



17.11 Morrocoy Grade Model

17.11.1 Morrocoy - Assays

The Morrocoy assay database used for modeling is described in Table 17.27. There are 9,114 samples with gold grades and 8,674 samples with copper grades in the defined Morrocoy area. There are some “contaminated” samples but no trench samples in the Morrocoy database. Capping limits were assessed considering:

- the context of modeled zones, material types,
- trade distribution plot profiles of each metal,
- the affected “contained” metal content,
- the geology, and
- the resulting coefficient of variation (“CV”).

Table 17.27 Descriptive Statistics of the Morrocoy Assay Database

ALL DATA	Moroccoy							
	Valid N	Mean	Median	Std. Dev.	CV	Min	Max.	Units
East	9,263					21,403	21,991	m
North	9,263					10,736	11,656	m
Elevation	9,263					(139)	142	m
From	9,263	103.22				0.0	338.0	m
To	9,263	104.25				0.1	339.0	m
Length	9,263	1.03				0.0	40.2	m
Au	9,114	0.57	0.25	1.78	3.10	0.00	93.6	ppm
AuCap	9,114	0.51	0.25	0.84	1.65	0.00	14.4	ppm
Cu	8,674	288	114	734	3	0	56,200	ppm
CuCap	8,674	279	114	567	2	0	6,000	ppm
CuCNA	1,629	128	28	551	4	1	30,200	ppm
CuCnCap	1,629	128	28	551	4	1	30,200	ppm
CuRatio	1,629	31	16.00	31	1	0.00	100.0	%
Ag	4,941	0.89	0.20	12.92	14.54	0.00	1700.0	ppm
AgCap	4,941	0.52	0.20	1.38	2.67	0.00	31.0	ppm
CREC	8,779	93	98	13	0.1	0	125	%
RQD	6,779	72	79	22	0.3	0	106	%
MaterialCode	NA							
Zone	9,263					8	99	
Code	9,263					0	0	
Area	9,263					4	4	
Type	9,263					0	9	
Use	9,263					0	2	
DHorTR	9,204					1	1	

The final capping limits are given in Table 17.28. The “contained” metal was reduced by a relatively large 9% in the low-grade primary mineralization. This was necessary because the continuity of the high-grade zones in the low-grade was not sufficient to define their own zones. Copper capping levels were substantial on the “contained” amount of metal, but the mixed/sulfide saprolite still has a high CV, much of which was caused by the relatively low mean grade. Overall the copper grades are relatively low at Morrocoy.



Table 17.28 Capping Limits and Assay Statistics at Morrocoy

Zones		31 Low-sulfide zone			Capped at 7			g/t	
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units	
Au	4,986	0.40	0.75	2.02	2.70	0.01	94	g/t	
AuCap	4,986	0.40	0.68	0.96	1.42	0.01	7	g/t	
Difference in grade		0%	-9%	Difference in metal		-9%			
Zones		32 High-sulfide zone			Capped at 14			g/t	
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units	
Au	58	1.42	2.08	2.35	1.13	0.32	14	g/t	
AuCap	58	1.42	2.08	2.35	1.13	0.32	14	g/t	
Difference in grade		0%	0%	Difference in metal		0%			
Zone	8	Overburden			Capped at 3			g/t	
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units	
Au	129	0.86	1.16	1.53	1.32	0.04	11	g/t	
AuCap	129	0.86	0.98	0.72	0.73	0.04	3	g/t	
Difference in grade		0%	-16%	Difference in metal		-16%			
Zone	0	Outside Zones			Capped at 3			g/t	
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units	
Au	3,136	0.13	0.36	1.49	4.18	0.00	51	g/t	
AuCap	3,136	0.13	0.28	0.46	1.66	0.00	3	g/t	
Difference in grade		0%	-22%	Difference in metal		-22%			

Type	1, 2, and 3	Bedrock and Saprock			Capped at			ppm	ppm
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units	
Cu	6,049	129	332	736	2.22	0	18700	ppm	
CuCap	6,049	129	323	644	1.99	0	6000	ppm	
Difference in grade		0%	-2%	Difference in metal		-2%			
CuCNA	684	44	123	322	2.61	1	5392	ppm	
CuCnCap	684	44	123	322	2.61	1	5392	ppm	
CuRatio	684	14	30	28	0.95	2	99	ppm	
Type	4, 5	Sulfide and Mixed Saprolite			Capped at			ppm	ppm
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units	
Cu	864	146	348	1244	3.57	0	56200	ppm	
CuCap	864	146	315	464	1.47	0	3500	ppm	
Difference in grade		0%	-10%	Difference in metal		-10%			
CuCNA	436	97	277	991	3.58	1	30200	ppm	
CuCnCap	436	97	277	991	3.58	1	30200	ppm	
CuRatio	436	62	53	31	0.59	1	100	ppm	
Type	6	Oxide Saprolite			Capped at			ppm	ppm
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units	
Cu	864	112	143	119	0.83	0	821	ppm	
CuCap	864	112	143	119	0.83	0	821	ppm	
Difference in grade		0%	0%	Difference in metal		0%			
CuCNA	416	5	14	32	2.22	1	271	ppm	
CuCnCap	416	5	14	32	2.22	1	271	ppm	
CuRatio	416	4	10	16	1.53	0	100	ppm	
Type	8	Overburden			Capped at			ppm	ppm
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units	
Cu	89	124	153	90	0.59	20	381	ppm	
CuCap	89	124	143	72	0.50	20	250	ppm	
Difference in grade		0%	-7%	Difference in metal		-7%			
CuCNA	22	15	14	10	0.71	2	34	ppm	
CuCnCap	22	15	14	10	0.71	2	34	ppm	
CuRatio	22	15	15	15	1.04	2	81	ppm	



17.11.2 Morrocoy - Composites

The same logic and methodology were used in compositing at Morrocoy as at Conductor and Mesones-Sofia. Composite statistics are given in Table 17.29. As stated in earlier sections:

Gold by zone: After capping, the gold assay sample intervals were composited to six-meter lengths. The gold grades were down-hole composited using geological restrictions for some material types. Pertinent material types were overburden (material type 8) and dikes (material type 9) because there is a discontinuity between both of these and the primary gold mineralization. Both post-date mineralization, and while the dike is barren, the overburden has remobilized, dispersed, and/or re-concentrated gold. Sample data from dikes and overburden were used as hard boundaries for compositing. After compositing, the six-meter composites were coded from the cross-sectional gold zone interpretations. This effectively smoothed out, or “softened”, the hard boundaries. The impact of the hard boundary is further reduced later by weight averaging the grades of the different zones into a “diluted average gold grade” within each block that straddled these boundaries. This set of composites was used for modeling gold and core recovery and for calculating distances, number of samples, and number of drill holes. Statistics of gold composite statistics are given in Table 17.29.

Copper, copper solubility and silver by material type: After capping, the copper assay sample intervals were composited to six-meter lengths. Material types were used to control down-hole compositing. These composites were not recoded on section as the gold composites were. After compositing, the composites were back coded from the model with the relative elevation of the top of the mixed or sulfide saprolite unit. This relative elevation was used in modeling copper and copper solubility ratios in the saprolite units. Statistics of copper composite statistics are given in Table 17.29.



Table 17.29 Statistics by Zone (Au) and Type (Cu) of Morrocoy Composites

Zone 31		Moroccoy						
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	868	0.52	0.75	0.93	1.24	0.02	17.18	g Au/t
AuCap	868	0.52	0.68	0.52	0.77	0.02	3.67	g Au/t
Zone 32		Moroccoy						
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	10	1.73	2.02	1.32	0.66	0.79	5.57	g Au/t
AuCap	10	1.73	2.02	1.32	0.66	0.79	5.57	g Au/t
Zone 8		Moroccoy						
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	54	0.88	1.09	1.21	1.11	0.07	7.32	g Au/t
AuCap	54	0.88	1.09	1.21	1.11	0.07	7.32	g Au/t
Zone 9		Moroccoy						
	Valid N	Median	0	Std.Dev.	CV	Minimum	Maximum	Units
Au	29700	0.00	0.62	0.95	1.54	0.00	226.54	g Au/t
AuCap	29700	0.00	0.57	0.74	1.28	0.00	19.84	g Au/t
Zone 99		Moroccoy						
	Valid N	Median	0	Std.Dev.	CV	Minimum	Maximum	Units
Au	29700	0.00	0.62	0.95	1.54	0.00	226.54	g Au/t
AuCap	29700	0.00	0.57	0.74	1.28	0.00	19.84	g Au/t
Type 1, 2, 3		Moroccoy						
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Cu	1082	179.0	331.8	449.8	1.4	0.0	4558.0	ppm
CuCap	1082	179	324	413	1.28	0	3599	ppm
CuCN	197	35.00	97.25	171.74	1.77	2.00	1235	ppm
CuCNCap	197	35	97	172	1.77	2	1235	ppm
Ratio	197	9	22	24	1.07	3	99	%
Type 4, 5		Moroccoy						
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Cu	174	175.5	347.4	529.8	1.5	9.0	4921.0	ppm
CuCap	174	176	314	336	1.07	9	2261	ppm
CuCN	99	120.00	285.56	488.20	1.71	4.00	3325	ppm
CuCNCap	99	120	286	488	1.71	4	3325	ppm
Ratio	99	54	51	28	0.55	2	97	%
Type 6		Moroccoy						
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Cu	166	117.0	142.6	98.2	0.7	11.0	621.0	ppm
CuCap	166	117	143	98	0.69	11	621	ppm
CuCN	90	8.00	17.14	35.44	2.07	1.00	235	ppm
CuCNCap	90	8	17	35	2.07	1	235	ppm
Ratio	90	7	11	15	1.32	0	82	%
Type 8		Moroccoy						
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Cu	47	124.0	153.4	86.0	0.6	21.0	376.0	ppm
CuCap	47	124	143	67	0.47	21	250	ppm
CuCN	10	13.50	13.53	6.87	0.51	5.00	24	ppm
CuCNCap	10	14	14	7	0.51	5	24	ppm
Ratio	10	12	14	13	0.90	2	81	%
Type 9		Moroccoy						
	Valid N	Median	0	Std.Dev.	CV	Minimum	Maximum	Units
Cu	26238	0.0	309.3	429.4	1.4	0.0	44344.0	ppm
CuCap	26238	0	309	429	1.39	0	37125	ppm
CuCN	7247	0.00	124.51	291.50	2.34	1.00	40294	ppm
CuCNCap	7247	0	125	291	2.34	1	40294	ppm
Ratio	7237	0	27	27	1.00	0	100	%



17.12 Morrocoy – Geostatistics and Estimation

MDA calculated variograms and correlograms at varying lags, cutoffs, azimuths and dips for combined zones for Morrocoy. Variograms parallel to the dominant mineralization-controlling geological fabric were used, namely 315° azimuth with a dip azimuth of 225° and dip of -60°. The variograms were calculated on composites of gold and copper, but not CN-soluble ratio or silver, since there were few to no values of the latter two.

Ordinary Kriging was used for gold, copper and CNSCu-to-total-copper ratio estimation (Appendix B). As at Conductor, gold distribution has not been materially affected by weathering processes, except in the alluvium. Consequently, gold was modeled in gold domains that crossed the bedrock and saprolite contacts, but stopped at the overburden and dike contacts.

MDA classified the resource by a combination of distance to the nearest sample, the number of samples used to estimate a block, the geological understanding and predictability of the resources, and the quality of the drill samples used, *i.e.*, core recovery. As gold is the dominant metal from a value standpoint and Crystallex has no mining rights to the copper, all blocks were classified based on gold (Table 17.30). The ranges used for resource classification were chosen based on an average of the directional gold variogram ranges. A typical section of the Morrocoy gold model is given in Figure 17.4.

Table 17.30 Criteria for Classification of Morrocoy Resources

Class*	Distance*	Min. No. of Samples	Min. No. Drill Holes
Measured	0 to 10 m	2	1
Indicated	0 to 10 m	1	1
Indicated	10 to 40 m	2	1
Inferred	40 to 80 m	1	1

* See text in next paragraph for explanation; all overburden is classified as Inferred.

MDA modified the distances used for classification by the percent core recovery. It was shown in an earlier section of this report that core recovery affects gold and copper grades and introduces a bias in the saprolite. The lower core recovery decreases confidence in the results and therefore is introduced into the definition of Measured, Indicated, and Inferred. MDA modified the distance between the closest sample and the model block by the following relationship:

- Estimated core recovery between 80% and 100%, no factor;
- Estimated core recovery between 60% and 80%, distance multiplied by 1.1; and
- Estimated core recovery below 60%, distance multiplied by 1.2.

The modified distance was used for the classification scheme given in Table 17.30. Essentially, those blocks with estimated lower core recovery were downgraded in classification. The classification and the estimation described above resulted in a Measured, Indicated and Inferred resource at Morrocoy. Measured and Indicated resources are broken out in Table 17.31 and Table 17.32 and combined in Table 17.33, while the total Inferred resources are given in Table 17.34.



Table 17.31 Morrocoy Measured Resources
(Including Reserves*)

Morrocoy Measured (rounded)								
Cutoff (g Au/t)	Tonnes	Gold (g/t)	Gold Ounces	Silver (g/t)	Copper (ppm)	CNSolCu (ppm)	Silver Ounces	Copper Kilograms
0.2	2,385,000	0.71	55,000	NA	355	82	NA	848,000
0.4	1,858,000	0.83	50,000	NA	377	94	NA	700,000
0.5	1,559,000	0.90	45,000	NA	387	96	NA	603,000
0.6	1,286,000	0.98	40,000	NA	405	101	NA	520,000
0.7	976,000	1.09	34,000	NA	430	112	NA	419,000
0.8	749,000	1.19	29,000	NA	435	112	NA	326,000
0.9	570,000	1.30	24,000	NA	441	102	NA	252,000
1.0	418,000	1.43	19,000	NA	445	100	NA	186,000
1.5	109,000	2.19	7,700	NA	411	49	NA	45,000
2.0	66,000	2.51	5,400	NA	352	22	NA	23,000
2.5	26,000	2.99	2,500	NA	336	16	NA	9,000
3.0	14,000	3.30	2,000	NA	259	12	NA	4,000
3.5	2,000	3.92	-	NA	196	10	NA	-
4.0	-	-	-	NA	-	-	NA	-
5.0	-	-	-	NA	-	-	NA	-

Note: inconsistencies between grade, tonnes, and ounces are due to rounding

*Note: Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.

Table 17.32 Morrocoy Indicated Resources
(Including Reserves*)

Morrocoy Indicated (rounded)								
Cutoff (g Au/t)	Tonnes	Gold (g/t)	Gold Ounces	Silver (g/t)	Copper (ppm)	CNSolCu (ppm)	Silver Ounces	Copper Kilograms
0.2	45,135,000	0.56	810,000	NA	317	57	NA	14,299,000
0.4	28,084,000	0.72	652,000	NA	366	65	NA	10,267,000
0.5	22,702,000	0.79	576,000	NA	376	68	NA	8,534,000
0.6	17,934,000	0.85	492,000	NA	391	70	NA	7,005,000
0.7	13,052,000	0.93	391,000	NA	407	75	NA	5,316,000
0.8	8,899,000	1.02	292,000	NA	415	80	NA	3,689,000
0.9	5,822,000	1.11	209,000	NA	421	80	NA	2,448,000
1.0	3,729,000	1.21	145,000	NA	430	76	NA	1,603,000
1.5	363,000	1.92	22,300	NA	397	47	NA	144,000
2.0	92,000	2.60	7,700	NA	389	31	NA	36,000
2.5	48,000	3.00	4,600	NA	353	15	NA	17,000
3.0	24,000	3.28	3,000	NA	381	19	NA	9,000
3.5	7,000	3.66	1,000	NA	261	13	NA	2,000
4.0	-	-	-	NA	-	-	NA	-
5.0	-	-	-	NA	-	-	NA	-

Note: inconsistencies between grade, tonnes, and ounces are due to rounding

*Note: Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.



Table 17.33 Morrocoy Measured and Indicated Resources\
(Including Reserves*)

Moroccoy Measured and Indicated									(rounded)
Cutoff (g Au/t)	Tonnes	Gold (g/t)	Gold Ounces	Silver (g/t)	Copper (ppm)	CNSolCu (ppm)	Silver Ounces	Copper Kilograms	
0.2	47,521,000	0.57	864,000	NA	345	58	NA	15,147,000	
0.4	29,942,000	0.73	701,000	NA	366	67	NA	10,967,000	
0.5	24,260,000	0.80	621,000	NA	377	69	NA	9,137,000	
0.6	19,220,000	0.86	533,000	NA	392	72	NA	7,525,000	
0.7	14,027,000	0.94	425,000	NA	409	78	NA	5,735,000	
0.8	9,648,000	1.03	321,000	NA	416	82	NA	4,014,000	
0.9	6,392,000	1.13	232,000	NA	422	82	NA	2,700,000	
1.0	4,146,000	1.23	165,000	NA	431	78	NA	1,788,000	
1.5	471,000	1.98	30,000	NA	400	47	NA	189,000	
2.0	158,000	2.57	13,100	NA	373	27	NA	59,000	
2.5	74,000	2.99	7,200	NA	347	15	NA	26,000	
3.0	38,000	3.29	4,000	NA	336	17	NA	13,000	
3.5	10,000	3.73	1,000	NA	245	12	NA	2,000	
4.0	-	-	-	NA	-	-	NA	-	
5.0	-	-	-	NA	-	-	NA	-	

Note: inconsistencies between grade, tonnes, and ounces are due to rounding

*Note: Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.

Table 17.34 Morrocoy Inferred Resources
(Including Reserves*)

Moroccoy Inferred									(rounded)
Cutoff (g Au/t)	Tonnes	Gold (g/t)	Gold Ounces	Silver (g/t)	Copper (ppm)	CNSolCu (ppm)	Silver Ounces	Copper Kilograms	
0.2	73,593,000	0.55	1,301,000	NA	316	40	NA	23,278,000	
0.4	45,076,000	0.72	1,038,000	NA	359	42	NA	16,178,000	
0.5	36,480,000	0.78	915,000	NA	365	43	NA	13,319,000	
0.6	28,535,000	0.85	775,000	NA	374	45	NA	10,681,000	
0.7	22,192,000	0.90	644,000	NA	387	45	NA	8,579,000	
0.8	15,492,000	0.97	483,000	NA	401	44	NA	6,215,000	
0.9	8,714,000	1.07	299,000	NA	406	45	NA	3,541,000	
1.0	5,349,000	1.15	198,000	NA	426	49	NA	2,276,000	
1.5	202,000	1.71	11,100	NA	337	41	NA	68,000	
2.0	21,000	2.28	1,500	NA	384	87	NA	8,000	
2.5	5,000	2.81	400	NA	345	-	NA	2,000	
3.0	-	-	-	NA	-	-	NA	-	
3.5	-	-	-	NA	-	-	NA	-	
4.0	-	-	-	NA	-	-	NA	-	
5.0	-	-	-	NA	-	-	NA	-	

Note: inconsistencies between grade, tonnes, and ounces are due to rounding

*Note: Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.



17.13 Cordova Grade Model

17.13.1 Cordova - Assays

The Cordova assay database used for modeling is described in Table 17.35. There are 29,003 samples with gold grades, and 28,134 samples with copper grades in the defined Cordova area. There are some “contaminated” samples but no trench samples in the Cordova database. Capping limits were assessed considering:

- the context of modeled zones, material types,
- grade distribution plot profiles of each metal,
- the affected “contained” metal content,
- the geology, and
- the resulting coefficient of variation (“CV”).

Table 17.35 Descriptive Statistics of the Cordova Assay Database

ALL DATA	Cordova							
	Valid N	Mean	Median	Std. Dev.	CV	Min	Max.	Units
Hole	1,420							
East	29,074					20,804	21,913	m
North	29,074					10,400	11,430	m
Elevation	29,074					(91)	146	m
From	29,074	74.16				0.0	248.0	m
To	29,074	75.08				0.1	249.0	m
Length	29,074	0.92				0.0	16.7	m
Au	29,003	0.42	0.08	4.82	11.60	0.00	617.0	ppm
AuCap	29,003	0.31	0.08	0.94	3.00	0.00	25.0	ppm
Cu	28,134	184	84	897	5	0	62,000	ppm
CuCap	28,134	166	84	415	3	0	11,400	ppm
CuCNA	81	17	5	35	2	5	376	ppm
CuCnCap	81	17	5	35	2	5	376	ppm
CuRatio	81	27	25.00	19	1	3.00	77.0	%
Ag	27,955	0.75	0.30	7.25	9.61	0.00	1070.0	ppm
AgCap	27,955	0.66	0.30	1.34	2.03	0.00	75.2	ppm
CREC	28,355	95	100	10	0.1	0	125	%
RQD	14,808	79	87	22	0.3	0	125	%
MaterialCode	-					0	0	
Zone	29,074					0	99	
Code	29,074					0	0	
Area	29,074					3	3	
Type	29,074					0	9	
Use	29,074					0	0	
DHorTR	29,074					1	1	

The final capping limits are given in Table 17.36. The “contained” metal was reduced by a relatively large 9% in the low-grade primary mineralization. This was necessary because the continuity of high-grades zones or intersections was not sufficient for to define their own zones. Copper capping levels were substantial on the “contained” amount of metal, but the mixed/sulfide saprolite still has a high CV, much of which was caused by the relatively low mean grade. Overall the copper grades are relatively low at Cordova.



Table 17.36 Capping Limits and Assay Statistics at Cordova

Zones	21, 31, 41	Low-sulfide zone			Capped at 7 g/t			
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units
Au	8,799	0.29	0.84	8.45	10.05	0.00	617	g/t
AuCap	8,799	0.29	0.57	0.94	1.64	0.00	7	g/t
Difference in grade		0%	-32%	Difference in metal		-32%		
Zones	22, 32, 42	High-sulfide zone			Capped at 25 g/t			
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units
Au	728	1.21	2.78	6.66	2.40	0.01	88	g/t
AuCap	728	1.21	2.47	4.09	1.66	0.01	25	g/t
Difference in grade		0%	-11%	Difference in metal		-11%		
Zone	8	Overburden			Capped at 3 g/t			
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units
Au	475	0.41	0.69	1.02	1.48	0.02	15	g/t
AuCap	475	0.41	0.63	0.67	1.07	0.02	3	g/t
Difference in grade		0%	-8%	Difference in metal		-8%		
Zone	0	Outside Zones			Capped at 3 g/t			
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units
Au	15,757	0.05	0.14	1.02	7.21	0.00	86	g/t
AuCap	15,757	0.05	0.12	0.27	2.26	0.00	3	g/t
Difference in grade		0%	-16%	Difference in metal		-16%		
Type	1, 2, and 3	Bedrock and Saprock			Capped at 6000 ppm			
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units
Cu	16,379	81	216	1141	5.29	0	62000	ppm
CuCap	16,379	81	187	500	2.67	0	6000	ppm
Difference in grade		0%	-13%	Difference in metal		-13%		
CuCNA	16	52	67	73	1.10	10	376	ppm
CuCnCap	16	52	67	73	1.10	10	376	ppm
CuRatio	16	49	48	24	0.49	4	77	ppm
Type	4, 5	Sulfide and Mixed Saprolite			Capped at 3500 ppm			
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units
Cu	2,516	110	255	588	2.30	0	13050	ppm
CuCap	2,516	110	242	440	1.82	0	3500	ppm
Difference in grade		0%	-5%	Difference in metal		-5%		
CuCNA	1	68	68		NA	68	68	ppm
CuCnCap	1	68	68		NA	68	68	ppm
CuRatio	1	64	64		NA	64	64	ppm
Type	6	Oxide Saprolite			Capped at 7300 ppm			
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units
Cu	11,348	99	126	171	1.35	0	12300	ppm
CuCap	11,348	99	124	132	1.06	0	7300	ppm
Difference in grade		0%	-2%	Difference in metal		-2%		
CuCNA	6,842	5	6	2	0.32	1	9700	ppm
CuCnCap	6,842	5	6	2	0.32	1	9700	ppm
CuRatio	6,795	11	13	10	0.78	0	100	ppm
Type	8	Overburden			Capped at 250 ppm			
	Valid N	Median	Mean	Std. Dev.	CV	Min	Max.	Units
Cu	395	98	116	91	0.78	3	870	ppm
CuCap	395	98	109	60	0.55	3	250	ppm
Difference in grade		0%	-6%	Difference in metal		-6%		
CuCNA	0							ppm
CuCnCap	0							ppm
CuRatio	0							ppm



17.13.2 Cordova - Composites

The same logic and methodology were used in compositing at Cordova as at Conductor and Mesones-Sofia. Composite statistics are given in Table 17.37. As stated in earlier sections:

Gold by zone: After capping, the gold assay sample intervals were composited to six-meter lengths. The gold grades were down-hole composited using geological restrictions for some material types. Pertinent material types were overburden (material type 8) and dikes (material type 9) because there is a discontinuity between both of these and the primary gold mineralization. Both post-date mineralization, and while the dike is barren, the overburden has remobilized, dispersed, and/or re-concentrated gold. Sample data from dikes and overburden were used as hard boundaries for compositing. After compositing, the six-meter composites were coded from the cross-sectional gold zone interpretations. This effectively smoothed out, or “softened”, the hard boundaries. The impact of the hard boundary is further reduced later by weight-averaging the grades of the different zones into a “diluted average gold grade” within each block that straddled these boundaries. This set of composites was used for modeling gold and core recovery and for calculating distances, number of samples, and number of drill holes. Statistics of gold composite statistics are given in Table 17.37.

Copper, copper solubility and silver by material type: After capping, the copper assay sample intervals were composited to six-meter lengths. Material types were used to control down-hole compositing. These composites were not recoded on section as the gold composites were. After compositing, the composites were back coded from the model with the relative elevation of the top of the mixed or sulfide saprolite unit. This relative elevation was used in modeling copper and copper solubility ratios in the saprolite units. Statistics of copper composite statistics are given in Table 17.37.



Table 17.37 Statistics by Zone (Au) and Type (Cu) of Cordova Composites

Zone 31								
Cordova								
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	1457	0.40	0.86	3.43	3.98	0.01	96.68	g Au/t
AuCap	1457	0.40	0.59	0.57	0.96	0.01	5.69	g Au/t
Zone 32								
Cordova								
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	106	1.85	2.49	2.84	1.14	0.05	24.32	g Au/t
AuCap	106	1.82	2.21	1.67	0.76	0.05	10.59	g Au/t
Zone 8								
Cordova								
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	162	0.61	0.73	0.75	1.03	0.02	5.82	g Au/t
AuCap	162	0.61	0.68	0.55	0.81	0.02	2.70	g Au/t
Zone 99								
Cordova								
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Au	2736	0.07	0.15	0.42	2.81	0.00	14.59	g Au/t
AuCap	2736	0.07	0.13	0.18	1.42	0.00	2.43	g Au/t
Type 1, 2, 3								
Cordova								
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Cu	2833	92.0	215.6	553.5	2.6	0.0	26300.0	ppm
CuCap	2833	92	187	294	1.57	0	6000	ppm
CuCN	6	46.50	71.58	82.50	1.15	10.00	232	ppm
CuCNCap	6	47	72	83	1.15	10	232	ppm
Ratio	6	46	35	27	0.75	4	66	%
Type 4, 5								
Cordova								
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Cu	503	125.0	255.5	390.0	1.5	0.0	3818.0	ppm
CuCap	503	125	242	319	1.32	0	2539	ppm
CuCN	1	68.00	68.00		NA	68.00	68	ppm
CuCNCap	1	68	68		NA	68	68	ppm
Ratio	1	64	64		NA	64	64	%
Type 6								
Cordova								
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Cu	1033	103.5	126.6	121.3	1.0	0.0	1498.0	ppm
CuCap	1033	104	124	106	0.85	0	1012	ppm
CuCN	11	5.00	5.50	1.51	0.27	5.00	10	ppm
CuCNCap	11	5	5	2	0.27	5	10	ppm
Ratio	11	12	12	7	0.61	3	28	%
Type 8								
Cordova								
	Valid N	Median	Mean	Std.Dev.	CV	Minimum	Maximum	Units
Cu	146	91.5	115.9	67.3	0.6	15.0	387.0	ppm
CuCap	146	91	109	52	0.48	15	246	ppm
CuCN	0				NA			ppm
CuCNCap	0				NA			ppm
Ratio	0				NA			%

17.14 Cordova – Geostatistics and Estimation

MDA calculated variograms and correlograms at varying lags, cutoffs, azimuths and dips for combined zones for Cordova. Variograms parallel to the dominant mineralization-controlling geological fabric were used, namely 315° azimuth with a dip azimuth of 225° and dip of -60°. The variograms were



calculated on composites of gold and copper, but not CN-soluble ratio or silver, since there were few to no values of the latter two.

