formation
16	JUJUY	Z-02	La Bélgica (Sur Bélgica, Aramayo), Alejandro	Pumahuasi	22°23'55"	65°37'11"	Pb-Zn	Simple veins in faults	galena, sphalerite, pyrite, chalcopyrite, limonite, cerussite, anglesite, barite, ankerite, quartz, limonite			Ordovician	Sandstones and shales	Acoite Formation
17	JUJUY	Z-02	La Blanquita, La Sanguinaria	Pumahuasi	22°13'46"	65°32'37"	Pb	Simple veins in faults				Ordovician	Sandstones, shales	Acoite Formation
18	JUJUY	Z-02	La Perla	Pumahuasi	22°25'01"	65°35'32"	Pb-Zn	Simple veins in faults				Ordovician	Sandstones and shales	Acoite Formation
19	JUJUY	Z-02	La Pulpera	Pumahuasi	22°22'32"	65°35'56"	Pb-Zn	Simple veins in faults	galena, sphalerite, pyrite, chalcopyrite, limonite, cerussite, anglesite, barite, ankerite, quartz, limonite			Ordovician	Sandstones and shales	Acoite Formation
20	JUJUY	Z-02	La Quisqueña	La Quiaca	22°06'33"	65°35'08"	Pb	Simple veins				Ordovician	Sandstones and shales	Acoite Formation
21	JUJUY	Z-02	Leman	Pumahuasi	22°21'	65°36'	Pb	Simple veins in faults						
22	JUJUY	Z-02	Luisito	Pumahuasi	22°23'17"	65°35'24"	Pb-Zn	Simple veins in faults	galena, limonite, ankerite, quartz, Cu-oxide, barite			Ordovician	Sandstones and shales	Acoite Formation
23	JUJUY	Z-02	Olga	Pumahuasi	22°13'01"	65°32'41"	Cu-Ag	Epithermal polymetallic veins	bornite, galena, barite, ankerite	Cu:12.5%, Ag:275g/t		Ordovician	Sandstones, shales	Acoite Formation
24	JUJUY	Z-02	Pumahuasi	Pumahuasi	22°16'34"	65°38'13"	Pb-Zn	Simple veins in faults	barite, galena, chalcopyrite, malachite, sphalerite			Ordovician	Sandstones and shales	Acoite Formation
25	JUJUY	Z-02	Rosa de Oro (Cangrejillos)	Pumahuasi	22°25'32"	65°35'57"	Pb-Zn	Simple veins in faults	barite, galena			Ordovician	Sandstones and shales	Acoite Formation
26	JUJUY	Z-02	San Marcial	Pumahuasi	22°24'00"	65°35'33"	Pb-Zn	Simple veins in faults				Ordovician	Sandstones and shales	Acoite Formation
27	JUJUY	Z-02	Sol de Mayo	Pumahuasi	22°18'09"	65°36'43"	Pb-Zn	Simple veins in faults	barite, galena, sphalerite, pyrite, chalcocovrite, cerussite, ankerite, hematite			Ordovician	Sandstones and shales	Acoite Formation
28	JUJUY	Z-02	Victoria	Pumahuasi	22°16'57"	65°38'57"	Cu	Epithermal polymetallic				Ordovician	Sandstones and shales	Acoite Formation
29	JUJUY	Z-02	Washington	Pumahuasi	22°25'31"	65°35'24"	Pb-Zn	Simple veins	barite, galena, Fe-oxides			Ordovician	Sandstones and shales	Acoite Formation
30	JUJUY	Z-03	Rincón de Cajas	Rincón de Cajas	22°17'26"	65°17'18"	Pb-Barite	Veins in faults	galena, barite, quartz			Ordovician	Sandstones and shales	Santa Rosita Formation
31	JUJUY	Z-03	Romina Elisa	Cóndor	22°27'31"	65°19'49"	Pb-Barite	Veins in faults	barite, galena			Ordovician	Sandstones, shales	Santa Rosita Formation
32	JUJUY	Z-03	San Antonio	Abra de Cóndor	22°26'35"	65°16'36"	Cu	Veins in faults	Cu-oxide, quartz			Ordovician	Sandstones and shales	Santa Rosita Formation
33	SALTA	Z-03	Arias	Tres Lagunas	22°05'18"	65°08'45"	Au-Cu	Mesothermal Au veins	gold, arsenopyrite, pyrite, hematite, Cu-oxide, quartz			Ordovician	Shales and sandstones	Santa Rosita Formation
34	SALTA	Z-03	Atahualpa	Lizoite	22°18'42"	65°10'32"	Cu	Vein	pyrite, chalcopyrite, malachite, limonite			Cambrian	Quartzite and quartzose sandstone	Mesón Group
35	SALTA	Z-03	Huasi, Viejito	Cerro Toroyoc	22°36'18"	65°16'15"	Pb-Cu	Veins in faults	galena, chalcopyrite, pyrite, limonite, quartz			Ordovician	Shales and sandstones	Santa Rosita Formation
36	SALTA	Z-03	Jaime Alberto	Tuc Tuca, Abra de Cóndor	22°23'30"	65°15'09"	Barite	Veins in faults	barite, galena			Ordovician	Shales and sandstones	Santa Rosita Formation
37	SALTA	Z-03	La Codiciada	Santa Cruz, Sierras de Santa Victoria	22°08'25"	65°03'48"	Pb-Barite	Veins in faults	galena, barite			Ordovician	Shales and sandstones	Santa Rosita Formation
38	SALTA	Z-03	La Niquelina	Abra de Cóndor, Tuc Tuca	22°22'36"	65°13'42"	Ni-Pb-Zn-(Co-As-Cu-U)	Mesothermal, Veins in faults	chalcocite, chalcopyrite, bornite, tetrahedrite, pyrite, niccolite, galena, sphalerite, pitchblende	Ni:0.45-1.65%, Pb:2.5-30%, Zn:1.5-21%, Co:0.47-1.76% (selected samples), As:26.6-31.46% (selected samples)		Cambrian, Ordovician	Quartzite, shale and sandstone	Chahualmayoc Formation, Santa Rosita Formation
39	SALTA	Z-03	Laguna Blanca	Cóndor	22°29'01"	65°17'16"	Barite-Pb	Veins in faults	barite, galena			Ordovician	Shales and sandstones	Santa Rosita Formation
40	SALTA	Z-03	Romina Elisa	Sierras de Santa Victoria	22°27'	65°20'	Barite-Pb	Veins in faults				Ordovician	Shales and sandstones	Santa Rosita Formation
41	SALTA	Z-03	Rosario	Tres Lagunas	22°05'23"	65°13'13"	Pb-Barite	Veins in faults	galena, barite			Ordovician	Shales and sandstones	Santa Rosita Formation
42	SALTA	Z-03	San Felipe	Cóndor	22°27'24"	65°17'02"	Barite-Pb	Veins in faults	barite, galena			Ordovician	Shales and sandstones	Santa Rosita Formation
43	SALTA	Z-03	Santa Rosa	Tuc Tuca, Abra de Cóndor	22°24'22"	65°15'09"	Barite	Veins in faults	barite, galena	$BaSO_4$:82.11-84.48%		Ordovician	Shales and sandstones	Santa Rosita Formation
44	SALTA	Z-03	Toroyoc, Huaira	Cerro Toroyoc	22°37'27"	65°16'55"	Pb-Cu	Veins in faults	galena, chalcopyrite, pyrite, limonite, quartz			Ordovician	Shales and sandstones	Santa Rosita Formation
45	SALTA	Z-03	Vizcachani Norte	Tres Lagunas, Sierras de Santa Victoria	22°08'35"	65°08'54"	Pb-Zn-Cu	Veins in faults	galena, sphalerite, pyrite, chalcopyrite, cerussite, chrysocolla, malachite, quartz			Ordovician	Shales and sandstones	Santa Rosita Formation

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
46	SALTA	Z-03	Volcán Blanco	Abra de Fundiciones	22°23'44"	65°10'36"	Barite-Pb	Veins in faults	barite, galena, Cu-oxide, limonite, quartz			Ordovician	Shales and sandstones	Santa Rosita Formation
47	SALTA	Z-04	Antigal	Antigal, Sierras de Santa Victoria	22°10'20"	64°54'53"	Fe	Stratiform, oolitic, turbiditic	hematite, thuringite, biotite, silice hidratada, muscovite, limonite			Silurian	Siltstone, Greywacke	Lipeón Formation
48	SALTA	Z-04	Cerros Bravos	Pucará, Sierras de Santa Victoria	22°12'25"	64°48'14"	Au	Alluvial gold	gold			Pleistocene - Holocene	Alluvial plain deposits	
49	SALTA	Z-04	Mecoyita	Mecoyita, Sierras de Santa Victoria	22°07'58"	64°53'18"	Fe	Stratiform, oolitic	hematite, thuringite, biotite, silice hidratada, muscovite, limonite			Silurian	Siltstone, Greywacke	Lipeón Formation
50	SALTA	Z-04	Pozo Bravo	Tres Lagunas, Sierras de Santa Victoria	22°09'04"	65°07'36"	Au	Alluvial gold	gold					
51	SALTA	Z-04	Pucará	Pucará, Sierras de Santa Victoria	22°10'25"	64°57'52"	Au	Alluvial gold	gold			Pleistocene - Holocene	Alluvial plain deposits	
52	SALTA	Z-04	Pueblo de Minas	Tres Lagunas, Sierras de Santa Victoria	22°05'53"	65°07'39"	Au	Alluvial gold	gold	Au:<2.4g/m³ (mine content)		Pleistocene - Holocene	Alluvial-colluvial deposits	
53	SALTA	Z-04	Santa Cruz	Santa Cruz, Santa Victoria	22°09'22"	65°00'48"	Au	Alluvial gold	gold				Alluvial plain deposits	
54	SALTA	Z-04	Santa Rosita	Pucará, Sierras de Santa Victoria	22°11'51"	64°52'01"	Au	Alluvial gold	gold	Au:1g/m³ (average in Pucará)		Pleistocene - Holocene	Alluvial plain deposits	
55	SALTA	Z-04	Santa Victoria	Río Santa Cruz	22°08'	65°00'	Au	Alluvial gold	gold					
56	SALTA	Z-04	Vizcachani Norte	Tres Lagunas, Sierras de Santa Victoria	22°08'12"	65°07'42"	Au	Alluvial gold	gold					
57	SALTA	Z-04	Yavihuaico	Santa Cruz, Sierras de Santa Victoria	22°07'53"	65°01'26"	Au	Alluvial gold	gold			Pleistocene - Holocene	Alluvial plain deposits	
58	SALTA	Z-05	Abra Colorada	Cerro Fundiciones	22°27'46"	65°08'31"	Pb-Barite	Veins in faults	barite, galena, quartz			Precambrian	Schists and slates	Puncoviscana Formation
59	SALTA	Z-05	Acoite, Hornillos	Lizoite	22°18'20"	65°06'28"	Pb-Cu- Barite	Veins in faults	galena, barite, quartz			Cambrian	Quartzite	Campanario Formation
60	SALTA	Z-05	Alejandra	Pascaya, Cerro Blanco	22°24'32"	64°57'49"	Pb-Barite	Veins in faults	galena, barite			Ordovician	Shales and sandstones	Santa Rosita Formation
61	SALTA	Z-05	Beatriz, Socorro	Molino, Río Nazareno	22°34'35"	65°07'01"	Pb-Cu-Barite	Veins in faults	galena, barite			Ordovician	Shales and sandstones	Santa Rosita Formation
62	SALTA	Z-05	Campamento	Puncoviscana, Sierras de Santa Victoria	22°19'11"	65°02'12"	Fe	Vein-form	specularite, hematite, magnetite			Ordovician		Santa Rosita Formation
63	SALTA	Z-05	Churquipampa	Lizoite	22°18'44"	65°06'55"	Pb-Cu-U-Th-Barite	Mesothermal, Th-REE veins	galena, malachite, thorite, thuringite, barite, quartz			Ordovician	Shales and sandstones	Santa Rosita Formation
64	SALTA	Z-05	Dana	Trigohuaico, Sierras de Santa Victoria	22°21'03"	64°59'55"	Barite		barite			Ordovician	Shales and sandstones	Santa Rosita Formation
65	SALTA	Z-05	Don Alberto, Puca Aypa, San Cayetano, María Marqueza	Sierras de Santa Victoria	22°16'13"	64°58'41"	Barite-Pb		barite, galena, quartz			Ordovician	Shales and sandstones	Santa Rosita Formation
66	SALTA	Z-05	Don José, Julia	Pascaya, Nazareno	22°25'30"	65°02'30"	Barite-Pb		barite, galena, Fe-oxides, quartz			Ordovician	Shales and sandstones	Santa Rosita Formation
67	SALTA	Z-05	El Nazareno	Nazareno	22°30'45"	65°05'35"	Pb-Barite		galena, barite			Ordovician	Shales and sandstones	Santa Rosita Formation
68	SALTA	Z-05	El Quirusillal	Nazareno	22°29'10"	65°06'39"	Pb-Zn-U-Cu-Ni-Barite		barite, galena, sphalerite, uraninite, pitchblende			Cambrian	Quartzites, quartzose sandstones	Mesón Group
69	SALTA	Z-05	Elizabeth	Sierras de Santa Victoria	22°14'05"	64°57'16"	Pb-Cu- Barite		galena, barite, malachite, azurite, quartz, limonite			Ordovician	Shales and sandstones	Santa Rosita Formation
70	SALTA	Z-05	Encrucijada	Sierras de Santa Victoria	22°14'39"	65°00'35"	Pb	Veins in faults	galena, quartz, barite			Ordovician	Shales and sandstones	Santa Rosita Formation
71	SALTA	Z-05	Hernán	Trigohuaico, Sierras de Santa Victoria	22°20'25"	65°02'59"	Barite-Pb	Veins in faults	galena, barite			Ordovician	Shales and sandstones	Santa Rosita Formation
72	SALTA	Z-05	La Ciénaga	Pallorco, Sierras de Santa Victoria	22°22'30"	65°04'49"	Pb-Cu- Barite	Veins in faults	galena, barite, quartz, chalcopyrite, hematite			Ordovician	Shales and sandstones	Santa Rosita Formation
73	SALTA	Z-05	Lopiara	Pascaya, Nazareno	22°25'38"	65°05'43"	Barite-Pb	Veins in faults	barite, galena, Fe-oxides, quartz	$BaSO_4$:59.92-95.36%, Pb:32.49%		Ordovician	Shales and sandstones	Santa Rosita Formation
74	SALTA	Z-05	María Cristina	Nazareno	22°31'39"	65°04'56"	Pb-Cu	Veins in faults	galena, Cu-oxide, barite, quartz			Ordovician	Shales and sandstones	Santa Rosita Formation
75	SALTA	Z-05	María Gabriela	Acoite, Sierras de Santa Victoria	22°18'08"	65°02'13"	Fe	Vein-form	specularite, hematite, magnetite			Ordovician	Lutite, Sandstone	Santa Rosita Formation
76	SALTA	Z-05	María Julia	Sierras de Santa Victoria	22°13'25"	65°02'52"	Pb-Barite	Veins in faults	galena, barite			Ordovician	Shales and sandstones	Santa Rosita Formation
77	SALTA	Z-05	Misquero	Pascaya, Nazareno	22°25'43"	65°06'42"	Pb-Cu-Barite	Veins in faults	barite, galena, Cu-oxide, radioactive anomalies, limonite			Ordovician	Shales and sandstones	Santa Rosita Formation
78	SALTA	Z-05	Mono Abra	Trigohuaico, Sierras de Santa Victoria	22°22'26"	65°01'07"	Barite	Veins in faults	barite, galena, quartz, oxides of Cu-Fe	$BaSO_4$:86.10%	118,000 t	Ordovician	Shales and sandstones	Santa Rosita Formation
79	SALTA	Z-05	Quebrada Colorada	Cerro Fundiciones	22°29'18"	65°12'11"	Barite-Pb	Veins in faults	barite, galena, quartz			Precambrian	Schists and slates	Puncoviscana Formation
80	SALTA	Z-05	Papachacra	Sierras de Santa Victoria	22°16'07"	64°55'10"	Pb	Veins in faults	galena			Ordovician	Shales and sandstones	Santa Rosita Formation
81	SALTA	Z-05	Parmense, Vizcachani	Abra de Fundiciones	22°24'24"	65°07'14"	Pb-Barite	Veins in faults	barite, quartz	Pb:17%, Cu:1.8-4.9%, Au:15-360g/t		Ordovician	Shales and sandstones	Santa Rosita Formation
82	SALTA	Z-05	Pascaya	Pascaya, Nazareno	22°26'46"	65°03'01"	Pb-Barite	Veins in faults	barite, galena, quartz, Fe-Mn-oxides		barite:53,000t	Ordovician	Shales and sandstones	Santa Rosita Formation
83	SALTA	Z-05	Río Blanco	Acoite, Sierras de Santa Victoria	22°15'43"	65°00'55"	Pb-Cu-U-Th	Veins in faults	galena, malachite, azurite, barite			Ordovician	Shales and sandstones	Santa Rosita Formation
84	SALTA	Z-05	San José	San Pedro, Río Nazareno	22°34'38"	65°02'29"	Pb-Ag	Veins in faults	galena			Precambrian	Schists, slates, greywackes	Puncoviscana Formation
85	SALTA	Z-05	San Santiago, Agua Blanquita	Pucará, Sierras de Santa Victoria	22°11'44"	65°01'12"	Pb	Veins in faults	galena			Precambrian	Schists, slates	Puncoviscana Formation
86	SALTA	Z-05	Sepultura	Sierras de Santa Victoria	22°12'45"	64°57'40"	Fe	Stratiform, oolitic	hematite, thuringite, biotite, silice hidratada, muscovite, limonite			Silurian	Siltstone, Greywacke	Lipeón Formation
87	SALTA	Z-05	Virgen del Valle	San Pedro, Río Nazareno	22°38'28"	65°06'51"	Fe	Vein-form	specularite, hematite, limonite			Precambrian	Schist, Slate, Phyllite	Puscoviscana Formation
88	SALTA	Z-06	Baritú	Baritú	22°32'25"	64°45'02"	Fe	Stratiform, oolitic, turbiditic	hematite, thuringite, biotite, silice hidratada, muscovite, limonite			Silurian	Siltstone, Greywacke (grey and greenish)	Lipeón Formation
89	SALTA	Z-06	Candelaria	Baritú	22°40'44"	64°46'38"	Fe	Stratiform, oolitic, turbiditic	hematite, thuringite, biotite, silice hidratada, muscovite, limonite			Silurian	Siltstone, Greywacke (grey and greenish)	Lipeón Formation
90	SALTA	Z-06	Cuesta de Minas	Los Toldos	22°27'58"	64°44'50"	Fe	Stratiform, oolitic, turbiditic	hematite, thuringite, biotite, silice hidratada, muscovite, limonite			Silurian	Siltstone, Greywacke (grey and greenish)	Lipeón Formation
91	SALTA	Z-06	Potrogal	Baritú	22°37'04"	64°45'30"	Fe	Stratiform, oolitic, turbiditic	hematite, thuringite, biotite, silice hidratada, muscovite, limonite			Silurian	Siltstone, Greywacke (grey and greenish)	Lipeón Formation

