MINAS DE ORO DE EL CALLAO, ESTADO BOLIVAR

RESERVAS DE MINERAL AURIFERO ESTIMADAS. 1° ENERO DE 1971

Mina:	Toneladas:	Tenor: Gramos:	Bolívares:	Observaciones:
Colombia	1.422.591	19,26 27.399.102	136.995.510	MMH y J.R. Mowa
" " Probable	313.630	27,15 8.515.054	42.575.270	MMH
" " Extensión	145.995	12,39 1.808.878	9.044.390	MMH
" " Dilución	217..028	1,00 217.028	1.085.140	MMH y J.R. Mowa
Total Colombia:	2.099.244	18.07 37.940.062	189.700.210	
América:	50.310	14.69 739,054	3.695.270	
Total Colombia y América:	2.149.554	17,99 38.679.116	193.395.580	
Unión y Sosa Méndez:	912.152	13,42 12.241.079	61.205.395	J.R. Mowat.
Veta MM.	95.242	14,05 1.338.346	6.691.730	Juan Evanoff
Total Unión y Sosa Méndez:	1.007.394	13,48 13.579.425	67.897.125	
Chile:	480.000	40,00 19.200.000	96.000.000	Bodhan Korol
Aluviones: Hansa Mocupia:	36.937.000	0.152 5.614.500	28.072.500	Robert Morrison
Arenas Molinos Perú-Mocupia:	5.000.000	1,30 6.500.000	32.500.000	J. Kandaras y E. Locher.
Gran Total:	45.573.948	18,33 83.573.041	417.865.205	

Además hay varios pequeños bloques de reservas, cubicadas por la New Goldfields of Venezuela Ltd en las Minas "A" N° 1 - Panamá-Pryor, Laguna, San Jorge, San Felipe, N° 26. Tambien se debe admitir que la producción anual de los últimos años, efectuados por el Sindicato de Patronos Mineros de El Callao es de los 600 Kgs. de oro de un valor de 3 Millones de Bolívares en valor de oro a explotar. La producción del año 1970 fué de: 71.201 Toneladas trituradas en El Perú, 663.928 gramos con ley recuperada de 9,32 gramos de oro por tonelada, trabajando 94 lugares.

Reservas posibles: Dentro del area de las concesiones, existen las minas: Eureka, Perú, Hansa-San Luis, San Felipe, Tigre, Santa Elena, Colombia 3 y Colombia 4, Santa Rosa, Corina, Abbot, Morrocoy, Remington, Monserrate, El Callao, Unda, Iguana, San Miguel, Bolívar-Hill, y numerosos lugares de exploraciones los cuales necesitan averiguaciones con sondeos para cubicación adicional de reservas.

Además existen posibilidades dentro de los estudios geológicos de la zona, que posiblemente contengan mineralizaciones de carácter económico, las cuales serán investigadas en el programa de exploraciones que se contempla paralelamente con la explotación de las reservas probadas.-

Caracas, 15 de Enero de 1971.

EL/ja.-

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DESIGN STUDY OF THE COLOMBIA GOLD MINE

EL CALLAO, ESTADO BOLIVAR

F I N A L R E P O R T

JANUARY, 1971

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GENERAL INFORMATION.

1. GEOGRAPHIC AND CLIMATIC.

The dormant Colombia Gold Mine is situated in the State of Bolivar, Eastern Venezuela, 3½ kilometers south of the old gold mining village of El Callao and 3 kilometers east of El Peru. Geographically the mine lies at 61° 46' west longitude and 7° 18' north latitude at an average altitude of 200 meters above mean sea level.

The area is generally well-wooded and hilly and lies in the savannah country of the Guyana region. Meteoroligical observations made at El Peru between 1912 and 1962 show the following for this tropical region:-

Rainfall : Season: May to December.

Average annual	1577 mm.
Maximum annual (1950)	2466 mm.
Minimum annual (1940)	949 mm.
Maximum monthly (August, 1950)	652 mm.
Minimum monthly (April, 1957)	0 mm.

Flood conditions experienced:

22 August 1922	:	12 hrs - 274 mm.
15 August 1950	:	12 hrs - 55 mm.
27 August 1950	:	2 hrs - 52 mm.

Temperatures:		
	Maximum (2nd May, 1941)	37° C
	Minimum (15th January, 1945)	15° C
	Average	25° C

Wind Direction : Easterly for 89% of time during windy spells.

Tremors: 38 have been registered during 51 years; do damage recorded.

The nearest serious tremors were recorded at Cerro Bolivar 150 kilometers west of El Callao and were of the intensity order 300 cm Sec -2.

2. EXISTING SERVICES:

The nearest town to the Colombia Gold Mine is El Callao 3½ kilometers by tarmac road, with a population of some five thousand. Telephone and telegraph facilities are available at both El Peru and El Callao. An unserviceable airstrip, suitable for very small aircraft is present 2 kilometers from Colombia Gold Mine. At Guasipati 20 kilometers north of Colombia Gold Mine, a serviceable airfield is available.

The nearest port is Puerto Ordaz in the new Guyana industrial area at the confluence of the Caroni and Orinoco Rivers, 176 kilometers by paved road from El Callao. Berthing facilities exist for ships of 60,000 tons d.w. and according to local information, the Orinoco River is negotiable by carriers of up to 80,000 tons d.w.

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Limited power supplies are generated at El Peru with a small generating facility at Mocupia, which is nearby the proposed Colombia Gold Mine. Edelca, the Guyana power supply organisation, has undertaken to supply power to Colombia Gold Mine from the Macagua Hydroelectric Scheme (Caroni River) some 160 kilometers from El Callao. Evidently the new power line would be installed in a two year period.