Ordinary Kriging was used for gold, copper and CNSC-to-total-copper ratio estimation (Appendix B). As at Conductor, gold distribution has not been materially affected by weathering processes, except in the alluvium. Consequently, gold was modeled in gold domains that crossed the bedrock and saprolite contacts, but stopped at the overburden and dike contacts.

MDA classified the resource by a combination of distance to the nearest sample, the number of samples used to estimate a block, the geological understanding and predictability of the resources, and the quality of the drill samples used, *i.e.*, core recovery. As gold is the dominant metal from a value standpoint and Crystallex has no mining rights to the copper, all blocks were classified based on gold (Table 17.38). The ranges used for resource classification were chosen based on an average of the directional gold variogram ranges. A typical Section of the Cordova gold model is given in Figure 17.4.

Table 17.38 Criteria for Classification of Cordova Resources

Class*	Distance*	Min. No. of Samples	Min. No. Drill Holes
Measured	None	NA	NA
Indicated	None	NA	NA
Inferred	0 to 80 m	1	1

* See text in next paragraph for explanation; all overburden is classified as Inferred.

MDA modified the distances used for classification by the percent core recovery. It was shown in an earlier section of this report that core recovery affects gold and copper grades and introduces a bias in the saprolite. The lower core recovery decreases confidence in the results and therefore is introduced into the definition of Measured, Indicated, and Inferred. MDA modified the distance between the closest sample and the model block by the following relationship:

- Estimated core recovery between 80% and 100%, no factor;
- Estimated core recovery between 60% and 80%, distance multiplied by 1.1; and
- Estimated core recovery below 60%, distance multiplied by 1.2.

The modified distance was used for the classification scheme given in Table 17.38. Essentially, those blocks with estimated lower core recovery were downgraded in classification. The classification and the estimation described above resulted in only Inferred resources at Cordova (Table 17.39).



Table 17.39 Cordova Inferred Resources
(Including Reserves*)

Cordova/Hoffman Inferred								
Cutoff	Tonnes	Gold	Gold	Silver	Copper	CNSolCu	Silver	Copper
(g Au/t)		(g/t)	Ounces	(g/t)	(ppm)	(ppm)	Ounces	Kilograms
0.2	110,221,000	0.50	1,758,000	NA	235	NA	NA	25,880,000
0.4	56,100,000	0.71	1,272,000	NA	296	NA	NA	16,622,000
0.5	39,555,000	0.81	1,035,000	NA	317	NA	NA	12,551,000
0.6	27,883,000	0.93	831,000	NA	346	NA	NA	9,650,000
0.7	19,379,000	1.05	656,000	NA	370	NA	NA	7,163,000
0.8	13,033,000	1.20	504,000	NA	406	NA	NA	5,285,000
0.9	8,884,000	1.37	392,000	NA	434	NA	NA	3,856,000
1.0	6,478,000	1.53	319,000	NA	450	NA	NA	2,914,000
1.5	1,570,000	2.72	137,100	NA	531	NA	NA	833,000
2.0	827,000	3.62	96,200	NA	570	NA	NA	471,000
2.5	490,000	4.57	72,100	NA	645	NA	NA	316,000
3.0	311,000	5.63	56,000	NA	643	NA	NA	200,000
3.5	222,000	6.61	47,000	NA	609	NA	NA	135,000
4.0	170,000	7.49	41,000	NA	616	NA	NA	105,000
5.0	108,000	9.23	32,000	NA	589	NA	NA	64,000

Note: inconsistencies between grade, tonnes, and ounces are due to rounding

*Note: Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.



17.15 Total Resources of Las Cristinas Project

The total Las Cristinas resource is given in Table 17.40 to Table 17.43. Significant increases have occurred since the previous resource update in 2005. These increases are the result of drilling that expanded Conductor-Cuatro Muertos down dip, drilling that expanded and allowed for inclusion of Morrocoy, and the first-time inclusion of Cordova resources.

Table 17.40 Las Cristinas Total Measured Resources
(Including Reserves*)

Las Cristinas Measured									(rounded)
Cutoff (g Au/t)	Tonnes	Gold (g/t)	Gold Ounces	Silver (g/t)	Copper (ppm)	CNSolCu (ppm)	Silver Ounces	Copper Kilograms	
0.2	213,607,000	0.90	6,190,000	0.51	1,119	163	3,535,000	233,170,000	
0.4	176,444,000	1.02	5,812,000	0.54	1,162	179	3,051,000	205,073,000	
0.5	146,141,000	1.14	5,380,000	0.56	1,222	193	2,617,000	178,643,000	
0.6	118,806,000	1.28	4,903,000	0.58	1,292	211	2,202,000	153,554,000	
0.7	98,523,000	1.42	4,485,000	0.60	1,354	227	1,885,000	133,432,000	
0.8	83,674,000	1.53	4,129,000	0.61	1,402	242	1,640,000	117,303,000	
0.9	73,560,000	1.63	3,855,000	0.62	1,438	255	1,465,000	105,770,000	
1.0	66,061,000	1.71	3,628,000	0.63	1,467	264	1,334,000	96,904,000	
1.5	38,124,000	2.05	2,512,200	0.66	1,567	313	811,400	59,744,000	
2.0	15,852,000	2.51	1,278,000	0.71	1,784	425	360,800	28,277,000	
2.5	5,694,000	3.05	559,000	0.76	2,079	568	138,900	11,835,000	
3.0	2,246,000	3.59	259,000	0.83	2,474	741	60,000	5,555,000	
3.5	887,000	4.18	119,000	0.89	3,010	864	26,000	2,671,000	
4.0	389,000	4.77	60,000	0.93	3,683	1,030	12,000	1,434,000	
5.0	92,000	6.06	18,000	0.86	4,048	632	3,000	372,000	

Note: inconsistencies between grade, tonnes, and ounces are due to rounding

*Note: Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.



Table 17.41 Las Cristinas Total Indicated Resources
(Including Reserves*)

Las Cristinas Indicated									(rounded)
Cutoff (g Au/t)	Tonnes	Gold (g/t)	Gold Ounces	Silver (g/t)	Copper (ppm)	CNSoICu (ppm)	Silver Ounces	Copper Kilograms	
0.2	954,888,000	0.66	20,387,000	0.43	991	109	13,078,000	883,581,000	
0.4	617,674,000	0.87	17,297,000	0.45	1,041	124	8,875,000	643,224,000	
0.5	483,242,000	0.99	15,381,000	0.46	1,092	130	7,138,000	527,700,000	
0.6	374,292,000	1.12	13,474,000	0.47	1,142	138	5,639,000	427,384,000	
0.7	288,197,000	1.26	11,692,000	0.48	1,198	146	4,437,000	345,249,000	
0.8	228,567,000	1.40	10,271,000	0.49	1,238	153	3,579,000	283,042,000	
0.9	188,062,000	1.52	9,176,000	0.49	1,269	159	2,993,000	238,588,000	
1.0	160,762,000	1.62	8,348,000	0.50	1,290	164	2,594,000	207,368,000	
1.5	82,225,000	1.99	5,257,000	0.52	1,363	184	1,379,200	112,072,000	
2.0	31,194,000	2.42	2,432,000	0.54	1,467	233	536,900	45,765,000	
2.5	9,931,000	2.91	930,000	0.56	1,634	342	179,900	16,228,000	
3.0	2,933,000	3.40	320,000	0.61	1,845	440	57,000	5,412,000	
3.5	763,000	4.01	98,000	0.71	2,374	588	17,000	1,811,000	
4.0	244,000	4.70	37,000	0.80	3,027	744	6,000	737,000	
5.0	66,000	5.81	12,000	0.57	3,075	332	1,000	202,000	

Note: inconsistencies between grade, tonnes, and ounces are due to rounding

*Note: Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.



Table 17.42 Las Cristinas Total Measured and Indicated Resources\
(Including Reserves*)

Las Cristinas Measured and Indicated									(rounded)
Cutoff (g Au/t)	Tonnes	Gold (g/t)	Gold Ounces	Silver (g/t)	Copper (ppm)	CNSolCu (ppm)	Silver Ounces	Copper Kilograms	
0.2	1,168,496,000	0.71	26,578,000	0.44	1,017	119	16,613,000	1,116,751,000	
0.4	794,119,000	0.91	23,109,000	0.47	1,068	136	11,926,000	848,297,000	
0.5	629,383,000	1.03	20,761,000	0.48	1,122	145	9,755,000	706,343,000	
0.6	493,098,000	1.16	18,377,000	0.49	1,178	155	7,841,000	580,939,000	
0.7	386,720,000	1.30	16,177,000	0.51	1,238	167	6,322,000	478,680,000	
0.8	312,241,000	1.43	14,400,000	0.52	1,282	177	5,219,000	400,345,000	
0.9	261,622,000	1.55	13,032,000	0.53	1,316	186	4,458,000	344,359,000	
1.0	226,823,000	1.64	11,977,000	0.54	1,341	193	3,928,000	304,272,000	
1.5	120,348,000	2.01	7,769,200	0.57	1,428	225	2,190,700	171,816,000	
2.0	47,045,000	2.45	3,709,900	0.59	1,574	298	897,700	74,042,000	
2.5	15,625,000	2.96	1,488,900	0.63	1,796	424	318,800	28,063,000	
3.0	5,178,000	3.48	579,000	0.70	2,118	570	117,000	10,967,000	
3.5	1,650,000	4.10	218,000	0.81	2,716	736	43,000	4,482,000	
4.0	633,000	4.74	96,000	0.88	3,430	920	18,000	2,171,000	
5.0	158,000	5.96	30,000	0.74	3,642	507	4,000	574,000	

Note: inconsistencies between grade, tonnes, and ounces are due to rounding

*Note: Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.

Table 17.43 Las Cristinas Total Inferred Resources
(Including Reserves*)

Las Cristinas Inferred									(rounded)
Cutoff (g Au/t)	Tonnes	Gold (g/t)	Gold Ounces	Silver (g/t)	Copper (ppm)	CNSolCu (ppm)	Silver Ounces	Copper Kilograms	
0.2	626,333,000	0.51	10,334,000	0.29	666	54	5,869,000	398,760,000	
0.4	322,410,000	0.73	7,594,000	0.29	680	54	3,051,000	219,361,000	
0.5	229,626,000	0.85	6,276,000	0.30	691	52	2,206,000	158,773,000	
0.6	167,940,000	0.96	5,194,000	0.30	707	50	1,641,000	118,772,000	
0.7	121,631,000	1.08	4,240,000	0.31	721	48	1,219,000	87,746,000	
0.8	89,339,000	1.21	3,467,000	0.33	748	46	954,000	66,848,000	
0.9	64,278,000	1.35	2,788,000	0.37	783	45	758,000	50,337,000	
1.0	49,247,000	1.47	2,334,000	0.39	815	44	617,000	40,115,000	
1.5	17,659,000	1.98	1,126,700	0.48	918	43	270,700	16,215,000	
2.0	5,718,000	2.53	464,900	0.42	918	46	78,100	5,247,000	
2.5	1,636,000	3.37	177,300	0.30	880	46	15,600	1,439,000	
3.0	548,000	4.72	83,000	0.21	765	30	4,000	419,000	
3.5	288,000	6.07	56,000	0.15	687	24	1,000	198,000	
4.0	192,000	7.25	45,000	0.04	672	6	-	129,000	
5.0	122,000	8.82	35,000	0.05	649	7	-	79,000	

Note: inconsistencies between grade, tonnes, and ounces are due to rounding

*Note: Mineral Resources which are not Mineral Reserves do not have demonstrated economic viability.



17.16 Resource Estimate Checking and Changes over Time

Since the first estimate made of the Las Cristinas deposit resources by Crystallex (Ristorcelli and Hardy, 2003), numerous efforts have been made validating and modifying the modeling procedures used; also extensive work has been done on sample variability and heterogeneity as described in Section 14.0. The modeling checks included simple polygonal estimates, independent reviews contracted by Crystallex (Thalenhorst, 2005) and MDA (Sandefur, 2004), multiple iterations assessing sensitivity to estimation procedures (Ristorcelli, 2004a), and comparisons of the model to post-modeling drill-hole data (Ristorcelli and Hardy, 2004b). Importantly and most convincingly, all new drilling done in 2004 (18 holes), 2005 (14 holes), and 2006-2007 (46 holes) supported the model in that the defined zones needed little modification even at a drill-hole spacing of over 100m, *i.e.*, the high-grade/high-sulfide and low-grade/low-sulfide zone gradational contacts needed only minor changes to fit the new drill holes. This fact is a testament to the predictability of the Las Cristinas deposit in general, but Conductor particularly, where most of the drilling took place.

Summaries of the various studies follow:

Ristorcelli and Hardy (2004a) stated that MDA “checked the modeling procedures and parameters and the model results. The model was checked for bias against the composites from which they were estimated. Multiple runs were made to assess sensitivity to modeling parameters. An independent geostatistician was commissioned to perform an independent review of the modeling procedures. In the end, very few changes were made to the estimation procedures.”

Ristorcelli and Hardy (2004b) concluded that the grade differences between the 2003 drilling completed after modeling and the model could be a result of the Crystallex drill core being smaller than Placer’s. They stated:

- “The sometimes large differences in mean grades between individual drill holes and the model is a result of the wide-spaced drilling in the deeper parts of the model and partly due to high local variability in the deposit (or our perception of the variability of the deposit which may be a function of the sample size, sub-sampling procedures and the heterogeneity) and/or the effect of smoothing during estimation;
- Local grade variability is high; and
- Large differences in grade exist in the background and sub-ore grade cutoff mineralization lying outside of the defined mineralized zones.

The high variance between individual drill holes and the model is more common in the down dip Inferred areas (2004 drilling) though it is still high in the area of twin hole drilling (2003), even where the drill spacing is considered tight at 40m centers. As evidenced by this comparison and the variograms calculated for the gold mineralization, local variability cannot be estimated with any certainty from the existing data. In spite of this last statement, the 2004 drilling intersected the high-grade and low-grade zones where they were predicted to be.”

MDA requested a check on its estimation procedures by independent geostatistician, Mr. Robert Sandefur. Sandefur (2004) reviewed MDA’s capping levels and estimation parameters, calculated variograms, and performed cross validation. The following is a summary of these reviews:



Capping: Mr. Sandefur concurred with the capping levels used by MDA, which were 40 g Au/t in the high-grade and 7 g Au/t in the low grade, and Mr. Sandefur suggested they might be conservative.

Estimation: The estimation procedures and run files are acceptable and utilize “standard industry practices.”

Variograms: Mr. Sandefur’s calculated variograms provided similar results to MDA’s in the ranges, nuggets and sills.

Cross validation: His review suggested that the high-grade zone was behaving well, while the low-grade zone seems to be overstating its higher grades (plus one gram gold per tonne).

Risk assessment on mean grade: Sandefur made a brief assessment of the risk of mean grades based on existing composited sample grades. He noted that “*On balance, RLS [Mr. Robert L. Sandefur] believes that contained ounces for profit are within + or - 6% for the above cutoff [0.5 g Au/t] blocks estimated from the above noted composites.*” Sandefur goes on to state that “*This plus or minus a 6% is of the same order as the bias between various core sizes and so probably is not a great concern. However, on annual bases the fluctuation in contained ounces may be beyond the acceptable plus or -15%.*” MDA believes that this may, in part, be due to the heterogeneity of the deposit which has since been studied.

Mr. Sandefur’s criticisms included the “chopping up” of a good log-normal distribution into two not so well-behaved log-normal distributions. MDA felt that distinguishing these two zones is a preferred method for estimation, in part because the deeper parts of the deposit have insufficient drilling to control the estimate. Furthermore, though not defined by hard contacts, Conductor does have higher-grade zones which are recognizable macroscopically as containing higher concentrations of sulfides. The fact is that these same higher-grade zones were also predictable with the model.

Thalenhurst (2005) made the following more significant observations during his review of the estimates and the concepts that have been followed for the Las Cristinas resource modeling:

“1. Parts of the Las Cristinas deposit have a low gold-grade bias due to the occurrence of the gold in clusters that are not adequately sampled even with sampling one half of the relatively large diameter PQ core (85 mm). Conversely, core losses appear to result in the recovered core having a high gold-grade bias in the saprolite, and while extreme cases of core loss have been removed from the database, there remains an unquantified residual high bias in the current gold grades used for resource estimation in the saprolite. The size of either of the two biases cannot currently be quantified, but at least they are in opposite directions.

2. There is a question of whether sufficient dilution has been built into the grade model. We have a sense that an appropriate allowance has been incorporated for the upper part of the deposit that will be mined on six-meter benches in the early years, but there may be a risk of “losing” grade in the lower part of the deposit that will be mined on twelve-meter benches, but which received the same treatment during grade modelling as the closerspaced benches in the upper levels of the deposit.



3. Grade control will be a considerable challenge in those parts of the deposit where the gold cut-off grade is close to the average grade — affecting perhaps 80% of the reserve tonnage. Incorrect classification of either ore or waste is a lose-lose proposition, and an appropriate but somewhat costly sample collection, preparation and assaying protocol as recommended in the recent heterogeneity study is required to keep the grade control errors to a minimum.

The grade control question is complicated in the sulfide saprolite (SAPS) and to a lesser degree in the saprock (SAPR) materials by the lack of accuracy with respect to the grade interpolation of the cyanide-soluble copper in the current resource model on a local scale, a key determinant for the gold cut-off grade in those zones. Successful grade control that minimizes incorrect classification will require early and reliable gold assay grades based on large samples from reverse circulation drill holes with a 1000-gram gold assay aliquot subjected to screen metallicity assaying. In addition, reliable cyanide-soluble copper assays will be required in the sulfide-stable saprolite rock types...

Other than the foregoing observations for consideration, our review of the Las Cristinas resource and reserve estimates did not identify any issues that might have a significant impact on those estimates. The mineral reserves for the Las Cristinas deposit that have been estimated by MDA, and classified as proven and probable reserves, with a total of 295 million tonnes with a gold grade of 1.3 grams per tonne (g/t) for a contained gold content of 12.5 million ounces are a reasonable estimate for the Las Cristinas project based on the data available to date and the economic parameters used in preparing the estimates.”

Considering the studies that took place to validate and check the model, the following items were changed from the 2003 block model estimate (Ristorcelli and Hardy, 2004b):

- In the areas outside the defined mineralized zones, MDA restricted the projection of high grades by limiting the search distances to eight meters for grades above a cutoff. This cutoff was decreased from 2.0 g Au/t in the 2003 estimate to 1.0 g Au/t in this estimate.
- Capping was dropped to 40 g Au/t from 41 g Au/t in the high-grade zone.
- Search distances for composites over 5 g Au/t in the low-grade zone were reduced to 80% of the total search, and search distances for composites over 20 g Au/t in the high-grade zone were also reduced to 80% of the total search distance. The search distances range from 50m to 200m depending upon the zone.
- MDA also capped outliers in four holes which were causing local overestimates.

Changes were made during this last update in resource classification including the dropping of all material from Measured and Indicated to Inferred for those blocks that are at or within six meters of the surface or that have 80% or more of the block estimated to be overburden. Simultaneously, the classification of Measured in the Conductor deposit has been increased from 15m to the nearest sample to 20m. As in all estimates, as more information becomes available, additional modifications may be warranted.



17.17 Mineral Reserve Estimates

Mineral reserves for the Las Cristinas project were developed by applying relevant economic criteria in order to define the economically extractable portions of the MDA resource model. MDA developed the reserves for Las Cristinas to meet the NI 43-101 standards set for mineral reserves. The NI 43-101 standard uses the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) Definition Standards on Mineral Resources and Mineral Reserves (“CIM Definition Standards”) adopted by the CIM Council on November 14, 2004:

Mineral Reserve

Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proven Mineral Reserves. A Probable Mineral Reserve has a lower level of confidence than a Proven Mineral Reserve.

A ‘Mineral Reserve’ is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.

Mineral Reserves are those parts of Mineral Resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of the Qualified Person(s) making the estimates, is the basis of an economically viable project after taking account of all relevant processing, metallurgical, economic, marketing, legal, environment, socio-economic and government factors. Mineral Reserves are inclusive of diluting material that will be mined in conjunction with the Mineral Reserves and delivered to the treatment plant or equivalent facility. The term ‘Mineral Reserve’ need not necessarily signify that extraction facilities are in place or operative or that all governmental approvals have been received. It does signify that there are reasonable expectations of such approvals.

Probable Mineral Reserve

A ‘Probable Mineral Reserve’ is the economically mineable part of an Indicated, and in some circumstances a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.

Proven Mineral Reserve

A ‘Proven Mineral Reserve’ is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.



Application of the Proven Mineral Reserve category implies that the Qualified Person has the highest degree of confidence in the estimate with the consequent expectation in the minds of the readers of the report. The term should be restricted to that part of the deposit where production planning is taking place and for which any variation in the estimate would not significantly affect potential economic viability.

The economic and design criteria used in determining the reserves in this report were derived from the 2003 Technical Report (Ristorcelli and Hardy, 2003) and the 2005 Development Plan (SNC-Lavalin, 2005a). MDA believes that there is enough information in this feasibility study and update concerning the appropriate mining, processing, economic and other factors to support Proven and Probable reserves. The work undertaken by MDA in 2007 consisted of updating mining costs using factors and estimates provided by Crystallex, developing Lerchs-Grossmann (“LG”) ultimate pits using current economics, redesigning the ultimate pits, and reporting reserves. Because the updated economic data have not been rigorously verified by MDA, the 2007 work should be considered pre-feasibility level.

As noted in the 2003 study, Crystallex does not yet have the right to retain profits from the extracted copper. Crystallex’s legal opinion states: “Therefore, under this scenario Crystallex would not be entitled to profit from the extracted copper, but to recover the expenses it incurred on its extraction that are fully demonstrated in the proceedings.” Because of this, copper is not included in the reserve. There is no mention of silver revenue, so it has been excluded from the reserve as well.

17.17.1 Applied Methodologies

The Las Cristinas reserves were derived from the resource model built by MDA. MDA used Medsystem/MineSight® computer software to develop and report the reserves using the following procedure:

1. Review and update parameters and economics from the 2005 update;
2. Using these inputs, generate multiple “pit shells” with Medsystem’s Lerchs-Grossmann (“LG”) ultimate pit program;
3. Design interior pits and a final (ultimate) pit using the pit shells as guides. This design includes haul roads and eliminates any areas that could not be mined because of practical mining limitations;
4. Tabulate Measured and Indicated resources inside the designed pit that meet the economic criteria for reserve classification and reporting as Proven and Probable reserves, respectively; and
5. Check and compare overall economic results.

17.17.2 Pit Design Parameters

Economic parameters used to develop the LG pit shells and cutoff grades are listed in Table 17.44. Table 17.45 is a summary of the physical parameters that were used to define the LG ultimate pit and ultimate pit design.



Table 17.44 Economic Parameters

Value	Description	Units
\$ 550	Gold price	\$/oz
\$ 1.36	Bedrock Mining Cost	\$/DMT
\$ 1.36	Saprolite Mining Cost	\$/DMT
\$ 6.12	Bedrock Processing Cost	\$/DMT Ore
\$ 3.15	Saprolite Processing Cost	\$/DMT Ore
\$ 5.29	Saprolite Sulfide Processing Cost *	\$/DMT Ore
\$ 0.72	General and Administration Cost	\$/DMT Ore
98.50%	Dore Refinery Recovery	%
\$ 1.50	Gold Refining Cost	\$/oz
3%	Excise Tax	%
Gold Recovery by Material		
87.6%	Carbonate Bedrock	
86.8%	Saprolite Sulfide	
98.0%	Saprolite Oxide	
GSR Royalty	Gold Price Range	
1.00%	\$AU < \$280	
1.50%	\$280 <= \$AU < \$350	
2.00%	\$350 <= \$AU < \$400	
3.00%	\$400 <= \$AU	

*Saprolite sulfide process cost = 0.0036440 * Soluble Cyanide Cu% + 2.9150

Table 17.45 Physical Parameters

Physical Parameters	
1.56 - 2.79	Specific Gravity (Varies by Material)
6m	Saprolite Mining Bench Height
12m	Bedrock Mining Bench Height
30m	Road Width
10%	Maximum Road Grade
31°	Overall Slope in Saprolite
55°	Overall Slope in CSB west & south walls
45°	Overall Slope in CSB east wall
45°	Overall Slope in CLB

17.17.3 Dilution

MDA believes that the combination of Kriging, model block size, and averaging of grades across multiple zones during the modeling and the compositing processes adequately accounts for dilution in the reserve. In addition, the anticipated mining equipment is small enough to selectively mine individual blocks smaller than the 12m by 12m block size.

Nevertheless, it will be necessary to practice detailed grade control in some areas of the deposit. Specifically, mining at the oxide-sulfide boundary in saprolite needs to be controlled to avoid mixing of the two material types going to the plant. The oxide sulfide boundary is essentially sub-horizontal, and



mining benches will more often than not include both oxide and sulfide. There is a noticeable color change between these two material types, which can be used as a guide.

17.17.4 Lerchs-Grossman Pits

The LG-pit-design program is used to define pit shells that represent material that can be mined at a profit based on varied economics. For this process, the gold price was varied to determine the deposit's sensitivity to gold price, and the resulting pit shells were used as a basis for pit design. Gold prices used ranged from \$150 to \$800 in \$25 increments. Table 17.46 shows the resulting tonnes, grade, and contained ounces within the various LG pits. This is also illustrated in the graph of Figure 17.6.

