

PIEDRA AMARILLA PROPERTIES

REGION 3 - CHILE

TITANIUM , SULFUR, AND GOLD

PRE - FEASIBILITY UPDATE

PRELIMINARY DRAFT

C.S.I. Ag

PIEDRA AMARILLA MINERAL PROPERTIES PRE-FEASIBILITY UPDATE

Table of Contents

pp.	002	Chile - Location and Geography.
pp.	003	Map 1. Location of Chile Relative to South America.
pp.	004	Chile's Region III. Historical Background.
pp.	005	Map 2. Location of Chile's Region III.
pp.	006	Map 3. Region III political Division and Demographics.
pp.	007	Recent Economic Developments.
pp.	008	Regional Demographics and Infrastructure.
pp.	009	Table 1. Major Foreign Mining Operations, Copiapo District.
pp.	010	Map 4. Copiapo -El Salvador Mining District.
pp.	011	Table 2. Major Chilean State Owned Mining Operations, Copiapo District.
pp.	012	Table 3. Total Annual Mineral Production, Region III. State-Owned and Foreign Operations Combined.
pp.	013	Table 4. Chilean Copper Production.
pp.	014	Region III Geology.
pp.	016	Geology of the Piedra Parada Salar Basin Area.
pp.	017 - 018	Figure RG-1.
pp.	019 - 020	Mineral Properties.
pp.	021	Local Geology - Volcanics
pp.	022 - 024	Aerial Photo View of Piedra Amarilla Mineral Properties.
pp.	025	Age - Volcanic Types.

pp.	026 - 027	Relative Time Scale.
pp.	028 - 029	Local Geological Interpretations.
pp.	030 - 031	Geology of the Piedra Amarilla Mineral Properties.
pp.	032	Economic Minerals - Titanium.
pp.	033	Table 2. - Mineral Content of Ore.
pp.	034	Table 3-A. List of Some Titanium Bearing Deposits. Sulfur.
pp.	035 - 036	Gold and Tellurium.
pp.	037	Silver - Other Minerals.
pp.	038 - 039	Preliminary Geological Field Interpretations. Piedra Amarilla 131 and 161.
pp.	040	Ore Reserves.
pp.	041	Table 6. Mineral Resource Classifications System. U.S. Bureau of Mines.
pp.	042	Table 7. Piedra Amarilla Properties Trench Locations.
pp.	043	Piedra Amarilla Properties Trench Schematic.
pp.	044	Table 7 Continued - Location of Sampling Pits.
pp.	045	Piedra Amarilla Pit Schematic.
pp.	046	Bulk Samples - Sulfur Reserves.
pp.	047	Depth of Reserves.
pp.	048 - 050	Table 8. Sulfur Samples and Distribution.
pp.	051 - 052	Figure 16. Sulfur Ore Reserves Section 1.
pp.	053 - 055	Figure 17. Sulfur Ore Reserves, Sections 2 and 3.
pp.	056 - 057	Sulfur By-Products - Arsenic, Selenium, Tellurium, Kaolinite.
pp.	058	Gold Values.

pp.	059 - 060	Table 9. Gold Samples and Distribution, Fire Assay.
pp.	061	Table 10. Gold Samples and Distribution, X-Ray Fluorescence.
pp.	062 - 063	Gold Ore Reserves by X-Ray Fluorescence, Section 1.
pp.	064 - 065	Gold Ore Reserves by X-Ray Fluorescence, Sections 2 and 3.
pp.	066	Titanium Reserves - Titanium By-Products - Silica. Total Reserves.
pp.	067 - 068	Rutile Samples and Distribution.
pp.	069 - 070	Figure 20. Rutile Ore Reserves Section 1.
pp.	071 - 073	Figure 21. Rutile Ore Reserves Sections 2 and 3.
pp.	074	Table 12. Mineral Reserve Summary.
pp.	075 - 076	Mining Plan.
pp.	077	Piedra Amarilla Ore Reserve Schematic.
pp.	078	Hydrology Study - Climate.
pp.	079	Surface Waters Location Map.
pp.	081	Temperature - Wind - Seismology.
pp.	082	Surface Waters Location Map - Directional Flow.
pp.	083	Surface Waters Location Map - Watershed Boundaries.
pp.	084	Lake Analysis.
pp.	085	Table 13. Chemical Analysis of Surface Lakes.
pp.	086	Rio de la Cueva.
pp.	087	Table 14. Chemical Analysis of Rio de la Cueva.
pp.	088	Table 15. Chemical Analysis of Paipote River System and Paton Tributary of Copiapo River.
pp.	089	Section of Metallurgical Studies.
pp.	093	Metallurgical Studies.

pp.	094	Table 16. List of Metallurgical Studies.
pp.	095	Figure 26. Sulfur Metallurgical Flow-sheet - Primary Flotation.
pp.	096	Figure 27. Sulfur Secondary Flotation Flow-sheet.
pp.	097	Figure 28. Sulfur Tertiary Flotation Flow-sheet.
pp.	098	Primary Sulfur Flotation.
pp.	099	Secondary Sulfur Flotation. Tertiary Sulfur Flotation.
pp.	100	Autoclave Refining.
pp.	101	Figure 29. Sulfur Melting and Prilling.
pp.	102	Sulfuric Acid Manufacture. Daily Acid Requirements.
pp.	103	Native Sulfur Impurities. Table 17. Sulfur Filtration at 70 mesh.
pp.	104	Table 18. Elemental Content of Sulfuric Acid Sludges.
pp.	105	Precious Metals Recovery.
pp.	106	Figure 30. Dissolution of Gold and Tellurides.
pp.	107 - 108	Telluride Characteristics - Method of Concentration.
pp.	109	Primary Gravity Concentrates - Primary Concentrate Grade.
pp.	110	Gold Processing of Filter Cakes and Cleaner Tailings.
pp.	111	Treatment of Cleaner Concentrates. Platinum Group Metals.
pp.	112	Figure 31. Gravity Circuit for Recovery of Telluride Gold.
pp.	113	Figure 31 continued - Gold Recovery from Gravity Concentrates.
pp.	114	Table 32. NaCN Leaching Circuit.