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
92	SALTA	Z-06	Quebrada La Misión	Los Toldos	22°13'47"	64°42'17"	Phosphates	Stratiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:7%		Ordovician	Quartzite, Sandstone, Lutite	Labrado Formation, Centinela Formation
93	SALTA	Z-06	Río Aliatí	Isla de Cañas	22°42'44"	64°48'51"	Phosphates	Stratiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:6-7%		Ordovician	Quartzite, Sandstone, Lutite	Labrado Formation, Centinela Formation
94	SALTA	Z-06	Río Astillero	Isla de Cañas	22°54'47"	64°50'02"	Phosphates	Stratiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:2.8-7%		Ordovician	Quartzite, Sandstone, Lutite	Labrado Formation, Centinela Formation
95	SALTA	Z-06	Río Lipeo	Río Lipeo, Lipeo	22°24'36"	64°45'03"	Phosphates	Stratiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:1%		Ordovician	Quartzite, Sandstone, Lutite	Labrado Formation, Centinela Formation
96	SALTA	Z-06	Río Porongal	Barieú	22°34'50"	64°45'48"	Phosphates	Stratiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:<8.7%		Ordovician	Quartzite, Sandstone, Lutite	Labrado Formation, Centinela Formation
97	SALTA	Z-06	Río San José	Los Toldos	22°22'57"	64°44'47"	Phosphates	Stratiform, biocoenose	Shells of Lingula Blachiopodo concentrations			Ordovician	Quartzite, Sandstone, Lutite	Labrado Formation, Centinela Formation
98	JUJUY	Z-07	España, Potosí, Veta Jesuita	Cochinoca	22° 37'	66° 03'	Pb-Ag-Zn	Epithermal, polymetallic, subvolcanic	sphalerite, marcasite, fluorite, pyrite, sederite, galena, alunite, quartz. calcite	Pb:6.4%, Ag:490g/t	87,000t	Middle Miocene	Dacites and andesites	Laguna de Pozuelos Volcanic Complex
99	JUJUY	Z-07	Pan de Azúcar-Potosí-España	Cochinoca	22°37'54"	66°02'55"	Pb-Ag-Zn-Sb	Epithermal, polymetallic, subvolcanic	sphalerite, marcasite, fluorite, pyrite, sederite, galena, alunite, quartz, calcite	Pb:4.62%, Zn:6.58%, Ag:0.224kg/t, Sb:0.88%	59,000t	Middle Miocene	Dacites and andesites	Laguna de Pozuelos Volcanic Complex
100	JUJUY	Z-08	Graciela	Sierra de Quichagua	22°47'	66°05'	Pb-Zn-(Cu-Ag)	Veins				Ordovician	Lutite, Sandstone	Acoite Formation
101	JUJUY	Z-08	La Esperanza	Sierra de Quichagua	22°45'	66°07'	Sb-Zn-Au	Vein		Sb:20%	240,000t (inferred)	Ordovician	Lutite, Sandstone	Acoite Formation
102	JUJUY	Z-08	Tupiza	Escaya, Sierra de Cochinoca	22°45'01"	66°05'42"	Pb-Ag-Zn-Cu	Epithermal polymetallic				Ordovician	Sandstones, shales, rhyodacitic porphyries	Cochinoca-Escaya Complex
103	JUJUY	Z-09	Doncellas, San José	Doncellas	22°53'	66°01'	Sb-Au-Fe	Epithermal	stibnite, quartz			Neogene tertiary	Dacites and biotitic andesites	Doncellas Formation
104	JUJUY	Z-09	Rachaite (incluya la mina Chocaya)	Rachaite	22° 52'30"	66°07'52.6"	Pb-Zn-Ag-Mn	Epithermal to mesothermal disseminated polymetallic, Pb, Zn and Au Veins.	pyrrhotite, pyrite,chalcopyrite, galena, argentite, sphalerite, Ag-minerals	Pb:0.7%, Zn:1.5%, Ag:200ppm	5Mt (total)	Upper Miocene	Dacites, andesites, tuffs, breccias	Doncellas Formation, Alto Laguna Formation
105	JUJUY	Z-09	Yancamarota	Doncellas	22°51'	66°02'	Sb-Fe-Mn	Vein				Miocene	Lava, Andesite, Breccia	
106	JUJUY	Z-10	Barcoscente	Cochinoca	22°41'15"	65°53'11"	Cu	Vein				Ordovician	Ductile porphyries, sandstones and shales	Cochinoca-Escaya Complex
107	JUJUY	Z-10	Cerro Chutanay	Sierra de Cochinoca	22°46'	65°54'	Pb-Barite	Veins	barite, galena			Ordovician	Sandstones, shales, rhyodacitic porphyries	Cochinoca-Escaya Complex
108	JUJUY	Z-10	Montecristo	Cordón Escaya Cochinoca	22°38'47"	65°51'14"	Pb	Veins	barite, galena			Ordovician	Sandstones, shales, rhyodacitic porphyries	Cochinoca-Escaya Complex
109	JUJUY	Z-10	Punta del Quivil	Cochinoca	22°47'24"	65°54'48"	Barite	Veins	barite			Ordovician	Rhyodacitic porphyries, sandstones and shales	Cochinoca-Escaya Complex
110	JUJUY	Z-10	Santa Teresita de Jesús	Cochinoca	22°42'33"	65°53'36"	Barite	Veins	barite, galena			Ordovician	Rhyodacitic porphyries, sandstones and shales	Cochinoca-Escaya Complex
111	JUJUY	Z-11	Alba	Rumicruz	22°50'08	65°34'04"	Cu	Veins	barite, chalcopyrite, malachite			Ordovician	Sandstones and shales	Santa Victoria Group
112	JUJUY	Z-11	Charito, Arbolito	Abra Pampa	22°43'43"	65°33'12"	Pb-Barite	Simple veins	barite, galena			Ordovician	Sandstones, siltstones, shales	Santa Victoria Group
113	JUJUY	Z-11	La Purísima, El Brechón, Santo Domingo, Altos Rumicruz	Rumicruz	22°49'	65°31'	Cu-Pb-Zn-Ag-Barite	Epithermal polymetallic	chalcocite, chalcopyrite, barite, tetrahedrite, galena, sphalerite, pyrite, niccolite	Cu:6%, Pb:4%, Zn:1.1%, Ag:50g/t		Ordovician	Sandstones and shales	Santa Victoria Group
114	JUJUY	Z-11	El Cóndor, Angelita, Punta de Agua	Abra Pampa	22°50'	65°30'	Mn	Fissure and joint filling, Intercrustation	psilomelane, pyrolusite			Cretaceous	Sandstone	Pirgua Subgroup
115	JUJUY	Z-11	La Purísima, Trebol, Silvia	Rumicruz	22°49'33.8"	65°32'09.8"	Cu-Pb-Barite	Epithermal, polymetallic	chalcocite, chalcopyrite, barite, tetrahedrite, galena, sphalerite, pyrite, niccolite		7,300t (inferred), 31,200t (indicated)	Ordovician	Sandstones, shales and siltstones	Santa Victoria Group
116	JUJUY	Z-11	Mabel, Melliza, Cóndor Huasi	Abra Pampa	22°42'58"	65°33'41"	Pb-Barite	Simple veins	barite, galena			Ordovician	Sandstones, siltstones, shales	Santa Victoria Group
117	JUJUY	Z-11	Norma Patricia	Abra Pampa	22°37'40"	65°36'45"	Cu	Vein				Ordovician	Sandstones and shales	Acoite Formation
118	JUJUY	Z-11	Rumicruz, Doña Emma, Argentina II, Don Santiago, Doña Enuma, El Rosario, Nona Constanza, Nona María and others	Rumicruz	22°49'32.3"	65°32'08.6"	Cu-Pb-Ba-Ni-Co-Zn-Ag-Au	Epithermal, polymetallic	chalcocite, chalcopyrite, barite, tetrahedrite, galena, sphalerite, pyrite, niccolite	Cu:5.5%	234,700t (total)	Ordovician	Sandstones, shales and siltstones	Santa Victoria Group
119	JUJUY	Z-12	7 de Febrero, 5 de Marzo, 2 de Noviembre	Ocloyas	22°53'	65°12'	Pb-Zn	Veins in faults	galena, sphalerite, quartz			Ordovician	Shales, Quartzitic sandstones	Santa Victoria Group
120	JUJUY	Z-12	Casillas, Brujo	Casillas	22°45'15"	65°21'48"	Barite	Veins				Ordovician	Shales and sandstones	Santa Victoria Group
121	JUJUY	Z-12	Colpayoc	Tres Cruces	22°49'50"	65°21'44"	Pb	Veins				Ordovician	Shales and sandstones	Santa Victoria Group
122	JUJUY	Z-12	El Morro, La Descubridora	Ocloyas	22°53'	65°16'	Pb-Cu-Zn	Veins		Pb:10%, Ag:174g/t		Ordovician	Sandstones, calcareous siltstones, oolitic limestones	Balbuena Subgroup
123	JUJUY	Z-12	Inti Concha	Casillas	22°43'49"	65°22'02"	Barite	Simple veins				Ordovician	Shales and sandstones	Santa Victoria Group
124	JUJUY	Z-12	Peña Blanca	Casillas	22°46'57"	65°24'53"	Cu	Vein				Ordovician	Sandstones and shales	Santa Victoria Group
125	JUJUY	Z-12	Virgen de Luján	Ocloyas	22°53'	65°15'	Pb-Cu-Zn-Ag	Veins	galena, quartz	Pb:10%	1,000 t	Cretaceous	Sandstones, calcareous siltstones, limestones	Balbuena Subgroup
126	SALTA	Z-12	Esperanza, Esther (ex. Chacabuco)	Iruya	22°43'30"	65°13'03"	Cu-Pb-Zn- Ag-U-Co	Epithermal, polymetallic	chalcopyrite, pyrite, barnite, tetrahedrite, sphalerite, galena, pitchblende	Cu:19-23%, Pb:10-21%, Zn:9.75-10.3%, U_3O_8:0.14-0.37%		Precambrian, Cambrian	Schists, slates, Quartzites	Puncoviscana Formation, Mesón Group
127	SALTA	Z-12	Juanita	Iruya	22°43'26"	65°14'11"	Cu	Veins				Precambrian	Schists, quartzites	Puncoviscana Formation
128	SALTA	Z-12	La Soledad	Iruya	22°41'55"	65°14'32"	Fe-Cu	Vein				Cambrian	Quartzite	Mesón Group
129	SALTA	Z-12	Las Tolderías	Coranzulí, Iruya	22°52'18"	65°11'44"	Barite-Pb	Veins in faults	barite, galena, Fe-oxide, quartz	$BaSO_4$:41.28-98.66%, Pb:27.96%		Precambrian	Schists, slates	Puncoviscana Formation
130	SALTA	Z-12	San Isidro	Iruya	22°44'15"	65°13'45"	Pb-Cu	Veins	chalcopyrite, pyrite			Precambrian	Schists, slates, quartzites	Puncoviscana Formation
131	SALTA	Z-12	Viejito, Toroyoc	Iruya	22°52'	65°11'	Barite-Pb	Vein				Precambrian	Schist, Slate	Puncoviscana Formation
132	JUJUY	Z-13	Abdon Castro Tolay	Cerros de Pelomoy	23°15'	66°09'	Cu	Veins	malachite			Ordovician	Sandstone, Lutite	Chiqueros Formation
133	JUJUY	Z-13	Alto de Minas	Castro Tolay, Río de Barrancas	23°13'	66°07'	Cu	Veins	malachite			Ordovician	Quartzite	Chiqueros Formation
134	JUJUY	Z-13	El Peladar	Cerros de Pelomoy	23°06'	66°04'	Sn-Pb	Veins				Ordovician	Rhyolitic dike	Acoite Formation
135	JUJUY	Z-14	9 de Julio	Sierra de Tusaquillas	23°22'	66°01'	W	Greisen	wolframite, specularite, muscovite, quartz	WO3:2.5% (grade of the whole district)	15,000t (inferred)	Jurassic - Cretaceous	Granodiorite	Tusaquillas Batholith

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
136	JUJUY	Z-14	Abra de Tusaquillas	Sierra de Tusaquillas	23°12'	66°02'	W	Greisen	wolframite, specularite, muscovite, quartz			Jurassic - Cretaceous	Granodiorite	Tusaquillas Batholith
137	JUJUY	Z-14	Esperanza, Entre Ríos, Cumbre Blanca	Sierra de Tusaquillas	23°15'	66°00'	W	Greisen	wolframite, specularite, muscovite, quartz			Jurassic - Cretaceous	Granodiorite	Tusaquillas Batholith
138	JUJUY	Z-14	Liquinaste	Sierra de Tusaquillas	23°22'	65°59'	W	Greisen	wolframite, specularite, muscovite, quartz			Jurassic - Cretaceous	Granodiorite	Tusaquillas Batholith
139	JUJUY	Z-14	Tusaquillas I y II	Sierra de Tusaquillas	23°11'	65°59'	W	Greisen	wolframite, specularite, muscovite, quartz			Jurassic - Cretaceous	Granodiorite	Tusaquillas Batholith
140	JUJUY	Z-15	Blanca Flor	Sierra de Aguilar	23°20'	65°43'	Barite					Ordovician	Sandstones and shales	Acoite Formation
141	JUJUY	Z-15	Carahuasi, Piscuno, Curzalyoc	Agua Chica (Cerro Colorado)	22°53'55"	65°43'00"	Pb	Simple veins	galena, quartz			Ordovician	Sandstones, siltstones, shales	Acoite Formation
142	JUJUY	Z-15	El Aguilar	Sierra de Aguilar	23°12'21.6"	65°43'1.4"	Pb-Ag-Zn	SEDEX		Zn:8.4%, Pb:5.5%, Ag:50-120g/t	5Mt (measured), 3.3Mt (minable)	Ordovician - Cretaceous	Quartzites, Granites	Lampazar Formation, Aguilar Formation, Pachiac Formation, Aguilar Granite
143	JUJUY	Z-15	Esperanza	Sierra de Aguilar	23°09'27.1"	65°42'15.3"	Pb-Ag-Zn	SEDEX		Zn:12.7%, Pb:4.9%, Au:100g/t	75,000t			
144	JUJUY	Z-15	La Candelaria	Agua Chica (Cerro Colorado)	22°52'35.5"	65°43'42.6"	Pb	Simple veins	galena, quartz			Ordovician	Sandstones, siltstones, shales	Acoite Formation
145	JUJUY	Z-15	Oriental	Sierra de Aguilar	23°09'	65°43'	Pb-Ag-Zn	SEDEX						
146	JUJUY	Z-15	Tapada - Fitz Hugh	Sierra de Aguilar	23°15'	65°44'	Pb-Ag-Zn	SEDEX						
147	JUJUY	Z-16	Éxodo I y II, Cristina, Santa Ana	Cianzo	23° 09'	65° 09'	Pb-Ag-Zn	Polymetallic veins	chalcopyrite, pyrite, bornite, galena			Precambrian	Schists, slates	Puncoviscana Formation
148	JUJUY	Z-16	Mudana (Casa Mocha, Encrucijada, Abra de Minas)	Sierra del Horconal	23°21'	65°13'	Pb-Barite	Veins	barite, galena		90,000t	Precambrian	Slates, greywackes, schists	Puncoviscana Formation
149	JUJUY	Z-16	San Marcos	Moya (Uquía)	23°20'	65°16'	Barite	Veins	barite			Cambrian	Quartzites	Mesón Group
150	JUJUY	Z-16	Zaira Cristina, Sixillera, Yacoralte, José Eduardo	Uquía	23°21'	65°18'	Barite	Veins	barite		60,000 t	Cambrian	Quartzites and shales	Mesón Group
151	JUJUY	Z-17	Noemí Antonina, La Argentina, Santa Bárbara	Cerro El Gigante (Aparzo)	23°02'	65°05'	Barite	Veins in faults		Pb:4-11%, Ag:<200g/t		Ordovician	Sandstones, quartzites and shales	Acoite Formation
152	JUJUY	Z-17	Santa Ana, San Rafael	Abra de Zenta	23°18'	65°01'	Pb-Cu	Veins	galena, chalcocite, quartz, barite		36,000t - 60,000t (inferred), 7.200t (total)	Ordovician	Sandstones, shales	Centinela Formation
153	SALTA	Z-17	Aidee	Sierra de Zenta	23°09'	64°54'	Pb-Barite	Veins in faults				Ordovician	Shales and sandstones	Santa Rosita Formation
154	SALTA	Z-17	Andrés, Agarayo, Molino, Zenta	Sierra de Zenta	23°06'	65°00'	Barite-Pb	Veins in faults				Ordovician	Shales and sandstones	Santa Rosita Formation
155	SALTA	Z-17	Constanza, Nascisa	Sierra de Zenta	23°07'	64°53'	Pb	Veins in faults				Ordovician	Greywackes, pelites and quartzitic sandstones	Santa Victoria Group
156	SALTA	Z-17	Cristian	Sierra de Zenta	23°06'	65°03'	Barite-Pb	Veins in faults				Ordovician	Shales and sandstones	Santa Rosita Formation
157	SALTA	Z-17	Lagunita	Sierra de Zenta	23°10'	65°01'	Fe	Veins in faults				Ordovician	Quartzose sandstones, pelitic rocks	Santa Victoria Group
158	SALTA	Z-17	Rosa, Agustín	Sierra de Zenta	23°15'	64°58'	Pb	Veins in faults				Ordovician	Greywackes, pelites and quartzitic sandstones	Santa Victoria Group
159	SALTA	Z-17	San Juan, San José	Sierra de Zenta	23°04'	65°03'	Barite-Pb	Veins in faults				Ordovician	Shales and sandstones	Santa Rosita Formation
160	SALTA	Z-17	San Martín	Sierra de Zenta	23°01'	65°02'	Barite-Pb	Veins in faults				Ordovician	Shales and sandstones	Santa Rosita Formation
161	SALTA	Z-17	Sirio Argentina	Sierra de Zenta	23°02'	65°03'	Barite-Pb	Veins in faults				Ordovician	Shales and sandstones	Santa Rosita Formation
162	SALTA	Z-18	El Cardonal, Las Vertientes	Sierra de Rangel	23°27'	66°16'	Pb	Veins				Ordovician Tertiary	Greywackes, pelites and quartzitic sandstones, limimbrites	Falda Ciénaga Formation
163	SALTA	Z-18	La Colorada	Sierra de Rangel	23°38'55.7"	66°17'14.3"	Cu-Pb-Zn- Fe	SEDEX, massive sulphide		Fe: 33-50%, S:20-30%, Cu:0.5%, Zn:0.9-1%, Pb:0.1-1%, Ag:7-10g/t, Au:0.7g/t	12Mt (indicated)	Ordovician	Quartzitic sandstones, greywackes and shales. Granites	Chiqueros Formation, Cobres Granodiorite
164	SALTA	Z-18	La Noricha	Sierra de Rangel	23°29'	66°16'	Cu	Veins				Ordovician	Shales, greywackes and quartzitic sandstones	Falda Ciénaga Formation
165	SALTA	Z-19	Pueblo Viejo, Gabriela, Laguñita	San Antonio de los Cobres	23°52'	66°14'	Au	Alluvial gold	gold			Pleistocene - Holocene	Detrital accumulation	Puncoviscana Formation
166	JUJUY	Z-20	Ra, Isis, Osiris	Cerro Cobres	23°25'	66°11'	REE-Th	Carbonatite dike	thorite, thorianite, galena, chalcopyrite, pyrite, quartz, barite, calcite, hematite	ThO_2:0.02%, ETR+Y:0.08%	1Mt	Ordovician	Lutite	Chiqueros Formation
167	SALTA	Z-20	Curaca-Estrella de Oriente	Cerro Cobres	23°27'	66°11'	REE-Th	Carbonatite dike	thorite, thorianite, galena, chalcopyrite, pyrite, quartz, barite, calcite, hematite	ThO_2:0.45%, ETR+Y:0.6%	6Mt (geological, for all bodies)	Ordovician	Lutite	Chiqueros Formation
168	SALTA	Z-20	El Ucu	Cerro Cobres	23°32'	66°15'	REE-Th	Carbonatite dike	thorite, thorianite, galena, chalcopyrite, pyrite, quartz, barite, calcite, hematite	ThO_2:0.095%, ETR+Y:0.25%		Ordovician, Cretaceous	Greywacke, Quartzite, Pelitic rock, Granite, Alkali-syenite	Acoite Formation, Rangel Formation
169	SALTA	Z-20	La Aurelia	Cerro Cobres	23°27'	66°12'	REE-Th	Carbonatite dike	thorite, thorianite, galena, chalcopyrite, pyrite, quartz, barite, calcite, hematite	ThO_2:0.52%, ETR+Y:0.65%		Ordovician	Granodiorite	Cobres Granodiorite
170	SALTA	Z-20	La Barba	Cerro Cobres	23°26'	66°11'	REE-Th	Carbonatite dike	thorite, thorianite, galena, chalcopyrite, pyrite, quartz, barite, calcite, hematite	ThO_2:0.42%, ETR+Y:0.6%		Ordovician	Granodiorite	Cobres Granodiorite
171	SALTA	Z-20	Platería	Cerro Cobres	23°32'	66°14'	REE-Th	Carbonatite dike	thorite, thorianite, galena, chalcopyrite, pyrite, quartz, barite, calcite, hematite	ThO_2:0.005-0.2%, ETR+Y:0.03-0.09%		Ordovician	Granodiorite	Cobres Granodiorite
172	SALTA	Z-20	Rangel, Aurelia y otras	Cerro Cobres	23°34'	66°15'	REE-Th	Carbonatite dike	thorite, thorianite, galena, chalcopyrite, pyrite, quartz, barite, calcite, hematite	ThO_2:0.25%, ETR+Y:0.45%		Ordovician	Granodiorite	Cobres Granodiorite
173	SALTA	Z-20	Tierras Raras	Cerro Cobres	23°29'	66°13'	REE-Th	Carbonatite dike	thorite, thorianite, galena, chalcopyrite, pyrite, quartz, barite, calcite, hematite			Ordovician	Granodiorite	Cobres Granodiorite
174	JUJUY	Z-21	Aconcagua, Salinas Grandes	Salinas Grandes	23°36'	65°52'	Salt	Evaporite				Pleistocene - Holocene	Fine sedimentary beds, Surface saline crust	
175	JUJUY	Z-21	Adrián, Angélica, Cirus,Conrado, Chani, Silvia	Salinas Grandes	23°34'	65°52'	Salt	Evaporite				Pleistocene - Holocene	Fine sedimentary beds, Surface saline crust	
176	JUJUY	Z-21	Boratoyoc, Ludovica, Eduardo, Federico and others	Salinas Grandes	23°20'	65°53'	Borates	Evaporite	ulexite, tincal	B_2O_3:30-35%	622,000t (dry ulexite)	Pleistocene - Holocene	Intercalation of salt beds and fine-detritic sediments	Evaporitic Deposits
177	JUJUY	Z-21	Boraseras Jujeñas	Salinas Grandes	23°45'	65°58'	Borates	Evaporite	ulexite, tincal			Pleistocene - Holocene	Intercalation of salt beds and fine-detritic sediments	Evaporitic Deposits