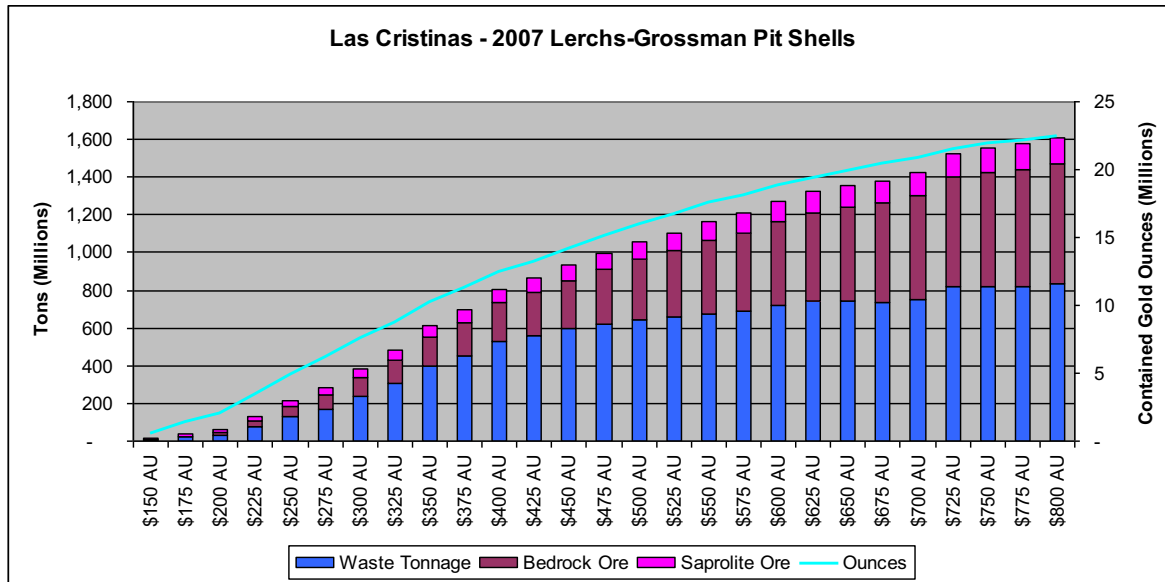
Table 17.46 Lerchs-Grossman Results by Gold Price

	Total Ore					Total Tons	Strip Ratio
	Tonnes	gAu/t	Grams Au	Ounces Au	Total		
\$150 AU	8,231	1.99	16,420	528	5,538	13,769	0.67
\$175 AU	20,721	2.00	41,427	1,332	19,719	40,440	0.95
\$200 AU	32,395	1.92	62,060	1,995	31,497	63,892	0.97
\$225 AU	58,200	1.82	105,974	3,407	73,987	132,187	1.27
\$250 AU	87,848	1.75	153,644	4,940	127,843	215,691	1.46
\$275 AU	114,512	1.67	191,386	6,153	171,349	285,861	1.50
\$300 AU	145,552	1.61	234,338	7,534	238,396	383,948	1.64
\$325 AU	175,807	1.55	272,861	8,773	303,166	478,973	1.72
\$350 AU	211,507	1.50	318,276	10,233	400,250	611,757	1.89
\$375 AU	241,308	1.45	350,344	11,264	454,521	695,829	1.88
\$400 AU	274,672	1.41	386,458	12,425	530,656	805,328	1.93
\$425 AU	303,179	1.36	411,539	13,231	560,721	863,900	1.85
\$450 AU	337,483	1.30	440,324	14,157	595,230	932,713	1.76
\$475 AU	377,081	1.25	470,307	15,121	619,295	996,376	1.64
\$500 AU	414,202	1.20	496,952	15,977	643,481	1,057,683	1.55
\$525 AU	448,022	1.16	520,125	16,722	657,779	1,105,801	1.47
\$550 AU	488,717	1.12	546,302	17,564	677,206	1,165,923	1.39
\$575 AU	516,678	1.09	563,628	18,121	689,882	1,206,560	1.34
\$600 AU	552,301	1.06	585,539	18,825	719,693	1,271,994	1.30
\$625 AU	583,684	1.03	603,870	19,415	741,540	1,325,224	1.27
\$650 AU	613,716	1.01	619,395	19,914	740,788	1,354,504	1.21
\$675 AU	643,107	0.99	633,918	20,381	739,052	1,382,159	1.15
\$700 AU	675,300	0.96	650,031	20,899	750,457	1,425,757	1.11
\$725 AU	706,334	0.95	668,410	21,490	819,905	1,526,239	1.16
\$750 AU	734,797	0.93	681,294	21,904	818,640	1,553,437	1.11
\$775 AU	753,877	0.91	689,355	22,163	820,572	1,574,449	1.09
\$800 AU	773,744	0.90	698,404	22,454	835,127	1,608,871	1.08

Note: All tonnes, grams, and ounces are in Thousands



Figure 17.6 Lerchs-Grossmann Pits Graph



17.17.5 Ultimate Pit Design

The ultimate pit was designed to allow ramp access for haulage and equipment as well as to incorporate catch benches for safe operations. This ultimate design was based on the \$550 gold-price LG pit that was used as a template during the design process. Starting and ending points are designated for ramp access, and the pit is smoothed to provide realistic mining shapes and maintain geotechnically sound walls. The ultimate pit design is shown in Figure 17.7.

Pit-slope angles and dump designs were based on work done and summarized in SNC-Lavalin (2004c). Additional work was done during 2005, the results of which indicate that the south-wall slopes could be increased to the same angles as the west wall. Because of the increased depth of the 2007 designed ultimate pit, a review of the slope angles was undertaken by Ms. Ljiljana Josic (Appendix C). The existing slope parameters as prescribed in SNC-Lavalin (2004) were found to be acceptable, as described in the report by Josic (2007) (Appendix C).

The west wall in carbonate-stable bedrock has a steeper overall angle (55°) than the east wall (45°) due to the westward dip of the foliation. All of the recommended slope angles are based on using appropriate controlled-blasting techniques and dewatering the pit walls.

The east wall of the pit follows the dip of the mineralization closely, resulting in an overall slope angle of 40° to 45° in the bedrock. This is the only location where the pit slope angles are not designed at the recommended maximum. The design shows a constant elevation for the slope change between leached bedrock and saprolite, which is accompanied by an extra-wide catch bench. The bedrock-saprolite contact elevation varies, and it will be necessary to adjust slope-angle changes in detailed pit designs to reflect the elevation changes of the contact. The wide bench acts as a catch bench to contain any material that may slough from the saprolite faces.



Due to the physical location of the deposit relative to the plant and the area available for waste dumps, the entrances to the pits are on the west side. Ramp grades are 10%, and ramp widths are 30m.

17.17.6 Cutoff Grades

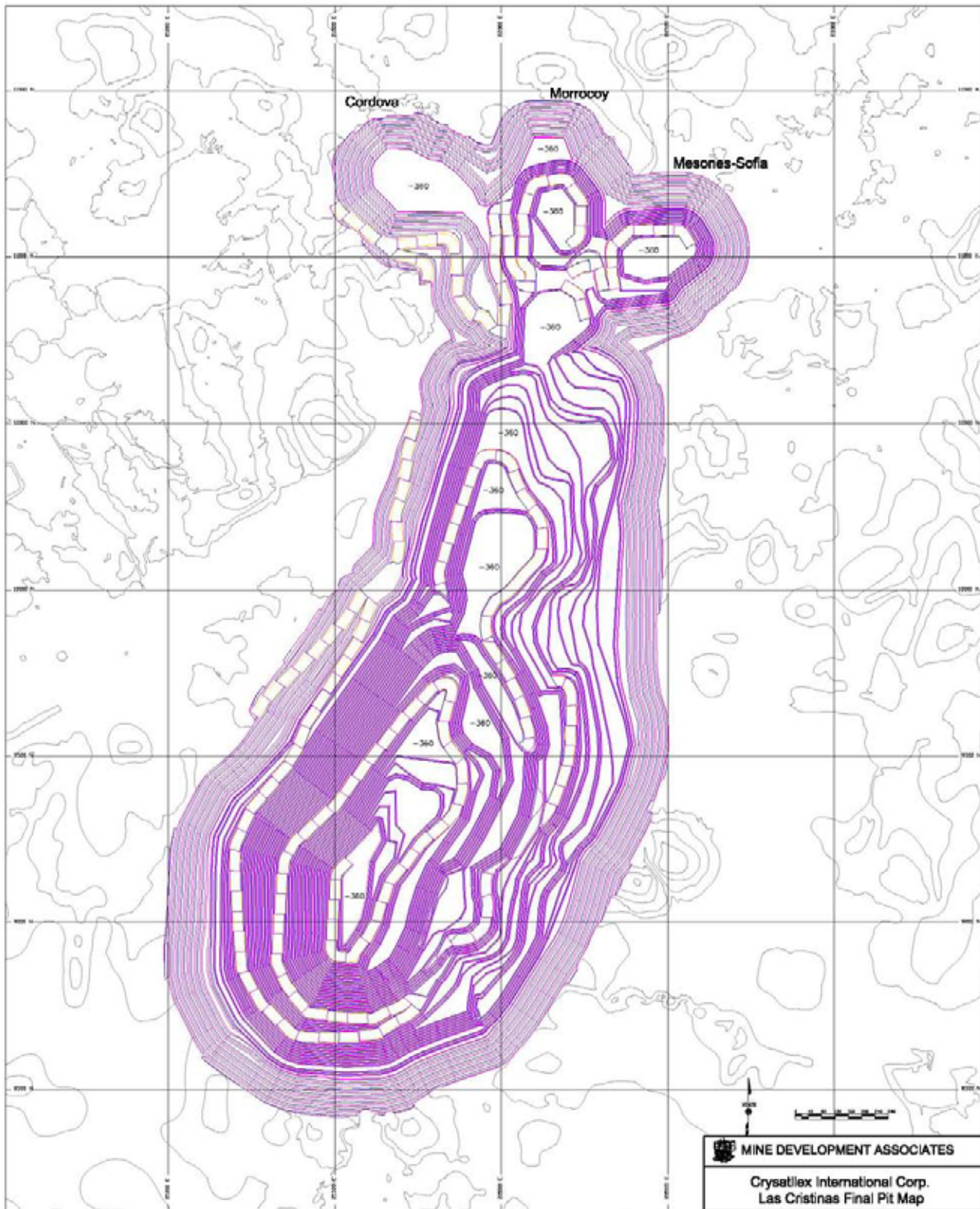
Reserves are based on break-even economics on a block-by-block basis for those blocks falling within the ultimate pit design. This is done to account for the differences in costs and recoveries between material types and the variability of cutoff grades within the saprolite sulfide material varying with soluble copper grade. Gold cutoff grades for the deposits have been calculated considering the average soluble-copper content for the saprolite sulfide and are listed in Table 17.47.

Table 17.47 Gold Cutoff Grades

<i>Material</i>	<i>Cutoff (gAu/t)</i>
<i>Saprolite Oxide</i>	<i>0.33</i>
<i>Saprolite Sulfide</i>	<i>0.52</i>
<i>Bedrock</i>	<i>0.57</i>



Figure 17.7 Ultimate Pit Design





17.17.7 Mineral Reserve Estimate

The mineral reserve estimate has been detailed by material type and is given in Table 17.48.

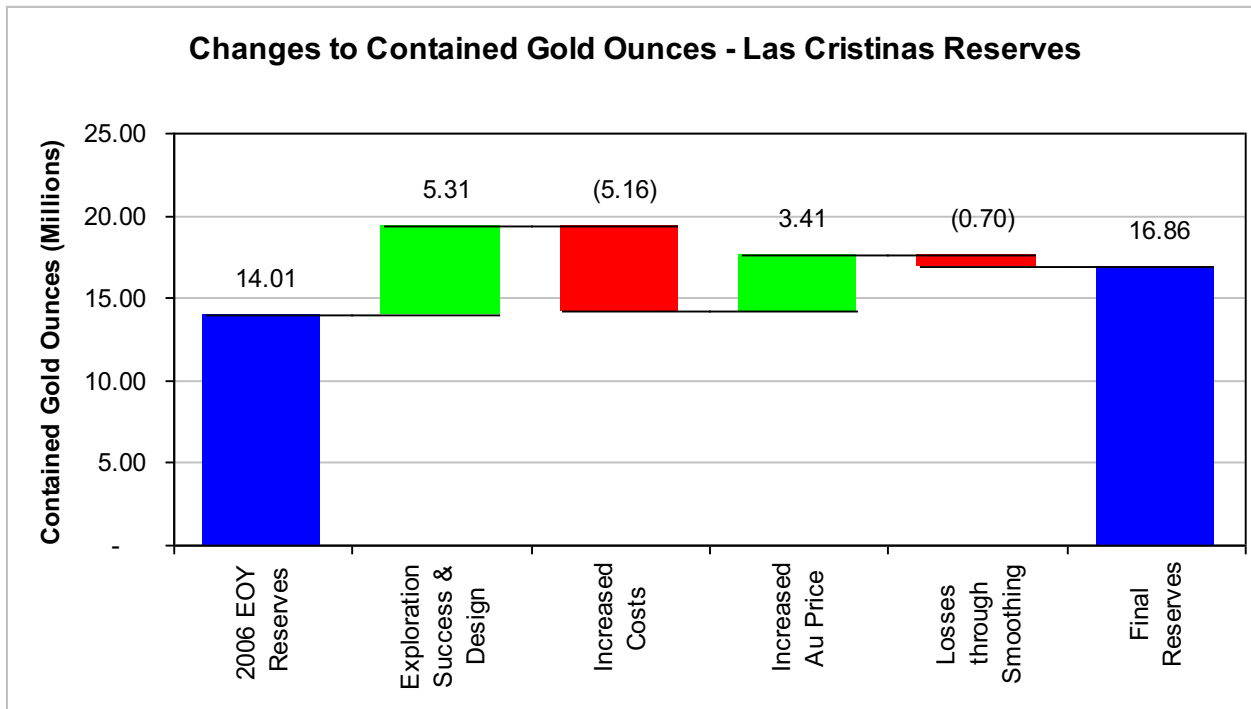
Table 17.48 Las Cristinas Gold Reserve Estimate

Summary of Proven Reserves (Tonnes, Grams, and Ozs in Thousands)							
	Total Ore				Total Waste	Total Tonnes	Strip Ratio
	Tonnes	gAu/t	Grams Au	Ounces Au			
Conductora	112,761	1.24	139,423	4,483			
Mesones/Sofia	-	-	-	-			
Morrocroy	-	-	-	-			
Total Proven	112,761	1.24	139,423	4,483			
Summary of Probable Reserves (Tonnes, Grams, and Ozs in Thousands)							
	Total Ore				Total Waste	Total Tonnes	Strip Ratio
	Tonnes	gAu/t	Grams Au	Ounces Au			
Conductora	317,662	1.10	349,906	11,250			
Mesones/Sofia	27,556	1.10	30,216	971			
Morrocroy	6,383	0.77	4,910	158			
Total Probable	351,601	1.10	385,032	12,379			
Summary of Proven & Probable Reserves (Tonnes, Grams, and Ozs in Thousands)							
	Total Ore				Total Waste	Total Tonnes	Strip Ratio
	Tonnes	gAu/t	Grams Au	Ounces Au			
Conductora	430,423	1.14	489,329	15,732	595,380	1,025,803	1.38
Mesones/Sofia	27,556	1.10	30,216	971	34,624	62,180	1.26
Morrocroy	6,383	0.77	4,910	158	9,915	16,298	1.55
Total Probable	464,362	1.13	524,455	16,862	639,919	1,104,281	1.38

Significant changes to Las Cristinas Proven and Probable contained-ounces changes from 2006 end-of-year reserves are illustrated in the waterfall chart in Figure 17.8 . Data for this chart were derived from end-of-year 2006 reserves, LG pit designs, and the ultimate pit design used for reserves.



Figure 17.8 Changes to Reserves – 2006 EOY to Final



The following should be noted with respect to Figure 17.8:

- Increase of 5.31M ounces due to exploration results and design impacts. The design impacts are due to the 2006 end-of-year reserves using a gold price of \$450 and pit designs for a \$350 gold price;
- decrease of 5.16M ounces due to increased costs;
- increase of 3.41M ounces due to increase in the price of gold; and
- decrease of 0.70M ounces due to effect of providing access and detailed pit design.

Along with the reserves reported, within the boundaries of the pit design there are an additional 1.6M contained ounces of inferred material (Table 17.49).

Table 17.49 Las Cristinas Inferred Gold within Pit Design

<i>In Pit Inferred Summary (Tonnes, Grams, and Ozs in Thousands)</i>				
	Total Ore			
	Tonnes	gAu/t	Grams Au	Ounces Au
Conductora	46,985	0.97	45,569	1,465
Mesones/Sofia	1,651	0.65	1,080	35
Morocoy	3,103	0.73	2,252	72
Total Proven	51,739	0.95	48,901	1,572



18.0 OTHER RELEVANT DATA AND INFORMATION

MDA is not aware of any other relevant information related to the resources and reserves that is not described in this document and that would change the conclusions or interpretations.

However, none of the authors is familiar with the regulatory environment in Venezuela and in particular those issues that concern granting permits and permissions to commence mining. The authors do not have, have not attempted to have, and could not have relevant data or information concerning granting permits and permissions to commence mining. Because the authors cannot assess the situation, they have therefore relied entirely on the expert and legal opinions given by Crystallex for classifying the resources and reserves from a legal and environmental standpoint.



19.0 ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES

This section of the report describes those anticipated aspects of development and production at Las Cristinas, much of which are illustrated in Figure 19.1 and Figure 19.2, which are the 15-year and end-of-mine-life surface facilities and infrastructure, respectively.

19.1 Mining Operations

19.1.1 Open Pit Hydrogeology and Dewatering

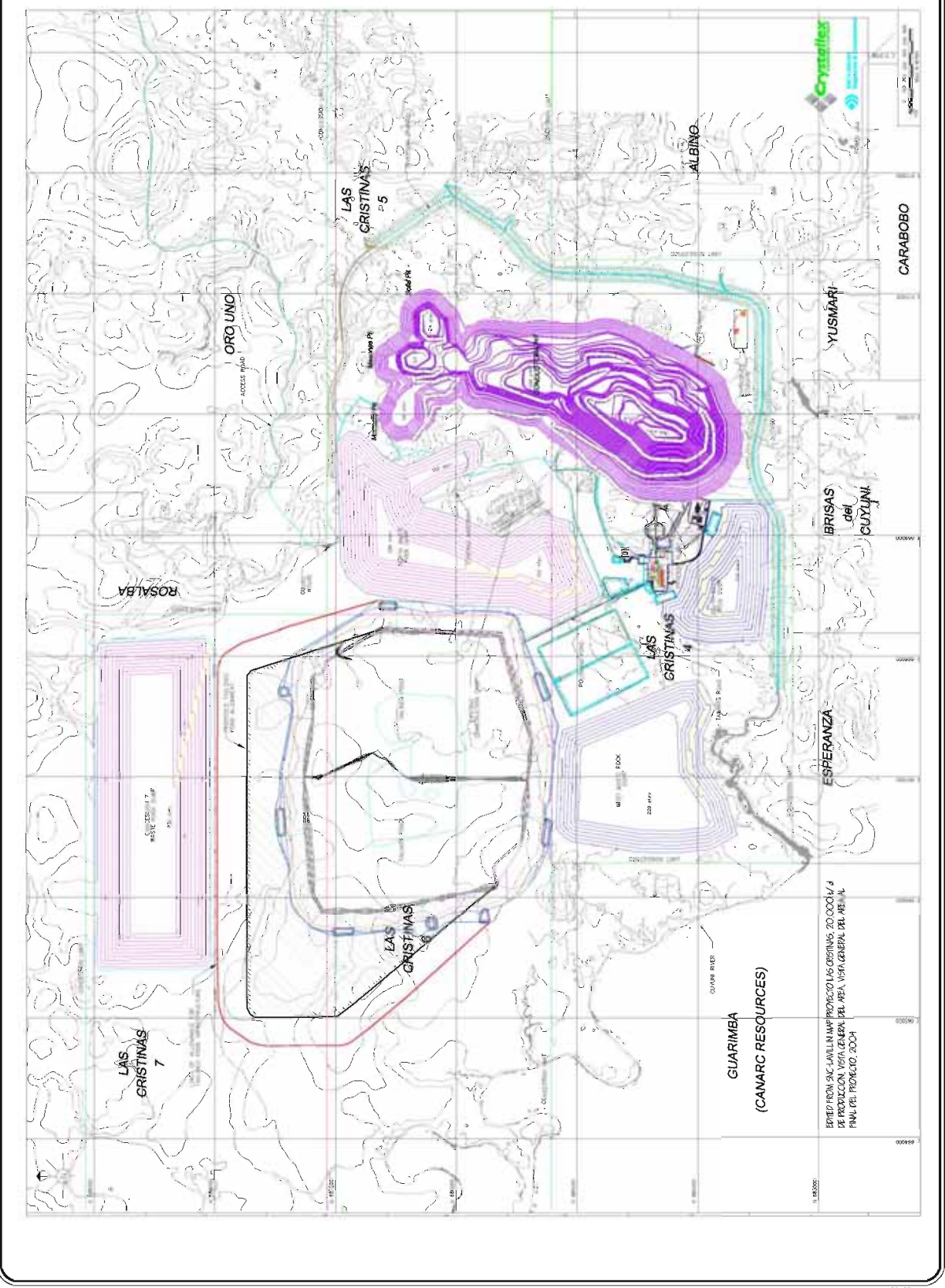
One of the most significant physical issues Crystallex faces in mining the Las Cristinas deposit is the amount of water that will be encountered. Rainfall data, supplied by Crystallex, indicate that the average rainfall for that period exceeded three meters per year. MDA has accounted for anticipated time lost due to rainfall in scheduling production and determining equipment requirements (assumed 22 days per year lost due to rain). Nevertheless, actual mining experience with the combination of wet saprolite and high rainfall rates may require adjustment of these numbers. Groundwater flows (see below under Groundwater Numerical Modeling) also require attention.

It is very important that the surface water be diverted away from the pit. Besides the additional pumping costs associated with the removal of surface runoff, large flows of water over the pit rim could degrade the integrity of the high wall, especially in the saprolite. A diversion trench and berm will be constructed around the east side of the pit rim, between the river diversion channel and the pit rim, to divert surface runoff away from the pit. This diversion trench is relatively small because the maximum drainage area requiring diversion is about 170ha (between the river diversion and the pit rim at the end of the mine life). This diversion will be built in segments as the pit size increases. The ultimate length of the diversion is 8,800m.

Because the west side of the pit is bounded by roads, potential runoff from the plant site and dumps into the pit will be controlled by water diversion channels designed for these facilities. Nevertheless, small ditches and berms may be required in lower-lying locations in the early years of mining to divert runoff away from the first pit phases.

A berm is required between the south end of the pit and the Potaso “pond.” The berm, which is part of the river diversion channel, is of particular importance due to the close proximity of the pit rim to the pond. It is imperative that the Potaso pond not be allowed to run into the pit since this could allow the entire flow in the diversion channel to enter the pit.

It is important to keep the active mining areas of the pit as dry as possible in order to reduce tire costs, minimize damage to equipment and to keep blasting costs near the estimated values. This will involve the construction of interim sumps and diversion ditches to route both rainfall and groundwater to primary pumping collection points.





Groundwater Numerical Modeling

SNC-Lavalin and SRK Consultants of Santiago, Chile reviewed Placer's data and conclusions concerning both groundwater and surface water as they affect the pit. Preliminary groundwater modeling was conducted by SRK in early 2003 using historic data (SRK, 2003). Pumping tests and an update of the numerical groundwater modeling were undertaken by SNC-Lavalin from April to June 2005 in order to refine the estimate of the volume of groundwater flow into the pit (Jackson, 2005). A summary of the Jackson (2005) report follows:

An update of the groundwater numerical modeling was undertaken in order to refine the estimate of the volume of groundwater flow into the Conductura and Mesones open-pit mines. It was based on results from large-scale pumping tests at three locations and was referenced to the 2004 Mine Operation Plan that had a mine life of 35 years and an open pit with a final elevation of -189 m above sea level [189m below mean sea level].

In order to conduct the numerical modeling update, field investigations consisted of drilling two new pumping wells - DW-B (two tests) and DW-C - and two new observation wells (one at DW-C and the other in the vicinity of the existing Camp Well). A total of four 24-hour constant-rate pumping tests were undertaken on the three pumping wells (DW-B, DW-C and the Camp Well). During the pumping tests, water levels were measured in nearby observation wells.

The four data sets were analyzed with the assistance of a computer curve-matching program (AquiferTest). The pumping-test results indicated good hydraulic connection among the various strata; therefore, the original model used was simplified by reducing the number of layers from seven to two. Geological mapping indicated several presumed structural features, which were also incorporated into the model.

Three scenarios were evaluated, depending on the ratio of horizontal to vertical hydraulic conductivity (K_h/K_v). In Scenario 1, the vertical hydraulic conductivity is assumed to be 33% of the horizontal hydraulic conductivity. In Scenario 2, the vertical hydraulic conductivity is assumed to be 10% of the horizontal hydraulic conductivity, and in Scenario 3, the vertical and horizontal hydraulic conductivities are equivalent. Scenario 3 estimates the highest groundwater inflows; yet it is considered the most unlikely of the three scenarios.

Table 19.1 below shows the estimated rate of groundwater inflow to the open pit from year one to five and then in five-year increments up to Year 35 of mine operation on the basis of the modeling undertaken.



Table 19.1 Simulated Groundwater Inflow

Mine Year End	Scenario 1 Estimated Groundwater Inflow (L/sec)	Scenario 2 Estimated Groundwater Inflow (L/sec)	Scenario 3 Estimated Groundwater Inflow (L/sec)
1	23	12	44
2	35	NA	NA
3	57	NA	NA
4	63	NA	NA
5	73	39	126
10	650	270	1,106
15	936	NA	NA
20	1,091	615	1,472
25	1,775	NA	NA
30	1856	1,200	2,295
35	2,065	1,368	2,585

It should be noted that these estimates are considerably higher than the volumes estimated in the preliminary modeling, where the maximum groundwater inflow to the open pit at Year 35 was 432 L/sec.

Based on the updated modeling described above, it is estimated that there will be significant groundwater inflows into the open pit mine, and flows are predicted to increase as the size/volume of the excavation increases. The pump-test analysis and modeling suggest that the effects from structural zones could be significant, particularly beyond Year 5.

Recent amendments to the Mine Operation Plan indicated a mine life of up to 64 years and an open-pit depth with a final elevation of -360 m above sea level [360m below mean sea level]. The mine extent has shifted significantly westwards of the original west pit wall and as much as double the original depth of -189 m above sea level [189m below mean sea level]. The increased size and depth of the mine will have an impact on groundwater inflow to the pit and increase the cone of depression beyond that which was modeled in the scenarios considered to date. It is recommended that the groundwater model be updated to incorporate these new changes so as to more accurately predict the pit-dewatering requirements.

Once mining starts, it is recommended that the quantity of water pumped out of the mine in terms of daily rates and monthly totals be measured. It is also recommended that rainfall be measured daily in the mine area, prior to and during startup of mining operations, until patterns are established.

SNC-Lavalin recommends the numerical model should be updated during the early stages of development and operation of the mine, particularly within and immediately beyond the first five years. After the first year of mining, the model predictions can be compared to the actual pumped water flow, and the model can be calibrated to refine predictions. The model calibration should be done on a regular basis (yearly or every couple of years) based on actual



operations. This process should be ongoing until the effects of encountering the structural zones in the excavation on volume of water pumped have been determined.

MDA has not addressed the potential flow increase in detail, but given the significance of dewatering to the project, more detailed analyses and engineering are needed. Dewatering costs are estimated at \$0.185 per tonne mined, based on the pit inflow rates used in SNC-Lavalin (2005a). Currently the dewatering cost estimate is thought to be within accuracy for pre-feasibility work. Nevertheless, MDA cautions that the practical aspects of dealing with the extra volume of water will be challenging. If these costs increase significantly, the depth of the pit may be affected with potential loss in reserves. To mitigate this issue, ongoing modeling and cost estimating must be undertaken during mining operations and prior to mining the final pit wall. In addition, the dewatering costs may be decreased through future expansion of the mining rate on a per tonne basis.

19.1.2 Pit Phases

The Conductor pit is divided into six phases or pushbacks in order to improve productivity, enhance revenue streams, and delay waste mining. The Mesones-Sofia pit is a single-phase pit. Phases are based on LG pit shells similar to those used for the ultimate pit. The pit shells are used to locate the most profitable materials nearest the surface, which are the preferred areas for the start-up pit, or first phase. The shells used for pit phases are based on increasing gold price and are closest to:

- Phase 1 & 2 – \$225 Au LG pit shell
- Phase 3 – southern portion of the \$275 Au LG pit shell
- Phase 4 – northern portion of the \$275 Au LG pit shell
- Phase 5 – northern portion of the Conductor \$550 Au LG pit shell
- Phase 6 – southern portion of the \$550 Au LG pit shell
- Mesones / Sofia / Morrocoy – northern end of the \$550 Au LG pit shell

In general, each successive phase has a higher strip ratio than the previous phase and reaches greater depth. The phases are designed to the same requirements as the ultimate pit. The phases are illustrated in Figure 19.3, while the ultimate pit is shown in Figure 19.4. Because none of the ultimate pit walls are reached until the third phase, a period exists during which time slopes are monitored, water inflows are measured and haul-road designs and equipment performance are evaluated. During this “learning period,” it is possible to incorporate any changes required by actual mining experience in the ultimate pit design.