Water is available from the perennial Yuruari River, 3½ kilometers from the Colombia Mine.

3. HISTORY.

Information on the history of the El Callao gold mining area has been obtained from records of the Ministerio de Minas e Hidrocarburos, Caracas (M.M.H.) and from Mr. Eugenio Locher, who has been connected with mining around El Callao for the past fifty years.

1850: Gold niggets are said to have been obtained by Spanish Missionaries from Indians in Tupuquer, about 12 kilometers east of El Callao. The source of these was traced up the Yuruari River to El Callao and up the Mocupia Creek to Caratal, adjacent to the present Colombia and Sosa Mendez-Union ore bodies.

1870: The first company was formed to exploit the El Callao ore body which is reported to have yielded 44 573 kilograms fold from 706 000 tons of ore, an average recovery of 63 grams per ton between 1870 and 1895. As a result of extensive prospecting activity many of the presently known gold deposits were found between 1870 and 1885 including the Austin, Nacupay, La Union, Panama, Potosi del Oro, Victoria, Eureka, Chile, San Luis, Tigre and Santa Rosa.

1885: A concession map shows the existence of some 168 companies and mines including the present-day Colombia and Sosa Mendez-Union properties as well as most of the ore bodies in and around the current Concessions Nacionales. The oldest company still in existence in 1968 was the Compania Minera Nacional Anonima Neuva Panama (1895), which had lease contracts with Goldfields, New Goldfields of Venezuela Limited, Guyana Mines Limited and Minas de Oro de El Callao. C.A.

1890: From this year onward companies were formed by amalgamating the activities of groups of the large number of existing operations.

1897 - 1927: Goldfields of Venezuela Limited took over many of the operations around El Callao and were active until 1927.

1927 - 1946: New Goldfields of Venezuela acquired all the local interests of Goldfields and constructed a new 600 tons per day reduction plant which is still in operation in a modified form at El Peru. Originally this mill obtained most of its ore from the Panama, Laguna and Chile group of mines around El Peru. In 1940 a vertical shaft was sunk at Sosa Mendez and five levels were developed from stations at 42, 70 and 125 meters depth.

1946 - 1952: Guyana Mines Limited was formed by Frobishers Limited of Canada and acquired all the interests of New Goldfields of Venezuela. In addition, agreements were concluded with French companies for the Colombia Mine in the Mocupia concession, whilst a 960 meters landing field was also constructed but is now unserviceable. During this period the America shaft was sunk but in 1950 the Sosa Mendez-Union Mine was temporarily flooded probably as a result of the record rainfall for August and the year, and operations ceased.

1953 - 1965: Minas de Oro de El Callao C.A. (MOCCA) formed by the MMH bought all the Guyana Limited interests for Bs.7 330 689, and negotiated a lease agreement with the French Mocupia Company. MOCCA reconditioned the El Peru reduction plant and milled ore mainly from Laguna, Sosa Mendez-Union, and from individual miners on a collective contract basis.

1966: MOCCA went into liquidation on 15th May, 1966 having produced 18 670 kilogram of gold from 1 667 657 metric tons of ore, an average recovery of 11,2 grams per ton.

1966 - 1970: All operations are controlled by the MMH who operate the El Peru mill at a capacity of approximately 300 tons per day and a monthly cost of some Bs 120,000. Milling costs are said to be about Bs 20 per metric ton. Ore is supplied by some 58 private miners exploiting mostly shallow operations of which 56 are in 18 x 18 kilometers. Concession Nacionales and two (Increible and Santa Isabel) are outside this concession. Operations at El Peru are currently managed by Mr. J. Gonzales Conde, assisted by Mr. T. Wikander, Geological Assessor.

During the period January, 1966 to January, 1969, the MMH engaged a firm of Consultants, J.R. Mowat and Associates Limited, Ottawa, Canada (Mowat), to conduct exploration and report on the feasibility of resuscitating mines in the area. A large amount of surface exploratory drilling was done by Mowat and by MMH around the dormant Colombia Mine, as well as a limited footage of underground holes at Sosa Mendez-Union.

Within the 18 x 18 kilometers Concession Nacionales are four privately held concessions namely, Nueva Panama, Experiencia, Talisman and Victoria. Rights to these were granted for periods of up to 50 years and will consequently remain current for periods ranging from 14 to 35 years.

At the time of the Minerven local investigation at El Callao, from 24th February to 4th March, 1970, only two of the larger mines in the Concession Nacionales were accessible namely Sosa Mendez-Union and Laguna.

4. PAST PRODUCTION.

Historically the Guyana region of the State of Bolivar has always been the premier gold producer in Venezuela, yielding well over 98% of all production. In 1969 Venezuelan gold production was 602.943 kilograms, valued at abour Bs 3 300 000 of which 600.453 kilograms came from concessions in the El Callao area of the Guyana region. Of the total concession yield, 588.658 kilograms (97.6%) emanated from the Patronos Mineros Syndicate and 14.387 kilograms (2.4%) from other areas such as Vuelvan Caras in the Gran Sabana south of El Callao.

Large past producers in the 18 x 18 kilometers Concession Nacionales were the Chile, Laguna, Panama, El Callao, Tigre, Colombia and Sosa Mendez-Union ore bodies. As the lastnamed two mines are of immediate importance, production figures are only given for the major ore bodies in these two properties.