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
178	JUJUY	Z-21	Grupo Buenos Aires, Grupo Cordoba, Grupo Jujuy, Grupo Salta and others	Salinas Grandes	23°21'	65°53'	Borates	Evaporite	ulexite, tincal			Pleistocene - Holocene	Intercalation of salt beds and fine-detritic sediments	Evaporitic Deposits
179	JUJUY	Z-21	Grupo Pozo Cavado and others	Salinas Grandes	23°43'	65°57'	Borates	Evaporite and nodule	ulexite, tincal	boron anhydride : 36.90%	500,000t (raw borate)	Pleistocene - Holocene	Intercalation of salt beds and fine-detritic sediments	Evaporitic Deposits
180	JUJUY	Z-21	Grupo Tucumán, Grupo Rosario and others	Salinas Grandes	23°21'	65°54'	Borates	Evaporite	ulexite, tincal			Pleistocene - Holocene	Intercalation of salt beds and fine-detritic sediments	Evaporitic Deposits
181	JUJUY	Z-21	Ingoen, Molina, Aquadita, Juan Manuel and others	Salinas Grandes	23°44'	65°57'	Borates	Evaporite	ulexite, tincal		840,000t (dry borate)	Pleistocene - Holocene	Intercalation of salt beds and fine-detritic sediments	Evaporitic Deposits
182	JUJUY	Z-21	Sócrates, Saturno	Salinas Grandes	23°36'	65°53'	Salt	Evaporite				Pleistocene - Holocene	Fine sedimentary beds, Surface saline crust	
183	SALTA	Z-21	Júpiter, Prode, Yoruga, La Promesa	Salinas Grandes	23°44'	66°02'	Salt	Evaporite	ulexite, tincal			Pleistocene - Holocene	Relleno superior deltalar?	Evaporitic Deposits
184	SALTA	Z-21	Los Andes, Neuquén, Chubut	Salinas Grandes	23°44'	66°07'	Borates	Evaporite	ulexite, tincal			Pleistocene - Holocene	Relleno superior del salar/Intercalaci?n de niveles salinos y detr?ticos finos	Evaporitic Deposits
185	SALTA	Z-21	Morro Colorado	Salinas Grandes	23°48'	66°10'	Borates	Evaporite	ulexite, tincal			Pleistocene - Holocene	Relleno superior del salar/Intercalaci?n de niveles salinos y detr?ticos finos	Evaporitic Deposits
186	SALTA	Z-21	Niño Muerto, Walterio, San Francisco	Salinas Grandes	23°43'	66°12'	Borates	Evaporite	ulexite, tincal			Pleistocene - Holocene	Relleno superior del salar/Intercalaci?n de niveles salinos y detr?ticos finos	Evaporitic Deposits
187	JUJUY	Z-22	Achacanal	San José de Chañi	23° 54'	65°48'	Barite	Simple veins	barite, calcite			Ordovician	Sandstones and shales	Acoite Formation
188	JUJUY	Z-22	Jarunco, Colorado	Puerta de Colorados	23°35'	65°38'	Barite	Simple veins	barite, calcite			Precambrian	Slates, phyllites, schists	Puncoviscana Formation
189	JUJUY	Z-22	La Morenita	Sierra de Chañi	23°55'	65°48'	Barite	Simple veins	barite, calcite			Ordovician	Sandstones and shales	Acoite Formation
190	JUJUY	Z-22	La Vasca, Santa María	Lipan	23°39'	65°42'	Barite	Simple veins	barite, calcite			Ordovician	Sandstones and shales	Acoite Formation
191	JUJUY	Z-22	Natasia	Lipan	23°43'	65°43'	Barite	Simple veins	barite, calcite		44,000t (inferred)	Ordovician	Sandstones and shales	Acoite Formation
192	JUJUY	Z-22	Ruth	Sierra de Chañi	23°52'	65°43'	Barite	Simple veins	barite, calcite		7,800t (inferred)	Ordovician	Sandstones and shales	Acoite Formation
193	JUJUY	Z-22	Santa Bárbara (Irigoyen)	Sierra Alta	23° 39'	65° 37'	Barite	Simple veins	barite, calcite			Precambrian	Slates, phyllites, schists	Puncoviscana Formation
194	JUJUY	Z-22	Sixto	Lipan	23°40'	65°42'	Barite	Simple veins	barite, calcite			Ordovician	Sandstones and shales	Acoite Formation
195	JUJUY	Z-22	Tusca, Saladillo, Fives, Maquiavelo	Lipan	23°40'00"	65°42'03.2"	Barite	Simple veins	barite, calcite			Ordovician	Sandstones and shales	Acoite Formation
196	JUJUY	Z-23	9 de julio, Venus, Triques, Phobos, Gracia, Europa, Deynos, Compañ cra I, II y N2, Axis, Arenal, América I y II, Almena I y II	Sierra Alta	23°25'	65°29'	Pb-Ag-Zn	Veins	galena, quartz, barite			Precambrian	Schists, slates, greywackes, phyllites	Puncoviscana Formation
197	JUJUY	Z-23	Arroyo Despensa	Huacalera	23°27'	65°29'	Pb	Veins	galena, quartz			Precambrian	Schists, slates	Puncoviscana Formation
198	JUJUY	Z-23	Cienegulllas	Purmamarca	23°40'	65°31'	Cu	Vein				Precambrian	Schists, slates and greywackes	Puncoviscana Formation
199	JUJUY	Z-23	Cobre Loma	Purmamarca	23° 41'	65° 31'	Cu	Vein				Precambrian	Schists, slates and greywackes	Puncoviscana Formation
200	JUJUY	Z-23	El Halcón	Yacoraite (Quebrada de Iriquez)	23°20'	65°28'	Barite	Vein				Cambrian	Quartzites and shales, basic dikes	Mesón Group
201	JUJUY	Z-23	Hornos	Purmamarca	23°38'	65° 28'	Cu	Vein				Precambrian	Schists, slates and greywackes	Puncoviscana Formation
202	JUJUY	Z-23	Huichaira	Humahuaca	23°33'	65°28'	Cu	Vein	chalcopyrite, pyrite, malachite, quartz			Precambrian	Sand clay schists	Puncoviscana Formation
203	JUJUY	Z-23	María Cristina	Iriquez (Quebrada de Yacoraite)	23°22'	65°28'	Barite		barite, galena			Cambrian, Ordovician	Quartzites, quartzitic sandstones, sandstones and shales	Mesón Group, Acoite Formation
204	JUJUY	Z-23	Potrerillos	Quebrada de Yacoraite	23°18'	65°26'	Cu	Vein and lenses	chalcosite, malachite			Cambrian	Quartzites, slates and ultrabasic dikes	Mesón Group
205	JUJUY	Z-23	Quebrada de los Toldos	Humahuaca	23°13'	65°29'	Cu	Vein				Cambrian	Quartzites y shales	Mesón Group
206	JUJUY	Z-23	Queta Cara, Lidia, Jorge Arturo, Fernando Daniel, Claudia, César Aurusto	Humahuaca	23°23'	65°25'	Cu	Vein				Precambrian - Cambrian	Schists, slates and quartzites	Puncoviscana Formation, Mesón Group
207	JUJUY	Z-23	San José	Humahuaca	23°26'	65° 28'	Pb-Zn	Veins				Precambrian	Schists, slates	Puncoviscana Formation
208	JUJUY	Z-23	San José, San Juan	Humahuaca	23°13'	65°23'	Pb-Zn	Veins				Cambrian	Quartzites, shales	Mesón Group
209	JUJUY	Z-24	Abra de las Cañas, Yolanda I, II y III	Tumbaya	23°51'	65°22'	Pb	Veins	galena, quartz			Precambrian	Schists, slates	Puncoviscana Formation
210	JUJUY	Z-24	Chorrillos	León-Volcán	24°00'	65°26'	Cu-Ag-Sb-Pb	Vein and brecciated vein	chalcopyrite, pyrite, bornite, malachite, azurite	Cu:2.9%	74,700t (indicated)	Precambrian	Schists, slates, limestones, phyllites	Puncoviscana Formation
211	JUJUY	Z-24	Colruro, María Remedios, Nuevo Colruro, Chiquita	Tumbaya	23°44'48.2"	65°29'57.8"	Sb-Au	Epithermal	stibnite, gold, quartz			Precambrian	Schists, slates and greywackes, rhyolitic dikes	Puncoviscana Formation
212	JUJUY	Z-24	Edith Luisa	Purmamarca	23°45'	65°35'	Cu	Vein	malachite, chalcopyrite			Precambrian	Phyllitic schists and slates	Puncoviscana Formation
213	JUJUY	Z-24	General Güemes	Tumbaya	23°48'	65°28'	Barite	Veins	barite			Precambrian	Schists and slates	Puncoviscana Formation
214	JUJUY	Z-24	La Italiana	León	24°02'	65°28'	Pb	Veins	galena, sphalerite, chalcopyrite, pyrite			Precambrian	Schists, slates	Puncoviscana Formation
215	JUJUY	Z-24	Volcán	Volcán	23°53'	65°31'	Cu	Vein, lenses and irregular vein		Cu:13.66%		Precambrian	Schists, slates and greywackes	Puncoviscana Formation
216	JUJUY	Z-25	11 de Octubre, Honduras, Pantanillo	Calilegua	24°12'	65°04'	Fe	Mantiform, stratiform, oolitic, turbiditic	specularite, thuringite, biotite, hydrated silica, limonite	Typical ore: Fe_2O_3:65%, CaO:0.66%, MgO:0.40%, TiO_2:0.79%, MnO:0.03%, P_2O_5:1.17%, S:0.22%,		Silurian		Lipeón Formation
217	JUJUY	Z-25	Area Mina de hierro 9 de Octubre	Calilegua	24°14'	65°05'	Phosphates	Mantiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:2.8-5.9%		Ordovician	Quartzose sandstones, Lutites	Centinela Formation, Labrado Formation
218	JUJUY	Z-25	Cargadero Chauque (Río Caplitas)	Calilegua	24°02'	65°07'	Phosphates	Mantiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:4.6%	315,000t	Ordovician	Quartzose sandstones, Lutites	Centinela Formation, Labrado Formation
219	JUJUY	Z-25	Cerro Labrado	Calilegua	24°02'	65°10'	Fe	Mantiform, stratiform, oolitic, turbiditic	specularite, thuringite, biotite, hydrated silica, limonite	Chemistry of the reserve; Fe:35%, SiO2:37%, S:0.09%, P:0.7%		Silurian	Ferruginous micaceous sandstone, Iron bed	Lipeón Formation

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
220	JUJUY	Z-25	Mina 9 de Octubre	Calilegua	24°13'	65°07"	Fe	Mantiform, stratiform, oolitic, turbiditic	specularite, thuringite, biotite, hydrated silica, limonite	Fe:65.28%, SiO_2:20.27%, S:0.22%, P:1.17%, TiO_2:0.8%		Silurian	Ferruginous micaceous sandstone, iron bed	Lipeón Formation
221	JUJUY	Z-25	Río Negro	Calilegua	23°43'	65°10'	Phosphates	Mantiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:4.11-5.39%		Ordovician	Quartzose sandstones, Lutites	Centinela Formation, Labrado Formation
222	JUJUY	Z-25	Río Ocloyas (Río Calite)	Calilegua	23°55'	65°12'	Phosphates	Mantiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:6.3%	41,800t	Ordovician	Quartzose sandstones, Lutites	Centinela Formation, Labrado Formation
223	JUJUY	Z-25	Río Rangel	Calilegua	23°58'	65°10'	Phosphates	Mantiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:7.36%		Ordovician	Quartzose sandstones, Lutites	Centinela Formation, Labrado Formation
224	JUJUY	Z-25	Río San Lucas	Calilegua	23°34'	65°05'	Phosphates	Mantiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:<14.4%		Ordovician	Quartzose sandstones, Lutites	Centinela Formation, Labrado Formation
225	JUJUY	Z-25	Río Trementinal	Calilegua	23°51'	65°12'	Phosphates	Mantiform, biocoenose	Shells of Lingula Blachiopodo concentrations	P_2O_5:3.5%		Ordovician	Quartzose sandstones, Lutites	Centinela Formation, Labrado Formation
226	JUJUY	Z-25	Zapla-9 de Octubre	Calilegua	24°12'	65°04'	Fe	Mantiform, stratiform, oolitic, turbiditic	specularite, thuringite, biotite, hydrated silica, limonite			Silurian	Ferruginous micaceous sandstone, iron bed	Lipeon Formation
227	SALTA	Z-26	Abra del Gallo	Agua de Castilla	24°19'22"	66°28'16"	Au	Alluvial gold	gold			Quaternary	Sands	Modern deposits
228	SALTA	Z-26	Acuzoque	Agua de Castilla	24°17'17"	66°22'42"	Pb	Vein, epithermal	galena, chalcopyrite, tetrahedrite, pyrite, stibnite, barite, quartz, fluorite, cerussite, azurite, malachite, limonite			Ordovician	Granodiorite	Oire Formation
229	SALTA	Z-26	California	La Poma	24°17'14"	66°29'02"	Pb-Ag	polymetallic, <u>epiothermal</u> vein	galena, sphalerite, pyrite, chalcopyrite, quartz	Pb:11.02%, Ag:190.8g/t (average of the district)	260,000t (total for Pb+Ag of the district)	Tertiary	Dacites	Agua Caliente Formation
230	SALTA	Z-26	Concordia	Concordia	24°12'27"	66°24'19"	Pb-Ag-Zn	polymetallic, <u>meso-epithermal</u> veins	galena, argentite, tetrahedrite, sphalerite, chalcopyrite, pyrite, bornite, acanthite, anglesite, cerussite, limonite. quartz	Pb:5.59%, Zn:1.26%, Cu:0.6%, Ag:490g/t.	270,000t, 40,000t (measured)	Cretaceous	Conglomerates, dacites and dacitic breccias	Pirgua Subgroup, Punta del Viento Formation
231	SALTA	Z-26	El Abra	La Poma	24°16'50"	66°28'01"	Sb	Vein, epithermal	stibnite, gold, quartz			Tertiary (Miocene)	Dacite	Agua Caliente Formation
232	SALTA	Z-26	Emilia	Concordia	24°11'	66°24'	Pb	polymetallic, <u>meso-epithermal</u> veins	galena, argentite, tetrahedrite, sphalerite, chalcopyrite, pyrite, bornite, acanthite, anglesite. cerussite, limonite. quartz			Cretaceous	Conglomerates	Pirgua Subgroup
233	SALTA	Z-26	Esther	La Poma	24°15'47"	66°27'46"	Sb	Vein, epithermal	stibnite, gold, quartz	Sb:2-3%	100,000t	Tertiary (Miocene)	Dacite	Agua Caliente Formation
234	SALTA	Z-26	Farallones	La Poma	24°16'53"	66°26'52"	Sb	Vein, epithermal	stibnite, gold, quartz			Tertiary (Miocene)	Dacite	Agua Caliente Formation
235	SALTA	Z-26	Flamarión	Concordia	24°10'06"	66°24'19"	Pb	polymetallic, <u>epiothermal</u> vein				Cretaceous	Conglomerates	Pirgua Subgroup
236	SALTA	Z-26	Victoria	Incachule	24°16'06"	66°26'55"	Sb	Veins, epithermal	stibnite, quartz, gold, pyrite	Sb:<30%		Tertiary (Miocene)	Dacite	Agua Caliente Formation
237	SALTA	Z-26	La Esperanza, Rosa, La Poma	La Poma	24°14'33"	66°28'51"	Pb-Ag-Zn	polymetallic, <u>epiothermal</u> vein	galena, sphalerite, pyrite, chalcopyrite, quartz	Pb:11%, Ag:190g/t	260,000t	Tertiary	Dacites and dacitic tuffs	Agua Caliente Formation
238	SALTA	Z-26	La Olvidada	Aguas Calientes	24°12'10"	66°33'38"	Pb	Vein	galena, barite, quartz, limonite, hematite, cerussite			Tertiary (Pliocene)	Andesite	Rumibola Formation
239	SALTA	Z-26	La Paz	Concordia	24°11'51"	66°24'21"	Pb-Ag-Zn	polymetallic, meso-epithermal veins	galena, argentite, tetrahedrite, sphalerite, chalcopyrite, pyrite, bornite, acanthite, anglesite, cerussite, limonite. quartz	Pb:14.25%, Zn:2.4%, Cu:0.15%, Ag:337g/t		Cretaceous	Conglomerates, dacites and dacitic breccias	Pirgua Subgroup, Punta del Viento Formation
240	SALTA	Z-26	Matilde	Concordia	24°11'54"	66°25'06"	Pb-Ag-Zn	polymetallic, meso-epithermal veins	galena, argentite, tetrahedrite, sphalerite, chalcopyrite, pyrite, bornite, acanthite, anglesite. cerussite, limonite. quartz			Ordovician	Granodiorite, dacites and dacitic breccias	Oire Formation, Punta del Viento Formation
241	SALTA	Z-26	Organullo (placeres)	Organullo	24°15'11"	66°20'51"	Au	Alluvial gold	gold			Quaternary	Sands, gravels	Terrace sediments
242	SALTA	Z-26	Polvorilla	Concordia	24°11'22"	66°25'29"	Pb-Ag-Zn	polymetallic, meso-epithermal veins	galena, argentite, tetrahedrite, sphalerite, chalcopyrite, pyrite, bornite, acanthite, anglesite. cerussite. limonite. quartz			Tertiary	Dacites and dacitic breccias	Punta del Viento Formation
243	SALTA	Z-26	Recuerdo	Concordia	24°10'31"	66°24'06"	Pb-Ag-Zn-Au	polymetallic, meso-epithermal veins	galena, argentite, tetrahedrite, sphalerite, chalcopyrite, pyrite, bornite, acanthite, anglesite. cerussite. limonite. quartz	Pb:1.82%, Zn:9.55%, Cu:1.82%, Ag:130g/t		Cretaceous	Conglomerates	Pirgua Subgroup
244	SALTA	Z-26	Sebastián	Agua de Castilla	24°17'53"	66°23'25"	Barite	Vein-form	galena, fluorite, chalcopyrite, quartz			Ordovician	Granodiorite	Oire Eruptive Complex
245	SALTA	Z-26	Sin Nombre	Agua de Castilla	24°15'	66°20'	Au	Alluvial gold	gold			Quaternary	Sands, gravels	Terrace sediments
246	SALTA	Z-26	Vicuña	Concordia	24°09'20"	66°23'59"	Pb	polymetallic, <u>meso-epithermal</u> veins	galena, argentite, tetrahedrite, sphalerite, chalcopyrite, pyrite, bornite, acanthite, anglesite. cerussite. limonite. quartz			Cretaceous	Conglomerates	Pirgua Subgroup
247	SALTA	Z-27	Cerro Gordo (A. de R. n° 20 - Pastos Grandes)	Pastos Grandes(Nevados de Palermo)	24°32'	66°22'	Au	Disseminated in fracture zone, tectonic breccia	pyrite, chalcopyrite, gold, silica			Precambrian	Slate, Schist, Breccia	Puncoviscana Formation
248	SALTA	Z-27	Diana	Organullo	24°26'	66°15'	Pb-Ag-Zn-Cu	Veins in faults, epithermal	galena, sphalerite, pyrite, chalcopyrite, tetrahedrite. quartz	Ag:302.78g/t, Pb:10.44%, Zn:3.40%	20,000t (total)	Precambrian, Tertiary	Greywackes and phyllites. Dacites and tuffs	Puncoviscana Formation
249	SALTA	Z-27	Don Ignacio	La Poma	24°40'	66°10'	Pb	Veins	galena			Miocene - Pliocene	Continental conglomerates, sandstones and pelites	Payogastilla Group
250	SALTA	Z-27	El Acay	Nevada de Acay	24°29'16.8"	66°11'01.7"	Fe-Cu-Pb-Zn	Skarn, metasomatic	magnetite, pyrite, chalcopyrite, calcite, enstatite, quartz, chlorite, epidote	Fe:<62%		Cretaceous, Oligocene	Garnetiferous skarn, Limestone, Calcareous sandstone, Marl, Granite	Yacoraite Formation, Acay Formation
251	SALTA	Z-27	Encrucijada	Acay	24°29'33"	66°11'10"	Cu-Pb	Epithermal, polymetallic, veins	chalcopyrite, sphalerite, galena, pyrite			Cretaceous	Calcareous sandstones and shales	Yacoraite Formation
252	SALTA	Z-27	Estela, María Inés, María	Capillas	24°30'39"	66°01'05"	Cu	Veins	chalcopyrite, pyrite, malachite	María Inés: Cu:4.7%, Au:0.6g/t, Ag:62g/t		Precambrian	Shales, slates, phyllites and quartzites	Puncoviscana Formation
253	SALTA	Z-27	Francisco, Cornejo, San Roque	Las Cuevas	24°21'57"	66°03'04"	Cu	Simple veins associated with plutons	chalcopyrite, bornite, chalcocite, limonite, malachite, barite, quartz, azurite, chrysocolla			Precambrian	Shales, slates, phyllites and quartzites	Puncoviscana Formation
254	SALTA	Z-27	Hunico Hondo	Acay	24°28'49"	66°11'26"	Cu-Pb-Zn	Epithermal polymetallic	chalcopyrite, sphalerite, galena, pyrite			Tertiary (Oligocene - Miocene)	Sandstones	Río Grande Formation