Figure 19.3 Phased Pits

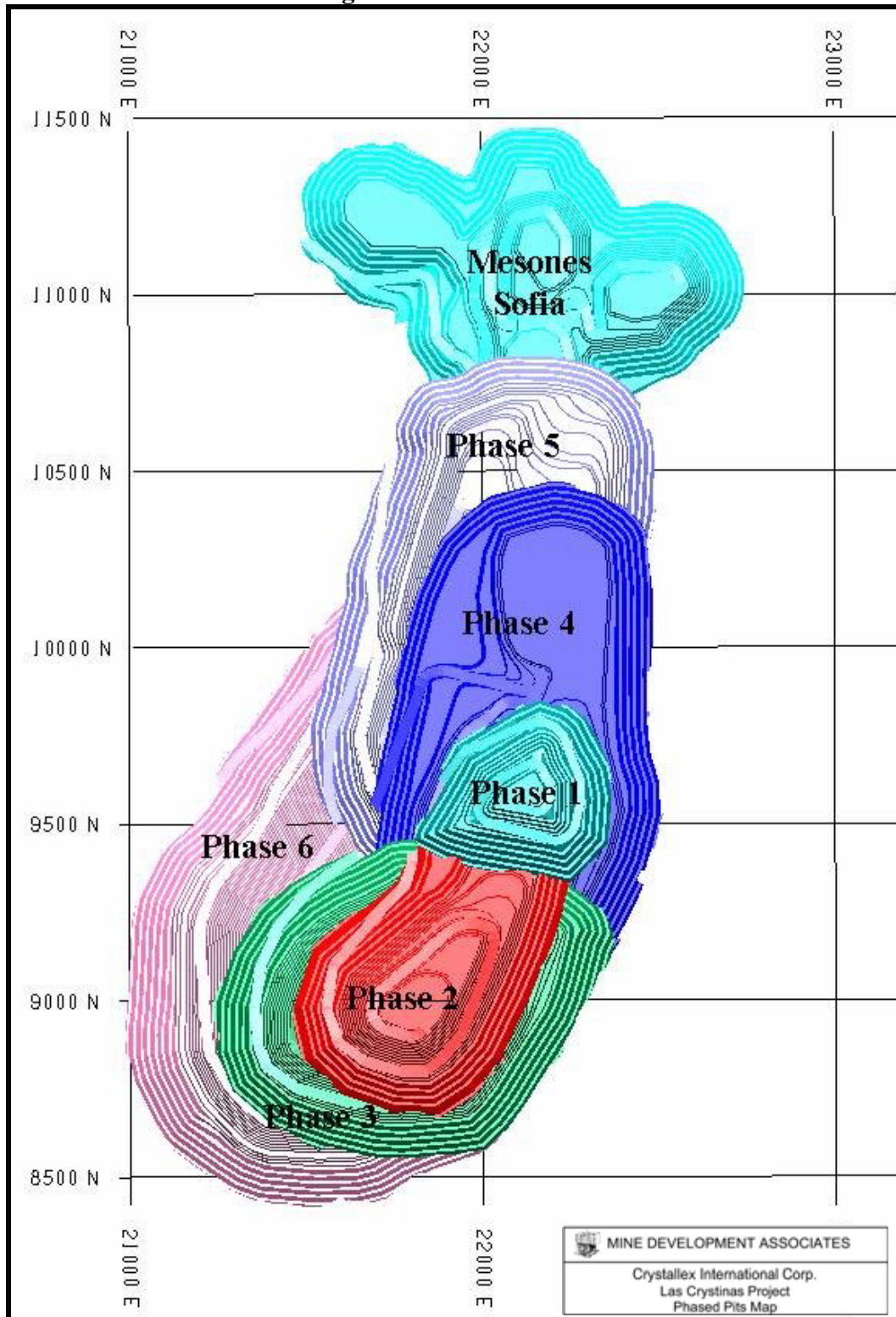
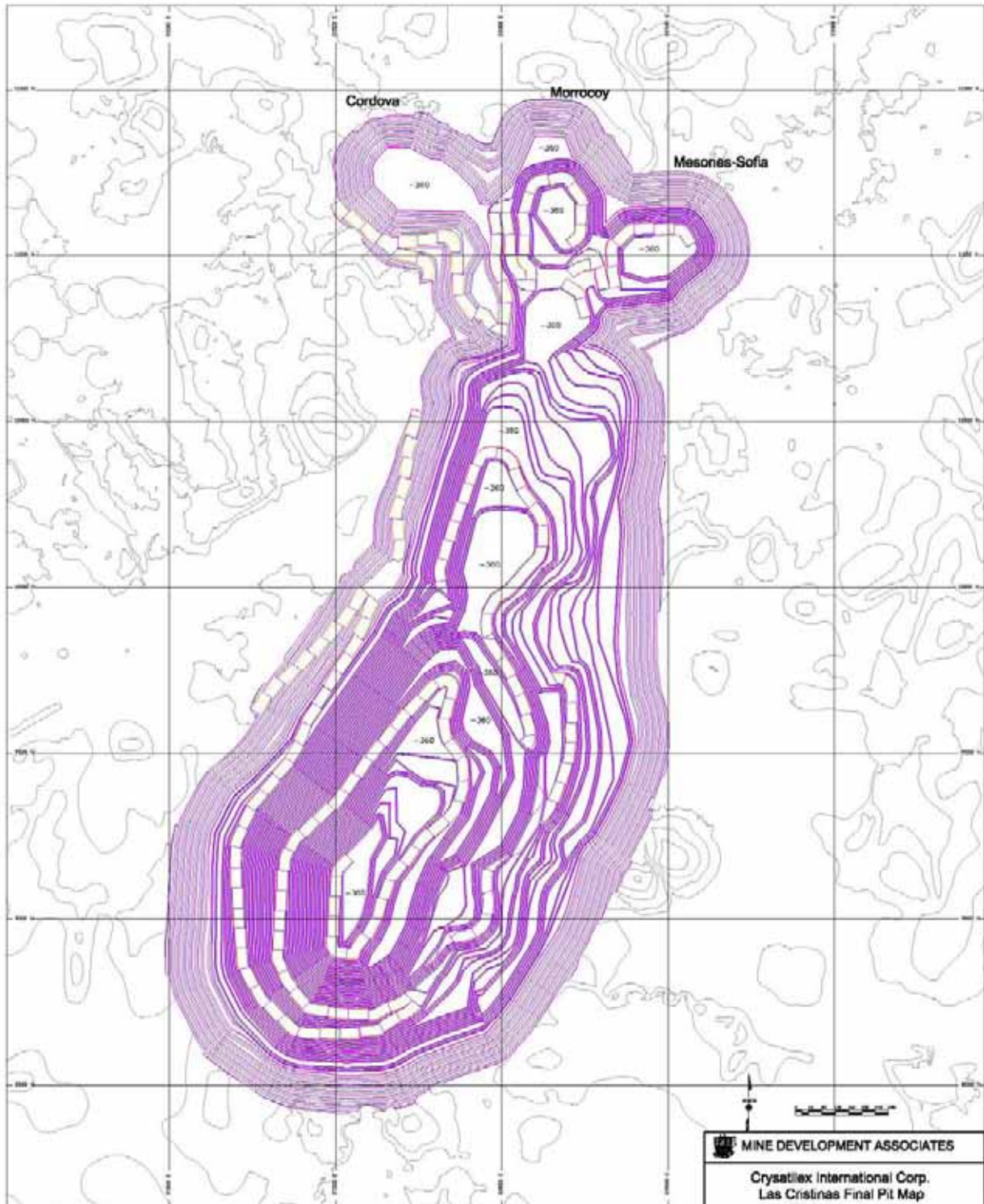




Figure 19.4 Ultimate Pit Design





19.1.3 Pre-Production Work

See SNC-Lavalin (2005) for details.

19.1.4 Mining

Saprolite Mining

Saprolite will be mined on 6m benches and will not require blasting. Nevertheless, grade-control drilling is required and is planned to 12m depths on a 6m-square pattern. This allows grade-control information to be developed for two benches at a time and saves drilling time. The pattern should be adjusted as actual grade-control conditions dictate. While blasting is not planned in the saprolite, it may be required at the transition from saprolite to saprock or bedrock. For the purposes of mine planning, saprock is considered to be part of the CLB bedrock due to the amount of bedrock material it contains.

It is anticipated that mining in the saprolite will be difficult, due to the soft nature of the material and the amount of ground water and rain that could make working in any given area temporarily impossible. In order to facilitate working in these wet conditions, mining will be on several benches simultaneously, advancing them together in slices to the phase limits rather than working only one bench at a time. This method has several advantages. Should rainfall make the lower work areas too wet for efficient mining to continue, the trucks could be moved to higher benches that should be somewhat drier until the lower levels are adequately dewatered. Another advantage is with construction of temporary roads. By mining a slice on a bench, the road is advanced behind the excavator working area. When the excavator reaches the end of a slice, the road material could be recovered and moved over to the face of the next slice, eliminating the need to constantly bring new road-base material into the pit. Grade control, access, and general flexibility are also improved by mining multiple benches.

In the wet environment, good road construction, even of temporary roads to the working face, is critical. During the pre-production period and the first year of production, outside materials will need to be brought into the pit for road construction. After that, all roads can be constructed with material from in the pit. Whenever road material other than bedrock ore is placed on top of saprolite ore, it must be removed prior to mining to avoid dilution.

Another consideration in saprolite mining is the boundary between saprolite oxide and sulfide materials. The boundary is fairly flat lying and characterized by a visible color change but will seldom be coincident with bench floors. This requires a balance between mining on partial-height benches and mixing oxide and sulfide materials. Operating experience will lead to the best method of separating the materials.

Bedrock Mining

Crystallex will mine all bedrock materials on a schedule of two 12-hour shifts per day, seven days per week. Bedrock mining begins in year one of the operation at a rate of 6,000 tonnes per day. Bedrock mining will be on 12m benches, except for the transition bench from saprolite to bedrock, which will remain at 6m.

Drilling and blasting are necessary in the bedrock. For the purposes of this report, MDA considered the weaker CLB rock to have the same characteristics as the stronger CSB, which introduces a slight level



of conservatism for CLB drilling and blasting. The saprock is considered to be CLB for purposes of estimating drilling, blasting, loading, and hauling productivities and costs.

Bedrock material will be blasted using two products, an ANFO/emulsion (70/30) mixture and straight ANFO. Because of the expected amount of water in the pit, it is anticipated that 60% of the holes will require the emulsion blend and 40% can be straight ANFO, assuming that excellent water control practices are implemented.

Explosives will be purchased in bulk, with the manufacturer responsible for delivery to the hole. Crystallex personnel will complete tying in the pattern and actual blasting. An emulsion-blending plant and basic powder magazine will be required and are the responsibility of the explosives vendor. Locations for these facilities are shown on the site facilities maps (Figure 19.1 and Figure 19.2). Fuel oil will be obtained from the equipment fuel tanks on site.

19.1.5 Waste Dumps

Waste dumps serve two primary purposes, the storage of uneconomic material that must be removed from the pit and the encapsulation of materials that may produce acidic effluents. The general concept for the dumps is that the north dump will contain the majority of the saprolite waste, surrounded by bedrock waste. The west and south dumps are primarily bedrock with some saprolite depending on when the materials are mined. The dump north of the Tailings Management Facility (“TMF”) is designed primarily for bedrock, although it may hold some additional sulfide saprolite waste. The dumps are surrounded by berms to contain and channel any runoff to appropriate locations at the site.

Dump Design

Design criteria for dumps were developed by SNC-Lavalin and are:

1. Saprolite density placed in dump 1.35 t/m³
2. Bedrock density placed in dump 1.90 t/m³
3. Angle of repose, all materials 37°
4. Designed overall dump slope 3H:1V
5. Maximum height for any dump is 100m

Steeper overall slopes (2.25H:1V) are possible if only bedrock is placed on the dump, but MDA designed all the dumps at the shallower angle to allow for saprolite placement in any of the dumps should the need arise. MDA designed four separate waste dumps and two saprolite ore stockpiles as shown in Figure 19.1 and Figure 19.2. Because it will be difficult to travel over and handle saprolite in the dumps and stockpiles, it will be necessary to place road-base material on all traveled surfaces built on saprolite. Dump capacities are summarized in Table 19.2.



Table 19.2 Dump Capacities

Dump Name	Designed Capacity		Designed Height m	Maximum Height m
	m ³ x1000	kt ¹		
South	27,724	49,626	90	100
West	87,057	155,833	100	100
North	87,244	156,166	100	100
North of TMF	161,291	288,760	100	100
TOTAL	363,316	650,385		

¹Based on 20% saprolite and 80% bedrock

Note that the required capacity for Proven and Probable reserves is 640 million tonnes. The dumps that have been designed exceed the required capacity by 2%. This provides some flexibility for operations in the management of dumping facilities as well as providing some additional capacity in the event that reserves would expand based on future exploration or studies.

The Cordova deposit is covered by one of the planned dumps, and a change to the dump design will be necessary if that deposit is to be mined. There is sufficient area north of the TMF to contain the displaced dump and additional waste from the Cordova deposit at its present size.

Potentially Acid-Generating Material

Tests for acid-generating and acid-neutralizing potential indicate that the SAPS waste and possibly some of the CLB waste could contain acid-generating material and that the CSB contains acid-neutralizing material. SAPS waste will need to be encapsulated with the CSB. As such, for the purposes of dump design and scheduling, the SAPS waste will be placed in the center of the dumps and will be surrounded with CSB waste. MDA is not qualified nor a QP for acid-generating material management and has relied on SNC-Lavalin (2005) for the following sulfide encapsulation details:

During the first 8 years of mining about 12.5 million tonnes of SAPS waste, 11.6 million tonnes of CLB waste and 2.9 million tonnes of CSB waste are mined. Of the total 14.5 million tonnes of CLB and CSB, 12.6 million are needed for the TMF, leaving 1.9 million tonnes available to encapsulate the 15 million tonnes of SAPS waste in the north dump. This will require the use of large cells of SAPS surrounded by thin layers of bedrock until more bedrock waste becomes available. After year eight, the amount of bedrock waste mined increases substantially, making encapsulation easier.

19.1.6 Stockpiles

The saprolite-ore stockpiles are situated as close as practical to the plant to minimize re-handling haulage. Nevertheless, it is necessary to use trucks to haul the stockpiled material to the plant due to the distances involved. The maximum amount of material stored in the stockpiles at any one time is just over 10 million tonnes.

19.1.7 Mining Equipment

See SNC-Lavalin (2005) for details on the mine equipment fleet because these have not been modified since that report. As of this writing, Crystallex has purchased all of the mining equipment needed to start the project and mine for the pre-production period. The only additional items that need to be



acquired during the pre-production period are two 94-t haul trucks that are required at the beginning of the first production year and thereafter.

19.1.8 Mine Manpower

Crystallex updated labor rates for this reserve update. The authors did not rigorously check the amounts although some expatriate wages were increased based on current mining labor conditions.

See SNC-Lavalin (2005) for details concerning mine manpower requirements.

19.2 Processing

Processing facilities detailed in 2005 (SNC-Lavalin, 2005a) will require modifications due the increased reserves and enlarged pit. Because the newly designed pit comes within 30m of the crusher, the crusher location and access to the crusher will require additional study and review and may require modification.

Otherwise, see SNC-Lavalin (2005) for details.

19.2.1 General

See SNC-Lavalin (2005) for details.

19.2.2 Primary Crushing

See SNC-Lavalin (2005) for details.

19.2.3 Ore Storage and Reclaim

See SNC-Lavalin (2005) for details.

19.2.4 Saprolite Handling

See SNC-Lavalin (2005) for details.

19.2.5 Grinding

See SNC-Lavalin (2005) for details.

19.2.6 Carbon-in-Leach

See SNC-Lavalin (2005) for details.

19.2.7 Carbon Desorption and Regeneration

See SNC-Lavalin (2005) for details.



19.2.8 Electrowinning and Refining

See SNC-Lavalin (2005) for details.

19.2.9 Cyanide Destruction

SNC-Lavalin describes the cyanide destruction process as air/SO₂ using sodium metabisulphite as the source of SO₂. Originally it was envisioned that the excess reclaim water from the TMF would be treated, however, it is now Crystallex's intent to treat the entire stream of CIL tailings. An additional cyanide destruction tank will be added to the current circuit in order to provide sufficient retention time. The cyanide destruction tanks are fitted with agitators consisting of dual impellers supported from bridges mounted on the tank shells. Air is introduced through a bottom entering line to an inverted cone under the centre shaft of the agitators. The air bubbles then travel upward into the maximum shear zone of the impeller blades.

Sodium metabisulfite solution will be added at a rate sufficient to reduce the free cyanide and weak acid dissociable ("WAD") cyanide complexes in the tailing slurry to levels described in Section 16.11.

19.3 Geotechnical Studies

19.3.1 Process Plant

See SNC-Lavalin (2005) for details.

19.3.2 Tailings Management Facility ("TMF")

Bruce Geotechnical Consultants Inc. ("BGC") undertook the first field program for the Tailings Management Facility ("TMF") area 1994 and 1995, which was reported in the Las Cristinas Feasibility Study in 1996. BGC drilled nine boreholes, dug 27 test pits and carried out geological mapping of outcrops. In 2004, SNC-Lavalin undertook an extensive program of 15 boreholes and over 30 test pits.

Although remarkably non-homogeneous over the entire TMF site, the subsurface generally, in descending order from surface to bedrock, consists of a thin, discontinuous local layer of laterite, a 5- to 50m-thick saprolite layer, followed by up to 25m of saprock, and carbonate-leached bedrock and carbonate-stable bedrock. Although the stratigraphy is not uniform, design parameters are recommended for the sequence of geological units most representative of the area. The foundation material immediately beneath the tailings area appears to consist of predominantly firm to hard, low permeability saprolite with permeability values on the order of 1×10^{-6} cm/s, which is considered a good foundation for dam construction and hydraulic containment of mine tailings. Unacceptable soft soils beneath the dam will have to be identified during foundation preparation and removed to expose fresh, firm *in situ* low permeability soil.

Pinhole dispersion and Emerson dispersion classification tests and X-ray diffraction analyses were undertaken to identify the presence of any potentially swelling minerals. The results indicate that most of the saprolite soil tested will not pose a problem.



Low-lying flooded and swampy areas within the TMF basin and embankment footprint areas were manually probed to define the bathymetry and thickness of soft sediments. Typically water depths ranged from 0.4 to 3.6 m, and the soft sediments ranged from 0.1 to 1.1m in thickness. Additional investigation is recommended at the low-lying areas for the detailed design of the dam shell in conjunction with the dam raises.

The field investigation in the TMF area included several types of field tests to measure the *in situ* hydraulic conductivity using either the rising/falling head or constant head method. Packer tests were carried out in selected boreholes to provide a quantitative indication of the rock mass permeability.

An updated study of the TMF modifications are given in Appendix D and that study's conclusions (SNC-Lavalin, 2007c;) are given. "In the 2005 Tailings Management Facility (TMF) design report, it was estimated that to accommodate tailings resulting from the 2005 ore reverses of 333 Mt, an ultimate dam elevation of 202 m would be required for a basin of approximately 3,780,900 m². Due to the recent increase in ore reserves to 464 Mt, the TMF needs to be updated to store the resulting tailings.

If the 2005 TMF basin is maintained, it is estimated that an ultimate dam crest elevation of 230 m would be required to accommodate tailings resulting from 2007 ore reserve estimate of 464 Mt. This estimate was based on an average tailings density of 1.36 t/m³. A more accurate crest elevation should be calculated at the next level of design using densities based on different ore types identified in the mine development plan and simulation of consolidation process.

The slope stability analysis showed that the ultimate dam with a crest elevation at 230 m and a downstream slope of 2.5H:1V should be stable for both static and seismic loading conditions. However, there is no available case history that a 100 m high dam using saprolite can be constructed and on potentially collapsible saprolite foundation. Therefore, monitoring of pore water pressure response and performance in the foundation soil during initial and subsequent construction phases will be paramount in order to acquire relevant information that will help to decide and optimize on the approach and precautions to take during the raising of the dam to the new ultimate elevation.

The analysis indicated that flattening the downstream slope to 3:1 would significantly enhance the stability of the slope. However, flattening the slope will result in significant increase in material quantities required for the construction of the dam. The analysis results also showed that an addition of a toe berm to the 2.5:1 slope will also enhance the stability but would require less construction material than for a flatter slope of 3:1.

Based on the monitoring results during the construction and mine operation, a toe berm may be added as required to enhance the stability of the downstream slope. It is noted that erosion protection of the dam slope will also be required.

Increasing the dam crest elevation from 202 m (2005 design) to 230 m (based on 2007 reserves) will result in an increase of the dam base by about 70 to 100 m, depending on the final stable slope configurations.



One alternative that needs to be examined is to expand the TMF footprint to increase the storage volume without significantly increasing the ultimate dam crest elevation. The potential size of the expansion estimated based on preliminary sizing iteration as illustrated on Figure 13 [Appendix D], will provide storage for tailings resulting from the 2007 ore reserve estimates of 464 Mt without any or significant increase of the ultimate dam crest elevation. The proposed expansion is to the north and to the west of the 2005 TMF footprint.

Note that, should the option to expand the TMF footprint be carried forward; substantial dam alignment optimization and geotechnical field investigation would be required for the detail design.

The stability analysis presented herein is solely based on data/parameters inferred from previous investigations carried out for a lower height dam. Due to the height increase to about 100 m, additional field investigation and tests are required to confirm the analysis.

The additional soil tests will include, but are not necessarily limited to, consolidation tests, collapse potential, triaxial shear tests, in-situ permeability testing, etc. It is also recommended to carry out seepage and contaminant transport analysis to evaluate the impact of increased tonnage of tailings on the environment and identify required mitigation measures that should be implemented, if any.

Recommendations presented in 2005 design report regarding site preparation, construction and monitoring should be still followed.”

19.3.3 Open Pit

SNC-Lavalin conducted a preliminary slope stability analysis for the proposed 2007 pit slope design for Conductor Pit, based on the recent updated ore resource and reserve estimates presented in this report. The 2007 pit will be developed from the current ground elevation of approximately 130 m to a depth of about -360 m (approximately 171 m deeper than the previously analyzed 2004 pit). The analysis was carried out using parameters and approaches detailed in “Field Investigation Report, Open Pit Slope and Waste Dump Stability Study” (SNC-Lavalin, 2004c).

Both west and east walls of a critical section (Section 9000N) provided by MDA were analyzed. The factor of safety for the slopes was calculated for both static and pseudo-static loading conditions identical to conditions used to analyze the 2004 pit. The required minimum factor of safety (“FS”) with respect to the stability requirements of the pit slope are 1.2-1.3 and 1.0 for static and pseudo static loading conditions, respectively.

The analysis results indicate that the 2007 open-pit-slope geometry as proposed by MDA is stable for both static and pseudo-static cases under analysis conditions provided by SNC-Lavalin (Appendix C; Josic, 2007). Details of the analysis as well as recommendations for the operation of the pit are also provided in the memorandum.

19.3.4 Waste Rock Dumps and Ore Stockpiles

Due to the additional reserves, additional waste dump capacity is needed. Thus, for the purpose of this study, an additional waste dump was designed north of the Tailings Management Facility (“TMF”). The



following is a summary of geotechnical assessment of this additional dump design. See SNC-Lavalin (2005) for details from original work regarding all other waste dumps and ore stockpiles.

Subsurface Conditions

No geotechnical work was undertaken in the proposed north dump area. However, a series of four test pits were excavated in the area of the planned air strip at the north side of the TMF (see Drawings 334401-4400-4GDD-0001). The closest test pit (AS-TP4) is located approximately 200 m west of the proposed north dump.

Near surface conditions observed at the above test pit locations suggest that the subsurface comprises organic soil (topsoil) consisting of poorly consolidated silt or sandy silt with some gravels, organic matter and some roots and rootlets. The thickness of this layer varies from 0.2 m to 0.5 m. The topsoil is underlain by a 2.8m- to 4.0m- thick saprolite layer. The saprolite material consists of light brown to orange-red, clayey silt, and some sub-angular quartz fragments and gravel. Based on pocket penetrometer measurements, the saprolite soil is very stiff to hard with the strength of the soil increasing with depth. The moisture content ranges from 18 to 55 % for test-pit samples tested.

The soil conditions appear to be similar to those encountered in soils located in the areas in which previously designed dumps are proposed to be sited.

Feasibility of the Proposed Dump

If one assumes that the subsurface conditions at the base of the dump will be similar to conditions encountered at the above described test pit locations, then it is therefore conceivable that the proposed waste rock dump can be constructed as recommended for previous dumps.

As presented in the “Field Investigations Report: Open Pit Slope and Waste Dump Stability Study, Volume 3 of 3” (SNC-Lavalin, 2004c), the stability of the previous waste rock dumps was analyzed for both static and seismic loading conditions. The minimum required safety factor for the waste dumps was 1.3 under static loading conditions, and 1.1 under seismic loading conditions, based on common engineering practice for non-water retaining earth embankments.

Based on above, the preliminary recommendations for the proposed waste rock dump are as follows:

- Maximum dump design height: 100 m.
- No section of the dump should be raised to its maximum height in a short period of time to avoid rapid loading of the foundation. An intermediate height of about 30 to 40 m should be maintained for 1 – 2 years before the next major rise.
- Lift height: 10 m.
- Bench width: 9.23 m.
- Lift face angle (angle of repose): 37°.
- Overall dump slope: 2.25 H:1V.
- The collection ditch should be located a minimum distance of 20m from the toe of the dump.

Recommendations

1) SNC-Lavalin strongly recommends that a geotechnical investigation program be carried out to confirm the subsurface conditions under the proposed dump location and stability analysis undertaken to verify design recommendations provided above.



2) General recommendations related to site preparation and construction as provided in the “Field Investigations Report: Open Pit Slope and Waste Dump Stability Study, Volume 3 of 3” (SNC-Lavalin, 2004c) should be followed.

19.3.5 Construction Borrow Materials

See SNC-Lavalin (2005) for details.

19.3.6 Clay Borrow

See SNC-Lavalin (2005) for details.

19.3.7 Sand, Granular B and Fine Concrete Aggregates

See SNC-Lavalin (2005) for details.

19.3.8 Granular A, Structural Rockfill and Coarse Concrete Aggregates

See SNC-Lavalin (2005) for details.

19.3.9 Water Management Facilities

See SNC-Lavalin (2005) for details.

19.3.10 Infrastructure

See SNC-Lavalin (2005) for details.

19.3.11 Geotechnical Design Recommendations

See SNC-Lavalin (2005) for details on Plant Site Foundations, TMF Site Foundation, Open Pit Slopes, Waste Dump and Ore Stockpiles, Open Pit Hydrogeology and Dewatering, Infrastructure Foundations, Haulage and Service Roads, Diversion Channel, Water Management Ponds, Landfill and Airstrip.

19.4 Tailings Management Facilities and Water Management

See SNC-Lavalin (2005) for details.

19.4.1 Design Basis and Criteria

See SNC-Lavalin (2005) for details.



19.4.2 Tailings Characteristics

See SNC-Lavalin (2005) for details.

19.4.3 TMF Design

See SNC-Lavalin (2005) for details.

19.4.4 Planned Construction

See SNC-Lavalin (2005) for details.

19.4.5 Planned Operations

See SNC-Lavalin (2005) for details.

19.4.6 Closure

See SNC-Lavalin (2005) for details.

19.5 Infrastructure and Ancillary Services

See SNC-Lavalin (2005) for details with modifications shown in Figure 19.1 and Figure 19.2 above and for details on Site Access, Site Development, Existing Facilities, Power Supply, Site Water Supply, Sewage Treatment, Ancillary Buildings, Communications, Explosives Storage, Site Drainage, Solid Waste Management, Fire Protection, and Main Control System.