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Gold production from Colombia and Sosa Mendez ore bodies:

MINE	METRIC TONS	RECOVERY g/t Au	KILOS GOLD
Colombia	557 000	17,8	991,46
Sosa Mendez-Union	1 318 380	10,8	1 417,97
TOTAL	1 875 380	12,84	2 409,43

At the time of writing the Colombia Mine was dormant and mining was being carried out on a limited scale on the 6th Level of the Sosa Mendez-Union mine. In 1969, this property produced 19,33 kilograms of gold from 2 589 metric tons of ore, an average recovery of 7,4 grams per metric ton.

Details of gold production from the El Callao area during 1969 can be seen in Appendix 1.

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GEOLOGY

As a background to the gold deposits in the El Callao area, a short resume of the available geological information by Mc Cann (1931) Playter (1941), Mc Candless(1966), Korol (1961) and Menendez is given, supplemented by that of Mowat and Associates and by personal observation during a six day visit to the region.

1. REGIONAL GEOLOGY:

Regionally the El Callao area occupies a part of the Precambrian Basement Shield of the Venezuelan Guyana, which extends eastwards into Guiana.

The Precambrian stratigraphical succession may be summarised as follows:-

Ib	Basic Dyke Basic Intrusives	Nuria Formation		
Iu	Serpentinites Pyroxenites	Ultrabasic Intrusives		
Iap	Quartz porphyry	Acid Intrusives		
Iag	Granites			
SIa	Quartz monzonite Granodiorite			SUPAMO COMPLEX
SM	Migmatite, aplite, pegmatite			
Sgn	Paragneiss, amphibolite			
C	Greywacke, andesite Agglomerate	Caballape Formation		
Py	Phyllite, chloriteschist Basic lava, agglomerate	Yuruari Formation		PASTORA COMPLEX
PCc	Amphibole-biotite schist, Altered andesites and sed.	Cicapra Formation	CARICHAPO GROUP	
PCec	Andesite, basalt, jasper Altered lavas	El Callao Formation*		

* Host rocks of gold mineralisation in the Colombia and Sosa Mendez-Union mines.

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Study of the available regional geological maps show that the Pastora Complex has been subjected to a number of periods of tectonism, i.e. folding and faulting, both prior to and penecontemporaneously with the emplacement of the Supamo Complex and younger intrusives.

Structurally it is evident that isoclinal fold trends are mainly NE, NW and E-W, whilst major faulting is aligned E-W, NE and NNW.

Metamorphism within the Pastora Complex is generally low to medium grade.

During this tectonism, fracturing, shearing and faulting created favourable host structures for gold deposition by the mineralising hydrothermal solutions which accompanied the various acid intrusives.

From stratigraphical, structural, metamorphic and mineralisation points of view the Precambrian succession in the Guyana region is thus almost identical to typical and well-known gold producing Precambrian Archaen Formation of the South and South Central African, Canadian and Australian Shield areas.

2. GOLD MINERALISATION IN THE EL CALLAO - EL PERU AREA:

Host Rocks : In the Mocupia Valley around Caratal and El Peru, the dominant host rocks of the fracture systems are moderately metamorphosed andesites, many of which exhibit pillow structures (Mc Cann 1931, Playter 1941). Typical varieties encountered are hornblende-, quartz-, calcitized and chloritized andesites. Rock-types resembling tuffs also occur, though some have proved to be fine-grained andesites although the possible presence of tuffs requires further study in view of the localising effect which these sediments may exercise on potentially aurifer us fractures.
The Laguna Dyke, an ENE trending, steeply dipping diabase dyke from 40 to 60 meters thick, passes through the Colombia Mine close to the Sosa Mendez Mine. This is the youngest intrusive in the mining areas in the Mocupia Valley.

Structure : Lavas of the El Callao Formation are intensively folded and sheared with the resultant formation of favourable host structures for the subsequent emplacement of gold mineralisation. The latter occurs as both hydrothermal quartz injections (e.g. Colombia and Sosa Mendez-Union) and as replacement wallrock impregnations (e.g. Santeli).
Perusal of the major and minor controlling structures thus formed in the El Callao - El Peru area, indicates the presence of both tensional and compressive stresses resulting in the formation of possible parallel, cymoid, conjugate, acute, branching, diagonal, curving and en echelon fracture patterns.
In the Mocupia Valley, the dominant trend of veins is ENE with dips to the south whilst much greater variations in vein attitudes are the rule around El Callao, where NW, SE, E, NE, N and W dipping veins occur.
Economically the rather consistent vein pattern in the Caratal area is of some significance in that it furnishes evidence of strong controlling and structural influence resulting in some well developed fracture systems such as the Colombia- Austin- Bartolo- Juan which could conceivably persist to relatively great depths.

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With regard to the precise origin of the fracture systems and localisation of gold ore bodies within these, it is clear that a great deal of economically oriented structural geological studies are required in order to locate promising surface and subsurface exploration target areas.