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
255	SALTA	Z-27	Isa I y II, San Santiago	Las Cuevas	24°22'30"	66°01'20"	Cu	Simple veins associated with plutons	chalcopyrite, bornite, chalcocite, limonite, malachite, barite, quartz, azurite, chrysocolla			Precambrian	Shales, slates, phyllites and quartzites	Puncoviscana Formation
256	SALTA	Z-27	Leonor, Maria, Mercedes	Capillas	24°29'59"	66°01'35"	Cu	Simple veins		Martha: Cu:2%, Ag:5g/t		Precambrian	Shales, slates, phyllites and quartzites	Puncoviscana Formation
257	SALTA	Z-27	Lucrecita	Las Cuevas	24°16'31"	66°04'04"	Cu	Simple veins associated with plutons	chalcopyrite, bornite, chalcocite, limonite, malachite, barite, quartz, azurite, chrysocolla			Precambrian	Shales, slates, phyllites and quartzites	Puncoviscana Formation
258	SALTA	Z-27	Milagro	Acay	24°27'38"	66°12'01"	Fe(-Cu-Pb-Zn)	Skarn, veinlets, banded, metasomatic	magnetite, pyrite, chalcopyrite, calcite, enstatite, quartz			Cretaceous, Oligocene	Garnetiferous skarn, Limestone, Calcareous sandstone, Marl, Granite	Yacoraite Formation Acay Formation
259	SALTA	Z-27	Nevado de Acay (Area de Reserva No.18)	Acay	24°28'	66°10'	Cu-Pb-Zn	Disseminated	pyrite			Precambrian, Cretaceous, Tertiary	Metasediments, Conglomerates and sandstones, Dacitic and rhyodacitic intrusives.	Puncoviscana Formation, Pirgua Subgroup
260	SALTA	Z-27	Organullo	Organullo	24°16'	66°21'	Au	Porphyry Au, epithermal	gold			Tertiary	Dacitic and andesitic flows, Dioritic stock	
261	SALTA	Z-27	Organullo (Julio Verne)	Organullo	24°23'41.9"	66°19'04"	Au-Bi-Cu-Pb-Zn	Polymetallic veins	pyrite, tetrahedrite, gold, bismuthinite, chalcopyrite, sphalerite, galena, quartz			Precambrian, Tertiary	Slates and schists. Dacitic and andesitic flows. Dioritic stock	Puncoviscana Formation
262	SALTA	Z-27	Pueblo Viejo	Palermo Oeste(La Poma)	24°42'23"	66°11'45"	Au	Alluvial gold	gold			Quaternary	Sand	Terrace sediments
263	SALTA	Z-27	Rosario	Acay	24°30'14"	66°12'11"	Cu	Epithermal polymetallic	sphalerite, galena, pyrite, chalcopyrite, tetrahedrite			Precambrian	Metasediments	Puncoviscana Formation
264	SALTA	Z-27	Saturno	Acay	24°28'41"	66°10'14"	Cu-Ag-Au	Epithermal polymetallic	chalcopyrite, pyrite, gold, galena, sphalerite	Cu:0.9-18%, Ag:300-1,572g/t		Precambrian	Metasediments	Puncoviscana Formation
265	SALTA	Z-27	Señor del Milagro	Las Cuevas	24°23'18"	66°01'18"	Cu	Simple veins associated with plutons	chalcopyrite, bornite, chalcocite, limonite, malachite, barite, quartz, azurite, chrysocolla			Precambrian	Shales, slates, phyllites and quartzites	Puncoviscana Formation
266	SALTA	Z-27	Sor Rafaela	Las Cuevas	24°20'07"	66°04'12"	Cu	Simple veins associated with plutons	chalcopyrite, bornite, chalcocite, limonite, malachite, barite, quartz, azurite, chrysocolla			Precambrian	Shales, slates, phyllites and quartzites	Puncoviscana Formation
267	SALTA	Z-27	Torca	Organullo	24°25'53"	66°19'33"	Pb-Ag-Cu	Epithermal polymetallic, veins in faults	galena, chalcopyrite, malachite			Tertiary (Pliocene)	Andesites	Rumibola Formation
268	SALTA	Z-27	Virgen del Carmen	Las Cuevas	24°20'59"	66°01'29"	Cu	Simple veins associated with plutons	chalcopyrite, bornite, chalcocite, limonite, malachite, barite, quartz, azurite, chrysocolla			Precambrian	Shales, slates, phyllites and quartzites	Puncoviscana Formation
269	SALTA	Z-28	Pancho Arias, Vizcacheral	Finca El Toro (San Bernardo de las Zorras)	24°15'29.1"	65°50'40.8"	Mo-Cu-Au	Porphyry Cu-Mo, hydrothermal breccia	pyrite, chalcopyrite, molybdenite, quartz, tourmaline	In surface; Cu:<3,300ppm, Mo:<750ppm, Au:<0.2g/t		Precambrian, Miocene	Leptometamorphic rocks, Dacitic porphyry dikes swarm and intrusive and hydrothermal breccias	Puncoviscana Formation
270	SALTA	Z-29	Carahunsi	Sijes	24°47'44"	66°39'03"	Borates	Evaporite	ulexite	B_2O_3:13.08%		Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
271	SALTA	Z-29	Chinchillas	Sijes	24°56'06"	66°45'18"	Borates	Evaporite	ulexite			Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
272	SALTA	Z-29	Esparanza	Sijes	24°40'25"	66°39'18"	Borates	Fossil evaporite	colemanite, hydroboracite, inyoite	B_2O_3:28%	100,000t	Miocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Sijes Formation
273	SALTA	Z-29	Monte Azul	Sijes	24°41'42"	66°40'31"	Borates	Fossil evaporite	colemanite, hydroboracite, inyoite			Miocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Sijes Formation
274	SALTA	Z-29	Monte Gris	Sijes	24°45'16"	66°40'42"	Borates	Fossil evaporite	colemanite, hydroboracite, inyoite			Miocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Sijes Formation
275	SALTA	Z-29	Monte Marrón	Sijes	24°46'23"	66°41'44"	Borates	Fossil evaporite	colemanite, hydroboracite, inyoite			Miocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Sijes Formation
276	SALTA	Z-29	Monte Verde	Sijes	24°43'24"	66°40'33"	Borates	Fossil evaporite	colemanite, hydroboracite, inyoite			Miocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Sijes Formation
277	SALTA	Z-29	Pampa Ciénaga, Purmamarca	Sijes	24°57'01"	66°44'14"	Borates	Evaporite	ulexite	B_2O_3:<32% (Purmamarca)	324,000t	Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
278	SALTA	Z-29	San Gabriel	Sijes	24°49'13"	66°40'17"	Borates	Evaporite	ulexite			Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
279	SALTA	Z-30	Aegyr, La Pichunga, Odin, Thor	Salar de Diablillos	25°14'40"	66°45'20"	Borates	Evaporite	ulexite			Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
280	SALTA	Z-30	Coral, Entrerriana, Escorpio, Sur	Salar de Diablillos	25°15'35"	66°43'20"	Borates	Evaporite	ulexite	B_2O_3:34.47% (for the salar)	2.25Mt (inferred, for all the salar)	Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
281	SALTA	Z-30	Hipólito, María Luisa	Salar de Ratones	25°08'00"	66°47'10"	Borates	Evaporite	ulexite		ulexite:1.2 Mt (estimated reserves for whole basin)	Pleistocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
282	SALTA	Z-30	Julián, Marita	Salar de Ratones	25°09'00"	66°47'30"	Borates	Evaporite	ulexite			Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
283	SALTA	Z-30	La Despreciada, La Perdida, Santiago	Salar de Diablillos	25°15'50"	66°45'35"	Borates	Evaporite	ulexite			Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
284	SALTA	Z-30	Pascual, Victor Felipe	Salar de Diablillos	25°15'25"	66°44'30"	Borates	Evaporite	ulexite			Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
285	SALTA	Z-30	San Felipe, San Marcelo, Tosca	Salar de Diablillos	25°14'20"	66°44'10"	Borates	Evaporite	ulexite			Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
286	SALTA	Z-30	San Juan, San Pablo, San Pedro, Santo Domingo	Salar de Diablillos	25°15'35"	66°44'25"	Borates	Evaporite	ulexite			Pleistocene - Holocene	Upper filling of salt deposit. Intercalation of saline and fine detrital beds.	Evaporitic Deposits
287	SALTA	Z-31	Diablillos	Salar de Diablillos	25°18'24"	66°48'29"	Au-Cu	High sulfidation, epithermal gold. Porphyry Au-Cu				Miocene	Granitic intrusives, intrusive breccias	Inca Viejo Formation
288	SALTA	Z-31	Inca Viejo (incluye 42 pertenencias)	Abra de Minas	25°07'01.5"	66°46'23.1"	Au-(Cu-Mo)	Porphyry Au-Cu	limonite, pyrite, chalcopyrite, molybdenite, malachite, azurite, chrysocolla, turquoise	In surface; Cu:180ppm, Mo:25ppm		Tertiary (Miocene)	Monzonitic and dacitic porphyries. Intrusive and collapse tourmaline-bearing breccias	Inca Viejo Formation
289	SALTA	Z-31	Soroche, Volcano	Abra de Minas (Inca	25°07'15"	66°44'55"	Pb-Ag-Zn					Ordovician	Gneisses, schists, granodiorites	Oire Eruptive Complex
290	SALTA	Z-32	Abra de Cuernos	Tacuil	25°32'40"	66°42'45"	Sillimanite	Nodules, venas, metamorphic	aluminosilicate minerals, quartz			Precambrian	Schist, Biotite-gneiss, Quartzose mica schist	Pachamama Igneo-Metamorphic Complex
291	SALTA	Z-32	Berilo I, II, III y IV	Cerro Incahuasi	25°18'45"	66°33'15"	Be-mica	Pegmatite	quartz, microcline, biotite, muscovite, beryl, garnet, tourmaline			Precambrian	Biotite schist, Biotite gneiss	Río Blanco Metamorphic Complex
292	SALTA	Z-32	Casa Grande, Las Juntas	Tacuil	25°30'03"	66°38'05"	Sillimanite	Nodules, venas, metamorphic	aluminosilicate minerals, quartz			Precambrian	Schist, Biotite-gneiss, Quartzose mica schist	Pachamama Igneo-Metamorphic Complex
293	SALTA	Z-32	Cerro Blanco	Tacuil	25°33'25"	66°42'12"	Be Sillimanite	Nodules, venas, metamorphic	aluminosilicate minerals, quartz	Al_2O_3:58-60%	600t (indicated)	Precambrian	Schist, Biotite-gneiss, Quartzose mica schist	Pachamama Igneo-Metamorphic Complex
294	SALTA	Z-32	Cerro Blanco, Olga	Tacuil	25°34'50"	66°42'50"	Be-mica	Pegmatite				Precambrian	Biotite schist, Biotite gneiss	Río Blanco Metamorphic Complex
295	SALTA	Z-32	Cerro Guayitas, Cueva de Fenes	Tacuil	25°30'05"	66°41'56"	Sillimanite	Nodules, venas, metamorphic	aluminosilicate minerals, quartz			Precambrian	Schist, Biotite-gneiss, Quartzose mica schist	Pachamama Igneo-Metamorphic Complex
296	SALTA	Z-32	Chaco Huasi	Tacuil	25°30'50"	66°39'22"	Sillimanite	Nodules, venas, metamorphic	aluminosilicate minerals, quartz			Precambrian	Schist, Biotite-gneiss, Quartzose mica schist	Pachamama Igneo-Metamorphic Complex
297	SALTA	Z-32	El Toldo	Tacuil	25°29'45"	66°42'15"	Be-mica	Pegmatite	quartz, microcline, biotite, muscovite, beryl, garnet, tourmaline			Precambrian	Biotite schist, Biotite gneiss	Río Blanco Metamorphic Complex
298	SALTA	Z-32	Patricia	Cerro Incahuasi	25°17'15"	66°33'18"	Be-mica	Pegmatite	quartz, microcline, biotite, muscovite, beryl, garnet, tourmaline			Precambrian	Biotite schist, Biotite gneiss	Río Blanco Metamorphic Complex
299	SALTA	Z-32	Puesto Excursionera	Tacuil	25°28'00"	66°42'40"	Sillimanite	Nodules y venas y tambien como rodados enterrazas y faldeos	aluminosilicate minerals, quartz			Precambrian	Schist, Biotite-gneiss, Quartzose mica schist	Pachamama Igneo-Metamorphic Complex
300	SALTA	Z-33	Aguas Calientes	Sierra de Cachi	24°44'41"	66°20'31"	Nb-Ta-Li-Bi-Be	Pegmatitic	niobite, tantalite, microlite, bismuth, bismuthinite, lepidolite, spodumene		5Mt (for the district)	Precambrian - Lower Cambrian	Slate, Schist, Phyllite, Trondhiemite Pluton. Pegmatite	Puncoviscana Formation, Cachi Formation
301	SALTA	Z-33	Anzotana	Sierra de Cachi	24°49'	66°18'	Nb-Ta-Li-Bi-Be	Pegmatitic	niobite, tantalite, microlite, bismuth, bismuthinite, lepidolite, spodumene		5Mt (for the district)	Precambrian - Lower Cambrian	Slate, Schist, Phyllite, Trondhiemite Pluton. Pegmatite	Puncoviscana Formation, Cachi Formation
302	SALTA	Z-33	El Peñón	El Quemado	24°50'23"	66°19'29"	Nb-Ta-Li-Bi-Be	Pegmatitic	niobite, tantalite, microlite, bismuth, bismuthinite, lepidolite, spodumene		5Mt (for the district)	Precambrian - Lower Cambrian	Slate, Schist, Phyllite, Trondhiemite Pluton. Pegmatite	Puncoviscana Formation, Cachi Formation
303	SALTA	Z-33	El Quemado	El Quemado	24°50'42"	66°21'11"	Nb-Ta-Li-Bi-Be	Pegmatitic	niobite, tantalite, microlite, bismuth, bismuthinite, lepidolite, spodumene		5Mt (for the district)	Precambrian - Lower Cambrian	Slate, Schist, Phyllite, Trondhiemite Pluton. Pegmatite	Puncoviscana Formation, Cachi Formation
304	SALTA	Z-33	Elvirita	El Quemado	24°45'27"	66°20'32"	Nb-Ta-Li-Bi-Be	Pegmatitic	niobite, tantalite, microlite, bismuth, bismuthinite, lepidolite, spodumene		5Mt (for the district)	Precambrian - Lower Cambrian	Slate, Schist, Phyllite, Trondhiemite Pluton. Pegmatite	Puncoviscana Formation, Cachi Formation
305	SALTA	Z-33	María Eugenia, María Isabel	Cachi	25°04'05"	66°17'00"	Nb-Ta-Li-Bi-Be	Pegmatitic	niobite, tantalite, microlite, bismuth, bismuthinite, lepidolite, spodumene		5Mt (for the district)	Precambrian	Slate, Schist, Phyllite, Greywacke	La Paya Formation
306	SALTA	Z-33	Peñas Blancas	El Quemado	24°57'38"	66°18'29"	Nb-Ta-Li-Bi-Be	Pegmatitic	niobite, tantalite, microlite, bismuth, bismuthinite, lepidolite, spodumene		5Mt (for the district)	Precambrian - Lower Cambrian	Slate, Schist, Phyllite, Trondhiemite Pluton. Pegmatite	Puncoviscana Formation, Cachi Formation
307	SALTA	Z-33	Santa Elena	El Quemado	24°49'30"	66°20'31"	Nb-Ta-Li-Bi-Be	Pegmatitic	niobite, tantalite, microlite, bismuth, bismuthinite, lepidolite, spodumene	$Ta_2O_5+Nb_2O_5$:0.01-0.035%	5Mt (for the district)	Precambrian - Lower Cambrian	Slate, Schist, Phyllite, Trondhjemite Pluton, Pegmatite	Puncoviscana Formation, Cachi Formation
308	SALTA	Z-33	Tres Tetas	El Quemado	24°53'06"	66°18'03"	Nb-Ta-Li-Bi-Be	Pegmatitic	niobite, tantalite, microlite, bismuth, bismuthinite, lepidolite, spodumene		5Mt (for the district)	Precambrian - Lower Cambrian	Slate, Schist, Phyllite, Trondhiemite Pluton. Pegmatite	Puncoviscana Formation, Cachi Formation
309	SALTA	Z-34	Brealito (A. de R. n° 24)	Brealito	25°18'02"	66°20'35"	Cu					Precambrian, Cretaceous	Metasediments, Porphyritic body	Puncoviscana Formation
310	SALTA	Z-34	El Morete	Brealito	25°21'55"	66°23'10"	Cu	Stratabound Cu	malachite, azurite			Cretaceous	Sandstones and pelites	Pirgua Subgroup
311	SALTA	Z-34	Emma Olga	Cachi	25°08'	66°24'	Pb	simple veins				Precambrian	Slates, schists, phyllites. Granites	La Paya Formation, Cachi Formation
312	SALTA	Z-34	Incauca	Cerro Incauca (Cachi)	25°09'58"	66°24'00"	Pb-Ag	simple veins				Cretaceous	Conglomerates and sandstones	Pirgua Subgroup
313	SALTA	Z-34	Magdalena Amenray, Santiaguito	La Paya	25°11'08"	66°14'40"	Pb	Veins				Precambrian	Slates, schists, phyllites	La Paya Formation
314	SALTA	Z-34	San Antonio	Luracatao	25°15'03"	66°24'00"	Pb-Ag	Veins				Precambrian	Slates, schists, phyllites	La Paya Formation
315	SALTA	Z-34	Santa Julia	Cachi	25°13'25"	66°16'15"	Pb-Ag	Veins				Precambrian	Slates, schists, phyllites	La Paya Formation
316	SALTA	Z-34	Tilí Orco	Seclantás	25°14'25"	66°14'00"	Pb	Veins				Precambrian	Slates, schists, phyllites	La Paya Formation
317	SALTA	Z-35	Don Bosco	Cachi	25°06'12"	66°00'58"	U-V	Stratabound, Tabular				Cretaceous	Micaceous calcareous sandstone, Oolitic limestone, Sandy	Yacoraite Formation
318	SALTA	Z-36	Don Otto	Quebrada de Ovejería	25°38'	65°54'	U-V	Stratabound, Tabular	autunita, metaautunita, carnotita, tyuyamunita	U:1.05‰ (average of the district) V_2O_5:0.02-0.24%	584,709t (total of the district)	Cretaceous	Micaceous calcareous sandstone, Oolitic limestone, Sandy limestone	Yacoraite Formation
319	SALTA	Z-36	Los Berthos	Quebrada de Ovejería	25°24'	65°57'	U-V	Stratabound, Tabular	fojfouraniuta, uranofano, pitchblende	U:1.44‰ (average), V_2O_5:0.40-0.64%		Cretaceous	Micaceous calcareous sandstone, Oolitic limestone, Sandy	Yacoraite Formation
320	SALTA	Z-36	M.M. De Guemes	Quebrada de Ovejería	25°22'	65°58'	U-V	Stratabound, Tabular		V_2O_5:0.20%		Cretaceous	Micaceous calcareous sandstone, Oolitic limestone, Sandy	Yacoraite Formation
321	SALTA	Z-36	Pedro Nicolás	Quebrada de Ovejería	25°30'	65°57'	U-V	Stratabound, Tabular		V_2O_5:0.01%		Cretaceous	Micaceous calcareous sandstone, Oolitic limestone, Sandy	Yacoraite Formation
322	SALTA	Z-37	Emmy, El Leñadero, El Desecho	Sierra Alisar	25°41'	65°36'	U-V	Stratabound, Tabular		U:0.08-1.36‰ (El Leñadero), U:0.03‰ (El Desecho)		Cretaceous	Micaceous calcareous sandstone, Oolitic limestone, Sandy limestone	Yacoraite Formation

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
323	SALTA	Z-37	La Despedida	Sierra Alisar	25°54'	65°30'	U	Stratabound, Tabular			4.86Mt with 1,700t of U_3O_8	Cretaceous	Micaceous calcareous sandstone, Oolitic limestone, Sandy	Yacoraite Formation
324	SALTA	Z-38	Casualidad III	Cafayate	26°01'	66°11'	Cu	Veins				Precambrian	Metamorphic rocks	Tolombón Metamorphic Complex
325	SALTA	Z-38	Los Cardones	Vallecito (Finca Pucara)	25°56'10"	66°10'40"	Cu	Veins				Precambrian	Schists, slates and greywackes	Puncoviscana Formation
326	SALTA	Z-38	Vallecito (A. de R. n° 25) (mina San Francisco I y II)	Vallecito (Finca Pucara)	25°55'50"	66°17'05"	Cu	Stratabound Cu		Cu:0.05-1%		Ordovician, Cretaceous	Migmatites, granites, Conglomerates, sandstones	Oire Eruptive Complex, Pirgua Subgroup
327	CATAMARCA	Z-39	Laguna del Salitre	Laguna Aparoma	26°14'	66°53'	Pb-Zn	Vein				Miocene	Monzodiorite	Salitre Formation
328	SALTA	Z-39	Margarita, Zorriquin	La Yesera	25°58'	66°41'	Cu	Stratabound Cu	malachite, azurite			Cretaceous	Sandstones and conglomerates	Pirgua Subgroup
329	SALTA	Z-39	Tres Morritos	Cafayate	26°12'	66°46'	Cu	Stratabound	malachite, azurite			Miocene - Pliocene	Continental pelitic, sandy and conglomerate levels	Payogastilla Group
330	CATAMARCA	Z-40	El Yocavil	Sierra de Los Patos Grandes	26°37'	66°05'	Muscovite	Pegmatitic and lenticular				Upper Precambrian	Gneiss, Schist	Tolombón Formation (Piscoyacu Gneiss)
331	CATAMARCA	Z-40	María Arsenia, San Alfredo	Sierra de Los Patos Grandes	26°27'	66°08'	Kaoline	Pegmatitic, Tabular				Upper Precambrian - Lower Carboniferous	Schist, Granite	La Cébila Formation, El Manchao Pluton
332	SALTA	Z-40	17 de Octubre	Sierra de Los Patos Grandes	26°08'	66°07'	Mica	Pegmatite	quartz, microcline, biotite, muscovite, beryl, tourmaline			Precambrian	Schist, Gneiss, Quartzite	Tolombón Metamorphic Complex
333	SALTA	Z-40	La Vieja	Sierra de Los Patos Grandes	26°13'	66°06'	Mica	Pegmatite	quartz, microcline, biotite, muscovite, beryl, tourmaline			Precambrian	Schist, Gneiss, Quartzite	Tolombón Metamorphic Complex
334	TUCUMAN	Z-40	Don Sixto, Tintillo y otras	Sierra de Los Patos Grandes	26°29'	66°06'	Mica	Pegmatitic and lenticular			2t	Upper Precambrian	Gneiss, Migmatite	Piscoyacu Formation
335	TUCUMAN	Z-40	Graciela (ex Milagro), Alejandra, Victor Hugo, Facundo, Cueva de Bazán, Alto Cazadero I, II, III, IV	Sierra de Los Patos Grandes	26°22'	66°05'	Mica	Pegmatitic, Lenticular			790t	Upper Precambrian	Gneiss, Migmatite	Piscoyacu Formation
336	TUCUMAN	Z-40	Talapazo I,II,III,IV, La Piegada, Las Cañas and others	Sierra de Los Patos Grandes	26°27'	66°04'	Mica	Pegmatitic and lenticular			850t	Upper Precambrian	Gneiss, Migmatite	Piscoyacu Formation
337	TUCUMAN	Z-40	Juliana	Sierra de Los Patos Grandes	26°23'	66°03'	Be	Pegmatitic, Lenticular				Upper Precambrian	Gneiss, Migmatite	Piscoyacu Gneiss
338	TUCUMAN	Z-40	Las Cañas	Sierra de Los Patos Grandes	26°21'	66°07'	Be	Pegmatitic				Upper Precambrian	Gneiss, Migmatite	Piscoyacu Gneiss
339	TUCUMAN	Z-41	Las Canas(ex La Rosa)	Sierra de Los Patos Grandes	26°21'	66°07'	Cu-Pb-Zn-Au	Disseminated		Cu:1%, Au:1.5-2.6g/t		Upper Precambrian	Gneiss, Migmatite	Piscoyacu Gneiss
340	TUCUMAN	Z-41	Peñas Coloradas (ex. San Carlitos)	Sierra de Los Patos Grandes	26°26'	66°01'	Cu-Au-Pb-Zn	Disseminated		Cu:0.8%, Au:1.5-2.5g/t		Upper Precambrian	Gneiss, Migmatite	Piscoyacu Gneiss
341	CATAMARCA	Z-42	Andrea	Cerro Medano Blanco	26°56'	66°56'	Pb	Vein				Upper Miocene	Breccia	La Hoyada Formation
342	CATAMARCA	Z-42	Cuevas Negras	Cerro Medano Blanco	26°56'	66°56'	Pb-Ag-Cu	Vein		Cu:0.07%, Pb:1.75%, Au:291g/t (rock chips)		Upper Miocene	Breccia	La Hoyada Formation
343	CATAMARCA	Z-42	Culampaja	Cerro Medano Blanco	27°02'	66°58'	Au-(W)							
344	CATAMARCA	Z-42	Don Cirilo	Cerro Medano Blanco	26°55'	66°51'	Pb-Ag	Vein		Ag:65g/t		Upper Cambrian - Lower Ordovician	Schist, Phyllite, Slate, Limestone, Granite	Grupo
345	CATAMARCA	Z-42	Dona Martina, La Marcos, La Pilar, La Tomasita, La Zaragozana, La Rosalia, Cóndor Huasi	Cerro Medano Blanco	26°55'	66°51'	Pb-Ag	Vein				Upper Cambrian - Lower Ordovician	Schist, Phyllite, Slate, Limestone, Granite	Cachiñán Group (parcial)
346	CATAMARCA	Z-42	El Aragonés, Don Enrique, Piedra Calzada	Cerro Medano Blanco	26°58'	66°52'	W-Sn	Vein				Upper Cambrian - Lower Ordovician	Schist, Phyllite, Slate	Cachiñán Group (parcial)
347	CATAMARCA	Z-42	El Moradito, Gutiérrez, Tajo Largo, El Ingenio, El Rosario	Culampajá	26°56'00"	66°56'30"	Au	Vein	gold, pyrite, chalcopyrite, sphalerite, arsenopyrite, malachite, azurite, Fe-oxide, quartz	Au:10.2g/t, Ag:2g/t		Upper Ordovician - Silurian	Granite	Chango Real Formation
348	CATAMARCA	Z-42	Eusebio	Cerro Medano Blanco	26°56'	66°56'	Pb	Vein				Upper Miocene	Andesite	La Hoyada Formation
349	CATAMARCA	Z-42	Granalita, La Cuesta	Cerro Medano Blanco	26°57'	66°50'	Garnet	Lentiform				Ordovician	Crystalline limestone, Meta-sediments	Cachiñán Group (parcial)
350	CATAMARCA	Z-42	Gutiérrez, Tajo Largo, El Ingenio, El Rosario	Cerro Medano Blanco	26°58'	66°58'	Au	Vein				Upper Ordovician - Silurian	Granitic orthogneiss	Chango Real Formation
351	CATAMARCA	Z-42	La Argentina	Cerro Medano Blanco	26°55'	66°51'	Pb-Ag	Vein		Ag:129g/t		Upper Cambrian - Lower Ordovician	Schist, Phyllite, Slate, Limestone, Granite	Cachiñán Group (parcial)
352	CATAMARCA	Z-42	La Cobriza, Ojo de Agua	Cerro Medano Blanco	26°54'30"	66°51'00"	Cu	Skarn	chalcopyrite, pyrite, Cu-oxide	Cu:12-13%		Upper Cambrian - Lower Ordovician	Schists and Limestones	Cachiñán Group (parcial)
353	CATAMARCA	Z-42	La Preciosa Argentina	Cerro Medano Blanco	26°57'	66°50'	Topaz	Tabular				Ordovician	Metasediments	Cachiñán Group (parcial)
354	CATAMARCA	Z-42	María Magdalena	Cerro Medano Blanco	26°56'	66°56'	Pb-Cu	Vein				Upper Miocene	Andesite	La Hoyada Formation
355	CATAMARCA	Z-42	Negra Dorada	Cerro Medano Blanco	26°55'	66°51'	Pb-Ag	Vein		Pb:6%, Zn:2%, Ag:70-377g/t		Upper Cambrian - Lower Ordovician	Schist, Phyllite, Slate, Limestone, Granite	Cachiñán Group (parcial)
356	CATAMARCA	Z-42	Piedra Calzada	Cerro Medano Blanco	26°48'	66°51'	Cu-Bi-Pb-Zn-W	Pegmatitic, Tabular				Upper Cambrian - Lower Ordovician	Schist, Slate, Phyllite	Cachiñán Group (parcial)
357	CATAMARCA	Z-42	San Isidro, La Banda (Grupo La Metada)	Cerro Medano Blanco	26°58'	66°56'	W	Vein				Upper Cambrian - Lower Ordovician	Slate, Phyllite	Cachiñán Group (parcial)
358	CATAMARCA	Z-42	Tiburcio, El Enrejado	Cerro Medano Blanco	26°57'	66°50'	Fluorite	Tabular body				Ordovician		Chango Real Formation, Cachiñán Group (parcial)
359	CATAMARCA	Z-42	Vaca Vizcana	Cerro Medano Blanco	26°47'30"	66°49'30"	Cu - Au	Porphyry Cu	pyrite, chalcopyrite, bornite, gold, native copper, bornite, pyrrhotite, rutile, magnetite, malachite, azurite, covellite, limonite			Miocene, Upper Ordovician - Silurian	Intrusives, Andesitic porphyry dikes and Granite	El Aspero Formation, Chango Real Formation
360	CATAMARCA	Z-43	Agua Rica (ex Mi Vida)	Farallón Negro	27°22'00"	66°17'30"	Cu-Mo-Pb-Zn-Ag-Au	Porphyry Cu, High sulfidation epithermal	pyrite, covellite, bornite, enargite, molybdenite, galena, sphalerite, marcasite, rhodochrosite, sulfur	Cu:0.61%, Au:0.24g/t, Ag:3.17g/t, Mo:0.035%	802Mt (geological)	Upper Miocene	Igneous breccia, hydrothermal breccias	Camusú Breccia
361	CATAMARCA	Z-43	Agua Tapada	Agua de Dionisio	27°15'30"	66°41'15"	Au	Epithermal, low sulfidation	gold bearing pyrite, chalcopyrite, galena, sphalerite, quartz, calcite, barite	Au:2.2g/t, Ag:174g/t		Upper Miocene	Andesitic breccias and Quartz andesites	Farallón Negro Volcanic Complex