19.6 Project Implementation

Delays in acquiring the environmental permits allowing construction to commence have impacted the overall project completion. According to Mr. Evans of SNC-Lavalin (written communication, 2007), it is now expected that mechanical completion will be achieved approximately 24 months following the receipt of the full permits and the mobilization of the early works-construction contractors. See SNC-Lavalin (2005) for details current as of 2005 on Engineering, Permitting, Procurement, Construction Management, Temporary Construction Facilities, and Environmental and Construction Management Plan.

19.7 Project Costs

19.7.1 Taxes

The information in this sub-section has been provided by Mr. Robert Crombie of Crystallex. Co-authors of this report are not qualified to assess the economics and taxes in Venezuela.

Crystallex's Las Cristinas operation is subject to the following taxes, duties and royalties:



- i. Income Tax
- ii. Value Added Tax (“VAT”)
- iii. Import Duties
- iv. Exploitation Tax
- v. Royalty payable to CVG
- vi. Municipal Tax

Income Tax

The Venezuelan income tax system is composed of three main elements. The first element includes the Company’s operating income arising from its activities in Venezuela, minus the costs and expenses incurred onshore during the applicable fiscal year. The second element arises from the adjustments for inflation of the taxpayer’s non-monetary Venezuelan assets and liabilities and is levied on the actual operating income of the Company. This system of adjustment for inflation either reduces or increases the Company’s operating net income. The third element comprises operating income arising from the taxpayer’s extraterritorial activities (if applicable), minus the costs and expenses incurred abroad and accrued during the given fiscal year. The combination of these three elements is considered total net income, to which the relevant tax rates will apply. The applicable deductions and the income tax paid abroad will be subtracted from the resulting income tax, provided such foreign tax does not exceed the maximum Venezuelan tax rate of 34%.

A foreign legal entity is deemed to be domiciled in Venezuela if it has permanent operations in Venezuela, for which purpose it must be registered with the Commercial Registry in the jurisdiction in which it operates. According to the Organic Tax Code, for tax purposes a corporation incorporated abroad that has a permanent business establishment in Venezuela is considered domiciled in Venezuela with respect to the transactions carried out in the country. This applies even if such corporation is not domiciled in the country according to the Venezuelan Commercial Code.

The economic model in this report does not include the inflation adjustment mechanism noted above and assumes that the profits from Las Cristinas will be taxed at 34%.

Income tax losses can be carried forward for up to three years in the case of pre-inflation adjusted operating losses, or one year in the case of losses generated as a result of inflation-adjusted accounting.

VAT

A value-added tax, (“VAT”) of 9% is levied on the value of most goods and services, except wages, salaries and employee benefits. Goods and services imported into Venezuela are also subject to VAT. In general, corporations can recover the VAT paid by them (VAT credit) from the VAT charged and collected by them (VAT debit) on goods and services sold by them in Venezuela. VAT paid in excess of VAT collected can be carried forward and applied to future VAT collected. Export sales are subject to VAT of 0%. Exporters can recover VAT previously paid by them through certificates, (VAT CERTs) issued by SENIAT, the tax authority. The certificates may be used as a credit against future VAT and income taxes or may be transferred to third parties for value and thereby monetized.

VAT is not in practice easily recoverable during the construction phase of a mining project, so is typically added to the capital cost estimate. VAT paid during the construction period is accumulated



and is recoverable, together with VAT paid during the operating phase, once gold sales begin. Under the Tax Law it is possible to apply for recovery of VAT. If the gold is exported by Crystallex, the VAT credits accumulated for VAT paid can be recovered by requesting reimbursement from SENIAT. After a series of steps, the reimbursement is made in the form of VAT certificates (VAT CERTs), which are negotiable instruments and can be sold at a moderate discount to face value. Recent experience has indicated that the time taken from outlay to final recovery can take as long as 18 to 24 months, before the CERTS, which are denominated in Venezuelan bolivars, are approved and negotiated. During this period the value of the claim is subject to exchange risk.

Venezuelan law allows for the discretionary granting of exoneration of VAT on goods and services, including expenses in Venezuela, related to the construction and development of mining projects. Crystallex will apply for an exoneration of VAT during the construction phase of Las Cristinas. For this study, it is assumed that the construction phase exoneration will be obtained, so VAT has not been included in the capital cost estimate.

During the operating phase, this study assumes all gold is exported by Crystallex so VAT paid on operating costs and sustaining capital is recovered, after a period of 18 months, as VAT CERTs which are then sold at 95% of face value.

Import Duties

Import duties are levied on equipment and goods purchased outside of Venezuela. The Venezuelan Mines Law allows for the exoneration of import duties on most items specifically related to mining and processing activities. Crystallex has applied for the exoneration of import duties during the construction phase of Las Cristinas and for this study it is assumed this exoneration will be obtained. Crystallex also intends to apply periodically for import duty exoneration on certain equipment and supplies during the operating phase of the project. This study assumes import duty exonerations are obtained during the operating phase for most significant imported items. An amount of approximately \$600,000 per year is included to account for miscellaneous spares and supplies that are either not duty free, or for which Crystallex might not file an application for exoneration.

Exploitation Tax

Under the Mines Law, Las Cristinas is subject to a royalty of three percent (3.0%) of the commercial value in Caracas of the refined gold.



CVG Royalty

In accordance with the Mining Operation Agreement (“MOA”) between Crystallex and CVG, the royalty, based upon the commercial value of the gold, is payable to CVG:

Table 19.3 CVG Royalty

Commerical Value (Gold Price)	Royalty
Less than \$280 per ounce	1.0%
Equal to or more than \$280 per ounce and less than \$350 per ounce	1.5%
Equal to or more than \$350 per ounce and less than \$400 per ounce	2.0%
More than \$400 per ounce	3.0%

Municipal Tax

The Municipal tax is a tax payable to the municipality in which the Las Cristinas properties are located. Typically, the tax base is related to the value of the property, the income derived from the property or its productivity; however, the actual tax base applicable depends on the municipality. The economic model used in this report assumes a municipal tax of 1% of gross revenues, which is based on an assessment received from the Sifontes municipality.

19.7.2 Capital Costs

The following information has been provided by Mr. Evans of SNC-Lavalin (written communication, 2007). SNC-Lavalin prepared the original capital cost estimates and current forecast costs, followed methodology and procedures, and exercised due care consistent with the intended level of accuracy, using its professional judgment and reasonable care, and is thus of the opinion that there is a high probability that actual costs will fall within the specified error margin. However, the reader is cautioned that no warranty should be implied as to their accuracy. Note that the figures below represent the mathematical results of the cost estimation and forecast process and are provided for completeness with a greater number of significant digits than is consistent with the intended level of accuracy; a greater level of accuracy than stated above should not be inferred.

The reader should further note that the cost estimate presented herein is an interim cost estimate. It is the intention of Crystallex to further update the estimate of capital costs following the receipt of the environmental permit and successful negotiation of the construction contracts.

The Las Cristinas estimated project capital costs are summarized in Table 19.5. All costs are expressed in United States dollars. The estimate is intended to have an accuracy of $\pm 20\%$. The estimate includes all direct costs, indirect costs, and Owner’s costs and includes an allowance for contingency.

Comparison of 2005 and 2007 Cost Estimates

It is estimated that the total cost of the project has increased from \$293 million dollars as reported in 2005 (SNC-Lavalin, 2005a) to approximately \$356 million in the third quarter of 2007 as detailed in Table 19.4.



Table 19.4 Comparison of 2005 Estimate and 2007 Update

DESCRIPTION	2005	2007	% Increase
Total Direct Costs	218.7	238.3	8.9%
Indirect Costs	30.4	66.4	118.4%
Owner's Costs	24.9	27.5	10.4%
Contingency	19.0	23.8	25.3%
TOTAL PROJECT COST	293.0	356.0	21.5%

Changes to Owner's Costs and Contingency

Updated Owner's costs were estimated by Crystallex. The increase from \$24.9 million in 2005 to \$27.9 million in 2007 primarily reflects reassigning \$5,394,000 for Pre-Stripping and Stocking, \$750,000 for Mine Roads and \$500,000 for Mine Truck Shop Equipment from the 2005 Owner's Costs estimate to Direct Costs in 2007, which was principally offset by higher estimates for general and administrative labor, environmental work, community relations programs and site security.

The present contingency of \$23.8 million is equal to approximately 7% of all capital costs. At this point in time, no further effort was made to calculate an appropriate amount for contingency.

Crystallex has spent, through August 2007, approximately \$112 million on items included in the revised cost estimate of \$356 million.



Table 19.5 2007 Capital Costs Update

SNC-LAVALIN		LOCATION - AREA 1st - AREA 4th		Job No:	334408	
SNC-Lavalin Engineers & Constructors Inc.		CRYSTALLEX INTERNATIONAL		Currency:	US\$ 302007	
2200 Lake Shore Blvd. West		LAS CRISTINAS		Estimator:	Deachman	
Toronto, Ontario M8V 1A4		UPDATE OF FEASIBILITY 20,000 TPD				
(416) 252-5311						
VENEZUELA						
		Tot Misc	Tot Lab	Tot Mat	Tot Equip	Tot Sub
DIRECT COSTS						
AREA: 1000	MINE					TOTAL
1100	MINE SITE DEVELOPMENT & MINE ROADS	124,440	239,600	310,000	765,930	8,414,890
1300	MINE EQUIPMENT	20,000	490,000	20,000	26,490,085	0
AREA: 1000	MINE	144,440	719,600	330,000	27,250,015	8,414,890
AREA: 2000	GENERAL SITE					
2110	SITE DEVELOPMENT (CLEARING, EMBANKMENTS, GRADIN	184,416	935,432	666,630	0	10,716,977
2100	IN-PLANT ROADS	24,290	211,981	293,500	0	2,343,730
2130	MAIN ACCESS ROAD	15,600	289,100	616,000	0	3,016,903
2140	STORM WATER MANAGEMENT (INCL DIVERSION CHANNEL)	197,310	27,940	615,000	36,000	15,642,636
2145	STORM WATER PONDS	52,686	1,030,568	706,722	320,463	1,503,415
2160	SOLID WASTE MANAGEMENT	23,994	491,172	257,095	721,646	738,495
2210	WATER (INCL WATER SUPPLY, PROCESS, FIRE, POTABLE &	26,857	708,532	386,411	1,345,805	63,657
2220	SEWAGE SYSTEM	4,245	104,236	99,005	201,810	34,560
2260	FUEL OIL (INCL STORAGE)	2,714	63,153	29,974	393,172	8,145
2270	COOLING TOWERS	4,565	123,388	40,719	170,880	5,535
2300	YARD ELECTRICAL (INCLUDING LIGHTING, COMMUNICATIO	36,601	662,171	946,717	1,876,789	106,000
2310	MAIN SUBSTATION	20,549	414,716	136,854	1,665,537	320,125
2380	EMERGENCY POWER	3,143	69,717	0	1,033,760	0
2400	OVERHEAD TRANSMISSION LINES	0	0	0	0	1,600,000
AREA: 2000	GENERAL SITE	696,571	5,111,066	4,794,637	7,765,872	36,100,168
AREA: 3000	PROCESS PLANT					
3110	BEDROCK PRIMARY CRUSHING	79,111	1,608,238	1,696,484	1,863,847	1,168,658
3100	SAPROLITE PRIMARY CRUSHING	17,736	213,148	120,803	1,317,417	875,215
3130	COARSE ORE CONVEYING	18,259	499,602	170,682	1,593,030	120,465

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LAS CRISTINAS
UPDATE OF FEASIBILITY 20,000 TPD

Job No: 334408
Currency: US\$ 302007
Estimator: Deachman

VENEZUELA		Tot Mns	Tot Lab	Tot Mat	Tot Equip	Tot Sub	TOTAL
3140	COARSE ORE STOCKPILE & RECALIM	112,916	2,734,820	2,231,916	2,270,384	494,695	7,731,815
3150	PEBBLE CRUSHING	19,679	486,920	338,082	2,004,576	82,170	2,911,748
3210	GRINDING	23,986	695,594	0	14,772,052	0	15,467,646
3220	GRAVITY CIRCUIT	5,922	171,739	20,461	1,493,666	0	1,685,867
3300	LEACH	600	17,400	0	270,788	0	288,188
3310	THICKENING	12,980	376,420	0	649,114	0	1,025,534
3330	CIL	98,192	2,847,568	0	7,992,416	0	10,839,984
3330	TAILINGS PUMPING	4,347	126,063	0	334,236	0	460,299
3340	CYANIDE DESTRUCT	3,508	101,732	0	344,932	0	446,664
3400	CARBON STRIPPING & REACTIVATION	13,124	380,595	17,665	1,961,280	0	2,359,539
3500	ELECTROMINING & REFINING	10,190	295,510	16,844	854,694	0	1,167,047
3610	DRY LIME	0	0	0	0	0	0
3615	SLAKED LIME	4,987	144,621	0	387,509	0	532,130
3620	CYANIDE	1,515	43,935	0	989,920	0	1,033,865
3680	SODIUM HYDROXIDE	1,019	29,551	1,000	95,853	0	126,404
3680	HYDROCHLORIC ACID	541	15,689	0	93,126	0	108,815
3660	FLOCCULANT	1,244	36,076	0	164,533	0	200,609
3680	SODIUM METABISULPHITE	1,950	56,550	1,000	180,261	0	237,811
3685	COPPER SULPHATE	1,532	44,428	1,000	70,707	0	116,135
3680	HYDROGEN PEROXIDE	296	8,584	0	26,300	0	34,884
3710	COMPRESSED AIR	4,348	126,092	0	762,987	0	889,079
3610	PROCESS BUILDGS(CIVIL, STRUCT, ARCH & SERVICES)	331,435	7,598,408	8,417,413	12,720	4,838,675	20,827,216
3620	PIPING	80,311	2,007,775	3,314,360	0	0	5,322,135
3620	ELECTRICAL	133,337	2,533,401	4,287,640	3,318,730	119,550	10,259,321
3640	AUTOMATION	11,763	235,260	66,340	1,845,148	332,820	2,479,568
3680	ELECTRICAL AND CONTROL ROOMS	1,245	30,373	77,065	0	0	107,438
3610	MILL CHANGE HOUSE	25,000	0	0	0	950,000	950,000
3620	ADMINISTRATOR BUILDING	25,000	0	0	0	950,000	950,000
3640	LABORATORY	7,808	183,957	96,484	1,128,608	40,706	1,448,755
3660	WAREHOUSE	4,000	116,000	0	0	0	116,000

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Job No: 334408
Currency: US\$ 302007
Estimator: Drachman

VENEZUELA		Tot Mns	Tot Lab	Tot Mat	Tot Equip	Tot Sub	TOTAL
3600	MAINTENANCE SHOP	51,156	1,321,375	1,647,127	781,167	243,090	3,962,759
3600	GUARD HOUSE (INCLUDES TRUCK SCALES)	8,188	222,130	51,747	239,772	12,145	525,794
AREA: 3000 PROCESS PLANT		1,117,224	25,270,553	22,574,112	47,819,794	9,428,179	105,092,629
AREA: 4000 TAILINGS							
4000	TAILINGS PIPELINE (INCLUDING DISTRIBUTION)	23,664	509,902	1,789,360	0	225,422	2,524,704
4000	TAILINGS IMPOUNDMENT (INCLUDING STARTER DAM)	506,328	2,638,111	0	0	26,238,720	28,878,831
4000	RECLAIM WATER SYSTEM	16,384	433,366	1,200,000	1,161,017	90,000	2,884,383
AREA: 4000 TAILINGS		546,385	3,582,379	2,989,360	1,161,017	26,555,142	34,287,918
AREA: 5000 OTHER DIRECTS							
5000	CAPITALIZED SPARES	900	24,300	2,975	4,948,673	0	4,975,948
5000	SUSPENSE & BACKCHARGES	0	0	0	1,100,175	1,605,727	2,705,902
5000	BORROW PIT CRUSHING & SCREENING FACILITY	500	14,500	0	745,335	0	759,835
AREA: 5000 OTHER DIRECTS		1,400	38,800	2,975	6,794,184	1,605,727	8,441,686
TOTAL DIRECT COSTS		2,406,021	34,722,368	30,891,104	90,799,872	82,104,107	238,317,481
TOTAL VENEZUELA		2,406,021	34,722,368	30,891,104	90,799,872	82,104,107	238,317,481

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Job No: 334408
Currency: US\$ 302007
Estimator: Daachman

	Tot Mins	Tot Lab	Tot Mat	Tot Equip	Tot Sub	TOTAL
INDIRECT COSTS						
INDIRECT COSTS						
AREA: 6000 INDIRECT COSTS - GROUP 1						
6000	0	0	200,000	31,640	987,867	1,228,507
6300	400,500	0	0	0	12,915,193	12,915,193
6300	0	0	0	0	6,952,000	6,952,000
6900	0	0	0	0	1,670,000	1,670,000
AREA: 6000	400,500	0	200,000	31,640	22,535,060	22,766,700
AREA: 7000 INDIRECT COSTS - GROUP 2						
7000	0	0	0	0	26,800	26,800
7100	0	0	0	0	36,701,086	36,701,086
7300	99,000	27,000	115,000	915,000	6,860,000	7,917,000
AREA: 7000	99,000	27,000	115,000	915,000	42,587,886	43,644,886
TOTAL INDIRECT COSTS						
	499,500	27,000	315,000	946,640	65,122,946	66,411,586
TOTAL INDIRECT COSTS						
	499,500	27,000	315,000	946,640	65,122,946	66,411,586

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Currency: US\$ 302007
Estimator: Daachman

OWNER'S COSTS		Tot Mins	Tot Lab	Tot Mat	Tot Equip	Tot Sub	TOTAL
OWNER'S COSTS							
AREA: 9000 OWNER COSTS							
9200	OWNER'S CONTRACT FINANCIAL	0	0	0	0	2,754,270	2,754,270
8300	OWNER'S PROJECT ADMINISTRATION SERVICES	0	0	0	0	1,730,800	1,730,800
9400	ENVIRONMENTAL & COMMUNITY RELATIONS	0	0	0	0	4,872,461	4,872,461
9500	TEMPORARY SITE FACILITIES	0	0	0	0	1,058,156	1,058,156
9600	TEMPORARY SITE SERVICES	0	0	0	0	16,760,906	16,760,906
9800	FACILITY TRAINING COSTS	0	0	0	0	305,000	305,000
9900	CAPITAL ASSET EXPENDITURE	0	0	0	567,100	515,000	1,082,100
AREA: 9000 OWNER COSTS		0	0	0	567,100	27,996,593	28,563,693

TOTAL OWNER'S COSTS	0	0	0	0	567,100	27,996,593	28,563,693
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TOTAL OWNER'S COSTS	0	0	0	0	567,100	27,996,593	28,563,693
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CONTINGENCY		Tot Mins	Tot Lab	Tot Mat	Tot Equip	Tot Sub	TOTAL
CONTINGENCY							
AREA: 8000 ESCALATION & CONTINGENCY							
8210	CONTINGENCY	0	0	0	0	22,707,240	22,707,240
AREA: 8000 ESCALATION & CONTINGENCY		0	0	0	0	22,707,240	22,707,240

TOTAL CONTINGENCY	0	0	0	0	0	22,707,240	22,707,240
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TOTAL CONTINGENCY	0	0	0	0	0	22,707,240	22,707,240
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<p>SNC-Lavalin Engineers & Constructors Inc. 2200 Lake Shore Blvd. West Toronto, Ontario M8V 1A4 (416) 252-5311</p>		<p>CRYSTALLEX INTERNATIONAL LAS CRISTINAS UPDATE OF FEASIBILITY 20,000 TPD</p>		<p>Job No: 334408 Currency: US\$ 302007 Estimator: Derachman</p>		
<hr/>						
CONTINGENCY	Tot Mins	Tot Lab	Tot Mat	Tot Equip	Tot Sub	TOTAL
	2,905,521	34,749,398	31,006,104	92,313,612	197,930,886	356,000,000
GRAND TOTAL						



Basis of Estimate

The following information has formed the basis for this estimate of capital costs:

- A study on gravel costs produced in 2006 as part of detailed engineering;
- Purchase orders and bids issued during 2005 and 2006
- Collective labor agreement with Cámara Venezolana De La Industria Construcción dated February, 2007
- Indices from Banco Central De Venezuela published on their website on August, 2007 (<http://www.bcv.org.ve>);
- Indices on steel from the Cru Steel Price Index published on their website on August 2007, www.cruspi.com;
- Indices on currency conversions from the Oanda Corporation published on their website on August, 2007, <http://www.oanda.com/convert/classic>;
- Indices on the American Producer Price Index published in August 2007 at the website <http://www.economagic.com/blsppi.htm>;
- Published data from RS Means cost manuals dated 1999 and 2007;
- Updated estimate of EPCM costs produced by SNC-Lavalin for the June of 2007 Updated Capital Cost Estimate and
- Summarized costs received from Crystallex regarding owner's capitalized costs from 2003 to 2006.

Methodology

Changes Due to Venezuelan Currency Fluctuations

The only currency conversion considered was the Venezuelan bolivar. Currency conversions were taken from the Oanda website at: <http://www.oanda.com/convert/classic>. When the original estimate was done in 2004, the conversion rate for the bolivar was 1,920 bolivars per US dollar. The present conversion rate is 2,145 bolivars to the US dollar. For the items assumed to be purchased in Venezuela, Venezuelan indices were converted to a US dollar base. The items assumed to be purchased in Venezuela include labor, concrete, concrete block, furniture, windows, doors, paint, and some miscellaneous architectural materials

Changes Due to Corrections to the Original Estimate

The original work breakdown structure ("WBS") and commodity resource codes ("CRC") are maintained. A few cost items are reassigned to new WBS or CRC classifications to correct errors in the original estimate. The proportion of re-assigned costs is not significant. Some quantities were altered based on final design criteria reflected in purchase orders and bid documents. Some unit rates for labor were adjusted to create consistency between similar items. The net effect of these adjustments amounts to less than 1% change to the total cost of the project.

Changes Due to Updated Labor Rates

The 2004 estimate used approximately 137 different crew rates. These 137 different crew rates have been reduced to 12 crew rates. When comparing the estimate before the crew rates were simplified and after, the total cost for labor differed by only a fraction of a percentage point. The excessive division of labor into different crews did not increase the accuracy.



New crew rates were developed for these 12 crew rates based on information from the 2003-2006 collective agreement with the local construction union, Cámara Venezolana de la Industria Construcción. A new collective agreement is presently being negotiated. A call was made to the union office in Venezuela to confirm the current increase in construction wages between December 2006 and May 2007. Wage escalation is also reflected in published data by the central bank of Venezuela. The Central Bank's indices agree with information received from the union.

Changes Due to Delay Costs

The costs to date for delaying the project have been added to the estimate. No escalation was added to these costs.

Changes Due to Recent Information from Purchase Orders

Portions of the work have been completed since 2004. Purchase orders document the final costs and changes in final quantities. The current estimate reflects these final costs and quantities. No escalation was added to these costs.

Portions of the work went out for bid in 2005 and 2006, but these orders were either not purchased or only partially purchased. The 2004 estimate was revised to reflect the bids received in 2005 and 2006. These costs were escalated as per Table 19.6 below.

Changes Due to Escalation of Costs Between 2004 and 2007

Escalation was applied as per Table 19.6 below.

Table 19.6 Escalation of Costs Between 2004 and 2007

(from David Evans, 2007, written communication)

ESCALTION RATES	%
Labor	38%
Civil Subcontract	35%
Fences, Hydrants	20%
Concrete	34%
Structural Steel	5%
Architectural General	13%
Prefab Buildings	10%
Mechanical	20%
Pipe HDPE	100%
Pipe CS	20%
Electrical Transformer	80%
Electrical Cable	100%
Motor Control Center	50%
Electrical Tray & Terminations	30%
Generators, UPS, Security, Lights	15%
Instrumentation	5%
Expatriate Services	8%
Indirect Miscellaneous Costs	15%
Owner's Service Costs	10%
Owner's Material Costs	15%



19.7.3 Operating Cost Estimates

General

SNC-Lavalin has, in preparing the operating cost estimates, followed methodology and procedures, and exercised due care consistent with the intended level of accuracy, using its professional judgment and reasonable care, and is thus of the opinion that there is a high probability that actual costs will fall within the specified error margin. However, the reader is cautioned that no warranty should be implied as to the accuracy of estimates. Note that the figures below represent the mathematical results of the cost estimation process, and are provided for completeness with a greater number of significant digits that is consistent with the intended level of accuracy of the estimate; a greater level of accuracy than stated above should not be inferred.

The estimated Operating Costs for Las Cristinas, based on life-of-project averages, excluding royalties, are presented in Table 19.7. The table shows both the estimates presented in 2005 (SNC-Lavalin, 2005a) and the current estimates:

Table 19.7 Operating Cost Estimates

Item	Operating Cost/t Ore (Aug 2005)	Operating Cost/t Ore (Oct 2007)	Operating Cost /oz Gold * (Aug 2005)	Operating Cost /oz Gold * (Oct 2007)
Mining	\$2.68	\$3.22	\$72	\$101
Processing	\$4.45	\$5.86	\$119	\$183
G & A	\$0.52	\$0.72	\$13	\$22
TOTAL	\$7.66	9.80	\$204	\$306

Note: *Does not include royalties; MDA responsible for Mining otherwise SNC-Lavalin

Operating costs have changed from 2005 (SNC-Lavalin, 2005a) due to a number of factors including:

- Revisions to the costs and quantities of operating supplies, maintenance supplies and power as provided by Crystallex; and
- Revisions to staffing levels and labor rates for all areas of the operations as provided by Crystallex;
- Several changes in mining plans, including those related to the updated mineral resource and mineral reserve estimates reported in this update, extending the mining operation to 64 years and processing to 64 years. It is currently planned to include a MARC (“Maintenance and Repair Contract”) for the first six years of operation.

Mine Operating Costs

The life-of-mine mine operating cost is estimated to be \$3.22 per tonne of ore or \$1.36 per tonne mined. Pre-production mining is considered a capital cost and is not included in operating costs.

Costs for major consumables and labor are based on prices reported by Crystallex. Fuel prices are low in Venezuela; \$0.04 per liter is used for this work.

Currently in Venezuela the prices for explosives are established by a non-competitive market and consequently are higher than prices in most other South American countries. The costs used in this



study of \$2416/tonne for emulsion and \$1320/tonne for ANFO are based on the actual prices paid by Crystallex at their existing operations and averages of other quotes received by MDA and Crystallex.

19.8 Economic Analysis

This economic analysis and the sensitivity analysis in Section 19.9 were written by Mr. Robert Crombie of Crystallex.

Crystallex completed a base case economic analysis of Las Cristinas using a discounted cash-flow model to estimate annual cash flow for the life of the mine. At a 20,000 tpd processing rate, the mine life is 64 years. The model is based on the Proven and Probable reserve estimate, production schedule, and capital and operating cost estimates discussed in this report. The cash-flow model incorporates capital and operating costs in 2007 United States dollars. No allowances for inflation or foreign exchange fluctuations were included. The base case uses a gold price of US\$550 per ounce, which is the same price used in the reserve estimation. The model assumes all equity financing of the development costs. Summaries of the principal model inputs and financial analysis results are presented below as Table 19.8 and Table 19.9, respectively.

Table 19.8 Principal Base Case Financial Model Inputs

Gold Reserves – Estimated at \$550/oz	465 million tonnes grading 1.13 g/t 16.86 million ounces
Daily Mill Processing Rate	20,000 tonnes/day
Annual Mill Processing Rate	7,300,000 tonnes
Mine Life	64 years
Total Ore Mined	465 million tonnes
Total Waste Mined	638 million tonnes
Strip Ratio	1.37
Metallurgical Recovery	88.3%
Total Gold Recovered	14.9 million ounces
Gold Price	\$550/oz
Capital Cost	\$356 million
Sustaining Capital	\$573 million
Average Operating Cost Life of Mine	\$9.82/tonne ore
CVG Royalty @ \$550/oz	3% of Gross Revenue
Exploitation Tax	3% of Gross Revenue
Municipal Tax	1% of Gross Revenue
Depreciation	Straight Line basis using 20 year useful life
Investment Tax Credit	10% of initial capital cost
Income Tax Rate	34%
Import Duty During Construction ¹	0%
Import Duty During Operations ¹	See Tax section
VAT During Development ²	0%
VAT During Operations ²	9%

¹The Venezuelan Mines Law allows for the exoneration of import duties on most items specifically related to mining and processing activities. Crystallex has applied for the exoneration of import duties during the construction phase of Las Cristinas and intends to apply periodically for import duty exoneration on certain equipment and supplies during the operating phase of the project. This study assumes import duty exoneration is granted during the construction phase and for most significant imported items during operations. Refer to Capital Costs – Import Duties.