Mineralisation: As ore bodies in the Sosa Mendez-Union and Laguna Mines were only studied underground in addition to an examination of borehole cores of the Colombia ore body, observations on mineralisation will be confined to these deposits. Mineralogical characteristics outlined below, are based on studies conducted by Mowat and Associates and by the Group Research Laboratory, and at this stage represent preliminary information pending more thorough study based on detailed surface and subsurface geological mapping of these mines.
The ore bodies at the Colombia and Sosa Mendez-Union mines are lenticular hydrothermal quartz veins which have been extensively sheared, brecciated, recemented with quartz and calcite, and mineralised with pyrite and gold. Individual ore specimens may be described as quartz-chlorite and quartz-sericite schists of the following modal composition:-

MINERAL	VOLUME %	SIZE RANGE millimeter
GANGUE MINERALS		
Quartz	10 - 60	0,01 - 4,0
Carbonate	12 - 65	0,01 - 0,2
Plagioclase	1 - 6	0,01 - 1,0
Chlorite	1 - 5	0,02 - 0,6
Muscovite	2 - 12	0,01 - 0,02
Sericite	2 - 5	0,01 - 0,02
Rutile	1 - 3	Fine grained
OPAQUE MINERALS		
Pyrite	15 - 25	0,03 - 5,0
Chalcopyrite	0 - 0,5	0,01 - 0,02
Ilmenite	0 - 2	0,01 - 0,02
Hematite	0 - 1	0,01 - 0,03
Gold	Variable	0,005 - 0,03

Both massive (older) and crystalline (younger) generations of pyrite are present, some of which are strongly anisotropic (marcasite?). Chalcopyrite and gold occur as inclusions in pyrite and appear to represent replacements along hairline cracks.

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The paragenesis of the sulphides appears to be as follows:-

Older, massive pyrite - chalcopyrite - gold - younger, crystalline pyrite.

3. EXPLORATION RESULTS:

As no additional exploration has been done other than the programmes carried out by Mowat (January 1966 - January 1969) and subsequently by the MMH, a short summary of the more important results are given here. Based on these results, a series of structure plans, which include profiles and vein contours, were compiled by Minerven for planning shaft and development layouts and as a basis for calculating drill indicated ore reserves.

3.1 Colombia Gold Mine.

Borehole Data: Although a large number of surface boreholes were drilled in the mine area, only holes in which auriferous intersections could be definitely related to consistant vein structures were utilised for the construction of vein contour plans and for subsequent calculation of ore reserves.

A summary of intersections obtained in these 78 holes used for structure and ore reserve calculations is given in Appendix No. 2. From this it can be seen that although a number of different vein structures were intersected by boreholes, only the Main Colombia (C1), Lower Colombia (C2) and America (a) veins were regarded as sufficiently consistent to be considered as probable ore bodies at this stage.

Results of these holes may be summarised as follows, assuming an economical paylimit of 9,0 grams per ton over a minimum vein thickness of 1,0 meter (m) :

COLOMBIA GOLD MINE.

BOREHOLE INTERSECTIONS IN ORE RESERVE AREAS

	C1 VEIN		C2 VEIN		AMERICA VEIN.	
	No.	%	No.	%	No.	%
Payable 9,01 g/t	46	59	10	50	6	26
Marginal 5 - 9,09 g/t	8	10	0	0	3	13
Unpayable 5 g/t	14	18	2	10	4	18
No intersection	10	13	8	40	10	43
Total intersections	78	100	20	100	23	100

See appended plans GU/ELC 27A, 31A - 33A and profiles GU/ELC 2A - 19A.

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Structural Features of the Ore Bodies: Exploration results have disclosed the presence of depth extensions of the Main Colombia ore body (C1) together with two small sub-parallel bodies namely the Lower Colombia vein (C2) and the America Vein (A), situated stratigraphically from 1 to 20 meters below and 40 to 80 meters above the Main Colombia vein respectively.

The Main Colombia vein is cut by a 50 to 70 meters thick, near-vertical, NE striking diabase dyke and by a NW striking transverse fault with a downthrow of 25 meters to the east. Minor faulting of the body which is undoubtably present, cannot be deduced at this stage from boreholes alone, owing to variable lenticularity, minor folding, borehole spacing and lack of detailed underground geological mapping.

Main structural-geological features of these veins may be summarised as follows:-

COLOMBIA ORE BODY.

STRUCTURAL FEATURES OF AURIFEROUS VEIN.

FEATURE	COLOMBIA (C1)	LOWER COLOMBIA (C2)	AMERICA (A)
Strike direction	N60° E	N56° E	N65° E
Total strike (m)	1200	800	700
Max. dip	51°	50°	36°
Min. dip	10°	12°	31°
Average dip	30°	32°	34°
Max. thickness (m)	9,70	9,14	8,92
Min. thickness (m)	0,61	0,61	0,77
Average thickness (m)	3,73	2,43	2,66
Vertical depth	85 to + 400	100 to + 260	100 to +200

Only limited strike lengths, thicknesses and depth extensions have been assumed for ore reserve calculations.

3.2 Sosa Mendez-Union Mine.

As the nearest point to this mine is located 650 meters SW of the Colombia Mine, the former should be considered in conjunction with the latter in view of the fact that both ore bodies can be exploited simultaneously from one shaft system. During the investigation of the mine by Mowat, some eight surface holes (approximately 2600 meters) and twenty underground holes (2700 meters) were drilled to assess the ore reserves. In addition some underground geological mapping followed by check sampling of parts of the ore bodies was carried out at 10 meters intervals during the Mowat investigation.

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As no additional exploration has been carried out since 1969, data obtained by Mowat with the exception of ore reserve payability, is accepted as such for the purpose of the present feasibility study.

Main structural-geological features of the Sosa Mendez-Union ore body may be summarised as follows:-

SOSA MENDEZ-UNION ORE BODY.

STRUCTURAL FEATURES OF AURIFEROUS VEIN.