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
362	CATAMARCA	Z-43	Alto de la Blenda	Agua de Dionisio	27°18'30"	66°09'30"	Au-Ag-Mn	Epithermal, low sulfidation	native gold, argentite, polybasite, tetrahedrite, galena, sphalerite, chalcopyrite, pyrite, bornite, Mn-carbonate, quartz, calcite, pyrolusite, psilomelane	Au:4g/t, Ag:70g/t	745,000t, 1,834t (average)	Upper Miocene	Monzonite and Andesite	Farallon Negro Volcanic Complex
363	CATAMARCA	Z-43	Bajo de Agua Tapada	Farallón Negro	27°16'	66°39'	Cu-Au							
364	CATAMARCA	Z-43	Bajo de la Alumbrera	Agua de Dionisio	27°19'00"	66°37'30"	Cu-Au	Porphyry Cu	pyrite, chalcopyrite, magnetite, hematite, specular iron, molybdenite, bornite, sphalerite, covellite, marcasite	Cu:0.52%, Au:0.67g/t(Probable); Cu:0.52%, Au:0.58g/t (Possible)	550,680,000t (Probable); 114,410,000t (Possible)	Upper Miocene	Andesitic breccia, Andesitic tuff, Andesitic dikes and sills, Quartz andesitic stock and dikes	Farallón Negro Volcanic Complex
365	CATAMARCA	Z-43	Bajo de San Lucas	Farallón Negro	27°24'	66°33'	Cu-(Au-Mo)							
366	CATAMARCA	Z-43	Bajo El Durazno	Agua de Dionisio	27°17'13"	66°34'25"	Cu-Au	Porphyry Cu	pyrite, chalcopyrite, gold, molybdenite, magnetite, galena, bornite, azurite	Cu:0.12%, Au:0.02g/t	2,000,000t (Estimated)	Upper Miocene	Rhyodacitic stock	Farallón Negro Volcanic Complex
367	CATAMARCA	Z-43	Bajo Las Juntas	Farallón Negro	27°26'30"	66°32'00"	Cu-Au	Porphyry Cu	pyrite, chalcopyrite, gold, malachite, magnetite, covellite			Upper Miocene	Andesite	Farallón Negro Volcanic Complex
368	CATAMARCA	Z-43	Bajo Las Pamplitas	Agua de Dionisio	27°19'00"	66°39'00"	Au-Ag	Porphyry Cu	pyrite, galena, magnetite, bornite, Mn-oxides	Cu:1,100ppm Cu:2,150ppm		Upper Miocene	Rhyodacite, breccia pipe	Farallón Negro Volcanic Complex
369	CATAMARCA	Z-43	Bajo San Lucas	Agua de Dionisio	27°24'00"	66°33'00"	Cu-Au	Porphyry Cu	pyrite, chalcopyrite, molybdenite, magnetite	Cu:0.36-0.06%, Au:0.35-0.14g/t		Upper Miocene	Dacitic and dioritic porphyries	Farallón Negro Volcanic Complex
370	CATAMARCA	Z-43	Carmen	Farallón Negro	27°19'	66°29'	Au-Ag-(W)							
371	CATAMARCA	Z-43	Carnecitas, Ortiz	Farallón Negro	27°20'	66°23'	Rhodochrosite-capillitite	Vein			5,393t	Upper Miocene	Rhyolite, Tuff, Volcanic breccia	Pachamama Igneo-Metamorphic Complex
372	CATAMARCA	Z-43	Cerro Atajo	Farallón Negro	27°18'	66°29'	Au-(Bi-Cu)							
373	CATAMARCA	Z-43	Farallón Negro	Agua de Dionisio	27°18'00"	66°39'30"	Au-Ag-Mn	Epithermal, low sulfidation	pyrite, sphalerite, chalcopyrite, galena, quartz, native gold, argentite, polibasite, tenorite, pyrolusite, psilomelane, calcite, Mn- carbonate			Upper Miocene	Andesitic breccias and Monzonite	
374	CATAMARCA	Z-43	Filo Colorado	Farallón Negro	27°33'	66°15'	Cu-Au-Mo	Porphyry Cu	gold bearing pyrite, chalcopyrite, molybdenite, chalcocite, bornite.	Cu:0.3-0.5%, Au:0.3g/t, Mo:200ppm	9,000,000t (Possible)	Ordovician, Upper Miocene	Granite, Dolerite and Dacites	Canade Breccia
375	CATAMARCA	Z-43	Grupo Capillitas (Rosario, Capillitas, Restauradora, Veta 9, La Grande, Ortiz. Luisita and others)	Farallón Negro	27°20'	66°23'	Cu-Au-Pb-Zn-Ag	Disseminated, veinlets, filling, massive, chimney and vein		Cu:2.32%, Pb:1.62%, Au:2.66g/t, Ag:108g/t (grades of 3 veins)	387,000t (measured), 675,000t (inferred)	Upper Miocene	Volcanic breccia, Rhyolite, Tuff	Farallón Negro Volcanic Complex
376	CATAMARCA	Z-43	La Grande, Ortiz, Luisita and others	Capillitas	27°20'00"	66°22'30"	Cu-Pb-Au-Ag-Rhodochrosite	Polymetallic	pyrite, enargite, tennantite, chalcopyrite, chalcocite, sphalerite, galena, marcasite, gold, arsenopyrite, galena, bismutite, digenite, idaite, quartz, rhodochrosite, calcite, barite	Cu:2.32%, Au:2.6g/t, Ag:108g/t (grades of 3 veins)	387,000t (indicated), 675,000t (inferred) rhodochrosite is not considered.	Upper Miocene	Volcanic breccia	
377	CATAMARCA	Z-43	La Josefa	Agua de Dionisio	27°19'	66°38'	Cu	Epithermal, low sulfidation	chalcopyrite, pyrite, Fe-oxides, bornite, galena, sphalerite, carbonates, gypsum, quartz	Au:4-5g/t, Ag:7-11g/t		Upper Miocene	Andesitic breccias and Andesites	Farallón Negro Volcanic Complex
378	CATAMARCA	Z-43	Las Juntas	Cerro Atajo	27°18'30"	66°28'30"	Cu	Polymetallic	pyrite, chalcopyrite, sphalerite, enargite, chalcocite.cuartz. galena	Cu:0.2%	14Mt	Upper Miocene	Andesite, Breccia, Tuffs	
379	CATAMARCA	Z-43	Los Viscos	Agua de Dionisio	27°18'	66°40'	Au-Ag-Mn	Epithermal, low sulfidation	carbonate, quartz	Au:13.75g/t, Ag:114g/t		Upper Miocene	Andesite and Andesitic breccias	Farallón Negro Volcanic Group
380	CATAMARCA	Z-43	Macho Muerto	Agua de Dionisio	27°18'	66°40'	Au-Ag-Mn	Epithermal, low sulfidation	pyrite, sphalerite, chalcopyrite, galena, quartz, gold, argentite, polybasite, tenorite, ovrolusite, oxilomelane	Au:<1g/t		Upper Miocene	Andesitic and rhyodacitic breccias	Farallón Negro Volcanic Group
381	CATAMARCA	Z-43	Morro Bola	Agua de Dionisio			Au-Ag	Epithermal	Mn-oxides, quartz, carbonate			Upper Miocene	Andesite	
382	CATAMARCA	Z-43	Santo Domingo	Agua de Dionisio	27°18'	66°40'	Au	Epithermal, low sulfidation	gold bearing pyrite, Fe-oxides, Mn-oxides, pyrite, quartz, gypsum			Upper Miocene	Andesitic breccias	Farallon Negro Volcanic Group
383	CATAMARCA	Z-43	Secto Atajo	Cerro Atajo	27°18'30"	66°28'30"	Cu-Au	Porphyry Cu-Au	pyrite, hematite, chalcocite, chalcopyrite, gold	Cu:0.15%	70Mt	Upper Miocene	Dacitic porphyry	
384	CATAMARCA	Z-43	Sector Carmen	Cerro Atajo	27°18'30"	66°28'30"	Au-Ag-W	Epithermal	wolframite, native gold, gold bearing pyrite, Ag-sulfides, sphalerite, chalcopyrite, pyrite, Mn-oxides, quartz, rhodochrosite	Au:25g/t, Ag:42.7g/t, W:1.8Kg/t	25,700t (Probable)	Upper Miocene	Andesitic tuffs, dacitic porphyry	Farallón Negro Volcanic Group
385	CATAMARCA	Z-43	Sector Maria Eugenia	Cerro Atajo	27°18'30"	66°28'30"	Cu-Pb-Zn-Au-Ag	Polymetallic	native gold, pyrite, chalcopyrite, tetrahedrite, tennantite, chalcocite, sphalerite, enargite	Cu:9%, Au:1.8g/t, Ag:90g/t	150,000t (Probable)	Upper Miocene	Andesitic breccias and Dacitic tuffs	Farallón Negro Volcanic Group
386	CATAMARCA	Z-43	Sector Salto Morado - San Antonio	Cerro Atajo	27°18'30"	66°28'30"	Cu-Au-Ag	Epithermal	pyrite, chalcopyrite, gold, quartz	Cu:0.4-0.5%	Salto Morado:<20,000 t	Upper Miocene	Andesite, Breccia, Tuffs	Farallón Negro Volcanic Group
387	CATAMARCA	Z-43	Sector Triunfo	Cerro Atajo	27°18'30"	66°28'30"	Cu-Ag-Au	Polymetallic	pyrite, chalcopyrite, enargite, sphalerite, chalcocite, quartz, rhodochrosite	Cu:5%, Au:1.4g/t, Ag:75g/t	18,748t (Probable)	Upper Miocene	Pyroclastic andesite	Farallón Negro Volcanic Group
388	CATAMARCA	Z-44	Andacollo	Belén	27°50'	67°27'	W-(Sb-Mo)							
389	CATAMARCA	Z-44	Del Valle	Belén	27°37'	67°04'	W-(Bi)							
390	CATAMARCA	Z-44	Del Valle, Gloria, La Cuestionada (Grupo Del Valle)	Belén	27°38'	67°05'	W	Vein/pasaje apegmatoide		WO_3:4%	1.12Mt (inferred)	Precambrian - Lower Cambrian	Slate, Phyllite	Capillitas Granite
391	CATAMARCA	Z-44	El Progreso Argentino and others	Belén	27°37'	67°19'	Sn							
392	CATAMARCA	Z-44	Las Champas (Grupo El Fraile)	Belén	27°38'	67°20'	Sn	Vein				Upper Precambrian - Upper Ordovician - Silurian	Schist, Granite	Famabalasto Formation, Chango Real Formation
393	CATAMARCA	Z-44	Las Pircas	Belén	27°55'	67°28'	Sn	Vein				Upper Precambrian - Carboniferous	Granite, Granite porphyry, Schist	Famabalasto Formation, Los Ratones Pision
394	CATAMARCA	Z-44	Porvenir Argentino, San Nicolás, Santa Marta, Camela, La Nieve and others (Grupo El Fraile)	Belén	27°40'	67°26'	Sn	Vein				Upper Precambrian - Upper Ordovician - Silurian	Granite, Schist	Famabalasto Formation, Chango Real Formation

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
395	CATAMARCA	Z-44	Progreso Argentino (Grupo El Frailc)	Belén	27°38'	67°19'	Sn	Vein				Upper Precambrian - Upper Ordovician - Silurian	Schist, Granite	Farnabalasto Formation, Chango Real Formation
396	CATAMARCA	Z-44	San Antonio, Santa Delia, Trece (Grupo San Antonio)	Belén	27°49'	67°13'	W	Vein		WO3:4%	4,050t (indicated); 966t (inferred)	Upper Devonian	Granite	San Antonio Pluton
397	CATAMARCA	Z-44	San Cristóbal	Belén	27°46'	67°19'	Sn	Vein				Upper Ordovician - Silurian	Granite	Chango Real Formation
398	CATAMARCA	Z-44	San Pedro, San Felipe, Hernán Cort éz	Belén	27°53'	67°28'	Sn	Guias				Upper Precambrian	Schist, Gneiss	Farnabalasto Formation, Chango Real Formation
399	CATAMARCA	Z-44	San Ramon and others	Belén	27°42'	67°15'	Sn	Vein/Ore pockets				Upper Ordovician - Silurian	Granite, Adamellite	Chango Real Formation
400	CATAMARCA	Z-44	Vil Achay	Belén	27°53'	67°28'	Sn	Filling		Sn:0.9-1.38%	25,730t (inferred); 115,930t (indicated)	Upper Cambrian - Lower Ordovician, Carbonifer as	Granite, Gabbro-norite	Granito Vil Achay Complejo Notitic o Fiambalá
401	TUCUMAN	Z-46	El Alisal	El Alisar	26°50'18"	65°34'40"	Cu- Au	Porphyry Cu	chalcopyrite, pyrite, sphalerite, magnetite, pyrrhotite, hematite, molybdenite, tenorite, Cu-oxides	Cu: 49-820ppm, Pb: 44ppm, Au:75-185ppb		Ordovician / Miocene	Andesitic porphyry, andesites, breccias	Mala Mala Granodiorite
402	TUCUMAN	Z-47	El Pago		27°05'	65°54'	Cu-Au-Pb-Zn	Disseminated	pyrite, chalcopyrite, sphalerite,galena			Upper Precambrian	Gneiss, Migmatite	Piscoyacu Gneiss
403	CATAMARCA	Out of zones	Morro Blanco		26°56'	66°49'	Crystalline limestone	Tabular				Ordovician	Metasediments	Cachiñán Group (parcial)
404	CATAMARCA	Out of zones	Visvil		27°28'	66°30'	Fe	Vein-form		Fe:59.20 %	800,000t (indicated)	Precambrian - Cambrian	Greywacke, Pelitic rock	Suncho Formation
405	CATAMARCA	Out of zones	El Vasquito and others		27°30'	65°52'	Mn							
406	CATAMARCA	Out of zones	Agua de Las Palomas, La Chilca, San Escuil		27°37'	66°30'	Muscovite	Pegmatitic				Precambrian	Gneiss, Migmatite, Injected schist	Gneiss del Suncho Formation
407	CATAMARCA	Out of zones	Soda Mineral		27°42'	66°03'	Muscovite	Pegmatitic, Lenticular				Upper Precambrian	Gneiss, Migmatite, Injected schist	Gneiss del Suncho Formation
408	JUJUY	Out of zones	Tafna and others		22°05'	65°45'	Mn	Veinlets, Impregnation, Lenticular	pyrolusite, psilomelane			Quaternary	Sandstone, Conglomerate, Tuff	Tafna Formation
409	JUJUY	Out of zones	Yuraj, La Merced, Firj, La Lucha	Tafna	22°06'42"	65°44'57"	Kaoline	Mantiform, Lenticular		Al_2O_3:22%, Fe_2O_3:4.6%	1.23Mt (measured); 467,587t (indicated); 355.182t (inferred)	Pleistocene	Tuff, Conglomerate, Sandy conglomerate	Tafna Formation
410	JUJUY	Out of zones	Casablanca I, II y III, Marita	Tafna	22°07'41"	65°44'05"	Mn	Veinlets, Impregnation, Lenticular	pyrolusite, psilomelane			Quaternary	Sandstone, Conglomerate, Tuff	Tafna Formation
411	JUJUY	Out of zones	Silvana Luisa	Tafna	22°07'41"	65°44'05"	Mn	Veinlets, Impregnation, Lenticular	pyrolusite, psilomelane	Mn:10-15%	350,000t (measured+inferred)	Quaternary	Sandstone, Conglomerate, Tuff	Tafna Formation
412	JUJUY	Out of zones	Caballito Blanco	Tafna	22°07'48"	65°44'45"	Kaoline	Mantiform, Lenticular				Pleistocene	Tuff, Conglomerate, Sandy conglomerate	Tafna Formation
413	JUJUY	Out of zones	Cantera Lecho, Cantera 7 de Mayu, Cantera Exodo	Yavi	22°08'	65°29'	Limestone-travertine-onix	Stratiform				Cretaceous	Oolitic limestone, Marl, Calcareous sandstone	Yacoraite Formation
414	JUJUY	Out of zones	Cantera San Francisco	Yavi	22°08'	65°29'	Limestone-travertine-onix	Stratiform	limestone, oolite, onix			Cretaceous	Oolitic limestone, Marl, Calcareous sandstone	Yacoraite Formation
415	JUJUY	Out of zones	Cantera Gabriel, Cantera Elbar	Yavi	22°09'	65°30'	Limestone-travertine-onix	Stratiform	limestone, oolite, onix			Cretaceous	Oolitic limestone, Marl, Calcareous sandstone	Yacoraite Formation
416	JUJUY	Out of zones	La Casualidad, La Constanza	Escaya	22°12'06"	65°44'18"	Fe	Vein-form				Ordovician	Dacitic and rhyodacitic porphyry	Cochinoca-Escaya Complex
417	JUJUY	Out of zones	Esquina Blanca		22°17'35"	65°32'06"	Diatomite	Lentiform, lagunar		50% defr:stulos de diatomeas		Pleistocene	Sandstone, Micaceous sandstone, Pelitic rocks	
418	JUJUY	Out of zones	Bellavista, La Gitana, Pucharnama		22°18'38"	65°32'10"	Kaoline	Mantiform, Lenticular				Pleistocene	Tuff, Conglomerate, Sandy conglomerate	Tafna Formation
419	JUJUY	Out of zones	Chocoite I, II y III	Chocoite	22°22'06"	65°46'25"	Kaoline	Stratiform				Pleistocene	Tuff, Conglomerate, Sandy conglomerate	Tafna Formation
420	JUJUY	Out of zones	Tacanaite		22°25'03"	65°46'52"	Kaoline	Mantiform, Lenticular				Pleistocene	Tuff, Conglomerate, Sandy conglomerate	Tafna Formation
421	JUJUY	Out of zones	Alumbre		22°30'	65°33'	Sb	Vein				Ordovician	Grey slate, Quartzitic sandstone	Acoite Formation
422	JUJUY	Out of zones	Cantera Beatriz, Cantera Piedra Blanca		22°39'	65°36'	Limestone	Stratiform				Cretaceous	Oolitic limestone, Marl, Calcareous sandstone	Yacoraite Formation
423	JUJUY	Out of zones	El Sombrero	Cochinoca	22°42'	66°05'	Fe	Hydrothermal	hematite, limonite			Ordovician, Tertiary, Quaternary	Lutite, Sandstone, Volcanite	Acoite Formation
424	JUJUY	Out of zones	Peñas Negras		22°42'	66°06'	Fe	Vein-form				Ordovician	Lutite, Sandstone, Volcanite	Acoite Formation
425	JUJUY	Out of zones	Positiva		22°42'04"	65°59'57"	Mn	Veinlets, Impregnation, volcannoecnic sediments	psilomelane, limonite			Ordovician	Sandstone, Lutite, Rhyodasitic porphyry	Cochinoca-Escaya Complex
426	JUJUY	Out of zones	Iral, Pabellonciito		22°49'	66°01'	Mn	Veinlets, Impregnation, Lenticular, volcannogenic sediments	psilomelane, limonite			Upper Miocene	Tuff breccia, Andesite	Doncellas Formation
427	JUJUY	Out of zones	Queta		22°50'	66°00'	Mn	Lense, veinlets, cemented, volcannoecnic sediments	psilomelane, limonite			Pleistocene	Conglomerate, Sandstone	
428	JUJUY	Out of zones	San José, Doncellas	Doncellas	22°53'	66°02'	Mn	Veinlets, Impregnation, Lenticular, volcannogenic sediments	psilomelane, limonite			Upper Miocene	Lava, Andesitic breccia	Vicunahuasi Formation
429	JUJUY	Out of zones	Cantera Las Alamos	Tres Cruces	22°55'	65°35'	Limestone	Stratiform	limestone, oolite			Cretaceous	Oolitic limestone, Marl, Calcareous sandstone	Yacoraite Formation
430	JUJUY	Out of zones	Tolmate		22°55'	65°50'	Mn	Vein/Impregnation				Tertiary	Sandstone, Tuff, Dacitic tuff	Doncellas Formation
431	JUJUY	Out of zones	Corral Blanco	Tres Cruces	22°55'43"	65°25'06"	Barite	Veins	barite, galena			Ordovician	Shales and sandstones	Santa Rosita Formation
432	JUJUY	Out of zones	Cantera Cerro Tres Tornos	Tres Cruces	22°56'	65°31'	Limestone	Stratiform	limestone, oolite			Cretaceous	Oolitic limestone, Marl, Calcareous sandstone	Yacoraite Formation