² This study assumes exoneration from VAT during the development stage of the project. During the operating phase, 9% VAT is charged on goods and services and is recovered as VAT certificates (CERTs) which are sold at 95% of face value. It is assumed that VAT claims are made monthly and recovery of VAT CERTs takes 18 months.

On the basis of the updated reserve and revised capital and operating cost estimates, as disclosed in this report, the base case economic model demonstrates that the Las Cristinas project is economically viable.

To allow for direct comparisons with previously reported economic results, the base case model in this report assumes that the entire capital cost of \$356 million is still to be spent. Under this scenario, the base case model returns undiscounted net present values of \$2.1 billion before tax and \$1.27 billion after tax. When discounted at 5%, the net present value is \$540 million before tax and \$290 million after tax. Before and after tax, Internal Rates of Return (“IRR”) in the base case are 17.0% and 12.3%, respectively.

A scenario was also modeled that accounted for the fact that approximately \$112 million of the \$356 million capital estimate has already been spent. Under this scenario, which assumes development expenditures of \$244 million, representing the unspent balance of capital estimate, the before-tax net present value discounted at 5% increases from \$540 million to \$647 million, while the after-tax figure increases from \$290 million to \$304 million. The IRR, before tax, increases to 25.6% from 17.0%, while the after-tax IRR increases to 17.9% from 12.3%.

The model results in the tables below are based on the full development capital estimate of \$356 million.

Table 19.9 Base Case Summary Results (Unleveraged)

Gold Price \$550/oz	<u>Before Tax</u>	<u>After Tax</u>¹
NPV @ 0% (\$millions)	\$2,060	\$1,273
NPV @ 5% (\$millions)	\$540	\$290
NPV @ 8% (\$millions)	\$286	\$123
IRR	17.0%	12.3%
Payback	5.1 years	7.3 years

¹After corporate income taxes of 34% and VAT and Import Duties paid during the operating phase.

19.9 Sensitivity Analysis

A sensitivity analysis was conducted that measured the impact on the project’s cash flow to changes in key variables, including gold price (as it impacts revenues, reserves are held constant at the \$550/oz estimate, Table 19.10), capital costs (Table 19.11), and operating costs (Table 19.12). The sensitivity analysis was performed on an unleveraged, before-tax basis.

The sensitivity analysis indicated that the project’s cash flows are most sensitive to variations in the gold price. Cash flow is much less sensitive to changes in operating costs and is least sensitive to changes in development capital costs. Net Present Value (“NPV”) figures below are in US\$ millions.



Table 19.10 Sensitivity to Gold Price (Before-Tax)

Gold Price	\$450	\$500	\$550	\$600	\$650
NPV @ 0%	\$680	\$1,370	\$2,060	\$2,750	\$3,440
NPV @ 5%	\$134	\$337	\$540	\$743	\$946
IRR	9.0%	13.3%	17.0%	20.5%	23.8%

Table 19.11 Sensitivity to Development Capital Costs (Before-Tax)

% of Base	90%	95%	100%	105%	110%
NPV @ 0%	\$2,095	\$2,078	\$2,060	\$2,042	\$2,024
NPV @ 5%	\$574	\$557	\$540	\$523	\$506
IRR	19.2%	18.0%	17.0%	16.1%	15.3%

Table 19.12 Sensitivity to Operating Costs (Before-Tax)

% of Base	90%	95%	100%	105%	110%
NPV @ 0%	\$2,518	\$2,289	\$2,060	\$1,831	\$1,602
NPV @ 5%	\$660	\$600	\$540	\$480	\$420
IRR	18.8%	17.9%	17.0%	16.1%	15.2%



20.0 INTERPRETATIONS AND CONCLUSIONS

Las Cristinas is a gold deposit with associated low-grade copper that is unique in terms of its geological characteristics as well as its size. The geometry and size of the deposit give the project operational flexibility that will allow optimal exploitation. As described in all previous reports, the deposit is still open ended at depth and, with increasing exploration and metal prices, decreasing costs, or increasing metallurgical recoveries, reserves could yet again increase. The project will always have the issue that incrementally more ounces down dip will be ever increasingly more costly and these tonnes will become very sensitive to operational costs, especially mining costs.

20.1 Geology and Exploration

Two styles of mineralization are evident at Las Cristinas. Breccia-hosted mineralization at Mesones-Sofia constitutes the core of the mineralized system; it has a higher copper content, is associated with silicification, and cross-cuts stratigraphy. The vast majority (>95%) of the gold mineralization, the Conductor style, is located lateral to the breccia bodies and is essentially stratiform.

Drilling by Crystallex in 2004, 2005, 2006, and 2007 was designed to increase the resources and reserves at Las Cristinas and was successful in meeting that objective. Drilling extended the resource down dip at Conductor-Cuatro Muertos and also along strike into the Morrocoy area, allowing estimation of a defined resource for the mineralization at Morrocoy. The Inferred resource estimated for the Cordova deposit was included in the global Las Cristinas resource for the first time. The total estimated resource for Las Cristinas, since Crystallex obtained the mining rights from CVG, was increased from about 21 million ounces of gold in 2003 to about 27 million ounces in this report. Proven and Probable reserves increased from about 9.5 million ounces of gold in 2003 to about 17 million ounces in this report. Through its analysis of drill results, Crystallex has further defined the controls on mineralization at Las Cristinas, which will aid in continued exploration, and has made great strides in understanding sample heterogeneity and behavior in sub-sampling procedures.

Drilling in the 2006-2007 campaign proved the continuity of mineralization at depth between the Cuatro Muertos area of Conductor and Sofia, and the shallower component of this zone needs to be drill tested; this recommended testing is discussed in Section 21.0. Crystallex's work at Las Cristinas has also provided insight into the definition of folding in the Morrocoy area, which may be helpful in analyzing the structures in the Cordova area and in guiding additional drilling; this work is also discussed further in Section 21.0.

20.2 Resources

MDA is not reporting copper resources or resources for any commodity other than gold. The rights to other commodities have not been granted to the CVG by MIBAM, the owner of the concessions on which the Las Cristinas deposit is located, and thereby have not been passed on to Crystallex. Inclusion of the copper mineralization in the estimate, however, was done as it represents a negative to processing costs and recovery when in the form of supergene copper minerals such as chalcocite and covellite. Although silver is particularly low grade, it was modeled. Silver would add slightly to the overall economics if the rights to produce it were granted to CVG and in turn Crystallex.



There is some concern about sample integrity of core samples with low recoveries as it was noted that there is an inverse relationship of grade and core recovery. In some of the extreme cases, these samples were eliminated from the database. But overall, this subtle relationship could add a bias to the underlying data set and in turn, to the modeled grades. This relationship of lower core recovery and higher grade dominantly occurs in the saprolite, which represents about one fifth of the reserve. Although this issue has been addressed by lowering the resource classification (Measured to Indicated and/or Indicated to Inferred) when grades are based on lower-core-recovery samples, there exists a possibility that this bias may manifest itself during saprolite mining as lower than estimated grades. Because of the modeling methodology, the impact of this core recovery/grade relationship is greater for copper than for gold.

Although in some verification work Crystallex samples were lower grade on average than Placer's, most often this could be explained by a few high-grade samples that were not reproduced by Crystallex. It is further explained by the effect on average grade by sample size. Most Crystallex samples were smaller (NQ core vs. HQ core by Placer), which has been demonstrated to potentially instill a lower-grade bias.

20.3 Development and Production

Mining the Las Cristinas deposit presents unique opportunities and risks. MDA believes that the single most important factor influencing mining is the amount of water entering the pit. It is very important to further characterize groundwater flows, and to that end MDA has made a recommendation regarding further study in Section 21.3. Pit pumping requirements can be reduced by capturing as much water as practical on upper benches and channeling it to sumps in the upper elevations of the pit. The catch benches at the base of the carbonate-leached bedrock are a logical choice for collecting water, since about half of the pit inflow is anticipated to be from the carbonate-leached bedrock and that water could be captured.

Crystallex has taken steps to deal effectively with residual cyanide and with acid mine waste. At the request of MinAmb, Crystallex has agreed to move the cyanide-destruction plant such that it treats tailings from the plant prior to their reaching the TMF. The tailings that flow onto the TMF will have low residual-cyanide concentrations, which will be further degraded by reaction with sunlight. Consequently, the risk of leakage of cyanide into natural water courses, and the environment in general, is extremely low. Further characterization of potentially acid-generating waste rock and further remediation planning should be done to lower risks and avoid extra costs. During the first seven years, there is limited acid-neutralizing waste available in the mine plan to encapsulate the potentially acid-generating waste. However, after year seven, the situation is reversed and there is more than enough acid-neutralizing waste to encapsulate the SAPS waste. The low risk of cyanide contamination and acid mine drainage in the long term is fundamental to the success of the Las Cristinas project and plans for its closure at the end of the mine life. With proper management, the mine site should be left without environmental flaws after closure.

Explosives prices in Venezuela are high by general world-wide standards and reduction of these costs will improve the economics of the project. On the other hand, the Venezuelan agency that controls explosives within the country is a monopoly and may not readily reduce prices. Accordingly an allowance has been made in the operating costs to reflect uncertain explosives costs.



Detailed production scheduling should be undertaken with the goal of improving project economics. Equipment requirements should be further evaluated and alternative mining methods considered. Other enhancements to the existing mine plan are possible which could result in improved economics. There is time during the first years of mining to optimize designs and methodology to enhance the operation, specifically:

- Pit wall angles should be monitored over as long a period as possible prior to committing to mining the final wall thus giving time to analyze wall designs and improve on them. The early pit phases have been designed to be sufficiently inside the ultimate pit walls to allow for changes to the ultimate pit design without significant impact to mining productivity.
- Opportunities may be sought to utilize backfill as a way to reduce haulage costs and the overall footprint of external dumps. This work would need to be coordinated with environmental permitting issues.

The long mine life coupled with focused joint initiatives with local government and local communities provides an opportunity for the Las Cristinas project to play a leading role in the development of a sustainable local economy.



21.0 RECOMMENDATIONS

At this stage of pre-production, while waiting for final government permission to begin construction, multiple tasks in differing disciplines should be done to optimize expected production. Crystallex should continue with certain projects: exploration and geological studies, sub-sampling evaluation for production samples, metallurgical testing, water flow studies, detailed engineering work, and optimizing the production schedule, for example. Some particular recommendations that Crystallex should consider are discussed below.

21.1 Geology

There are two areas in the Las Cristinas project that would benefit from additional drilling with the intention of upgrading what are now Inferred resources to Measured and Indicated.

The area beneath the Quebrada Amarilla, located immediately south of the Sofia area, requires infill drilling in order to upgrade Inferred resources there to Measured and Indicated and, hopefully, also to Proven and Probable reserves. Drilling in the 2006-2007 campaign demonstrated continuity of mineralization at depth between the Cuatro Muertos area of Conductor and Sofia, and the shallower component of this zone needs to be drill tested. This would require three holes about 400m in length, totaling approximately 1,200m of drilling.

The definition of the mineralized zones and stratigraphy in the steep-dipping north-striking and shallower-dipping west-striking fold limbs in the Morrocoy area may provide a template on which the Cordova area geology may be unraveled. Cordova is an area in which closely spaced drilling by Placer demonstrated a lack of continuity of gold zones. Given the shape of folding defined in the adjacent Morrocoy zone, it is suspected that the apparent lack of continuity of the gold zones in Cordova may be due to more intense folding. The greater intensity of folding suspected to occur in Cordova is consistent with the stratigraphy consisting largely of relatively weak, bedded sedimentary and volcanoclastic facies interlayered with relatively few competent volcanic units. The evaluation of this possibility requires a thorough and detailed review of mineralized zones on section in Cordova and also requires relogging of core in an effort to correlate stratigraphy between drill holes. Since correlation of stratigraphy is not simple due to the lack of distinct units or marker beds, litho-geochemistry of volcanic units may provide a means of distinguishing between units that are macroscopically similar. The objective of an intense review of the stratigraphy and structure of the Cordova area would be to upgrade Inferred resources there to Measured and Indicated through a small amount of orientated drilling precisely located to test changes in orientation of the limbs of folds. It is anticipated that such a structural interpretation could be demonstrated with approximately 1,500m of drilling (5 holes of approximately 300m long).

21.2 Resources

As in all projects, there are certain aspects of the project and resource estimate that can use additional study. The following recommendations regarding the geology and resources are given not to show deficiencies, but rather to provide a higher level of understanding of the project.

- There remains an issue of accuracy when using a hard boundary between CSB and CLB materials. The contact between the two material types is probably more irregular and/or



gradational. As MDA used the appropriate specific gravity samples from each unit, the present estimation methodology should assign correct specific gravity, but the changes spatially may vary from what is modeled.

- As the effect of copper on the cyanide recovery of gold is potentially negative, further study should be made on the CNSCu distribution in the SAPS and CLB.

21.3 Development and Production

Due to the importance of the amount of water entering the pit, MDA recommends that a program of testing be undertaken prior to or during the detailed engineering stage of project development. Results are available from the existing well tests, but a higher level of understanding is needed.

From a pre-production standpoint, Crystallex should consider further study on water management and de-watering, optimize the encapsulation of the acid-generating saprolite sulfide material in the dumps, and, with the expanded pit, modify designs between the crusher and the new western edge of the designed pit.

Water management and de-watering

One of the most significant physical issues Crystallex faces in mining the deposit is the amount of water that will be encountered. Rainfall data gathered over a nine-year period indicate that the average rainfall for that period exceeded three meters per year. In addition, recent studies show that the inflow from groundwater will be significant as well. The amount of water entering the pit from the natural water table through fractures can be as high as 2,585 L/sec (Jackson, 2005).

MDA has taken into account possible delays in the production in determining cash flows for this study. Important to the success of the project, detailed water production scheduling needs to be coordinated with site hydrologists to ensure that the required sumps, vertical wells, horizontal wells, and other dewatering infrastructure are in place and operating effectively and efficiently.

Encapsulation of sulfide material

The acid-generating material management plans (SNC-Lavalin, 2005a) that are depicted in this report require mining of saprolite-sulfide waste material which must be encapsulated within waste dumps to prevent the production of acid drainage. This will require detailed short-term planning to ensure that potential acid-generating material being dumped is properly managed. This includes the containment and treatment of runoff water in addition to encapsulation of the material. The resulting plans should be coordinated between the company's mine operations and environmental staff.

New Waste Dump

SNC-Lavalin strongly recommends that a geotechnical investigation program be carried out to confirm the subsurface conditions under the proposed new dump location and stability analysis undertaken to verify design recommendation provided above.



Crusher/pit conflict

The expanded pit, which is a result of the increase in reserves, is now within about 30m of the project's primary crusher. Consideration should be made to minor relocation of the crusher. This would provide a cushion against any future modifications to pit designs based on slope reconfigurations or further expansion of reserves.

Tailings Management Facilities

Note that, should the option to expand the TMF footprint be carried forward, substantial dam alignment optimization and geotechnical field investigation would be required for the detail design. The stability analysis presented herein is solely based on data/parameters inferred from previous investigations carried out for a less high dam. Due to the height increase to about 100 m, additional field investigation and tests are required to confirm the analysis.

The additional soil tests will include, but are not necessarily limited to, consolidation tests, collapse potential, triaxial shear tests, in-situ permeability testing, *etc.* It is also recommended to carry out seepage and contaminant transport analysis to evaluate the impact of increased tonnage of tailings on the environment and identify required mitigation measures that should be implemented, if any.

Recommendations presented in 2005 design report regarding site preparation, construction and monitoring should be still followed.



22.0 REFERENCES

- A.R. MacPherson Consultants Ltd., 1994 (January 12), Grindability study on Las Cristinas ore types, ARMC Project 8254: Letter report to Placer Dome Ltd.
- AmbioConsult, C.A., 1996a (August), Environmental impact study for Las Cristinas mining project, Volume 1, Project description: Report for Placer Dome de Venezuela.
- AmbioConsult, C.A., 1996b (August), Environmental impact study for Las Cristinas mining project, Volume 2, Environmental characterization: Report for Placer Dome de Venezuela.
- AmbioConsult, C.A., 1996c (August), Environmental impact study for Las Cristinas mining project, Volume 3, Environmental impacts and control measures: Report for Placer Dome de Venezuela.
- Bruce Geotechnical Consultants Inc., 1996 (August 16), Feasibility study tailing disposal area & waste dump area, Las Cristinas project, Venezuela, Volume 1: Report prepared for Placer Dome Technical Services Inc.
- Day, W.C., Tosdal, R.M., Acosta, E.L., Aruspon, J.C., Carvajal, L., Cedeño, E., Lowry, G., Martinez, L.F., Noriega, J.A., Nuñez, F.J., Rojas, J. and Prieto, F., 1995, Geology of the Lo Increible mining district and U-Pb age of the Early Proterozoic Yuruari Formation of the Pastora Supergroup, Guayana Shield, Venezuela, *in* Geology and Mineral Deposits of the Venezuelan Guayana Shield, Sidder, G.B., Garcia, A.E. and Stoesser, J.W. (eds): U.S. Geological Survey Bulletin 2124, p. E1-E13.
- Gordon, R., 2005, Structural assessment of the Las Cristinas deposit, Bolivar State, Venezuela: Unpublished internal report for Crystallex International Corp., 17p.
- Grill, E. C., 1999 (March), Las Cristinas project exploration closure report: Internal report for Minera Las Cristinas.
- Hardy, S., 2006 (February 28), Las Cristinas January 1, 2006 reserves: Memo to Crystallex International Corporation, 1 p.
- Hardy, S., 2007 (February 21), Las Cristinas January 1, 2007 reserves: Memo to Crystallex International Corporation, 1 p.
- Jackson, H., 2005 (December 12), Pumping test analysis and numerical modeling of the Las Cristinas open pit: Report prepared for Crystallex International Corporation by SNC-Lavalin Engineers and Constructors, Inc.
- Josic, L., 2007 (October 5), Preliminary open pit slope stability analysis – updated: Memorandum prepared by SNC-Lavalin Engineers and Constructors, Inc. for Crystallex International Corporation, 18 p.
- Laplante, A. R., 2003 (May 25), Report on the characterization of gravity recoverable gold in samples of saprolite (SAPO) and carbonate stable bedrock (CSB) from the Las Cristinas deposit.



- Mine Development Associates and Kappes, Cassidy and Associates, 2003 (January 6), Las Cristinas internal prefeasibility study – Based on data provided by CVG, Bolivar State, Venezuela: Report for Crystallex International Corporation.
- Nicholson, T., 2007, Las Cristinas 2006/2007, drill program QA/QC, procedures and compiled results: Prepared by Nicholson Analytical Consulting for Crystallex International Corporation.
- Outokumpu Mintec Canada Ltd., 2003a (May 12-16), Test report TH-309, Crystallex Las Cristinas, testwork performed at Lakefield Research, thickening of CIL feed.
- Outokumpu Mintec Canada Ltd., 2003b (July 16-18), Test report TH-309 continued, Crystallex Las Cristinas, testwork performed at Lakefield Research, thickening of CIL feed.
- Pitard, F. F., 2005 (June 28), Study of the heterogeneity of gold at the “Las Cristinas” project; Effects on gold resource estimates and future production: Prepared for Crystallex International Corporation and Mine Development Associates.
- Placer Dome Inc., Metallurgical Research Centre, 1994 (February 8), Las Cristinas project, El Callo, Bolivar, Venezuela, Report No. 3, Prefeasibility study metallurgical test report.
- Placer Dome Exploration and Placer Dome Technical Services Ltd., 1996a (March), Las Cristinas project feasibility study, Volume 1 – Geology.
- Placer Dome Technical Services Ltd., 1996b (March), Las Cristinas project, Venezuela, feasibility study, Volume 2 – Mining.
- Placer Dome Technical Services Ltd., 1996c (March), Las Cristinas project feasibility study, Volume 3 – Metallurgy.
- Placer Dome Technical Services Ltd., 1996d (March), Las Cristinas project feasibility study, Volume 4 – General Matters.
- Placer Dome Technical Services Ltd., 1996e (March), Las Cristinas project feasibility study, Volume 5 – Cost Estimates.
- Placer Dome Technical Services Ltd., 1996f (March), Las Cristinas project, Venezuela, feasibility study, Volume 6 – Summary.
- Placer Dome Exploration and Placer Dome Technical Services, July 1998a, Las Cristinas project feasibility study update, Volume I – Geology.
- Placer Dome Exploration and Placer Dome Technical Services, July 1998b, Las Cristinas project feasibility study update appendices.
- Placer Dome Technical Services Ltd., 1998c (February), Las Cristinas project, El Callao, Bolivar, Venezuela, process amendments to the sulphide flotation, leach and cyanide management.
- Pocock Industrial Inc., 1995 (August), Gravity sedimentation pressure filtration and pulp rheology studies: Report prepared for Placer Dome Inc. Las Cristinas project.



- Ristorcelli, S., 2003 (October 26), Las Cristinas reevaluation of the grade differences between Placer and Crystallex: Internal memorandum to Luca Riccio, Ken Thomas, and Richard Spencer, Crystallex International Corporation.
- Ristorcelli, S., 2005 (July 15), 2005 Las Cristinas resource update QA/QC, Bolivar State, Venezuela: Prepared for Crystallex International Corporation.
- Ristorcelli, S., and Hardy, S., 2003 (April 30), Technical report – Resources and reserves, Las Cristinas gold and copper deposits, Bolivar State, Venezuela: Technical report prepared for Crystallex International Corporation, 93 p.
- Ristorcelli, S., and Hardy, S., 2004a (October 26), 2004 Las Cristinas resource update, Bolivar State, Venezuela: Prepared for Crystallex International Corporation.
- Ristorcelli, S., and Hardy, S., 2004b (October 26), Review of the Las Cristinas model, Crystallex's Conductor and Mesones-Sofia drilling and recommendation for a heterogeneity study for the Las Cristinas, Bolivar State, Venezuela: Prepared for Crystallex International Corporation.
- Ristorcelli, S., and Hardy, S., 2004c (November), Technical report on resources and reserves of the Las Cristinas gold and copper deposits, Bolivar State, Venezuela: Unfiled technical report prepared for Crystallex International Corporation, 92 p.
- Ristorcelli, S., Hardy, S., and Prenn, N., 2002 (December 6), Technical summary and recommendations on the Las Cristinas gold deposits, Bolivar State, Venezuela: Technical report prepared for Crystallex International Corporation, 50 p.
- SGS Lakefield Research Limited, 2003a (July 6), The recovery of gold from Las Cristinas samples, LR10574-001 – Progress Report No.1.
- SGS Lakefield Research Limited, 2003b (July 15), The liquid solid separation and rheological properties of slurry samples from the Las Cristinas project, LR10574-001 – Progress Report No.2.
- SGS Lakefield Research Limited, 2003c (December 18), The recovery of gold from Las Cristinas samples, LR10574-002 – Progress Report No.4.
- SGS Lakefield Research Limited, 2004a (January 12), The recovery of gold from Las Cristinas samples, Revision #2 - LR10574-001 – Progress Report No.3 (Note added by author: This date is incorrectly given as 2003 on the cover of the report.).
- SGS Lakefield Research Limited, 2004b (December 8), The recovery of gold and environmental characterization of Las Cristinas samples, LR10574-003 – Progress Report No.5, Revision 1.
- SNC-Lavalin Engineers and Constructors, Inc., 2003 (September), Las Cristinas project, Crystallex International Corporation, feasibility study: Report for Crystallex International Corp., 561 p.
- SNC-Lavalin Engineers and Constructors, Inc., 2004a (January), Las Cristinas project, Venezuela – Feasibility study 40,000 t/d production rate.
- SNC-Lavalin Engineers and Constructors, Inc., 2004b (April), Las Cristinas project, Venezuela, Environmental Impact Study. Addendum #1: Expansion of the TMF borrow pit and



development of the Potaso quarry (which was subsequently determined to be unsuitable).
Addendum #2: Response to observations raised by MARN during presentation of the Las Cristinas Project Environmental Impact Study, Sept. 23, 2004; Response to observations raised by MARN during presentation of the Las Cristinas Project Environmental Impact Study Part II, Sept. 23, 2004. Addendum #3: Detailed evaluation of socio-economic impacts of Las Cristinas Project (This study was undertaken for the project by Proconsult C.A., a Venezuelan Consultant company.).

SNC-Lavalin Engineers and Constructors, Inc., 2004c (December), Field investigations report, open pit slope and waste dump stability study, v. 3 of 3: Report for Crystallex International Corporation.

SNC-Lavalin Engineers and Constructors, Inc., 2005a (August), Crystallex International Corporation Development plan – 2005 (update to the feasibility study issued September 2003), 127 p.

SNC-Lavalin Engineers and Constructors, Inc., 2005b, Simulation of contaminant transport in tailings disposal at Las Cristinas.

SNC-Lavalin Engineers and Constructors, Inc., 2005c, TMF Dam Stability Analysis – 2007 Updated.

SNC-Lavalin Engineers and Constructors, Inc., 2005d, Environmental and Social Impact Assessment, Las Cristinas Project, Venezuela.

SNC-Lavalin Engineers and Constructors, Inc., 2005e, 20,000 to 40,000 t/d Expansion Plan, Las Cristinas Project, Venezuela.

SRK Consulting Engineers and Scientists, 2003 (August), Las Cristinas project, groundwater and surface water management issues for feasibility study (draft): Report prepared for Crystallex International Corporation.

Sandefur, R.L., 2004 (November 1), Specified Las Cristinas comment items: Internal memorandum to Steve Ristorcelli, MDA (Final edits November 21, 2004).

Spencer, R., 2006 (January 31), Review of standards and QAQC procedures used during the 2005 drilling programme at Las Cristinas: Internal report prepared for Crystallex International Corp.

Thalenhurst, H., 2005 (September 28), Review of mineral resources and reserves, Las Cristinas gold project, Bolivar State, Venezuela: Prepared for Crystallex International Corporation by Strathcona Mineral Services Limited.



23.0 DATE AND SIGNATURE PAGE

Effective Date of report: November 7, 2007
Completion Date of report: November 7, 2007

“Steven Ristorcelli”
Steven Ristorcelli, P. Geo.

November 7, 2007
Date Signed:

“Thomas Dryer”
Thomas Dryer, P. Eng.

November 7, 2007
Date Signed:

“Richard Spencer”
Richard Spencer, P. Geo.

November 7, 2007
Date Signed:

“David Evans”
David Evans, P. Eng.

November 7, 2007
Date Signed:

“John Goode”
John Goode, P. Eng.

November 7, 2007
Date Signed:

“Helen Jackson”
Helen Jackson, P. Geo.

November 7, 2007
Date Signed:

“Ljiljana Josic”
Ljiljana Josic, P. Eng.

November 7, 2007
Date Signed:

“Henri Sangam”
Henri Sangam, P. Eng.

November 7, 2007
Date Signed:



24.0 AUTHORS' CERTIFICATES

STEVEN RISTORCELLI, P. GEO.