FEATURE	SOSA MENDEZ-UNION.
Strike direction	N58° E
Total strike (m)	500
Max. dip	75°
Min. dip	45°
Average dip	55°
Max. thickness (m)	10,00
Min. thickness (m)	1,40
Average thickness (m)	7,06
Vertical depth (m)	120 + 300

4. LOCATION OF PROPOSED SHAFT:

4.1 General Considerations.

As the amount of waste development normally required for hydrothermal gold deposits is unusually high resulting in relatively high operating costs, shaft and underground development layouts should be concentrated on reducing unpay development to a minimum during the life of the mine. As both the position and type of shaft required for exploitation of the Colombia and Sosa Mendez-Union ore bodies are functions of the attitudes and disposition of the ore bodies, it is necessary to briefly consider these factors.

Although detailed geological, structural and value data on the ore bodies is not available, the general trends are sufficiently well-known to be able to plan the exploitation of the ore bodies with confidence.

In deciding on the position and type of shaft required for exploitation the Colombia and Sosa Mendez-Union ore bodies cognisance has to be taken of the following features:-

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A. Distribution of the Ore Bodies.

Provision must be made for eventual exploitation of both the Colombia an smaller Sosa Mendez-Union ore bodies from a shaft system at Colombia ore body.

The proposed shaft must be located adjacent to both the major ore reserve blocks ("Main Colombia") west of the transverse fault and to the less explored ("Colombia Extension") area east of the fault so as to permit exploratory development of both ore reserve areas at an early stage of operations, thus speeding up the development, proving and valuation of mineable ore reserves.

The proposed shaft must be in proximity of the projected pitch (28° SE) of the Main Colombia oreshoot, thus allowing for the shortest cross cut lengths to the vein during the entire shaft life. This is especially important in view of the rather low average angle of inclination of the vein (30°).

The proposed shaft must be sunk to a depth which would permit extraction of the reasonably inferred, though as yet unproven, down dip extensions of the major oreshoots.

B. Structural Factors.

The shaft pillar should be located as nearly as possible in a fault loss of ground in order to avoid locking up payable ore in the shaft pillar.

Rock mechanics considerations relating to a maximum ore extraction of say 65% at a vein depth of from 140 to 250 meters (460 to 820 feet) must be recognized.

C. Topographical Factors.

The proximity of hills and of the Tigre Creek necessitates careful selection of the proposed shaft site.

The presence of relatively level ground for the ore treatment plant and of depressions for waste dumping are advantages.

4.2 Proposed Shaft Site.

The most suitable site and type of shaft which satisfies all the above requirements, is considered to be a vertical shaft of 470 meters(1545 feet) located 390 meters SE of the Mocupia shaft in the following position (See plan Z 258):

Co-ordinates : E - 54 567
N - 51 846
Profile : 800 E.

Owing to the proximity of the shaft site to the Tigre Creek and the presence of N-S trending faults and fractures which may tap water from the creek, it will be necessary to carry pilot holes ahead of sinking operations, though excessive water yields are not expected in the andesites in which the shaft will be located.

4.3 Considerations Relating to Underground Development.

Preliminary vein contours and ore reserve plans constructed from exploration boreholes drilled to date indicated that the following principles should be followed as a guide to development planning.

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A. Development of Ore Reserves:

Primary reef drives should be advanced westwards and eastwards from cross-cuts from the shaft on the -200, -250, -300 and -350 levels in that order prior to the start of production for the purpose of:

(a) determining payability of ore,

(b) building up proved and valued ore reserves within the Drill Indicated Ore Reserve blocks,

(c) establishing oreshoot and mineralisation patterns,

(d) establishing drilling positions for valuation and exploratory coreholes,

Approximately 600 meters of reef driving westwards and 300 meters eastwards is required on the Main Colombia and Colombia Extension. In addition cross-cutting and some 400 meters of driving is required on the America vein (A) and on the two Lower Colombia (C2) ore blocks for the purpose of proving and valuing ore reserves.

It may be noted that at the Fairview Gold Mine of Barberton Mines Limited, (one of the largest hydro-thermal gold producers in the Southern African Shield) an average of 5.8 to 10.4 metric tons of ore are blocked out per meter of primary development. Average reef width in this case is 137 centimeters as against 190-413 centimeters for Colombia and 706 centimeters for Sosa Mendez.

B. Exploratory Development:

In view of the lesser known economic characteristics of the Possible and Potential Ore Reserve blocks and of splits and parallels to the main veins, exploratory development within the limits of practicability is required when the mine is in production as follows:

(a) Colombia Vein (C1)

Exploratory reef drives on the Main Colombia (C1) vein on -300, -350 and -400 levels west and on -250, -300 and -350 levels east. In addition footwall exploratory drives will be necessary in localised areas on the basis of exploratory core drilling.

(b) Lower Colombia (C2) and America Vein (A)

Following exploratory coreholes, exploratory reef development of these bodies beyond the confines of the drill indicated ore reserve blocks is necessary and may augment ore reserves if payability is encountered.

(c) Sundry Development.

Where excessive vein widths, splits and minor faulting is encountered, some localised prospect development will be required.

TONNAGE AND GRADE ESTIMATES

1. DEFINITIONS:

As many categories of drill indicated ore reserves exist, depending on:

(a) structure of the deposit,

(b) mineralisation characteristics,

(c) exploration methods utilised,

(d) method and intervals of sampling,

it is necessary to shortly define the relevant terms in each case. The purpose of progressively more detailed investigation and exploration is to gradually transfer the less certain categories of reserves to proved and then to valued reserves, thus progressively reducing the high risk inherent in mining and especially mining of hydrothermal gold deposits.

Proved Ore Reserves: This is ore which has been developed and continuously sampled in order to determine the average mineral content or which has been partly developed and in addition has been drill-sampled at closely spaced intervals.