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
433	JUJUY	Out of zones	Cantera La Cueva	Tres Cruces	22°56'	65°23'	Limestone	Stratiform	limestone, oolite			Cretaceous	Oolitic limestone, Marl, Calcareous sandstone	Yacoraite Formation
434	JUJUY	Out of zones	Casayoc		22°56'49"	65°23'52"	Fe	Veinlets/Impregnation	hematite			Cambrian	Quartzite	Chalhualmayoc Formation
435	JUJUY	Out of zones	Cantera La Cumbre, Cantera Elbar		22°59'	65°28'	Limestone	Stratiform				Cretaceous	Oolitic limestone, Marl, Calcareous sandstone	Yacoraite Formation
436	JUJUY	Out of zones	Cerrillos, Luisa Stael		22°59'27"	65°19'19"	Fe	Veinlets/Impregnation	hematite			Cambrian	Quartzite	Mesón Group
437	JUJUY	Out of zones	Valle Grande		23° 34'	64° 53'	Pb-Ag-Zn	Veins				Cretaceous - Tertiary	Calcareous sandstones, limestones, marls	Balbuena Subgroup
438	JUJUY	Out of zones	Yacoraite	Río Yacoraite	23°21'	65°24'	Fe	Lentiform, Massive	hematite			Cambrian, Cretaceous	Quartzite, Sandstone	Mesón Group, Yacoraite Formation
439	JUJUY	Out of zones	Santa Julia	A. Castro Tolay	23°23'	66°02'	Pb-Barite	Veins	galena, quartz, barite		97,480t (total)	Jurassic - Cretaceous	Granodiorites	Castro Tolay Stock
440	JUJUY	Out of zones	Cantera Cueva del León, Cantera Cueva del Tigre, Cantera Susques	Susques	23°27'	66°18'	Travertine-onix	Mantiform	travertine		5,200t	Ordovician, Tertiary	Sandstone, Lutite, Andesite	Acoite Formation
441	JUJUY	Out of zones	Cantera Juella, Cantera Amarilla	Tilcara	23°31'	65°28'	Limestone	Stratiform	limestone, oolite			Cretaceous	Oolitic and stromatolitic limestone, Calcareous limestone	Yacoraite Formation
442	JUJUY	Out of zones	Cantera María Amanda, Cantera María	Tilcara	23°35'	65°26'	Gypsum (Alabaster)	Evaporite	alabaster		3,778t (inferred-indicated)	Upper Cretaceous	Sandstone, Siltstone, Silty shale	Maimará Formation
443	JUJUY	Out of zones	Cantera Maimará, Cantera Adriana, Cantera Silvia, Cantera Eliseo	Maimará	23°37'	65°24'	Limestone	Stratiform	limestone, oolite		35.000 t	Cretaceous	Oolitic and stromatolitic limestone, Calcareous limestone	Yacoraite Formation
444	JUJUY	Out of zones	Cantera Agua Chica	Tumbaya	23°47'	65°30'	Dolomite	Lentiform			600.000 t	Precambrian	Dolomite, Slate, Schist, Volcanic rocks	Tumbaya Member of Volcan Formation (Puncoviscana Formation)
445	JUJUY	Out of zones	Santa Teresita, Santa María	Tumbaya	23°47'	65°30'	Mn	Lenticular, Impregnaction, volcanogenic sediments	pyrolusite, psilomelane		1,500t (indicated)	Cambrian, Cretaceous	Lutite, Slate, Quartzite, Limestone, Calcareous sandstone.	Mesón Group, Yacoraite Formation
446	JUJUY	Out of zones	Tumbaya Grande	Tumbaya	23°48'	65°30'	Mn	Ore pocket, Impregnation		Mn:18%		Cambrian, Cretaceous	Lutite, Slate, Quartzite, Limestone, Calcareous sandstone.	Mesón Group, Yacoraite Formation
447	JUJUY	Out of zones	Zona del Ramal		23°50'	66°20'	Au	Alluvial gold	gold				Fluvial sediments	Acoite Formation
448	JUJUY	Out of zones	Cantera Volcán (Bárcena)	Volcán	23°57'	65°26'	Crystalline limestone	Stratiform	limestone			Precambrian	Metamorphosed limestone (micrite and microsparite)	Volcán Formation (Puncoviscana Formation)
449	JUJUY	Out of zones	Victoria (Yungara)	Yungara	23° 33'	66° 30'	Pb-Ag-Zn	Veins	galena			Upper Cretaceous - Lower Tertiary	Sandstones, conglomerates, dacites	Pirgua Subgroup
450	JUJUY	Out of zones	La Betty, Sol de Mañana, María Teresa, La Eva		24°02'55"	66°29'00"	Sulfur-gypsum	Solfatara, Impregnation, Vein, Cavity filling		S:22.6%	551.000 t	Pliocene - Pleistocene	Tuff	Tuzgle Efusive Suite
451	JUJUY	Out of zones	Tuzgle		24°03'	66°29'	Sulfur-gypsum	Solfatara, Impregnation, Vein, Cavity filling				Pliocene - Pleistocene	Tuff	Tuzgle Efusive Suite
452	JUJUY	Out of zones	León		24°03'	65°26'	Kaoline	Mantiform, Lenticular						
453	JUJUY	Out of zones	La Regalona		24°07'	65°12'	Kaoline	Mantiform, Lenticular						
454	JUJUY	Out of zones	Tocomar		24°11'	65°32'	Kaoline	Mantiform, Lenticular						
455	JUJUY	Out of zones	Electra, Matilda, Marieta, Pompeya, Rosana, San Antonio, Valeria, Viviana	Sierra de Chañi	24°20'	65°30'	Cu	Vein				Precambrian - Cambrian	Schists, slates and quartzites	Santa Rosita Formation
456	JUJUY	Out of zones	El Porvenir	Cerro Purma	24°20'	65°35'	Pb-Cu-Zn	Epithermal polymetallic		Pb: 7.5% , Ag: 125g/t	12.000 t	Cambrian, Ordovician	Quartzites, sandstones, shales	Mesón Group, Acoite Formation
457	JUJUY	Out of zones	Claudia		24°22'	65°24'	Kaoline	Mantiform, Lenticular						
458	JUJUY	Out of zones	Videncia	San Antonio (Cerro Negro)	24°25'	65°27'	Barite					Precambrian	Slates, schists and phyllites	Puncoviscana Formation
459	JUJUY / SALTA	Out of zones	La Novedad, Volcán (Tocante)	Río Yacoraite	23°17'	65°29'	Th-Mn-REE-Pb	Vein, Ore pockets, Brecciated vein	galena, pyrolusite	ThO_2:0.51% (La Novedad); U_3O_8:0.01%, REE:0.64%	Th:15t (geological) REE:20t (geological)	Ordovician	Lutite, Quartzitic sandstone, Basic dikes	Acoite Formation
460	SALTA	Out of zones	Río Lipeo	Lipeo	22°28'34"	64°39'50"	Au	Acumulaciones de conchillas de Lineulas	gold					
461	SALTA	Out of zones	La Sureña		23°31'	66°16'	Fe	Vein-form				Ordovician	Greywacke, Lutite	Falda Ciénaga Formation
462	SALTA	Out of zones	Nueva Esperanza		23°44'	66°19'	Fe	Vein-form				Ordovician	Greywacke, Lutite	Falda Ciénaga Formation
463	SALTA	Out of zones	El Milagro, La Caldera I, II y III	La Caldera	24° 36'	65° 29'	Pb	Veins	galena, quartz			Precambrian	Slates, phyllites, greywackes	Puncoviscana Formation
464	SALTA	Out of zones	Ana María, Esteban		24°04'29"	66°06'40"	Mn	Impregnation, Vein, Manto	pyrolusite, psilomelane	Mn:30-44%	3,400t	Cretaceous, Quaternary	Limestone, Sandstone, Conglomerate	Yacoraite Formation, Modern deposit
465	SALTA	Out of zones	Orión		24°06'	66°13'	Kaoline							
466	SALTA	Out of zones	El Palo, La Pava, Anta, Ciervo, Guanaco, El Suri		24°08'	66°20'	Perlite (Volcanic glass)	Irregulary stratiformed body				Tertiary (Pliocene)	Rhyolitic pyroclastic deposit, ameboidales lava flow	
467	SALTA	Out of zones	El Sol I y II		24°08'	66°28'	Perlite (Volcanic glass)	Irregulary stratiformed body				Tertiary (Pliocene)	Rhyolitic pyroclastic deposit, ameboidales lava flow	
468	SALTA	Out of zones	Maurice, Ivani, Peca, María and others	Cerro Purma	24°12'	65°53'	Barite	Veins				Precambrian	Schists, slates and greywackes. Granites	Puncoviscana Formation, Tastil Formation
469	SALTA	Out of zones	Amanta, Trinidad		24°13'	66°15'	Kaoline							
470	SALTA	Out of zones	Los Patos		24°14'26"	66°10'57"	Pozzolana				7Mt	Tertiary (Pliocene)	Ignimbrite, Tuff	Abra del Gallo Formation
471	SALTA	Out of zones	Incachule (Julio Cesar, Victoria)		24°16'15"	66°27'34"	Mn	Fissure filling	pyrolusite, psilomelane			Tertiary (Miocene)	Andesite	Rumibola Formation
472	SALTA	Out of zones	La Escondida	El Queva	24°19'15"	66°51'48"	Pb	Vein	galena			Tertiary	Dacitic porphyry, Tuff, Ignimbrite	Agua Caliente Formation

Ser.No.	Province	Zone	Name of mine	District	Latitude	Longitude	Elements	Type	Minerals	Grade	Resources	Age	Lithology	Unit
473	SALTA	Out of zones	San Pedro, Cardonal	Cerro Purma	24°20'	65°42'	Pb	Veins	galena, quartz			Ordovician	Shales and sandstones	Acoite Formation
474	SALTA	Out of zones	Inca, Virgen del Rosario		24°21'	65°54'	Fe	Vein-form			124.000t (inferred)	Precambrian	Slate, Schist, Quartzite, Granodiorite	Puncoviscana Formation, Quesera Formation
475	SALTA	Out of zones	Aries		24°21'	65°58'	Mn	volcanogenic sediments	pyrolusite, psilomelane			Quaternary	Conglomerate, Sandstone with travertine beds	Modern deposits
476	SALTA	Out of zones	Virgen del Valle, Jesús, San José	Las Cuevas	24°21'	66°01'	Mn	volcanogenic sediments	pyrolusite, psilomelane			Quaternary	Conglomerate, Sandstone with travertine beds	Modern deposits
477	SALTA	Out of zones	Cleopatra		24°22'	66°18'	Kaoline							
478	SALTA	Out of zones	Trini		24°25'	66°23'	Perlite (Volcanic glass)	Irregulary stratiformed body				Tertiary (Pliocene)	Andesite	Rumibola Formation
479	SALTA	Out of zones	Cueva Real	San Antonio de los Cobres	24°26'	66°19'	Kaoline							
480	SALTA	Out of zones	Borde de la Cueva		24°26'	66°08'	Mn	Mantiform, impregnation,volcanogenic sediments				Quaternary	Conglomerate, Sandstone with travertine beds	Modern deposits
481	SALTA	Out of zones	Elsa		24°27'	66°16'	Borates	Fossil evaporite				Pleistocene	Pelite, Evaporite, Travertine, Borates	Blanca Lila Formation
482	SALTA	Out of zones	Coquemayo, Emma		24°27'	66°16'	Perlite (Volcanic glass)	Irregulary stratiformed body				Tertiary (Pliocene)	Andesite, Dacite, Pyroclastics	
483	SALTA	Out of zones	Tina, Justa		24°27'53"	66°25'25"	Perlite (Volcanic glass)	Irregulary stratiformed body				Tertiary (Pliocene)	Andesite, Dacite, Pyroclastics	
484	SALTA	Out of zones	El Cedro		24°28'	66°30'	Mn	Vein/impregnation				Ordovician, Quaternary	Ryodacitic porphyry, Grandiorite, Conglomerate. Sands	Oire Eruptive Complex
485	SALTA	Out of zones	San Fernando, Reconquista	La Caldera	24°28'	65°28'	Pb-Ag	Veins	galena, quartz			Precambrian, Cambrian	Slates, phyllites, greywackes, Quartzites	Puncoviscana Formation, Mesón Group
486	SALTA	Out of zones	San Justo, Laguna Seca, Olga, Stella and others	Las Cuevas	24°28'02"	66°29'30"	Mn	Lense, veinlets	pyrolusite, psilomelane	Mn:20%	80,000t	Quaternary	Conglomerate, Sandstone	Terrace sediments
487	SALTA	Out of zones	San Carlos	Las Cuevas	24°30'02"	66°29'30"	Mn	Lense, veinlets	pyrolusite, psilomelane			Quaternary	Conglomerate, Sandstone	Modern deposits
488	SALTA	Out of zones	El Sauce	La Merced	24°35'	65°09'	Limestone	Stratiform	limestone, oolite			Cretaceous, Quaternary	Oolitic limestone, Travertine	Yacoraite Formation, El Sauce Formation
489	SALTA	Out of zones	Plateada	Quebrada del Río Toro (El Gólgota)	24°39'	65°47'	Pb-Ag	Veins	galena, quartz			Precambrian	Greywackes, pelites, schists	Puncoviscana Formation
490	SALTA	Out of zones	Ochaqui (19 Pertenencias)		24°40'07"	66°29'26"	Mn-Fe	Sub-concordant manto, Irregularces, Vein/veinlets, Impregnation	pyrolusite, psilomelane	Mn:9.7%, Fe_2O_3:6.3%	201,289t	Tertiary (Pliocene)	Tuff, Conglomerate, Breccia, Sandstone	Abra del Gallo Formation
491	SALTA	Out of zones	Pozo Bravo		24°43'26"	66°12'28"	Travertine-onix				1,800t	Pleistocene - Holocene	Hydatogenic limestone	
492	SALTA	Out of zones	Cerro Negro		24°51'42"	66°39'50"	Cu	Vein				Ordovician	Granite	Oire Eruptive Complex
493	SALTA	Out of zones	Ciénaga Grande		24°54'02"	66°37'38"	Mn	Impregnation, Vein				Quaternary	Sands, Tuff	Talus deposits
494	SALTA	Out of zones	El Carmen, Los Pinos, El Tarco, Moisés Paco, San Cayetano, San	La Merced	24°55'	65°24'	Limestone	Stratiform	limestone, oolite			Cretaceous	Calcareous sandstone, Oolitic limestone, Sandy marl	Yacoraite Formation, Lecho Formation
495	SALTA	Out of zones	La Cañadita		24°56'	65°27'	Limestone	Stratiform				Cretaceous	Calcareous sandstone, Oolitic limestone, Sandy marl	Yacoraite Formation, Lecho Formation
496	SALTA	Out of zones	Citrus		24°57'	65°28'	Limestone	Stratiform				Cretaceous	Calcareous sandstone, Oolitic limestone, Sandy marl	Yacoraite Formation, Lecho Formation
497	SALTA	Out of zones	Mi Esperanza		24°58'	65°28'	Limestone	Stratiform				Cretaceous	Calcareous sandstone, Oolitic limestone, Sandy marl	Yacoraite Formation, Lecho Formation
498	SALTA	Out of zones	Santa Elena		24°58'	65°28'	Limestone	Stratiform				Cretaceous	Calcareous sandstone, Oolitic limestone, Sandy marl	Yacoraite Formation, Lecho Formation
499	Salta	Out of zones	El Tarador	Guachipas	25° 38'	65° 23'	Au	Mesothermal Au veins	gold, quartz			Precambrian	Slates, phyllites, greywackes	Puncoviscana Formation
500	SALTA	Out of zones	Los Manantiales	Cafayate	25°03'	66°30'	Mica	Pegmatite	tournaline, quartz, microcline, biotite, muscovite, beryl			Ordovician	Granodiorite, Rhyodacitic porphyry	Oire Eruptive Complex
501	SALTA	Out of zones	Quebrada de Escoipe		25°10'	65°50'	Cu		malachite, azurite, chalcocite					
502	SALTA	Out of zones	Custodio, San Martín, Salamanca	Quebrada de Escoipe	25°10'	65°49'	Cu	Stratabound Cu	malachite, azurite, chalcocite	Cu: 0.7 %	152,000 t	Cretaceous	Conglomerates and arcosic sandstones	Santa Bárbara Subgroup
503	SALTA	Out of zones	La Pachamanita	Guachipas	25°35'	65°24'	Au	Mesothermal Au veins				Precambrian	Slates, phyllites, greywackes	Puncoviscana Formation
504	SALTA	Out of zones	Doña Inés	Alemania	25°38'	65°37'	Cu-Fe	Stratabound Cu				Cretaceous	Conglomerates and sandstones	Pirgua Subgroup
505	SALTA	Out of zones	María Elena, Azul, Las Cuyas	Alemania	25°56'	65°42'	Cu	strata-bound				Precambrian, Cretaceous	Schists, shales and sandstones. Conglomerates	Puncoviscana Formation, Pirgua Subgroup
506	SALTA	Out of zones	Eudosia, La Gauchita	Cafayate	26°06'	66°28'	Mica	Pegmatite	tournaline, quartz, microcline, biotite, muscovite, beryl			Ordovician	Granite, Granodiorite	Oire Eruptive Complex
507	TUCUMAN	Out of zones	Sector Volcán Azul		26°11'	65°40'	Au-Ag	Vein				Upper Precambrian - Lower Cambrian	Slate, Phyllite, Sandstone	Puncoviscana Formation
508	TUCUMAN	Out of zones	Salinas de Amaicha		26°35'	65°57'	Salt	Impregnation				Tertiary	Sandstone	
509	TUCUMAN	Out of zones	Peñas Azules		26°39'	65°40'	Limestone	Stratiform		$CaCO_3$:87-92 %	15.6 Mt (measured)	Precambrian - Lower Paleozoic	Gneiss, Limestone	Peñas Azules Formation
510	TUCUMAN	Out of zones	Cerros El Negrito y Bayos		26°43'	65°42'	Au-Ag	Vein/Disseminated					Granodiorite, Biotite-quartz-schist	
511	TUCUMAN	Out of zones	Abra del Toro		27°00'	65°58'	Cu-Au	Disseminated				Upper Precambrian	Gneiss, Migmatite	Pisco yacu Gneiss
512	TUCUMAN	Out of zones	Las Mercedes (Chavarría)		27°35'	65°54'	W-(Cu-Pb-Zn)	Disseminated				Upper Precambrian	Gneiss, Migmatite	Pisco yacu Gneiss

Table A-9 List of collected data

No.	Title	Language	Author	Year	Organization	Category	Comments	Source
1	DGFM(1975)	INFORME FINAL. AREA DE RESERVA No.25 "VALLECITO"	Spanish	J. Darocca	1975/12	Direccion General de Fabricaciones Militares, Subdireccion de Desarrollo Minero, Departamento Geologia y Mineria	VALLECITO	Geology and mineralizition of Vallecito area including geochemistry and geophysics.	Guillou
2	Ministerio de Industria y Mineria, Subsecretaria de Mineria.	PEDIDO DE ZONA DE RESERVA No.34, ZONA: "LAGUNA DEL SALITRE", MOSAICO: 19-A1 y 19-B1, Provincia: CATAMARCA	Spanish	O. Gonzales	????	Ministerio de Industria y Mineria, Subsecretaria de Mineria, NOA I GEOLOGICO MINERO	LAGUNA DEL SALITRE	Geology and mineralizition of Salitre area including geochemistry.	Gonzalez
3	Ministerio de Industria y Mineria, Subsecretaria de Mineria.	AREA DE RESERVA "LAGUNA DEL SALITRE" No.34, Mosaicos 19-A1-B1	Spanish	Luis F. y Navarro Garcia	1975	Ministerio de Industria y Mineria, Subsecretaria de Mineria, NOA I GEOLOGICO MINERO	LAGUNA DEL SALITRE	Geology of Salitre area.	Gonzalez
4	Ministerio de Industria y Mineria, Subsecretaria de Mineria.	GEOGRAFIA : HOJA LAGUNA BLANCA	Spanish	Juan Carlos Turner		Ministerio de Industria y Mineria, Subsecretaria de Mineria.	LAGUNA BLANCA	Geography of Laguna Branca area	Gonzalez
5	Servicio Minero Nacional(1981)	ESTUDIO GEOLOGICO ECONOMICO, AREA DE INVESTIGACION GEOLOGICO MINERA No.34, "LAGUNA DEL SALITRE", DEPARTAMENTO BELEN, PROVINCIA DE CATAMARCA	Spanish	Osvaldo Edgar Gonzalez	1981	Servicio Minero Nacional, Exploracion Minera de la Region Noroeste, Noa Geologico Minero	LAGUNA DEL SALITRE	Geology and mineralizition of Salitre area including geochemistry.	Gonzalez
6	Servicio Minero Nacional(1984)	AREA DE INVESTIGACION GEOLOGICO MINERAL No.41, "VACA VIZCANA-PAPACHACRA", SECTOR "VACA VIZCANA", INFORME FINAL	Spanish	Gonzalo Cruz Zuloeta	1984/04/12	Servicio Minero Nacional, Exploracion Minera de la Region Noroeste, Noa Geologico Minero	VACA VIZCANA	Geology and mineralizition of VACA VIZCANA area including geochemistry, geophysics, drilling.	Gonzalez
7	DGFM(1975)	AREA DE RESERVA No.24, "BREALITO", INFORME FINAL	Spanish		1975/12	Direccion General de Fabricaciones Militares, Subdireccion de Desarrollo Minero, Departamento	BREALITO	Geology and mineralizition of BREALITO area including geochemistry.	SEGEMAR - Salta
8	DGFM(1975)	AREA DE RESERVA No.18, "NEVADO DE ACAY", INFORME FINAL	Spanish		1975/12	Direccion General de Fabricaciones Militares, Subdireccion de Desarrollo Minero, Departamento Geologia y Mineria	EL ACAY Mina Huaico Honda Mina Encrucijada Grupo Minas Saturno	Geology and mineralizition of NEVADO DE ACAY area including geochemistry.	SEGEMAR - Salta
9	DGFM(1980a)	AREA DE RESERVA No.23, "INCA VIEJO" (Departamento Los Andes-Prov. de Salta)	Spanish	Humberto Cecere	1980/03	Direccion General de Fabricaciones Militares, Centro de Exploracion Geologico Minera II	INCA VIEJO	Geology and economic geology of INCA VIEJO area.	SEGEMAR - Salta
10	DGFM(1975)	AREA DE RESERVA No.26, "ORGANULLO" - Provincia Salta -, INFORME FINAL	Spanish	O. Viera	1975/12	Direccion General de Fabricaciones Militares, Centro de Exploracion Geologico Minera II	ORGANULLO	Geology and ore deposit of ORGANULLO area.	SEGEMAR - Salta
11	DGFM(1975)	AREA DE RESERVA No.31, "ESPERANZA-INCACHULE", INFORME FINAL	Spanish	Carlos Largo, C. Morello,	1975/12	Direccion General de Fabricaciones Militares, Subdireccion de Desarrollo Minero, Departamento Geologia y Mineria	ESPERANZA - INCACHULE Mina Esperanza Mina	Geology and economic geology of ESPERANZA-INCACHULE area, including geochemistry, geophysics and drillings.	SEGEMAR - Salta
12	DGFM(1975)	AREA DE RESERVA No.22, "CENTENARIO",PROVINCIA DE SALTA, INFORME FINAL	Spanish	Carlos Largo, C. Morello, Mario Crespo Kennedy, Norberto Pancetti and Juan Carlos	1975/12	Direccion General de Fabricaciones Militares, Centro de Exploracion Geologico Minera II	CENTENARIO	Geology and economic geology of CENTENARIO area, including geochemistry, geophysics and drillings.	SEGEMAR - Salta
13	Secretaria de Mineria(1985)	ESTUDIO DEL AREA DE INVESTIGACION GEOLOGICO MINERA No.1, "DIABLILLOS", DEPARTAMENTO ANTOFAGASTA DE LA SIERRA, PROVINCIA DE CATAMARCA	Spanish	Osvaldo Edgar Gonzalez	1985/3	Secretaria de Mineria, Direction Nacional de Mineria y Geologia, Centro de Exploracion, NOA	DIABLILLOS	Geology and economic geology of DIABLILLOS area.	O. Gonzalez
14	Argentina Mineral Development S.A.(1994)	STRATOBOUND Pb-Zn-Ag DEPOSITS JUJUY PROVINCE ARGENTINA THE DISCOVERRY POTENTIAL WITHIN THE PUMAHUASI MINING DISTRICT	English	D.H.TRABERT, J.GIUDICI, B.HUGHES and I.GEMUTS	1994/11/25	Argentina Mineral Development S.A.	PUMAHUASI MINING DISTRICT Mina Belgica Mina Sol de Mayo Mina	Geology and mineralization of Pumahuasi Mining District, including geochemistry, geophysics and drillings.	
15	Direccion Nacional Del Servicio Geologico(1996)	COMPLEJO VOLCANICO "EL ALISAL", TUCUMAN : UN NUEVO PROSPECTO DE MINERALIZACION DISEMINADA	Spanish	L.DEL V.MARTINEZ y M.A.CHIPULINA	1996	Direccion Nacional Del Servicio Geologico	EL ALISAL	Geology and mineralization of "El Alisal" prospect.	Liliana del Valle Martinez
16	YMAD(2000)	DESCRIPCION OPERACION ALUMBRERA	Spanish	Yacimiento Mineros Aguas del Dionisio	2000/03	Yacimientos Mineros de Agua de Dionisio	ALUMBRERA	General information on Alumbrera project.	Minera Alumbrera
17	YMAD(???)	RESENA DE LA GEOLOGIA - MINERIA Y OPERACIONES, SECTOR MINERALIZADO, FARALLON NEGRO - LAS BLENDA	Spanish	MARIO CESAR ALDERETE	????	Yacimientos Mineros de Agua de Dionisio	FARALLON NEGRO	Geology, ore deposits and operations of Alto de la Blenda, Farallon Negro.	M. Alderete