I, Steven Ristorcelli, P. Geo., do hereby certify that I am currently employed as Principal Geologist by Mine Development Associates, Inc., 210 South Rock Blvd., Reno, Nevada 89502 and:

1. I graduated with a Bachelor of Science degree in Geology from Colorado State University in 1977 and a Master of Science degree in Geology from the University of New Mexico in 1980. I have worked as a geologist for a total of 28 years since my graduation from undergraduate university.
2. I am a Registered Professional Geologist in the states of California (#3964) and Wyoming (#153) and a Certified Professional Geologist (#10257) with the American Institute of Professional Geologists.
3. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
4. I am responsible or jointly responsible for the preparation of Sections 1 to 3, 5 to 15, 17.1 to 17.6, and 18, 20 and 21 of this report titled Technical Report Update on the Las Cristinas Project, Bolivar State, Venezuela for Crystallex International Corporation and dated November 7, 2007 (the "Technical Report") except those sections that apply to land title, environmental, reserves, metallurgy, processing, and production. I visited the site numerous times over the years and most recently the project January 15th to 17th, 2007.
5. I have had prior involvement with the property and project having visited working on prior resource estimates.
6. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
7. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
8. I consent to the filing of the Technical Report with any securities regulatory authority, stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 7th day of November 2007.

"Steven Ristorcelli"

Steven Ristorcelli
Print Name of Qualified Person



THOMAS DYER, P. E.

I, Thomas Dyer, P. E., do hereby certify that I am currently employed as Senior Engineer by Mine Development Associates, Inc., 210 South Rock Blvd., Reno, Nevada 89502 and:

1. I graduated with a Bachelors of Science degree in Mine Engineering from South Dakota School of Mines & Technology in 1996. I have worked as a Mining Engineer for 11 years since graduation.
2. I am a registered as a Professional Engineer – Mining in the State of Nevada (# 15729). I am also a Registered Member of SME (# 4029995RM) in good standing.
3. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101. I am independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101.
4. I am responsible for the preparation of the Mining Section (19.1) and Reserve Estimate sections (17.17) of this report titled Technical Report Update on the Las Cristinas Project, Bolivar State, Venezuela for Crystallex International Corporation and dated November 7, 2007 (the “Technical Report. I have not visited the site.
5. I have had no prior involvement with the property.
6. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
7. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
8. I consent to the filing of the Technical Report with any securities regulatory authority, stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 7th day of November 2007.

“Thomas Dyer”

Thomas Dyer

Print Name of Qualified Person

CERTIFICATE OF AUTHOR

Richard Mark Spencer, P. Geo., do hereby certify that I am currently employed as Vice President, Exploration, by Crystallex International Corporation, 18 King Street East, Suite 1210, Toronto, Ontario M5C 1C4 and:

1. I graduated with a Bachelor of Science (Honours) degree in Geology from the University of the Witwatersrand, Johannesburg, South Africa in 1985 and a Doctor of Philosophy degree in Geology from the same university in 1992. I have worked as a geologist for a total of 20 years since my graduation from undergraduate university.
2. I am registered with the Association of Professional Geoscientists of Ontario (#1243) and with the Geological Society of London, England, as a Chartered Geologist (#17538).
3. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101. I am not independent of the issuer as defined in section 1.5 (4) of National Instrument 43-101.
4. I am responsible for Sections 7, 8, and 9, jointly responsible for Sections 5 through 14 and 20 and 21, but am generally familiar with the content, having reviewed most of the titled Technical Report Update on the Las Cristinas Project, Bolivar State, Venezuela for Crystallex International Corporation and dated November 7, 2007 (the “Technical Report”).
5. I have been extensively involved in the exploration of the property since September 2004 and have spent approximately 25% of my working time on the property since that date.
6. I am not independent of the issuer under the terms of section 1.5 of National Instrument 43-101 since I own common shares of Crystallex International Corporation.
7. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.
8. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
9. I consent to the filing of the Technical Report with any securities regulatory authority, stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 7th day of November 2007.

“Richard Spencer”

Richard Spencer
Print Name of Qualified Person

CERTIFICATE OF AUTHOR

To accompany Report entitled “Technical Report Update on the Las Cristinas Project, Bolivar State, Venezuela”, dated November 7th, 2007 and pertaining to the Las Cristinas Project in Venezuela

I, John R. Goode, P. Eng., do hereby certify that:

1. I am a Consulting Metallurgical Engineer with J.R. Goode and Associates of Suite 1010, 65 Spring Garden Avenue, Toronto, Ontario, Canada, M2N 6H9.
2. I graduated with a Bachelor of Science (Engineering) in Metallurgy degree from the Royal School of Mines, London University, U.K. in 1963.
3. I am registered as a Professional Engineer with Professional Engineers Ontario with registration number 16561011.
4. I have worked as a metallurgist for a total of 44 years since my graduation from university.
5. I have read the definition of “qualified person” set out in National Instrument 43-101 (“NI 43-101”) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
6. I have not visited the Las Cristinas property in Venezuela.
7. I am responsible, in part, for the preparation of Section 16.0 “Mineral Processing and Metallurgical Testing” of the technical report titled “Technical Report Update on the Las Cristinas Project, Bolivar State, Venezuela”, dated November 7th, 2007 (the “Technical Report”) relating to the Las Cristinas property.
8. I have had prior involvement with the property that is the subject of the Technical Report through earlier work for Crystallex International Corporation.
9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the above referenced Section 16 of the Technical Report, the omission to disclose which makes the Technical Report misleading.
10. I am not independent of the issuer under the terms of section 1.5 of National Instrument 43-101 since I own 1,000 common shares of Crystallex International Corporation.
11. I have read National Instrument 43-101 and Form 43-101F1, and Section 16 of the Technical Report has been prepared in compliance with that instrument and form.
12. I consent to the filing of the Technical Report with any securities regulatory authority, stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Dated this 7th Day of November, 2007

J.R. Goode



CERTIFICATE OF QUALIFIED PERSON

As an author of the preparation of parts the report entitled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for the Crystallex International Corporation and dated November 7, 2007, I hereby state:

1. My name is David Evans and I am employed by SNC-Lavalin Engineers & Constructors Inc. at 2200 Lake Shore Blvd., Toronto, Ontario Canada.
2. I am practicing as a professional engineer registered with Professional Engineers Ontario.
3. I graduated from the B.Sc (Eng) mineral process engineering program at Queen's University, Kingston, Ontario in 1988.
4. I have practiced my profession since 1988.
5. I am a "qualified person" as that term is defined in National Instrument 43-101 (Standard of Disclosure for Mineral Projects).
6. I last personally visited the Las Cristinas property in October, 2007.
7. I am responsible for the preparation, in part, of the Operating and Capital Costs (19.7.2 and 19.7.3) and the balance of Section 19 excluding Mining Operations (19.1.1 to 19.1.8), Waste Rock Dumps and Ore Stockpiles (19.3.2), Open Pit (19.3.3), TMF Design (19.3.4), Taxes (19.7.1), Economic Analysis (19.8) and Sensitivity Analysis (19.9) of the technical report titled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for Crystallex International Corporation and dated November 7, 2007 relating to the Las Cristinas property in Venezuela.
8. I am not aware of any material fact or material change with respect to the subject matter of the Report, which is not reflected in the Report, the omission of which would make the Report misleading.
9. I am independent of Crystallex International Corporation pursuant to section 1.5 of the Instrument.
10. I do not have nor do I expect to receive a direct or indirect interest in the Las Cristinas property of Crystallex International Corporation and I do not beneficially own, directly or indirectly any securities of Crystallex International Corporation or any associate or affiliate of such company.
11. I have read National Instrument 43-101 and Form 43-101F1 and of Operating and Capital Costs (19.7.2 and 19.7.3) and the balance of Section 19 excluding Mining Operations (19.1.1 to 19.1.8), Waste Rock Dumps and Ore Stockpiles (19.3.2), Open Pit (19.3.3), TMF Design (19.3.4), Taxes (19.7.1), Economic Analysis (19.8) and Sensitivity Analysis (19.9) of the of the technical report titled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for the Crystallex International Corporation and dated November 7, 2007, have been prepared in compliance with that instrument and form.



Dated at Toronto, Ontario on the November 7th, 2007.

David P. Evans, P. Eng.
Manager, Process

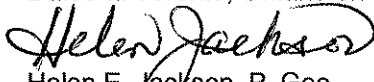


CERTIFICATE OF QUALIFIED PERSON

As an author of the preparation of parts the report entitled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for Crystallex International Corporation and dated November 7, 2007, I hereby state:

1. My name is Helen E. Jackson and I am employed by SNC-Lavalin Engineers & Constructors Inc. at 2200 Lake Shore Blvd., Toronto, Ontario Canada.
2. I am practicing as a professional geologist registered with Professional Geoscientists of Ontario.
3. I graduated from the B.Sc. (Hons.) Biology program at Queen's University, Kingston, Ontario in 1980; and received a B.Sc. (Specializations in Geology) from the University of Alberta in Edmonton in 1983.
4. I have practiced my profession since 1984.
5. I am a "qualified person" as that term is defined in National Instrument 43-101 (Standard of Disclosure for Mineral Projects).
6. I last personally visited the Las Cristinas property in 2004.
7. I am responsible for the preparation of the section pertaining to Groundwater Numerical Modeling within the Open Pit Hydrogeology and Dewatering section (19.1.1) of the technical report titled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for Crystallex International Corporation and dated November 7, 2007 relating to the Las Cristinas property in Venezuela.
8. I am not aware of any material fact or material change with respect to the subject matter of the Report, which is not reflected in the Report, the omission of which would make the Report misleading.
9. I am independent of Crystallex International Corporation pursuant to section 1.5 of the Instrument.
10. I do not have nor do I expect to receive a direct or indirect interest in the Las Cristinas property of Crystallex International Corporation and I do not beneficially own, directly or indirectly any securities of Crystallex International Corporation or any associate or affiliate of such company.
11. I have read National Instrument 43-101 and Form 43-101F1, and the section pertaining to Groundwater Numerical Modeling within the Open Pit Hydrogeology and Dewatering section (19.1.1) of the technical report titled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for the Crystallex International Corporation and dated November 7, 2007, have been prepared in compliance with that instrument and form.

Dated at Toronto, Ontario on the November 7th, 2007.


Helen E. Jackson, P. Geo.
Senior Hydrogeologist

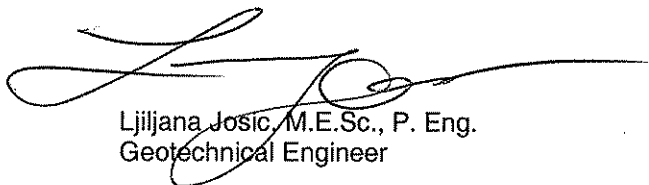


CERTIFICATE OF QUALIFIED PERSON

As an author of the preparation of parts the report entitled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for the Crystallex International Corporation and dated November 7, 2007, I hereby state:

1. My name is Ljiljana Josic and I am employed by SNC-Lavalin Engineers & Constructors Inc. at 2200 Lake Shore Blvd., Toronto, Ontario Canada.
2. I am practicing as a professional engineer registered with Professional Engineers Ontario.
3. I completed B.Sc (Eng) at the Faculty of Mining and Geological Engineering, The University of Tuzla, Bosnia and Herzegovina in 1989 and M.E.Sc. in Civil and Environmental Engineering, The University of Western Ontario, London, Ontario in 2001.
4. I have practiced my profession since 1989.
5. I am a "qualified person" as that term is defined in National Instrument 43-101 (Standard of Disclosure for Mineral Projects).
6. I have never visited the Las Cristinas property.
7. I am responsible for the preparation of Open Pit section (19.3.3) of the technical report titled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for Crystallex International Corporation and dated November 7, 2007 relating to the Las Cristinas property in Venezuela.
8. I am not aware of any material fact or material change with respect to the subject matter of the Report, which is not reflected in the Report, the omission of which would make the Report misleading.
9. I am independent of Crystallex International Corporation pursuant to section 1.5 of the Instrument.
10. I do not have nor do I expect to receive a direct or indirect interest in the Las Cristinas property of Crystallex International Corporation and I do not beneficially own, directly or indirectly any securities of Crystallex International Corporation or any associate or affiliate of such company.
11. I have read National Instrument 43-101 and Form 43-101F1 and Open Pit section (19.3.3) of the technical report titled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for the Crystallex International Corporation and dated November 7, 2007, have been prepared in compliance with that instrument and form.

Dated at Toronto, Ontario on the November 7th, 2007.



Ljiljana Josic, M.E.Sc., P. Eng.
Geotechnical Engineer



CERTIFICATE OF QUALIFIED PERSON

As an author of the preparation of parts the report entitled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for Crystallex International Corporation and dated November 7, 2007, I hereby state:

1. My name is Henri Pilakani Sangam and I am employed by SNC-Lavalin Engineers & Constructors Inc. at 2200 Lake Shore Blvd., Toronto, Ontario Canada.
2. I am practicing as a professional engineer registered with Professional Engineers Ontario.
3. I received a BEng from the civil engineering program at the Université du Benin, Lomé, Togo in 1989, a B.Sc.A. and a M.Sc.A. (Geotechnical) from the Université de Moncton, Moncton, NB in 1994 and 1996, respectively, and a Ph.D. (Geo-environmental) program at from The University of Western Ontario, London, ON in 2001.
4. I have over 16 years of experience in an engineering consulting environment, research and academic work.
5. I am a "qualified person" as that term is defined in National Instrument 43-101 (Standard of Disclosure for Mineral Projects).
6. I last personally visited the Las Cristinas property in July, 2005.
7. I am responsible, in part, for the preparation of the Waste Rock Dumps and Ore Stockpiles and TMF Design sections (19.3.2, 19.3.4) of the technical report titled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for Crystallex International Corporation and dated November 7, 2007, relating to the Las Cristinas property in Venezuela
8. I am not aware of any material fact or material change with respect to the subject matter of the Report, which is not reflected in the Report, the omission of which would make the Report misleading.
9. I am independent of Crystallex International Corporation pursuant to section 1.5 of the Instrument.
10. I do not have nor do I expect to receive a direct or indirect interest in the Las Cristinas property of Crystallex International Corporation and I do not beneficially own, directly or indirectly any securities of Crystallex International Corporation or any associate or affiliate of such company.
11. I have read National Instrument 43-101 and Form 43-101F1, and Sections 19.3.2 and 19.3.4 of the technical report titled Technical Report Update on the Las Cristinas Project Bolivar State, Venezuela prepared for Crystallex International Corporation and dated November 7, 2007 have been prepared in compliance with that instrument and form.

Dated at Toronto, Ontario on the November 7th, 2007.

Dr. Henri P. Sangam, P. Eng.
Senior Geo-Environmental Engineer

Appendix A
Contract with CVG



República Bolivariana de Venezuela
Dirección General de Registros y Notarías

**NOTARIA PUBLICA CUARTA
DE PUERTO ORDAZ**



Centro Comercial Cristal - 1er Piso - Locales 110 y 111
Teléfono.: (0286) 962.40. 57
Alta Vista - Puerto Ordaz - Estado Bolívar

OTORGANTES(S): Francisco José Rangel Cochez y
Marc J. Oppenheimer. TOMO: 86
N°: 16 N° DE PLANILLA: 38890 FECHA: 17-09-02



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Firely
ABOG. FIRELY C. NAVARRO A
LP.S.A. N° 11.121
VPC ASUNTOS LEGALES

**CONTRATO DE OPERACIÓN MINERA
CRISTINA 4, CRISTINA 5, CRISTINA 6 y CRISTINA 7**

Entre la **CORPORACION VENEZOLANA DE GUAYANA**, Instituto Autónomo, creado por Decreto N° 430 de fecha 29 de Diciembre de 1.960, publicado en la Gaceta Oficial de la República de Venezuela N° 26.445 de fecha 30 de Diciembre de 1.960, reformado este por Decreto N° 1.531 de fecha 7 de Noviembre de 2.001, publicado en la Gaceta Oficial de la República Bolivariana de Venezuela N° 5-553 de fecha 12 de Noviembre de 2.001, la cual goza de las prerrogativas y privilegios otorgados por la Ley de la República y esta exento del pago de todos los impuestos, tasas y contribuciones conforme lo determinan los artículos 24 y 25 del citado Decreto Ley, representada en este acto por su Presidente ciudadano **FRANCISCO JOSE RANGEL GOMEZ**, venezolano, hábil en derecho, titular de la Cédula de Identidad N° 2.520.281, de este domicilio, cuya designación consta en Decreto N° 1.034, de fecha 10 de Octubre de 2.000, publicado en la Gaceta Oficial de la República Bolivariana de Venezuela N° 37.054 del 10 de Octubre de 2.000, que en lo sucesivo y a los efectos de este Contrato se denominará **LA CORPORACION**, en ejecución a lo aprobado en el Directorio según Resolución N° 8.700, y Resolución DIR- N° 8.705, de fechas 02 de septiembre de 2002 y 16 de septiembre de 2002, respectivamente, por una parte y por la otra **CRYSTALLEX INTERNATIONAL CORPORATION**, compañía domiciliada en la Provincia de Columbia Británica de Canadá, cuya vigencia fue prorrogada bajo la Ley de Corporaciones Mercantiles del Canadá, como Corporación N° 345631-5, mediante Certificado de fecha 23 de enero de 1998, representada en este acto por su Presidente **MARC J. OPPENHEIMER**, de nacionalidad estadounidense, Pasaporte N° 152092004, debidamente autorizado para este acto según Resolución de Junta Directiva de fecha 16 de septiembre de 2002 y, en lo sucesivo denominada **CRYSTALLEX**, cada una de las cuales es individualmente denominada la "Parte" o en conjunto, las "Partes", han convenido en celebrar como en efecto lo celebran, el presente contrato de operación minera de las Cristinas 4,5,6 y 7, el cual se basa en los siguientes:

CONSIDERANDOS

1.-Que la **CORPORACIÓN VENEZOLANA DE GUAYANA** es un Instituto Autónomo con personalidad jurídica propia y con patrimonio distinto e independiente de la República, adscrito al Ministerio de la Secretaría de la Presidencia, la cual tiene como objetivo promover el desarrollo equilibrado de la Región Guayana, realizar los trabajos de exploración, prospección y explotación de las minas o yacimientos que a tales efectos le otorgue el Ministerio de Energía y Minas.

2.-Que entre el **MINISTERIO DE ENERGÍA Y MINAS** y la **CORPORACIÓN VENEZOLANA DE GUAYANA** se celebró un contrato en fecha 16 de Mayo de 2.002, donde el Ministerio autoriza a la Corporación para la ejecución de los trabajos de explotación, extracción y venta del mineral de Oro que se encuentra en los yacimientos comprendidos en las áreas de las concesiones denominadas Cristina 4, Cristina 5, Cristina 6 y Cristina 7, ubicadas en el Municipio Sifontes del Estado Bolívar, denominado "PROYECTO LAS CRISTINAS 4,5,6 y 7," en lo adelante el Proyecto.

**NOTARIA PUELICA CUARTA
DE PUERTO ORDAZ**

Planilla N° 38890
Derechos: N/E
Otorgamientos: 18-09-02

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Que el MINISTERIO DE ENERGÍA Y MINAS autorizó a la CORPORACIÓN VENEZOLANA DE GUAYANA a través del referido Contrato para el uso de los bienes afectos a dichas concesiones que pasaron a la República de conformidad con la Resolución N° 035 de fecha 06 de marzo de 2.002, publicado en la Gaceta Oficial de la República Bolivariana de Venezuela N° 37.400 de fecha 08 de marzo de 2.002.

4.-Que a los efectos del adecuado cumplimiento del referido Contrato la CORPORACION VENEZOLANA DE GUAYANA, podrá celebrar contratos de DISEÑO, CONSTRUCCION Y OPERACIÓN CON TERCEROS, previa información escrita al Ministerio de Energía y Minas.

5.-Que previo al inicio de las actividades operativas del proyecto se deberá cumplir con toda la permisería ambiental correspondiente.

CLAUSULA PRIMERA INTERPRETACION

1.1 **Definiciones.** En el presente Contrato, a menos que se establezca lo contrario de manera expresa, las siguientes palabras y frases tendrán el significado establecido más abajo:

"**Contrato**", significa el presente contrato de operación minera con sus Anexos y modificaciones hechas por escrito entre las Partes.

"**Fecha Efectiva**": significa la fecha de suscripción del presente Contrato por las Partes ante Notario Público.

"**Incumplimiento Material**", significa cualquier acto u omisión proveniente de alguna de las Partes que cause un perjuicio esencial en: (i) el negocio, el resultado de la operación o en la condiciones financieras de la otra Parte; (ii) la capacidad de la otra Parte para cumplir con sus obligaciones previstas en este Contrato de manera oportuna y cabalmente, de conformidad con los términos aquí previstos; (iii) la validez o vigencia del Contrato o de los derechos de la otra Parte.

"**Ley de Minas**", significa el Decreto con Rango y Fuerza de Ley de Minas, publicado en Gaceta Oficial No. 5.382 de fecha 28 de septiembre de 1999, así como sus Reglamentos, decretos, resoluciones y demás leyes aplicables.

"**MEM**" , significa el Ministerio de Energía y Minas.

"**Partes**" significa en plural ambas partes signatarias del presente Contrato, es decir la Corporación Venezolana de Guayana y CRYSTALLEX, y en singular (Parte) a cada una de ellas.

"**Permisos Ambientales**", significa el Permiso de Afectación de Recursos para Exploración de oro, cobre y otros minerales otorgado por el Ministerio del Ambiente y de los Recursos Naturales; así como cualquier otro permiso o autorización ambiental que dicho Ministerio o cualquier otra autoridad competente pueda requerir o que sea requerido por Ley, para la realización de actividades en Las Cristinas.

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"Pequeños Mineros", significa grupos de pequeños mineros organizados e identificados como: Nuevas Claritas, Siete estrellas, Los Rojas y la Bolivariana, instaladas en áreas delimitadas dentro del proyecto Las Cristinas.

"Plan de Producción Anual", se refiere al documento presentado anualmente por CRYSTALLEX a consideración y aprobación por parte de LA CORPORACION, el cual comprende en su contenido un estimado sobre los siguientes puntos: - inversiones, - volumen de producción, - capacidad de procesamiento, - costos operativos, - logística, - número de trabajadores, - producción de oro, - precio del oro, - ingresos por ventas, y cualesquiera otros elementos vinculados al desarrollo y ejecución del proyecto.

"Precio Mensual del Oro", significa el promedio mensual del precio del oro, el cual será calculado dividiendo la suma de todos los "London Bullion Market Association P.M. BID Gold Fix prices" (el cual fija el precio de cierre de dicho mineral para ese día por onza Troy de oro refinado), reportados para el mes correspondiente, entre el número de días para los cuales los referidos precios fueron establecidos.

"Producción", se refiere a la cantidad de mineral aurífero procesado por día, expresado en tonelada por día (tn/día).

"Tenor", significa el contenido de oro en el material aurífero proveniente del yacimiento, medido a la entrada del molino de la planta procesadora, expresado en gramos por toneladas secas (gr/tn).

CLAUSULA SEGUNDA

Objeto del contrato

2.1 LA CORPORACIÓN, conforme a autorización expedida por el MEM, mediante Contrato de fecha 16 de mayo de 2002, autenticado por ante la Notaría Pública Segunda de Puerto Ordaz, Municipio Caroní, estado Bolívar, quedando asentado en los Libros de Autenticaciones bajo el N° 08, Tomo 82, de fecha 13 de Junio de 2002, y Notaría Publica Primera, del Municipio Baruta del estado Miranda, quedando asentado bajo el N° 28, Tomo 40, de los Libros de Autenticaciones, de fecha 19 de Junio de 2002, en lo adelante Contrato CVG-MEM, el cual se anexa formando parte indivisible del presente Contrato, autoriza a CRYSTALLEX, y ésta así lo acepta, para efectuar todas las inversiones y trabajos necesarios para reactivar y ejecutar en su totalidad el proyecto minero de las CRISTINA 4, CRISTINA 5, CRISTINA 6 y CRISTINA 7, diseñar, construir la planta, operarla y procesar el material de oro para su posterior comercialización y venta, y transferir la mina y sus instalaciones a LA CORPORACIÓN al término del Contrato, conforme a lo establecido en el artículo 102 de la Ley de Minas. El proyecto Las Cristinas 4,5,6 y 7, está ubicado en el Municipio Sifontes del estado Bolívar de la República Bolivariana de Venezuela, cuya localización esta descrita en el Plano que se anexa identificado como anexo marcado "A", el cual firmado por CRYSTALLEX y LA CORPORACION forman parte de este Contrato. Conforme al plano a que se hace referencia, LA CORPORACION autoriza a CRYSTALLEX a explotar y extraer mineral de oro presente en el área de Las Cristinas 4,5,6 y 7, dentro de los siguientes linderos

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definidos, en el referido plano, por una poligonal cerrada y por vértices expresados en coordenadas U.T.M (Universal Transversal de Mercator):



ÁREA DENOMINADA CRISTINA 4. Superficie total mil hectáreas (1.000 ha.)

PUNTO	NORTE (m)	ESTE (m)
BOT - 1	683.208,00	666.284,00
BOT - 2	685.208,00	666.284,00
BOT - 3	685.208,00	671.28400
BOT - 4	683.208,00	671.284,00

ÁREA DENOMINADA CRISTINA 5. Superficie total novecientos treinta y nueve hectáreas, con cuatro áreas (939.4 ha.)

PUNTO	NORTE (m)	ESTE (m)
BOT - 1	685.208,00	671.284,00
BOT - 2	685.208,00	668.340,00
BOT - 3	687.070,00	668.340,00
BOT - 4	687.070,00	673.340,00
BOT - 5	685.208,00	673.340,00

ÁREA DENOMINADA CRISTINA 6 Superficie total novecientos cuarenta y cuatro hectáreas con dos áreas (944,2 ha.)

PUNTO	NORTE (m)	ESTE (m)
BOT - 1	685.208,00	668.340,00
BOT - 2	685.208,00	663.340,00
BOT - 3	687.070,00	663.340,00
BOT - 4	687.070,00	668.340,00



ÁREA DENOMINADA CRISTINA 7 Superficie total: un mil dos hectáreas (1.002 ha.)

PUNTO	NORTE (m)	ESTE (m)
BOT - 1	687.070,00	663.340,00
BOT - 2	689.070,00	663.340,00
BOT - 3	689.070,00	668.340,00
BOT - 4	687.070,00	668.340,00

Los trabajos que deberá realizar **CRYSTALLEX** para el diseño, construcción, puesta en operación y explotación de la mina objeto del Proyecto "Las Cristinas 4, 5, 6 y 7", comprenden la planificación geológica-minera y el suministro de todos los materiales, mano de obra, maquinarias, equipos, repuestos y otros recursos materiales o elementos necesarios para el desarrollo, explotación, procesamiento, comercialización y venta del mineral de oro presente en dicha mina, de acuerdo a los términos de este contrato.



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ESTUDIO DE FACTIBILIDAD

1.- **CRYSTALLEX** se compromete a presentar a **LA CORPORACIÓN** el Estudio de Factibilidad Técnico, Económico, Financiero, en un plazo no mayor de un (1) año contado a partir de la fecha de la firma de este contrato, para su análisis y consideración y aprobación antes de iniciarse los trabajos. Durante este período **CRYSTALLEX** deberá mantener un mínimo de actividad de campo que permita generar empleos en las comunidades aledañas al área del Proyecto.

2.2.2.- El Estudio de Factibilidad debe responder a los lineamientos establecidos en el presente contrato y en beneficio de ambas partes. La aprobación de este Estudio de Factibilidad deberá constar en escrito que se anexará marcado "B", que formará parte indivisible de este contrato.

CAUSULA TERCERA

PROGRAMA DE INVERSIÓN



CRYSTALLEX se compromete a efectuar todas las inversiones necesarias para la reactivación y ejecución del Proyecto minero "Las Cristinas 4, 5, 6 y 7", estimada de acuerdo al Estudio de Factibilidad aprobado por **LA CORPORACIÓN** para lo cual **CRYSTALLEX** deberá presentar a **LA CORPORACIÓN**, en la misma oportunidad y como parte del Estudio de Factibilidad a que se refiere la cláusula anterior, un programa y/o cronograma de desembolso y ejecución de las inversiones, así como las fuentes de financiamiento y sus condiciones. Este programa y/o cronograma de inversión será aprobado y suscrito por **CRYSTALLEX** y **LA CORPORACIÓN**, en escrito que se anexará marcado "C" y será parte integrante de este contrato.