Drill Indicated Ore Reserves: This is ore which has only been investigated by means of systematic or irregularly patterned core-drilling at variable intervals. Depending on the borehole spacing, this category of reserves may furnish reliable tonnage data but is inadequate for the purpose of valuing reserves or for determining payability.

Except for insignificant tonnages of proved ore on the Sosa Mendez-Union ore body, the majority of ore reserves at both the latter and the Colombia ore body may be regarded as Drill Indicated or probable reserves.

Possible Ore Reserves: This category of ore reserve is usually estimated only on strictural-geological grounds as possible extensions for short distances laterally or downdip from Proved or Drill Indicated Reserves. As no development and few, if any, boreholes exist within this category, little is known of the structure and mineral content of the ore which is inferred from nearby proved or drill indicated ore bodies.

Possible Ore Reserves exist at both Sosa Mendez-Union and Colombia ore bodies and at the latter they constitute limited depth continuities extending down dip for a distance of 100 meters from the Drill-Indicated Reserves. As such the Possible Reserves thus extend down dip for one-fifth of the total known depth extent of the Colombia ore body (C2), and owing to the lesser certainty with which this category can be regarded, a factor of 0.75 is applied to this reserve tonnage.

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Potential Ore Reserves: This is an assumed depth extension of the mineralised structure for a limited distance beyond the Drill Indicated and Probable Reserves, and is based on considerations such as the strike, depth ratio and on regional geological considerations. No reserves of this type are considered for the Sosa Mendez-Union ore body whilst at Colombia a down dip extension of 100 meters or one-sixth of the total known depth extension, of the C1 ore body is conservatively assumed for the Potential Reserves.

As this is the least certain category of reserve, a factor of 0.5 is applied in the ore reserve estimates for this vein.

Qualifications:

In view of the fact that ore reserves of the major deposit namely the Colombia ore body, have been evaluated by means of boreholes only, the following qualifications apply to the ore reserve assessment.

Borehole Logs and Assay Results: Apart from an inspection of a number of borehole cores, it has not been possible to relog or re-assay vein intersections, for which reason logs and assays of all holes drilled by Mowat and by the MMH have been accepted as such.

Structure Plans and Profiles: With the aid of borehole data, a complete re-assessment of the geological structure and vein correlations were made by means of profiles at 50 meter intervals. The profiles GU/ELC 2A-19A were utilised as basis for the construction of vein contours, shown on plan GU/ELC 27A and Ore Reserve plans GU/ELC 31A-33A. These profiles and plans will be found in "Plans to Accompany Trial Report".

Borehole Inclinations: As the majority of borehole intersections of the auriferous veins cut the latter at inclinations approaching 90° and as the majority of gold values utilised for ore reserve estimates consisted of selected assay widths within the hydrothermal veins and nor of the total vein thickness, it is not considered necessary to apply thickness corrections under these particular circumstances.

Drill Indicated Ore Reserve Blocks: In order to obtain as accurate an assessment as possible, Drill Indicated Ore Reserve blocks were demarcated along strike at 50 meter intervals as nearly as possible along borehole profiles, and at approximately 100 meters intervals down dip. This empirical method was utilised in order to include from one to three vein intersections within a given ore reserve block, thus optimising reliability of value content. In the calculation of Drill Indicated tonnages and average gold content for each block, the reserves were weighted with the aid of intersections within and adjacent to each particular block. Thus from one to six intersections (average 3-4) were utilised in obtaining reserve tonnages and average values for each block.

Possible and Potential ore blocks were demarcated as very limited 100 meter depth extensions of vein structures proved at higher elevations and are located down dip of the lower-most borehole intersections.

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Dilution: As the extent of the mineable ore body is generally a function of the gold content of the vein and its limits are consequently defined by sampling, dilution is taken as 20-22 centimeters (cms) in both the hangingwall and footwall, that is 44 cm in 450 cm or 10% @ 2 g/t.

Inclination of Ore Body: An average dip of 30° below the horizontal is utilised in applying a correction to the reserve tonnages, i.e. a factor of 1.1547 (Sec 30°).

Specific Gravity: A specific gravity of 2.65 was used in tonnage calculations.

Payability: In view of the fact that borehole intersections in hydrothermal ore bodies do not furnish reliable data on payability, this has been determined by:

(a) Measurements were made of the available Colombia Mine plans where payability in the ore body apparently ranges from 55% - 65%. In this case it must be assumed however, that mine plans tend to give an optimistic impression of payability, as mining was usually extended to well below pay limit, resulting in small pillar areas relative to total mined out areas.

(b) Comparison with payability within identical hydrothermal gold deposits in the Canadian, Australian and especially Southern African Shield areas, where in the latter case about 3500 individual gold deposits are known, of which some 250 are currently being mined excluding the conglomerate ores of the well-known Witwatersrand Gold Mines.

Based on the above considerations a figure of 45% payability is assumed to allow for:

1. Unpay mineralisation, and
2. Faults and dykes.

2. CALCULATION OF ORE RESERVE TONNAGE: The following formula has been used:-

$$Tm = (a + 0.75 \times A2 + 0.5 \times A3) \times \frac{t}{G} \times \text{Sec } \theta \times P$$

Tm = Ore reserves in metric tons.

A1, A2, A3 = Plan areas in square meters underlain by Drill Indicated, Possible and Potential reserves respectively.

t = Average vein thickness in meters.

G = Specific gravity of ore, i.e. 2.65.

θ = Average inclination of vein (30°)

P = Average payability (45%).