No.	Title	Language	Author	Year	Organization	Category	Comments	Source
18	Hongn,F.D.; Tubia,J.M.; Aranguren,A.; Mon,R. y Battaglia,R.(2001)	INTRUSION DEL GRANITO ROJO DEL BATOLITO DE TASTIL EN ARENISCAS EOPALEOZOICAS EN EL ANGOSTO DE LA QUESERA, CORDILLERA ORIENTAL , SALTA.	Spanish	FERNANDO D.HONGN, JOSE M.TUBIA, AITOR ARANGUREN, RICARDO MON, RICARDO BATTAGLIA	2001	Asociacion Geologica Argentina	BATOLITO DE TASTIL	Red granite intrusion in Tastil batholith within narrow eopaleozoic sandstone of the Quesera, Cordillera Oriental, Salta.	SEGEMAR - Salta
19	Chernicoff,C.J. y Zappettini,E.O.(2000)	INTERPRETACCION GEOLOGICO-METALOGENICA DEL LEVANTAMIENTO AEROMAGNETICO DE LA PUNA, ARGENTINA	Spanish	CHERNICOFF, C.J. Y ZAPPETTINI, E.O.	2000/07	IX CONGRESO GEOLOGICO CHILENO	AEROMAGNETICO DE LA PUNA	Geologic-metalogenic interpretation of aeromagnetic survey in the Puna, Argentina	SEGEMAR - Salta
20	Becchio,R.; Lucassen,F.; Kasemann,S.; Franz,G. y Viramonte,J.(1999)	GEOQUIMICA Y SISTEMATICA ISOTOPICA DE ROCAS METAMORFICAS DEL PALEOZOICO INFERIOR. NOROESTE DE ARGENTINA Y NORTE DE CHILE (21-27S)	Spanish	R.BECCHIO, F.LUCASSEN, S.KASEMANN, G.FRANZ, Y J.VIRAMONTE	1999	ACTA GEOLOGICA HISPANICA	ROCAS METAMORFICAS DEL PALEOZOICO INFERIOR	Geochemistry and isotope systematics of Early Paleozoic metamorphic rocks. Northwest Argentina and North Chile (21-27S)	SEGEMAR - Salta
21	Gorustovic,S.; Maquillas,R.; Matthews,S.; Sabino,I. y Salfity,J.(1999)	DEPOSITOS ESTRATOLIGADOS DE Cu-U(Ag, Pb, Zn) EN EL SUR DE LA CUENCA DEL GRUPO SALTA (CRETACICO-PALEOGENO), NORTE ARGENTINO	Spanish	SERGIO GORUSTOVICH, ROSA MARQUILLAS, STEPHEN MATTHEWS, IGNACIO SABINO, Y	1999	XIV CONGRESO GEOLOGICO ARGENTINO, ACTA II, SALTA	DEPOSITOS ESTRATOLIGADOS DE Cu-U(Ag, Pb, Zn)	Strata-bound deposits of Cu-U(Ag, Pb, Zn) in the south of the basin of Salta group (Cretacious-Paleozoic), North Argentina.	SEGEMAR - Salta
22	Hongn,F. y Becchio,R.(1999)	Guia de Campo, Basamento Igneo - Metamorfico, Fajas de Deformacion Ductil Asociadas a Granitoides y Rocas Metamorficas de Bajo a Alto Grado, Valles Calchaquies, Salta	Spanish	FERNANDO HONGN Y RAUL BECCHIO	1999/09	XIV CONGRESO GEOLOGICO ARGENTINO Y UNIVERSIDAD NACIONAL DE SALTA		Igneous-metamorphic basement, ductile deformation faults associated with granitoids and metamorphic rocks of low to high grade, Calchaquies valley, Salta	SEGEMAR - Salta
23	Becchio,R.; Lucassen,F.; Franz,G.; Viramonte,J. y Wemmer,K.(1999)	EL BASAMENTO PALEOZOICO INFERIOR DEL NORESTE DE ARGENTINA (23-27) - METAMORFISMO Y GEOCRONOLOGIA.	Spanish	RAUL BECCHIO, FRIENDRIC LUCASSEN, GERHARD FRA NZ, JOSE VIRAMONTE Y KLAUS	1999	XIV CONGRESO GEOLOGICO ARGENTINO		Early Paleozoic basement of northeast of Argentina (23-27) - Metamorphism and geochronology	SEGEMAR - Salta
24	Petrinovic,I.A.; Mitjavila,J; Viramonte,J.G.; Marti,E.J.; Becchio,R.; Arnosio,M. y Colombo,F.(1999)	DESCRIPCION GEOQUIMICA Y GEODRONOLOGICA DE SECUENCIAS VOLCANICAS NEOGENAS DE TRASARCO, EN EL EXTREMO ORIENTAL DE LA CADENA VPLCANICA TRANSVERSAL DEL QUEVAR (NOROESTE DE ARGENTINA)	Spanish	I.A.PETRINOVIC, J.MITJAVILA, J.G.VIRAMONTE, J.MARTI, R.BECCHIO, M.ARNOSIO Y F. COLOMBO	1999	ACTA GEOLOGICA HISPANICA		Geochemistry and Geochronology descriptions of the Backarc Neogene volcanic sequences in the eastern border of the Quevar Transversal Volcanic Range (NW Argentina)	SEGEMAR - Salta
25	Viramonte,J.G.; Kay,S.M.; Becchio,R.; Escayola,M. and Novitski,I.(1999)	CRETADEOUS RIFT RELATED MAGMATISM IN CENTRAL-WESTERN SOUTH AMERICA	English	J.G.VIRAMONTE, S.M.KAY, R.BECCHIO, M.ESCAYOLA, I.NOVITSKI	1999	Journal of South American Earth Sciences		CRETADEOUS RIFT RELATED MAGMATISM IN CENTRAL-WESTERN SOUTH AMERICA	SEGEMAR - Salta
26	Lucassen,F.; Becchio,R.; Wilke,H.G.; Franz,G.; Thirlwall,M.F.; Viramonte,J. and Wemmer,K.(2000)	PROTEROZOIC-PALEOZOIC DEVELOPMENT OF THE BASEMENT OF THE CENTRAL ANDES (18-26S) - A MOBILE BELT OF THE SOUTH AMERICAN CRATON	English	F.LUCASSEN, R.BECCHIO, H.G.WILKE, G.FRANZ, M.F.THIRLWALL, J.VIRAMONTE, K.WEMMER	2000	Journal of South American Earth Sciences		PROTEROZOIC-PALEOZOIC DEVELOPMENT OF THE BASEMENT OF THE CENTRAL ANDES (18-26S) - A MOBILE BELT OF THE SOUTH AMERICAN CRATON	SEGEMAR - Salta
27	Secretaria de Mineria de la Nacion - Delegacion Salta(????)	LA CALDERA DEL PAIRIQUE (PUNA JUJENA), VINCULACION CON ZONAS DE ALTERACION HIDROTERMAL Y MANIFESTACIONES METALIFERAS DE POSIBLE INTERES ECONOMICO	Spanish	SEGGIARO,R; R.BECCHIO, B.COIRA, F.HONGN	????	Secretaria de Mineria de la Nacion - Delegacion Salta		The caldera of Pairique (Puna Jujena) associated with hydrotherma alteration zones and metaliferous manifestation with possibility of economic interests	SEGEMAR - Salta
28	Becchio,R.; Lucassen,F.; Franz,G. y Viramonte,J. (1997)	CONDICIONES DE P-T DEL BASAMENTO METAMORFICO DE ALTO GRADO, BORDE ORIENTAL DE LA PUNA AUSTRAL ARGENTINA	Spanish	RAUL BECCHIO, FRIEDRICH LUCASSEN, GERHARD FRANZ Y JOSE VIRAMONTE	1997	VIII CONGRESO GEOLOGICO CHILE		P-T conditions of high grade metamorphic basement, eastern border of the southern Puna, Argentina	SEGEMAR - Salta
29	Hongn,F. y Becchio,R.(????)	SISTEMA DE FAJAS MILONITICAS DE BREALITO Y MINERALIZACIONES ASOCIADAS, PALEOZOICO INFERIOR	Spanish	FERNANDO HONGN Y RAUL BECCHIO	1998	X Congreso Geológico Latinoamericano		Milonitic fault system of Brealito and associated mineralization, Early Paleozoic	SEGEMAR - Salta
30	Becchio,R.; Viramonte,J. y Castillo,A.(1999)	LA FAJA ALUMINICA TACUIL - CERRO BLANCO, LEUCOSOMAS ? DE CUARZO-SILIMANITA EN ESQUISTOS DE ALTO GRADO	Spanish	RAUL BECCHIO, JOSE VIRAMONTE, ALFREDO CASTILLO	1999	IX CONGRESO GEOLOGICO ARGENTINO			SEGEMAR - Salta
31	Lucassen,F.; Becchio,R.; Harmon,R. and Franz,G.(1999)	A Chaos of Lead in the Basement of the Central Andes (18-27)?	English	FRIEDRICH LUCASSEN, RAUL BECCHIO, RUSSELL HARMON AND GERHARD FRANZ	1999	FOURTH ISAG GOETTINGEN (GERMANY)		A CHAOS OF LEAD IN THE BASEMENT OF THE CENTRAL ANDES (18-27)?	SEGEMAR - Salta

No.	Title	Language	Author	Year	Organization	Category	Comments	Source
32	This literatur ist from south Argentina ?????							
33	Jorge Darocca, Consultoria	PROSPECTO MINERO "NEGRA MUERTA" ZONA "EL ACAY" SALTA	Spanish	Jorge Darocca	1994?	Informe Interno	NEGRA MUERTA EL ACAY		SEGEMAR - Salta
34	Sureda,R.J. and Martin,J.L.(1990)	EL AGUILAR MINE: AN ORDOVICIAN SEDIMENT-HOSTED STRATIFORM LEAD-ZINC DEPOSIT IN THE CENTRAL ANDES	English	R.J.SUREDA AND J.L.MARTIN	1990		EL AGUILAR		SEGEMAR - Salta
35	Sangster,A.L.(2001)	MINERAL OCCURRENCES IN THE PUNA REGION SALTA AND JUJUY PROVINCES, ARGENTINA	English	ALAN L.SANGSTER	2001	SEGEMAR, PASMA PROJECT 15 FINAL REPORT	La Cienaga, La Belgica, Sol de Mayo, La Pumahuasi, Olga, Tusca, El Aguilar, Esperanza, La Colorada, La Gateada, La Candelaria, Rachaite, Concordia, Organullo		SEGEMAR - Salta
36	Sangster,A.L., and Sangster,D.F.(2000)	EVALUATION OF THE CONCEPT THAT PUMAHUASI VEINS INDICATE A POTENTIAL FOR THE EXISTENCE OF UNDERLYING UNDISCOVERED SEDEX DEPOSITS, NORTHERN ARGENTINA	English	ALAN L.SANGSTER AND DONALD F.SANGSTER	2000/12	SEGEMAR	PUMAHUASI VEINS	EVALUATION OF THE CONCEPT THAT PUMAHUASI VEINS INDICATE A POTENTIAL FOR THE EXISTENCE OF UNDERLYING UNDISCOVERED SEDEX DEPOSITS, NORTHERN ARGENTINA	SEGEMAR - Salta
37	BHP Billiton & Northern Orion(2001)	Agua Rica	English	BHP Billiton & Northern Orion	2001/10	BHP Billiton,	AGUA RICA		AGUA RICA GEOLOGIST
38	Morello,C.H.(2001)	MINA RICA, PROSPECTO PORFIDICO DE COBRE Y ORO, DEPARTAMENTO MONTEROS, PROVINCIA DE TUCUMAN	Spanish	CARLOS H.MORELLO	2001	Informe Interno, Paramount	EL PAGO		Morello, C.
39	Universidad Nacional de Salta(1999)	Guia de Campo, Curso Internacional de Volcanologia de Campo de los Andes Centrales VIII Edicion Octubre 2001, Auspiciado por la UNESCO	Spanish / English	UNIVERSIDAD NACIONAL DE SALTA, INSTITUDO GEONORTE, ESCUELA DEL DOCTORADO	2001/10	Instituto Geonorte, Universidad Nacional de Salta			SEGEMAR - Salta
40	MINISTERIO DE LA PRODUCCION Y EL EMPLEO, SECRETARIA DE MINERIA, INDUSTRIA Y RECURSOS ENERGETICOS, PROVINCIA DE SALTA, ARGENTINA	RECURSOS MINEROS	Spanish	Secretaria de Mineria	1998	MINISTERIO DE LA PRODUCCION Y EL EMPLEO, SECRETARIA DE MINERIA, INDUSTRIA Y RECURSOS ENERGETICOS, PROVINCIA DE			S. Gorustovich
41	MINISTERIO DE LA PRODUCCION Y EL EMPLEO, SECRETARIA DE MINERIA, INDUSTRIA Y RECURSOS ENERGETICOS, PROVINCIA DE SALTA, ARGENTINA	OPORTUNIDADES PARA INVERTIR EN MINERIA E HIDROCARBUROS	Spanish / English	Secretaria de Mineria	1998	MINISTERIO DE LA PRODUCCION Y EL EMPLEO, SECRETARIA DE MINERIA, INDUSTRIA Y RECURSOS ENERGETICOS, PROVINCIA DE			S. Gorustovich
42	Sureda,R.J.; Perez,H.D.; Martin,J.L. y Flores,F.J. (????)	EXPLORACION Y DESARROLLO EN UN DEPOSITO SEDEX (Zn, Pb, Ba) DE LA SIERRA DE AGUILAR: MINA ESPERANZA, JUJUY, ARGENTINA	Spanish / English	R.J.SUREDA, H.D.PEREZ, J.L.MARTIN, F.J.FLORES	????		ESPERANZA		SEGEMAR - Salta
43	DGFM(1979)	AREA DE RESERVA NO.10 - EL PELADAR, PROVINCIA DE JUJUY, INFORME FINAL	Spanish		1979/11	Direccion General de Fabricaciones Militares, Centro de Exploracion Geologico Minera II	EL PELADAR		RAMALLO (2001/10/27)
44	Direccion Provincial de Mineria, Jujuy (1976)	INFORME PRELIMINAR MINA "NATACIA", DISTRITO "EL COLORADO"	Spanish	RICARDO JOSE GOMEZ OMIL??	1976/08	Direccion Provincial de Mineria, Jujuy	Mina Natacia		RAMALLO (2001/10/27)
45	DGFM(1980b)	INFORME, AREA DE RESERVA NO.30 - PUMAHUASI, PROVINCIA DE JUJUY	Spanish	NORBORTO PARCETTI	1980/08	Direccion General de Fabricaciones Militares, Subdireccion de Desarrollo Minero, Departamento Geologia y Mineria	PUMAHUASI Pumahuasi Sol de Mayo Belgica		RAMALLO (2001/10/27)
46	Loma Sur S. A	CAPITULO II, CONSIDERACIONES GEOLOGICAS, RACHAITE	Spanish	Guillermo Gimeno	????	Loma Sur S.A.	RACHAITE		RAMALLO (2001/10/27)
47	Coira,B.; Chayle,W.; Barber,E.; Solos,N.; Brodtkorb,M.; Camacho,M. y Diaz,A.(1990)	PALEOSISTEMA GEOTERMAL DEL TERCIARIO SUPERIOR Y SU MINERALIZACION DE METALES BASICOS (Pb, Zn, Ag), RACHAITE, JUJUY, ARGENTINA	Spanish	COIRA, B; CHAYLE, W; BARBER, E; SOLOS,N; BRODTKORB,M; CAMACHO,M; DIAZ,A	1990	DECIMO PRIMER GEOLOGICO ARGENTINO, SAN JUAN	RACHAITE		RAMALLO (2001/10/27)
48	Direccion Provincial de Mineria, Jujuy (1970)	RECONOCIMIENTO GEOLOGICO MINERO EXPEDITIVO EN MINA DE PLOMP "LA GATEADA" DPTO. DE YAVI - PROV. DE JUJUY	Spanish	Fernando Tuttolomondo	1970	DIRECCION PROVINCIAL DE MINERIA, JUJUY	LA GATEADA		RAMALLO (2001/10/27)

No.	Title	Language	Author	Year	Organization	Category	Comments	Source
49	MUESTREO PETROGRAFICO Y BOSQUEJO DE ALTERACION, AREA DE RESERVA No.30 "ACONQUIJA", SECTOR EL PAGO					EL PAGO		Liliana del Valle Martinez
50	J. Darocca, Consultoria	Spanish	J. Darocca	1975/12	Informe Inerno	CENTENARIO		SEGEMAR - Salta
51	J. Darocca		J. Darocca	1994	Informe Inerno	PANCHO ARIAS		SEGEMAR - Salta
52	J. Darocca		J. Darocca	1994	J. Darocca	VICUNA MUERTA	Ubicacion Acceso Antecedentes Geologia Geoquimica Razones para su estudio Recomendaciones	SEGEMAR - Salta
53	Sureda,R.J.(1999)	Spanish	Ricardo J. Sureda	1999	RECURSOS MINERALES DE LA REPUBLICA ARGENTINA, Volumen 1	EL AGUILAR ESPERANZA RIO GRANDE		SEGEMAR - Salta
54	[illegible]	Spanish		1962	DIRECCION GENERAL DE MINAS, PROVINCIA DE JUJUY	LA CANDELARIA		SEGEMAR - Salta
55	Loma Sur S. A		Guillermo Gimeno	????	Loma Sur S.A.	MINA CHOCAYA RACHAITE		SEGEMAR - Salta
56	Segal,S.J. y Caffe,P.J.(1999)	Spanish	Susana J.Segal y Pablo J.Caffe	1999	RECURSOS MINERALES DE LA REPUBLICA ARGENTINA, Volumen 1	PAN DE AZUCAR		SEGEMAR - Salta
57	Segal,S.J.; Godeas,M.C.; Pezzutti,N. y Zappettini,E.O.(1999)	Spanish	Susana J.Segal, Maria C.Godeas, Norma Pezzutti y Eduardo O.Zappettini	1999	RECURSOS MINERALES DE LA REPUBLICA ARGENTINA, Volumen 1	MINA PUMAHUASI MINA CHAUSSETTE MINA SOL DE MAYO MINA CERRO COLORADO MINA CARICASINI MINA GENERAL LEMAN MATADERO [illegible]		SEGEMAR - Salta
58	Castillo,A.L.; Battaglia,R.R. and Moya,M.C.(????)	Spanish	A.L.CASTILLO, R.R.BATTAGLIA & M.C.MOYA	????		LA CIENAGA SANTA ROSA 10		
59	C. Largo, S. Segal y E. Zappettini. (1999)	Spanish	C. Largo, S. Segal y E. Zappettini.	1999	RECURSOS MINERALES DE LA REPUBLICA ARGENTINA, Volumen 1	LA COLORADA		SEGEMAR - Salta
60	[illegible]	Spanish	Bernardo G.Matthews	1972	Direccion provincial de mineria, jujuy	YANGASO		SEGEMAR - Salta
61	DGFM(1979)	Spanish	Morello y Ramallo E.	1979/11	Direccion General de Fabricaciones Militares, Centro de Exploracion Geologico Minera II			SEGEMAR - Salta
62	Mendez,V. y Mendez,C.(2001)	Spanish	V.Mendez y C.Mendez	2001	VII Congreso de Geologia Económica. Salta	LIMECA		SEGEMAR - Salta
63	Quantec Geofisica Argentina S.A.(1998)	English	Miles Rideout, Brian Benget	1998	Quantec Geofisica Argentina S.A.	LA COLORADA		SEGEMAR - Salta
64	Direccion Nacional Del Servicio Geologico(1996)	Spanish	E. Zappettini, G. Blasco de Nullo y F. Hongn	1996	Direccion Nacional Del Servicio Geologico			SEGEMAR - Salta
65	Ferpozzi,L. y Turel,A.(1999)	Spanish	Ferpozzi L. y A. Turel	1999	Subsecretaria de Mineria de la Nacion Instituto de Geologia y Recursos Minerales Servicio Geologico Minero Argentino	Jujuy	Geochemical data of Cu, Pb and Zn and locations of stream sediment samples of mining geological NOA plan. Sheet 2366-I Pirquitas Mine, Jujuy, Republic of Argentine.	SEGMAR- Bs. As.
66	Ferpozzi,L. y Turel,A.(1999)	Spanish	Ferpozzi L. y A. Turel	1999	Subsecretaria de Mineria de la Nacion Instituto de Geologia y Recursos Minerales Servicio Geologico Minero Argentino	Jujuy	Geochemical data of multielement and locations of stream sediment samples of mining geological NOA plan. Sheet 2366-I Pirquitas Mine, Jujuy, Republic of Argentine.	SEGMAR- Bs. As.