CLAUSULA CUARTA

PLANES DE EXPLOTACIÓN

1.- **CRYSTALLEX** deberá presentar a **LA CORPORACIÓN** los Planes de Explotación para la Vida del Proyecto y los Planes de Explotación Anuales detallados. Tanto el Plan de Explotación para la Vida del Proyecto, como los planes anuales deberán ser conformados por escrito por **LA CORPORACIÓN** para su implementación.

Dichos Programas de Inversión y los Planes de Explotación deben contener la información técnica necesaria, a solicitud de **LA CORPORACIÓN**, la cual podrá solicitar en cualquier momento a **CRYSTALLEX** información adicional o podrá proponerle modificaciones o ajustes que considere razonablemente necesarios.

2.- **CRYSTALLEX** deberá especificar en dichos Planes los volúmenes de excavación de mineral y estéril, disposición de desechos, manejo de efluentes, protección ambiental, seguridad industrial y cualquier otro aspecto que **LA CORPORACIÓN** considere pertinente, lo cual le comunicará a **CRYSTALLEX**, con la suficiente antelación, dependiendo de las características técnicas de la información requerida.





CLÁUSULA QUINTA

VOLUMEN DE PRODUCCIÓN

1. **CRYSTALLEX** se compromete a poner en producción el proyecto minero "Las Cristinas 4, 5, 6 y 7", dentro del plazo fijado en la cláusula Novena del Contrato CVG-MEM, celebrado el 16 de mayo de 2002.
2. **CRYSTALLEX** se compromete a extraer anualmente de la mina objeto del Proyecto "Las Cristinas 4, 5, 6 y 7", un volumen promedio de producción diaria de mineral de oro presente, según lo indicado en el Plan de Producción Anual acordado entre las partes, que se anexará marcado "D" y formará parte de este contrato.
3. **CRYSTALLEX** se compromete a procesar el volumen de mineral de oro especificado en el Plan de Producción Anual, en la planta que instalará conforme al Proyecto, incorporando la mayor cantidad de valor agregado.
4. **CRYSTALLEX** explotará y extraerá el material estéril que no pueda almacenar en la mina y lo dispondrá en un sitio que habilitará conservando la normativa ambiental.

CLÁUSULA SEXTA

COMPENSACIONES ECONÓMICAS

1- **CRYSTALLEX** efectuará a **LA CORPORACIÓN** los siguientes pagos obligatorios:

- **Pago Inicial:** La cantidad de **QUINCE MILLONES DE DOLARES DE LOS ESTADOS UNIDOS DE AMERICA (US\$ 15.000.000,00)**, en función del ocho por ciento (8%) del valor de las inversiones realizadas dentro del Proyecto, tales como: informes, información digitalizada, campamento, perforaciones, cuyo pago hará **CRYSTALLEX** dentro de los cinco (5) días hábiles bancarios siguientes al otorgamiento del presente contrato, previa instrucciones de **LA CORPORACIÓN**.
- **Pago mínimo mensual por concepto de regalía** calculado sobre el valor comercial de la producción mensual bruta en términos porcentuales, a cancelar una vez culminada la etapa de construcción:

ORO:

Precio US\$/Onz Troy	%
menor de 280 \$/onz	1.00
mayor o igual a 280 \$/onz y menor a 350\$/onz	1.50
mayor o igual a 350 \$/onz y menor a 400\$/onz	2.00
mayor de 400\$/onz	3.00

Estas regalías son distintas del Impuesto de Explotación establecido en la Ley de Minas, que pagará **CRYSTALLEX** a la **REPUBLICA** y están sujetas a revisión en conformidad con las leyes que regulan la materia.



CLÁUSULA SÉPTIMA

VENTAJAS ESPECIALES

CRYSTALLEX se compromete a cumplir con el siguiente Plan de Empleo y Programa de Desarrollo Social Comunitario:

PARA EL AÑO 2002:

- Generación de 50 empleos y asumir los costos del mantenimiento de las instalaciones y de las 24 personas que laboran actualmente.
- Continuar con el apoyo técnico a las cinco (05) Asociaciones de Pequeña Minería organizada instaladas en el área de Pequeña Minería del Proyecto.
- Asumir los costos de mantenimiento, suministros y demás gastos de funcionamiento del Centro Médico Asistencial de las Claritas, el cual servirá tanto al personal del Proyecto como a la comunidad, transformándolo de Ambulatorio Rural tipo II a Ambulatorio Urbano tipo I.

PARA EL AÑO 2003:

- Generación de 50 empleos adicionales a lo largo de lo doce (12) meses del año.
- Construcción de al menos 30 viviendas en la Comunidad local de Santo Domingo.
- Entrenamiento al personal de la Comunidad en manejo de maquinarias y equipos necesarios para las operaciones mineras.
- Desarrollo de Programas Sociales en beneficio de la Comunidad:
 1. **Instalación e Integración de plantas de tratamiento de aguas blancas:**
 - Km 88 – Santa Lucía de Inaguay – Las Claritas – Nuevas Claritas – Santo Domingo.
 - Las Manacas – El Granzón – Araymatepuy.
 2. **Construcción de redes de cloacas:**
 - Las Claritas – Nuevas Claritas – Santo Domingo.
 3. **Mejoramiento y pavimentación de la vialidad existente desde Km. 85 hasta Las Cristinas.**

PARA LOS AÑOS SUBSIGUIENTES DE VIGENCIA DEL PRESENTE CONTRATO, **CRYSTALLEX** continuará con: asistencia técnica a las asociaciones de pequeños mineros instaladas en el área de pequeña minería del Proyecto; cubrir los costos de mantenimiento, suministros y demás gastos de funcionamiento del Centro Médico Asistencial de las Claritas; mantener el programa de becas y pasantías de estudiantes, así como el de entrenamiento de personal; ejecutar las actividades de mantenimiento de la vialidad a la que se refiere el aparte del año 2003.

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CLÁUSULA OCTAVA

OBLIGACIONES DE CRYSTALLEX

- 1.- **CRYSTALLEX** garantiza que las operaciones de la mina objeto del Proyecto "Las Cristinas 4, 5, 6 Y 7", serán llevadas a cabo por personal competente y con experiencia en el área de minería de oro, a cuyo efecto establecerá Programas de Formación y Adiestramiento de personal. De conformidad con el artículo 27 de la Ley Orgánica del Trabajo, el noventa por ciento (90%), por lo menos, tanto de empleados como de obreros durante la ejecución de este contrato deberán ser Venezolanos, salvo las excepciones establecidas en el artículo 28 de la misma Ley. Asimismo, **CRYSTALLEX** asume a partir de la fecha de suscripción del presente contrato el personal administrativo y obrero que labora en las instalaciones de operación y mantenimiento del Campamento afecto al Proyecto Las Cristinas 4,5,6 y 7 según nómina que suministre LA CORPORACIÓN, marcado con la letra "E".

- 2.- **CRYSTALLEX** utilizará las tecnologías más avanzadas con el fin de lograr estándares internacionales y costo competitivo. Asimismo, se obliga a que la extracción de mineral de oro se realice apegada a las mejores técnicas en materia de minería para lograr la óptima recuperación del recurso, cuidando conservar el yacimiento y preservar el ambiente, en la ejecución de los trabajos de explotación. **CRYSTALLEX** se ajustará a las previsiones establecidas en el Plan de Producción Anual aprobado por LA CORPORACIÓN.

- CRYSTALLEX** está obligada a cumplir con el compromiso de producción y tenor de mineral de oro extraído, de acuerdo a lo establecido en el Plan de Producción Anual, por lo que se compromete a:
 - 3.1.- Adoptar las precauciones y medidas necesarias para prevenir y evitar accidentes de trabajo y tomará especial interés en el cumplimiento de las disposiciones del Ministerio del Trabajo sobre higiene y seguridad industrial, en acatamiento de la normativa legal aplicable.

 - 3.2.- Suministrar los equipos, materiales consumibles y servicios anexos, tales como drenajes, diques, instalaciones de control y distribución eléctrica, aire comprimido, sistema de ventilación, sistemas de bombeo, instalaciones de procesamiento de agua potable, instalaciones de aguas negras, vías internas y externas de comunicación y transporte, comedores y en general todas las instalaciones que opere en el área de la mina.

 - 3.3.- **CRYSTALLEX** es el único patrono del personal asignado a la ejecución de los trabajos objeto de este contrato, por lo cual deberá asumir el pago de todas las obligaciones que deriven de su relación laboral y dará estricto cumplimiento a las disposiciones de las leyes que le sean aplicables.



CRYSTALLEX acepta expresamente relevar a LA CORPORACIÓN de cualquier responsabilidad solidaria según lo establezca la Ley Orgánica del Trabajo. En virtud de lo anterior **CRYSTALLEX** se obliga a reembolsar todos los gastos o pagos que LA CORPORACIÓN se viere obligada a hacer en razón de

demandas de naturaleza laboral que se intentaren en su contra por causa de la solidaridad establecida en los dispositivos legales antes señalados.

CRYSTALLEX deberá suministrar la documentación técnica a **LA CORPORACIÓN** para la gestión de los permisos ambientales necesarios para la operación de la mina objeto del Proyecto "Las Cristinas 4, 5, 6 y 7". Por su parte **CRYSTALLEX** deberá darle estricto cumplimiento a la normativa ambiental aplicable en la ejecución de los trabajos objeto de este contrato.

- 3.5.- **CRYSTALLEX** gestionará conjuntamente con **LA CORPORACIÓN** la obtención de todos aquellos permisos de uso de explosivos y otros que estipulen las leyes y reglamentos venezolanos al respecto
- 3.6.- **CRYSTALLEX** con el apoyo de **LA CORPORACIÓN** deberá obtener los permisos o autorizaciones municipales, estatales o nacionales para su legal operación, si fuere procedente.
- 3.7.- **CRYSTALLEX** se compromete a contratar según su requerimiento operativo, empresas de servicio venezolanas, preferiblemente empresas locales y regionales, y a comprar insumos y materiales venezolanos para ser utilizados en este proyecto, de conformidad con lo dispuesto en el Decreto Presidencial N° 1.892, de fecha 25 de julio de 2002, publicado en la Gaceta Oficial de la República Bolivariana de Venezuela N° 37.494 del 30 de julio de 2002.
- 3.8.- **CRYSTALLEX** se obliga a entregarle a **LA CORPORACIÓN**, bajo inventario, al final del período de este contrato, todas las instalaciones y equipos existentes a esa fecha, y en buen estado de funcionamiento, salvo su desgaste normal, que deberá coincidir con el inventario o listado de equipos o instalaciones notificado por **CRYSTALLEX** a **LA CORPORACIÓN** en la oportunidad de su adquisición o construcción, según sea el caso, durante la vigencia de este contrato. A tales fines **CRYSTALLEX** se compromete a entregar a **LA CORPORACIÓN** la lista de los equipos a importar con sus características y especificaciones, incluyendo su valor comercial.
- 3.9.- **CRYSTALLEX** consignará a **LA CORPORACIÓN**, a través del Gerente de enlace, en los primeros siete (7) días de cada mes un informe de actividades realizadas (estudios técnico realizados incluyendo información de campo y producción), así como cualesquiera otra información que les sea requerida, a fin de darle seguimiento al desarrollo del proyecto.
- 3.10.- **CRYSTALLEX** se obliga a desistir de cualquier pretensión o acción judicial que pudiera tener contra **LA CORPORACIÓN** y ésta se obliga a su aceptación.

CLÁUSULA NOVENA

OBLIGACIONES DE LA CORPORACIÓN.

- 1.- **LA CORPORACIÓN** se compromete entregar a **CRYSTALLEX** los estudios técnicos existentes que hayan sido realizados sobre el área a contratar, a fin de que esta

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realice la Certificación de los mismos y posteriormente elabore el Estudio de factibilidad.

- 2.- LA CORPORACIÓN podrá proponer a CRYSTALLEX personal técnico especializado que LA CORPORACIÓN considere que puede ser apto para el desarrollo de este proyecto y CRYSTALLEX queda en libertad de contratar dicho personal sugerido.
- 3.- LA CORPORACIÓN entregará a CRYSTALLEX mediante inventario, anexo marcado "F", al comienzo del período de vigencia de este contrato las instalaciones actuales de la mina objeto del Proyecto "Las Cristinas 4,5 6 y 7" a los fines de este contrato.
- 4.- LA CORPORACIÓN tramitará lo concerniente a la obtención de los permisos ambientales y mineros requeridos para la ejecución de este Proyecto. En todo caso los lapsos que se establecen en el presente contrato no comenzaran a computarse sino a partir de la obtención de estas autorizaciones o permisos.
- 5.- Todas las notificaciones al MEM objeto de este contrato serán por parte de LA CORPORACIÓN

CLÁUSULA DÉCIMA

FIANZAS O GARANTÍAS

- 1.- CRYSTALLEX deberá presentar dentro de los primeros sesenta (60) días, a partir de la firma del contrato, y cada año, fianza bancaria de fiel cumplimiento para la ejecución del contrato, correspondiente al cinco por ciento (5%) del valor de la producción del tiempo que dure la construcción, a ser liberada con el Acta de Inicio de la producción comercial levantada por LA CORPORACIÓN. Igualmente, CRYSTALLEX deberá mantener vigente póliza de seguro para equipos e instalaciones a fin de cubrir daños tales como: robo, hurto, incendio e inundaciones. También, deberá constituir fianza laboral para garantizar los pasivos laborales que se causen cada año.
- 2.- CRYSTALLEX constituirá a favor del Ministerio del Ambiente y de los Recursos Naturales, antes de iniciar tanto la construcción como la explotación, las fianzas ambientales que garanticen la reparación de los daños ambientales que se pudieren causar con motivo de la construcción y explotación previstos en el Proyecto, a fin de proceder conforme a lo establecido en el artículo 59 de la Ley de Minas.

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CLÁUSULA DÉCIMA PRIMERA

SUPERVISIÓN TÉCNICA

- 1.- LA CORPORACIÓN creará una Gerencia Técnica de Enlace, formada por un equipo de profesionales, quienes estarán encargados de la supervisión de la buena marcha de los trabajos, bajo la reponsabilidad de un Gerente de Enlace, de su libre nombramiento y remoción. LA CORPORACION entregará por escrito a CRYSTALLEX, como resultado de la supervisión, las observaciones o recomendaciones que considere conveniente y CRYSTALLEX deberá atenderlas en los términos indicados, salvo que CRYSTALLEX tuviere criterios distintos sobre los

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particulares señalados, los cuales deberá informar de manera razonada a LA CORPORACION para su discusión respectiva y llegar a un acuerdo satisfactorio para las partes. Asimismo CRYSTALLEX deberá asumir los gastos de remuneración del referido personal de la Gerencia Técnica y le prestará el apoyo logístico necesario: dispondrá de espacio físico con su respectivo mobiliario de oficina y equipo de computación, suministrará el transporte, alojamiento y comida; así como permitirá el libre acceso al área del Proyecto al personal de esta Gerencia Técnica.

CLÁUSULA DÉCIMA SEGUNDA

PEQUEÑOS MINEROS

CRYSTALLEX se compromete a prestar asistencia técnica, bajo la orientación de LA CORPORACIÓN, a grupos de Pequeños Mineros organizados e identificados como: Nuevas Claritas, Siete Estrellas, Los Rojas y La Bolivariana, instaladas en áreas delimitadas dentro del Proyecto Las Cristinas, y cualesquiera otra que se constituya y que sea aprobada por CRYSTALLEX, a fin de garantizar buenas prácticas operativas y menor impacto ambiental.

CLÁUSULA DÉCIMA TERCERA

NOTIFICACIONES

Todas las notificaciones que deban darse de conformidad con éste contrato se darán por escrito en idioma castellano y se entregarán personalmente. Las notificaciones deberán enviarse a las siguientes direcciones:

COPORACION VENEZOLANA DE GUAYANA

Edificio CVG – Alta Vista
Puerto Ordaz, Estado Bolívar.
REPUBLICA BOLIVARIANA DE VENEZUELA
Atención: Gral (Div) Francisco José Rangel Gómez
Presidente de la Corporación Venezolana de Guayana.
Teléfono: 0286 9661474 -9661475
Telefax: 0286 9624805

NOMBRE DE CRYSTALLEX

Dirección: Torre Forum, Piso 12, Avenida Principal de las Mercedes con calle Guaicaipuro, Urbanización El Rosal, Municipio Chacao.
Atención : Ing. Luis Felipe Cottin.
Cargo : Presidente de Crystallex de Venezuela, C.A.
Teléfono : 0212-9526061
Telefax : 0212-9525011

Cualquiera de las partes, mediante notificación escrita, podrá designar otro funcionario como destinatario de las notificaciones, así como una nueva dirección para el envío de las notificaciones correspondientes. Todas las notificaciones se tendrán como hechas en la fecha de su recepción por parte del destinatario respectivo.

CLÁUSULA DÉCIMA CUARTA

INCUMPLIMIENTOS

- 1 - Si durante la ejecución de los trabajos previstos en este contrato, en un período de un año, **CRYSTALLEX** no pudiera cumplir con el promedio diario de producción o tenor del mineral extraído contemplado en el Plan de Producción Anual, **CRYSTALLEX** compensará económicamente de manera proporcional a **LA CORPORACION** por los beneficios dejados de percibir.

Para cuantificar este efecto de incumplimiento se contará el año a partir del primer día de trabajo previsto en el Plan de Producción Anual y para el promedio diario se tomará la producción total del año dividida entre trescientos sesenta y cinco (365) días.

Se exceptúan de considerarse como incumplimiento las suspensiones de operación por motivos de fuerza mayor, conforme a lo dispuesto en la Cláusula Décima Quinta del presente contrato.

- 2.- Asimismo, serán considerados como incumplimientos las causales descritas en el Artículo 98 de la Ley de Minas.
- 3.- De igual modo son motivo de sanción el incumplimiento de las condiciones ambientales emitidas por el Ministerio de Ambiente y de los Recursos Naturales (MARN).
- 4.- Las causas definidas como Incumplimiento Material en la cláusula Primera de este contrato.

CLÁUSULA DÉCIMA QUINTA

FUERZA MAYOR

Ninguna de las partes será responsable de cualquier incumplimiento de las obligaciones asumidas bajo este contrato, cuando dicho incumplimiento sea el resultado de fuerza mayor, la cual consistirá en cualquier circunstancia más allá del control de cualquiera de las partes que no haya sido razonablemente prevista y superada, y que pueda impedir o demorar excesivamente el cumplimiento de cualquier obligación establecida en el contrato. Tales circunstancias incluyen, pero no están limitadas, a los hechos de la naturaleza tales como inundaciones, terremotos, vientos huracanados, así como guerras, sedición, epidemia, incendios o cualquier otro de igual magnitud, sino que abarcan asimismo nuevas leyes, decretos, reglamentos, ordenanzas o actos administrativos del gobierno en sus diferentes niveles o ramas del Poder Público emanados de cualquier autoridad pública legalmente competente en la materia correspondiente, siempre que en la ocurrencia de tales hechos la parte afectada haya ejercido el debido cuidado y diligencia para razonablemente controlar, evitar o prevenir el hecho y las consecuencias dañosas del mismo. Cualquiera de las partes, notificará a la otra parte por escrito, en el caso que no pudiesen cumplir algunas de sus obligaciones en razón de fuerza mayor, tan pronto como le sea posible, así como la causa de dicho incumplimiento, debiendo reiniciar

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el cumplimiento, si fuere el caso, dentro de un período razonable después que haya desaparecido la fuerza mayor. Pero en ningún caso y por causa alguna se extenderá la duración de este contrato más allá del período establecido más adelante.

CLÁUSULA DÉCIMA SEXTA

RESOLUCIÓN DEL CONTRATO

1.- **LA CORPORACION y CRYSTALLEX** podrán acordar la resolución de mutuo acuerdo de éste contrato cuando la circunstancia así lo aconsejen. Acordado un lapso entre las partes para la resolución del contrato ambos se comprometen a cumplir cabalmente con las obligaciones contraídas de acuerdo a este contrato.

2.- En caso de incumplimiento de alguna de las partes, conforme a lo dispuesto en la cláusula Décima Sexta, la parte afectada tendrá derecho a terminar este contrato inmediatamente después de transcurridos noventa (90) días, contados días a partir de la fecha en que una parte notifique por escrito a la otra, imputándole, en forma razonada el incumplimiento de cualquiera de las obligaciones asumidas en este contrato, siempre que dentro de dicho plazo no se hubiere subsanado el incumplimiento. Si la parte que invoca el incumplimiento considera que este puede ser subsanado antes de los mencionados noventa (90) días, deberá indicar expresamente a la otra en el escrito de notificación, el plazo razonable en que deba corregir el incumplimiento, con señalamiento de las motivaciones que fundamenten ese plazo. Si el incumplimiento se subsana en un lapso mayor del razonablemente señalado por la parte agraviada, o del lapso aceptado por ésta a proposición de la otra parte, siempre que no excediere el límite máximo de noventa (90) días, la parte que hubiere incumplido pagará a la otra los correspondientes daños y perjuicios ocasionados por el retardo.

Las estipulaciones de este numeral se aplicarán en todos los casos de incumplimiento de este contrato, salvo en los que la propia cláusula establezca el modo y oportunidad de rescisión por incumplimiento y, lo dispuesto en la Cláusula Vigésima Cuarta del mismo.

CLÁUSULA DÉCIMA SÉPTIMA

NORMATIVA AMBIENTAL

- 1.- Será responsabilidad de **CRYSTALLEX** el cumplimiento de las normativas vigentes en materia de conservación, defensa y mejoramiento ambiental, en especial las referidas al control del impacto ambiental de las actividades mineras y la corrección, recuperación y mejoramiento de las áreas intervenidas.
- 2.- Las actividades mineras que se desarrollen en las parcelas deberán llevarse a cabo de forma racional y científica, con arreglo al principio de desarrollo sostenible, la conservación del ambiente y la ordenación del territorio, conforme a los artículos 5 y 15 de la Ley de Minas.
- 3.- **CRYSTALLEX** tiene derecho al uso y aprovechamiento racional de las aguas del dominio público siempre y cuando se sujete a las disposiciones ambientales respectivamente. Igualmente, de ser necesario, podrá utilizar las aguas del dominio

privado bien a través del establecimiento de servidumbres o por vía de expropiación, siempre que se cumpla con los requisitos establecidos en la Legislación aplicable.

CRYSTALLEX deberá preparar el Programa de Manejo Ambiental y **LA CORPORACION** lo revisará, validará y se encargará de los trámites ante en Ministerio del Ambiente y los Recursos Naturales.

CLÁUSULA DÉCIMA OCTAVA

VIGENCIA DEL CONTRATO

- 1.- Este contrato estará vigente desde la fecha de su firma hasta por un período de veinte (20) años, prorrogable por uno (01) o dos (02) períodos de diez (10) años, previo acuerdo escrito entre las partes, dicha prórroga deberá notificarse con antelación a la vigencia del contrato.
- 2.- **CRYSTALLEX** se compromete a que faltando un (01) año para la culminación de este contrato, deberá de común acuerdo con **LA CORPORACIÓN** definir y establecer un plan de transferencia de los activos de la mina "Las Cristinas 4,5,6 y 7" y sus operaciones a **LA CORPORACIÓN**.

CLAUSULA DECIMA NOVENA

SOLUCIÓN DE CONFLICTOS

Las dudas y controversias de cualquier naturaleza que pudieran suscitarse con motivo de la ejecución de este contrato y que no puedan ser resueltas amigablemente por las partes, serán decididas por los tribunales competentes de la República Bolivariana de Venezuela, de conformidad con sus leyes, sin que por ningún motivo ni causa puedan dar origen a reclamaciones ante Tribunales extranjeros.

CLÁUSULA VIGÉSIMA

CESIÓN DEL CONTRATO

CRYSTALLEX no podrá ceder, directa o indirectamente, parcial o totalmente sus derechos y/o delegar sus obligaciones en virtud del presente contrato a otra persona natural o jurídica. Cualquier cesión y/o delegación hecha en violación de lo previsto en ésta clausula será nula y no surtirá efecto legal alguno, salvo las sanciones legales que de ello se deriven.

CLAUSULA VIGÉSIMA PRIMERA

DECLARACIONES

- 1.- Las partes concientes de la imposibilidad de prever todas las contingencias que puedan surgir durante la ejecución del presente contrato, acuerdan que su intención es convenir entre ellas con base a la equidad y sin perjuicios de los intereses de ambas. Si en el curso de la ejecución de este contrato surge alguna desigualdad, perjuicio, o

injusticia contra alguna de las partes, éstas de mutuo acuerdo harán los esfuerzos para tomar las acciones que sean necesarias, a efectos de eliminar o subsanar tal desigualdad o perjuicio.

- 2.- El Ministerio de Energía y Minas ha otorgado a **LA CORPORACIÓN** mediante contrato celebrado en fecha 16 de mayo de 2002, de conformidad con lo establecido en el Decreto No. 1.757 del Presidente de la República de fecha 29 de abril de 2002, publicado en Gaceta Oficial de la República Bolivariana de Venezuela No.37.437 de fecha 07 de mayo de 2002, las áreas denominadas Cristinas 4, 5, 6 y 7 ubicadas en el Municipio Sifontes del Edo. Bolívar para la exploración, extracción y venta del mineral de oro que se encuentra en yacimientos ubicados en estas áreas. Asimismo ha sido autorizado para el uso de los bienes afectos a dichas áreas que pasaron a la República de conformidad con la resolución N° 035 de fecha 06 de marzo de 2002, publicada en la Gaceta Oficial de la República Bolivariana de Venezuela No. 37.400, de fecha 08 de marzo de 2002, por lo tanto no se transfieren derechos de propiedad a **CRYSTALLEX** por efectos de este contrato ni de sus **Anexos**.
- 3.- El presente contrato se complementa y sostiene material y jurídicamente, además de lo estipulado en este documento con los **Anexos** citados en el texto de este contrato, los cuales pasan a formar parte integrante e indivisible de este contrato.
- 4.- Se entenderá a los fines de este contrato que del conocimiento técnico, geológico y legal que **CRYSTALLEX** tiene del Proyecto Las Cristinas, está dispuesta "a su propio riesgo y cuenta" a invertir sus recursos humanos, técnicos y financieros para la explotación del yacimiento, sin que tenga nada que reclamar en el presente y en el futuro por los resultados que obtenga en el ejercicio de estas actividades, ya que como profesional especializado en el área minera tomó las previsiones, realizó los estudios pertinentes y pudo prever las situaciones existentes en cuanto a geología, producción, cifras históricas de producción, conformación mineralogía, potenciales y estimaciones de los resultados obtenidos y por obtener. Conforme el Artículo 34 de La **Ley de Minas**, se presume, hasta prueba en contrario, la existencia del mineral y que este es industrial y económicamente explotable; pero con el otorgamiento del contrato no se hace responsable **LA CORPORACIÓN** de la verdad de tales hechos. A estos fines, **LA CORPORACION** y **CRYSTALLEX** deberán verificar la información técnica existente que será entregada por **LA CORPORACION**, dentro del plazo de noventa (90) días contados a partir de la firma del presente contrato, de lo cual se dejará constancia en Acta que se levantará al efecto.

CLÁUSULA VIGÉSIMA SEGUNDA

DISPOSICIONES COMPLEMENTARIAS

1. Las partes elaborarán y suscribirán, dentro del plazo de treinta (30) días hábiles, contados a partir del otorgamiento del presente contrato, inventario detallado de las instalaciones, bienes y equipos propiedad de la República, existentes en el área de Las Cristinas 4,5,6, y 7 para la fecha de suscripción de dicho inventario, de conformidad a lo establecido en el numeral 3 de la Cláusula Novena de este contrato, el cual se tendrá como parte integrante del mismo.

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