3. ORE RESERVES:

Appendix No. 3 is a schedule of in situ Ore Reserves of which the Drill Indicated Reserves have been graded in decreasing order of gold content, with no payability factor applied. Appendix No. 4 shows the surface borehole intersections utilised for correlations and for ore reserve calculation.

A summary of total Indicated Ore Reserves in situ and the Mineable Ore Reserves in situ for the Colombia ore body, the Sosa Mendez-Union ore body as well as for the combined Colombia Sosa Mendez-Union ore bodies follows:

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SUMMARY OF TOTAL INDICATED ORE RESERVES IN SITU.
COLOMBIA AND SOSA MENDEZ-UNION

A. COLOMBIA ORE BODY.

	ORE BODY	BLOCKS	METRIC TONS IN SITU.	WIDTH (cm)	ESTIMATED g/t Au.
Drill Indicated	MAIN COLOMBIA (C1)	C1 - 25	1 708 000	361	27,9
	MAIN COLOMBIA EXTENSION (C1)	C26 - 38	494 000	275	21,5
	LOWER COLOMBIA (C_2)	WEST	140 000	173	32,0
	LOWER COLOMBIA EXTENSION (C_2)	EAST	42 000	190	19,9
	AMERICA	A_1 & A_4	111 000	133	15,0
SUB TOTAL			2 495 000	297	26,1
Possible	-	75%	(800 000) 600 000	-	-
Potential	-	50%	(696 000) 348 000		
SUB TOTAL	-	-	3 443 000	297	26,1

B. SOSA MENDEZ-UNION ORE BODY (Re-assessment)

Drill Proved	A,B,C	-	428 500	637	15,3
Probable x 0,8*	C	B	95 000	290	11,4
Possible x 0,6*	D	B	152 500	566	15,1
SUB TOTAL			676 000	571	14,7
GRAND TOTAL			4 119 000	342	24,3

NOTES:
1. A payability factor is subsequently applied to Table A.
2. As no payability factor is applied in Table B, the average grade of Drill-Proved reserves is arbitrarily reduced by approximately 1 g/t.

* Structural Reliability factor.

SUMMARY OF TOTAL MINEABLE ORE RESERVES IN SITU.

MINE	COLOMBIA ORE BODY		SOSA MENDEZ - UNION ORE BODY.	
	Tm	Est.g/t.Au	Tm	Est.g/t.Au.
Indicated Reserves	3 443 000	26,1	676 000	14,7
10% Dilution	344 000	2,0	67 000	0,0
TOTAL :	3 787 000	23,9	743 000	13,4
45% Payability	1 704 000	23,9	334 000	13,4
94% Gold Recovery	1 704 000	22,4	334 000	12,6

M I N E .	COLOMBIA AND SOSA MENDEZ-UNION ORE BODIES COMBINED.	
	Tm	Est.g/t.Au
Indicated Reserves	4 119 000	24,3
10% Dilution	411 000	2,0
TOTAL :	4 530 000	22,2
45% Payability	2 038 000	22,2
94% Gold Recovery	2 038 000	20,8

Colombia and Sosa Mendez-Union Ore Bodies:

Minable Ore Reserve including dilution and 94% gold recovery is 2 038 million metric tons averaging 20,8 grams per ton recovery grade.

It must be emphasized that the average gold contents of the respective ore reserve blocks have been estimated from borehole data only.

As hydrothermal ore bodies are not amenable to precise valuation by means of boreholes, it is essential that underground development headings be advanced on at least two levels up to the strike extremities of the ore bodies in order to determine the location and attitude of payshoots and to determine payability as accurately as possible.

As soon as this has been done, it will be possible to plan development layouts and rates with greater accuracy.

UNDERGROUND COREDRILLING.

Owing to the complexity of hydrothermal vein deposits such as Colombia, Sosa Mendez-Union and others and the attendant high rate of development required by the relatively low payability of the veins, core drilling must be extensively used in order to reduce unnecessary development to a minimum. This can be done by efficient borehole planning and drilling as outlined below.

1. OBJECTIVES:

For the purpose of evaluating known ore bodies and in order to locate possible new ore bodies, underground coredrilling should be based on detailed geological-structural mapping of all veins owing to the extremely complex nature of and gold distribution within these hydrothermal veins. Core-drilling should be undertaken extensively on a systematic and well planned basis in order to save costly exploratory development and the latter should only be done in cases where prior coredrilling has established a well-defined vein structure containing gold values.

2. BASIS OF OPERATIONS:

Underground coredrilling may be sub-divided into the following categories enumerated in order of priority:-

Main Vein Exploration: As all ore reserves are not as yet included in the Drill Indicated category owing to the absence of boreholes within the Possible and Potential Ore Reserve blocks, drilling is required to assess the tonnages and values more accurately with progressive depth of mining. This procedure simultaneously transfers hypothetical ore down dip of the present Potential ore to the categories of Possible and Potential ore. In addition, a considerable amount of follow-up drilling is required to assess the value of known parallel veins, splits and deep hangingwall and footwall veins such as the Tigre and Santa Elena veins for example. It is estimated that an average of approximately 1645 meters of coredrilling per level is required for levels -150 to -350 (See Table V).

Structure Drilling: As a follow up to exploratory underground drilling, it is necessary to guide primary development headings by means of structure drilling, especially where reef drives are concerned. This obviates costly prospect development such as searching for faulted vein continuations when this can be accomplished with greater speed and at a reduced cost by structure drilling. In addition it is necessary to determine the structural pattern of major and minor faulting in order to optimise development layouts as a cost reducing measure for development. It is estimated that at least 1550 meters per level of structure drilling is required on Levels -150 to -350 (Table V.)