No.	Title	Language	Author	Year	Organization	Category	Comments	Source
67 Ferpozzi,L. y Turel,A.(2000)	- Serie Contribuciones Tecnicas Geoquímica 29 - Datos geoquimicos de Cu, Pb y Zn y ubicacion de sitios de muestreo de sedimentos de corriente del Plan NOA Geologico Minero. Hoja 2366-III Mina Pirquitas, Jujuy y Salta. Republica Argentina.	Spanish	Ferpozzi L. y A. Turel	2000	Subsecretaria de Mineria de la Nacion Instituto de Geologia y Recursos Minerales Servicio Geologico Minero Argentino	Jujuy y Salta	Geochemical data of Cu, Pb and Zn and locations of stream sediment samples of mining geological NOA plan. Sheet 2366-III Pirquitas Mine, Jujuy y Salta, Republic of Argentine.	SEGMAR- Bs. As.
68 Ferpozzi,L. y Turel,A.(2000)	- Serie Contribuciones Tecnicas Geoquímica 30 - Datos geoquimicos multielemento y ubicacion de sitios de muestreo de sedimentos de corriente del Plan NOA Geologico Minero - MAP. Hoja 2366-III Mina Pirquitas, Jujuy y Salta. Republica Argentina.	Spanish	Ferpozzi L. y A. Turel	2000	Subsecretaria de Mineria de la Nacion Instituto de Geologia y Recursos Minerales Servicio Geologico Minero Argentino	Jujuy y Salta	Geochemical data of multielement and locations of stream sediment samples of mining geological NOA plan. Sheet 2366-III Pirquitas Mine, Jujuy y Salta, Republic of Argentine.	SEGMAR- Bs. As.
69 Moya,M.C.(????)	EL ORDOVICICO EN LOS ANDES DEL NORTE ARGENTINO	Spanish	Maria Cristina Moya	????	Universidad Nacional de Salta, Facultad de Ciencias Naturales			
70 Fernandez,L.R.R.; Heredia,N.; Seggiaro,R.E. y Gonzalez,M.A.(?)	ESTRUCTURA ANDINA DE LA CORDILLERA ORIENTAL EN EL AREA DE LA QUEBRADA DE HUMAHUACA, PROVINCIA DE JUJUY, NO DE ARGENTINA	Spanish	Fernandez,L.R.R.; Heredia,N.; Seggiaro,R.E. y Gonzalez,M.A.	????				
71 Moya,M.C.(????)	Sedimentacion, SEDIMENTOLOGIA Y PALEOGEOGRAFIA DEL GRUPO MESON (CAMBRICO)	Spanish	Maria Cristina Sanchez	1999	Relatorio XIV Congreso Geológico Argentino			SEGEMAR-Salta
72 Boll,A. y Hernandez,R.M.(????)	INTERPRETACION ESTRUCTURAL DEL AREA "TRES CRUCES" - PROVINCIA DE JUJUY - ARGENTINA	Spanish	Boll,A. y Hernandez,R.M.	1986	BIP 3ra época V:II.7			SEGEMAR-Salta
72 Seggiaro,R.E. y Hongn,F.D.(1994)	TECTINICA TRANSCURRENTE ASOCIADA AL VOLCAN CORANZULI, JUJUY, ARGENTINA	Spanish	Seggiaro,R.E. y Hongn,F.D.	1994	VIII CONGRESO GEOLOGICO CHILE			SEGEMAR-Salta
73 Coira,B.(1982)	MAGMATISMO Y MINERALIZACIONES ASOCIADAS EN PUNA JUJENA, ARGENTINA	Spanish	Coira,B.	1982	II Congreso de Geología Económica			SEGEMAR-Salta
74 Seggiaro,R.E. y Hongn,F.D.(1999)	Influencia tectonica en el volcanismo Cenozoico del Noroeste argentino	Spanish/English	Seggiaro,R.E. y Hongn,F.D.	1999	Relatorio XIV Congreso Geológico Argentino		Tectonic influence in Cenozoic volcanism in Noryth-Western Argentina	SEGEMAR-Salta
75 Bahlburg,H.(1990)	The Ordovician basin in the Puna of NW Argentina and N Chile: geodynamic evolution from back-arc to foreland basin	English	Bahlburg,H.	1990	PHD. Tesis.			SEGEMAR-Salta
76 SEGEMAR(1999)	Programa Nacional de Cartas Geologicas de la Republica Argentina, 1:250,000 Hoja Geologica 2366-II y 2166-IV, La Quiaca, Provincias de Salta y Jujuy	Spanish	D. Rubiolo	1999	SEGEMAR	Cienaga		SEGEMAR-Salta
77	VII Congreso Argentino de Geología Economica, Actas 1	Spanish		2001	Asociacion Argentina de Geologos Economistas, y Secretaria de Mineria, Industria y Recursos Energeticos de la Provincia de Salta			
78	VII Congreso Argentino de Geología Economica, Actas 2	Spanish		2001	Asociacion Argentina de Geologos Economistas, y Secretaria de Mineria, Industria y Recursos Energeticos de la Provincia de Salta			
79	INVENTARIO DE YACIMIENTOS Y MANIFESTACIONES DE MINERALES METALIFEROS E INDUSTRIALES DE LA REPUBLICA	Spanish						

Reference

Acenolaza F.G., A.J.Toselli, F.R.Durand y R.Diaz Tadei,(1982): Geologia y estructura de la region norte de Andalgala, provincia de Catamarca. Acta GeologicaLilloana, 16(1), 121-139.

Alderete,M.C.(1999): Distrito Farallon Negro - Alto de la Blenda, Catamarca. Recursos Minerales de la Republica Argentina (Ed. by Zappettini, E..O), Instituto de Geologia y Recursos Minerales SEGEMAR, Anales 35, 1637-1642, Buenos Aires.

Amdel Report (1995). G896800G/96. K-Ar Dating of five rock samples. (inedited)

Americas Mining News July 9,1997: www2.cdn-news.com/newsnet/1998/12/30/ 1230029n.htm

Angera,J. A.(1999): Mina Bajo de la Alumbrera, Catamarca. En: Recursos Minerales de la Republica Argentina (Ed.by Zappettini, E. O.), Instituto de Geologia y Recursos Minerales SEGEMAR, Anales 35, 1451-1461, Buenos Aires.

AREA DE RESERVA No.18, "NEVADO DE ACAY", INFORME FINAL

Argentina Mineral Development S.A.(1994): STRATOBOUND Pb-Zn-Ag DEPOSITS JUJUY PROVINCE ARGENTINA THE DISCOVERY POTENTIAL WITHIN THE PUMAHUASI MINING DISTRICT.

BHP-Billiton and Northern Orion (2001): Agua Rica. (inedited)

Castillo,A.L.; Battaglia,R.R. and Moya,M.C.(????): DEPOSITOS MINERALES EN LOS DISTRITOS SANTA VICTORIA, ZENTA E IRUYA (PRECAMBRICO - PALEOZOICO INFERIOR), SALTA, ARGENTINA.

Cecere, H. (1980): Direccion General de Fabricaciones Militares, Centro de Exploracion Geologico Minera II.

AREA DE RESERVA No.23, "INCA VIEJO" (Departamento Los Andes- Prov. de Salta)

Chernicoff, C.J. and Zappettini, E.O.(2000): INTERPRETACION GEOLOGICO-METALOGENICA DEL LEVANTAMIENTO AEROMAGNETICO DE LA PUNA, ARGENTINA, ACTAS VOL.2 SIMPOSIO NACIONAL NO3, 277-280

Coira, B. L. (1999): Potencialidad minera de sistemas megacaldericos Miocenos en Puna Norte. (Ed by Zappettini, E. O.) Recursos Minerals de la Republica Argetina, SEGEMAR, No. 35, 1557-1567.

Coira, B. L., Chayle, W., Barbara, E., Solis, N., Brodtkore, M., Camacho, M. and Daiz, A.. (1990): Paleosistema geothermal del Terciario suprerior y su mineralizacion de metaes basicos (Pb, Zn, ag), Rachaite, Jujuy, Argentina. Decimo Primer Congreso Geologio Argentino, San Juan, Actas I, 303-306.

DGFM(1980b) : INFORME, AREA DE RESERVA NO.30 - PUMAHUASI, PROVINCIA DE JUJUY

Direccion General de Fabricaciones Militares, Subdireccion de Desarrollo Minero, Departamento

Geologia y Mineria (1975/12) : AREA DE RESERVA No.24, "BREALITO", INFORME FIN.

Hongn, F.D, Aranguren, A.., Tubia, J. M. and Mon, R (1999): Structure, magnetic fabric and emplacement of La Paya and Brealito granites, Calcaqui valley basement, Salta, Argentina (in Spanish)

Direccion General de Fabricationes Minerares (1975): Informe final area de reserva No.31 Esperanza-Incachule.

Dirección Nacional del Servicio Geológico (1996): Hoja Geológica 2566-I, San Antonio de los Cobres.

Dirección Nacional del Servicio Geológico (1998): Hoja Geológica 2566-III, Cachi.

Dirección Nacional del Servicio Geológico (1999): Hoja Geológica 2366-II y 2166-IV, La Quiaca.

Dirección Nacional del Servicio Geológico (1999): Hoja Geológica 2766-II, San Miguel de Tucumán.

Direccion Provincial de Mineria, Jujuy (1970): RECONOCIMIENTO GEOLOGICO MINERO EXPEDITIVO EN MINA DE PLOMP "LA GATEADA" DPTO. DE YAVI - PROV. DE JUJUY.

FM (197?): PROSPECTO PANCHO ARIAS O VIZCACHERAL

Fontbote, L. and Boni, M. (1994): Sediment-hosted zinc-lead ores- An introduction. (Ed by Fontbote, L. and Boni, M.) Sediment-Hosted Zn-Pb Ores, 3-12.

Garcia, L.. N. F. (19??): Area de reserva "Laguna del Salitre". Mosaicos 19-A1-B1.Ministerio de Industria y Minera, Subsecretaria de Minera, NOA 1.

Gonzalez, O. (1981): Estudio geologico economico area de investigacion geologico minera No. 34 " Laguna del Salitre" Departamento Belen, Provincia Catamarca. Servicio Minero Nacional, Exploracion Minera de la Region Noreste, Noa Geologico Minero, 43p.

Gonzalez, O.(1985): DEL AREA DE INVESTIGACION GEOLOGICO MINERA No.1. "DIABLILLOS", DEPARTAMENTO ANTOFAGASTA DE LA SIERRA, PROVINCIA DE CATAMARCA, Secretaria de Mineria, Direction Nacional de Mineria y Geologia, Centro de Exploracion, NOA .

Gonzalez, O.(1971): Informe preliminar mosaico 20-D2, provincia Catamarca y Tucuman. Plan NOA Gologico Minero. (inedited)

Gonzalo, C. Z. (1984): Area de investigacion geologico minera No41, "Vaca Vizcana - Papachacra", Sector "Vaca Vizcana", Informe Final. NOA Tucuman. (inedited)

Goodfellow, W. D., Lydon, J. W. and Turner, R. (1993): Geology and genesis of stratiform desiment-hosted (SEDEX) zinc-lead-silver sulphide deposits. (Ed by Kirkham et al.) Mineral Deposit Modeling: Geological Association of Canada, Special Paper 40, 201-251.

Gozalvez de Valoy M. (1979): Estudio Retrografico y de alteracion de las perforaciones No1 Y No2. NOA Tucuman.Inedito.

Informe preliminary area Minerazada de Rachaite, Mina Chocaya.

JICA and MMAJ (1993): La exploracion de minerals en el area oest de la Republica Argentina (Fase I) . pp.142.

JICA (1978-1981) :. Informe de estudios basicos sobre la explotacion de recursos minerales en la zona norte de la Republica Argentina. Cuatro etapas. Direccion General de Fabricaciones Militares, informe inedito. Buenos Aires.

JICA/MMAJ(1998) Report on mineral exploration in the eastern Andes area, Argentine Republic.

Large, D. (1988): The evolution of sedimentary basins for massive sulfide mineralization. (Ed by Friedrich, G. H. and Herzig, P. M.) Base Metal Sulfide Deposits, Springer-Verlag, 2-11.

Loma Sur S. A. : Internal exproration report of the Rachaite .

Lurgo, C., Morello, C., Kenned, M. C., Pancetti, N., Zppettini, C.J., (1975): AREA DE RESERVA No.22, "CENTENARIO",PROVINCIA DE SALTA, INFORME FINAL, Direccion General de Fabricaciones Militares, Centro de Exploracion Geologico Minera II

Lydon, W. J. (1995): Sedimentary exhalative sulphides. Geology of Canada mineral deposit types (Ed. By Eckstrand, O.R., Sinclair, W.D. and Thorpe, R. I.)

Marquez-Zavalia, M. F. (1999) : El yacimiento Capillitas, Catamarca. En: Recursos Minerales de la Republica Argentina (Ed. By Zappettini, E.. O), Instituto de Geologia y Recursos Minerales, SEGEMAR, Anales 35, 1643-1652, Buenos Aires.

Martin, J.L., (1989) Estudio geologico en los depositos metaliferos de la sierra de Aguilar, departamento de Humahuaca, provincia de Jujuy, Argentina. Unversidad Nacional de Salta, tesis de doctorado en Ciencias Geologicas, inedita, 242 pag, y anexos. Salta.

Martinez, L.. V. y Chipulina, M. A.. (1996): Complejo Volcanico "El Alisal", Tucuman: Un nuevo prospecto de mineralizacion diseminada, Serie Contribuciones Tecnicas, Recursos Minerales 1, Direccion Nacional Del Servicio Geologico, Buenos Aires.

Martinez, L.V. y Chipulina, M. A. (1994): Asociaciones volcanico-tectonicas terciarias y mineralizacion polimetalica. Secretaria de Mineria de la Nacion. (inedito). Buenos Aires.

Mayon, C. S. L., Segal, S. and Zappettini, E.. O. (1999): El yaciemento de sulfuros masivos La Colorada, Salta. (Ed. By Zappettini, E. O.) Instituto de Geologia y Recursos Minerales, SEGEMAR, Anales 35, 487-492, Buenos Aires.

Mendez, V., Segal, S. and Zappettini, E. (2001): Depositos paleozoicos de metales base del noroeste de la Argentina: Coorelacion metalogenetica y evolucion tectonica. VII Congreso Argentino de Geologia Economica, Actas 1, Salta 2001, 27-33.

Mendez, V. and Zappettini, E.. (2001): Limeca: Prospecto sedex en el la Puna saltena ? VII Congreso Argentino de Geologia Economica, Actas 1, Salta 2001, 107-114..

Mendez, V., Segal, S. and Zappettini, E.(2001): Depositos paleozoicos de metales base del noroeste de la Argentina: Correlacion metalogenitica y evolucion tectonica. VII congreso Argentino de Geologia Ecomomica, Actas !, Salta 2001. 27-33.

METI(2000): Remote sensing technology development for ASTER. Report on technology development of mineral exploration. Ministry of Economy, Trade and Industry(in Japanese)

METI(2001): Remote sensing technology development for ASTER. Report on technology development of mineral exploration. Ministry of Economy, Trade and Industry(in Japanese)

Ministerio de Industria y Minera (19??): Area de reserva No. 34 "Laguna del Salitre" 2p.

Naito, K. and Remy, F.(2001): Mining sector reform and investment. Result of a global survey. Internal report of Metal Mining Agency of Japan, pp.59.

Petrinovic, I. A. (1999): La Caldera de colapso del Cerr Aguas Calientes, Salta, Argentina: evolucion y esquema estrucural. GEOLOGICA HISPANICA, 34, 243-253.

Petrinovic, I. A., Mitjavaila, J. Viramonte, J. G., Marti, J. Becchio, R., Arnosio, M. and Colombo, F.(1999): Descripcion geoquimica y geocronologica de secuencias volcanica transversal del Quevar (Noroeste de Argentina) . ACTA GEOLOGICA HISPANICA, 34, 255-272.

Ramos, V.A. (1999b): Las provincias geológicas del territorio Argentino: Geología Argentina (Ed.by Caminos, R.), SEGEMAR, Anales no,29, pp.41-96.

Ramos, V.A. (1999a): Ciclos orogénicos y evolución tectonica: Recursos Minerales de la Republica Argentina (Ed. by Zappettini, E..O.), SEGEMAR, Anales 35, 29-49.

Ramos, V.A.(2000): The southern central Andes: Tectonic evolution of South America (Ed. By Cordani, U. G., Milani, E. J., Thomaz, F. A. and Campos, D. A), 561-604, Rio de Janeiro,2000.

Riller, U. (2001): Late Cenozoic tectonism and caldera formation in the central Andes. Curso ineternacional de volcanologica de campo de los Andes centrales VIII edicion Octobre 2001.

Russell, M. J., Solomon, M. and Walshe, J. L. (1981) The genesis of sediment-hosted, exhalative zinc+lead deposits. Mineral Deposita, 16, 113-127.

Roco, R. y Koukharsky, M. (1999): El porfiro cupro - molibdenifero Agua Rica y las manifestaciones epitermales asociadas, Catamarca. En: Recursos Minerales de la Republica Argentina (Ed. byZappettini, E.. O.), Instituto de Geologia y Recursos Minerales SEGEMAR, Anales 35, 1479-1492, Buenos Aires.

Sanga, T. and Sato, T(2001): Development of Geomorphic Analysis Method using ASTER DEM, The 6th International Symposium for the Expanding Use of ASTER Data

Sangster, D. F. and MacIntyre, D. (1983): Sediment-hosted stratiform lead-zinc deposits. Mineral Association of Canada, Short course handbook, Vol. 8, pp.29.

Sasso, A. M. and Clark, A. H. (1998.): The Farallon Negro Group, Northwest Argentina: Magmatic, Hydrothermal and Tectonic Evolution and Implications for Cu-Au Metallogeny in Andean Back-arc : SEG NEWSLETTER, No.34, July, p.7-18.

Segal,S.J.; Godeas,M.C.; Pezzutti,N. y Zappettini,E.O.(1999):DISTRITO POLIMETALICO PUMAHUASI, JUJUY, RECURSOS MINERALES DE LA REPUBLICA ARGENTINA, Volumen 1

Segal, S.J. Godeas, M. C. Pezzutti, N. y Zappettini, E.. O. (1999): DISTRITO POLIMETALICO UMAHUASI, JUJUY, RECURSOS MINERALES DE LA REPUBLICA ARGENTINA, Volumen 1

Segal., S. J. and Caffe, P. J. (1999): El grupo minero Pan de Azucar, Jujuy. . (Ed by Zappettini, E. O.) Recursos Minerals de la Republica Argetina, SEGEMAR, No. 35, 1579-1591.

SEGEMAR (1999): Carta geologica de la republica Argentina escala 1:250,000, Mina La Quiaca.

SEGEMAR (2000): Carta geologica de la Republica Argentina escala 1:250,000, Mina Pirquitas.

SEGEMAR(1994): Mapa Geológico de la Provincia de Tucuman, 1:500,000.

SEGEMAR(1995): Mapa Geológico de la Provincia de Catamarca, 1:500,000.

SEGEMAR(1996): Mapa Geológico de la Provincia de Jujuy, 1:500,000.

SEGEMAR(1998):Mapa Geológico de la Provincia de Salta, 1:500,000.

SEGEMAR(1999): Programa Nacional de Cartas Geologicas de la Republica Argentina, 1:250,000 Hoja Geologica 2366-II y 2166-IV, La Quiaca, Provincias de Salta y Jujuy

SEGEMAR(2000): EVALUATION OF THE CONCEPT THAT PUMAHUASI VEINS INDICATE A POTENTIAL FOR THE EXISTENCE OF UNDERLYING UNDISCOVERED SEDEX DEPOSITS, NORTHERN ARGENTINA

SEGEMAR (19??): ANOMALIA VICUNA MUERTA

Sereda, R.J. Perez, H. D., Martin,J. L.. y Flores, F. J. (????): EXPLORACION Y DESARROLLO EN UN DEPOSITO SEDEX (Zn, Pb, Ba) DE LA SIERRA DE AGUILAR: MINA ESPERANZA, JUJUY, ARGENTINA.

Sillitoe, H. R..(1995). Porphyry copper-gold/gold deposits, 1.Bajo de la Alumbrera, Argentina. Exploration and discovery of base- and precious-metal deposits in the circum-pacific region during the last 25 years. Metal Mining Agency of Japan, 21-23.

Sillitoe, R. H. and Bonham, H. F. (1984): Volcanic landforms and ore deposits. Econ. Geol., vol.79, 1286-1298.

Sparks, R. S. J., Francis, P. W., Pankhurst, R. D., Gallaghan, Thorpe, R. S. and Page, R. (1985) Ignimbrite of the Cero Galan Caldera, NW Argentina. Jour. Volcanol. Geotherm. Res., 24, 295-248.

SSM, SEGEMAR y IGRM (1999): INVENTARIO DE YACIMIENTOS Y MANIFESTACIONES DE MINERALES METALIFEROS E INDUSTRIALES DE LA REPUBLICA.

Sureda, J. R. (1999): Los yacimientos sedex de plomo y zinc en la Sierra de Aguilar, Jujuy. En: Recursos Minerales de la Republica Argentina (Ed by Zappettini, E. O.), Instituto de Geologia y Recurusos Minerales SEGEMAR, Anales 3: 459-485, Buenos Aires.

Sureda, R. J. and Martin, J. L. (1990): EL AGUILAR MINE: AN ORDOVICIAN SEDIMENT-HOSTED STRATIFORM LEAD-ZINC DEPOSIT IN THE CENTRAL ANDES.

Sureda, R. J. (1999): LOS YACIMIENTOS SEDEX DE PLOMO Y ZINC EN LA SIERRA DE AGUILAR, JUJUY.

Tosdal, R. M. and Richards J. P. (2001): Magmatic and strucutural controls on the development of porphyry Cu±Mo±Au deposits. Society of Economic Geologist, Review 14, 157-181.

Viera, O. (1975): Informe final, Area de reserva No26 - "Organullo", -Provincia Salta-, Centro De Exploracion Geologico Minera II, Direccion General De Fabricaciones Militares (inedito) Salta.

Zappettini, E. O. (1998): Mapa metalogenético de la República Argentina, Version Preliminar (CD-ROM): SEGEMAR.

Zappettini, E..O.(1999): Evolución geotectónica y metalogénesis de Argentina: Recursos Minerales de la Republica Argentina Vol.1 (Ed. By Zappettini, E. .O.), SEGEMAR, Anales 35, pp.51-73.