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Valuation Drilling: Owing to the highly variable nature and tenor of gold mineralisation within the veins and the lenticularity of individual veins in a major vein system, considerable difficulty may be experienced in developing these ore bodies. It is consequently most strongly recommended that relatively closely spaced short holes be drilled from reef drives in order to sample the unexposed and therefore unsampled thicker sections of a given vein as well as to assess the value of the numerous parallel veins which locally constitute a major vein system. By means of this procedure, accurate structure and value profiles can be compiled as a sound basis for raise and stope development layouts. In addition oreshoots and value trends can be more accurately assessed as an aid to early valuation of ore reserves and as a guide to exploration drilling. This system has been successfully used on hydrothermal gold mines in the Southern African Shield areas. In the case of Colombia and Sosa Mendez, 15 meter holes are proposed at intervals of 30 meters followed by reduced intervals of 15 meters where dictated by great variations in vein structure and value. It is estimated that an average of at least 1440 meters of drilling per level is required for levels -150 to -350.

From Table V it can be seen that an average of some 3816 meters of coredrilling is required per level, with a total of over 19 000 meters for levels -150 to -350. It is anticipated that similar amounts of coredrilling will be required for levels below -350.

A summary of the recommended underground coredrilling programme is given in Appendix No. 5.

3. ESTIMATED COSTS:

As much of the proposed coredrilling is considered to be of a high priority, it is suggested that four underground diamond drills with equipment be acquired for this purpose as this number will give both flexibility and a safety factor to coredrilling operations.

Core Drilling Equipment: The following equipment is recommended for use at Colombia Gold Mine:

QUANTITY.	ITEM.
4	Kempe U 39 30HP drills
4	Double Jacks
4	Water Swivels
4	Lubricators
4000 feet	E Rods
4	10 feet E Rod
4	5 feet E Rod
4	2 feet E Rod
4	10 feet EXU Core Barrel
4	5 feet EXU Core Barrel
4	2 feet EXU Core Barrel
	Spares for one year.
20	EXU Crowns
20	EXU Reamers

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As both surface and underground core drilling has been done by locally recruited labour, it is anticipated that this will continue to be the case.

Initially it is planned to use one drill per level though it is likely that the emphasis will change periodically from level to level.

Two persons per drill are required though it may also prove necessary to have one Drill Supervisor if four drill crews are operating.

Labour costs are calculated as follows:-

PERSONNEL	COST PER SHIFT. Bs	COST/SHIFT TOTAL. Bs
Diamond driller	42	168
Drill assistant	34	136
TOTAL	76	304

On the basic assumption of an advance of 20 meters per shift, 20 meters usage per EXU crown with no salvage and 200 meters usage per EXU reaming shell,drilling costs per meter are estimated as fgllows:-

	ITEM.		COST Bs.	
1.	Wages @ Bs 304.00/shift		15.00	(52%)
2.	Crowns @ Bs 150 each		7.48	(26%)
	Reamers @ Bs 155 each		0.81	(4%)
3.	Spares, Equipment		3.74	(12%)
4.	Stores		1.87	(6%)
		TOTAL	28.90	(100%)
		Say	30.00	

No allowance has been made for amortisation of the drilling machine or for the cost of air supplied to drills.

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MINE ENGINEERING

1. GENERAL:-

The siting of the proposed new vertical shaft at the Colombia ore body was discussed earlier in this report. It is proposed that development and stoping be concentrated on the Colombia ore body. An exploratory cross cut will be excavated at a later date to the Sosa Mendez-Union ore body, which has a relatively small drill indicated ore reserve of substantially lower grade than the Colombia ore body.

It is proposed that the daily production of 700 tons of ore from stoping operations and about 200 tons of ore and waste from development operations be mined during a six-day week and on a one shift per day basis. The ore will be drilled, blasted, scraped and loaded by gravity into two ton capacity side tipping cars and hauled by locomotive to the shaft. The rock will then be tipped through grizzlys into the ore pass and hoisted from a loading box near the shaft bottom in five ton skips. The stoping method to be used at the Sosa Mendez-Union ore body will differ to the proposed method to be used at the Colombia ore body.

Mine water will be allowed to gravitate down boreholes from the upper levels to the proposed sump below the bottom level and pumped to surface in a one stage lift.

It is proposed to make a holing with the old Colombia workings and to rehabilitate the Mocupia shaft. Return air will be upcasted through this shaft by means of four fans to be installed on surface at the Mocupia shaft.

As can be seen on the vertical profiles in Drawing Nos.GU/ELC 2A-19A the datum used (0 meters) is equivalent to +200 meters according to the Mowat report.

2. PROPOSED VERTICAL CIRCULAR SHAFT:-

2.1 Shaft Site.

The proposed vertical circular shaft has been sited in proximity to the higher value drill indicated ore reserve blocks in a position which results in the shortest total cross cut lengths to the Colombia ore body. As the Colombia ore body has the larger indicated ore reserves of relatively high value the shaft has been sited in the optimum position for the exploitation of this ore body. The smaller and lower value indicated ore reserves of the Sosa Mendez-Union ore body will be investigated by means of an exploratory cross cut from the Colombia ore body during the life of the mine.

A major consideration in the choice of site is the placing of the shaft in a position which will facilitate mining of possible ore body depth extensions. There is a tendency, for ore shoots to plunge in a south easterly direction. Important factors in shaft site choice were topography and the advantage

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of placing the shaft in a projected fault loss to obviate the loss of ore in a shaft pillar.

2.2 Shaft Type and Size.

It is proposed that a vertical shaft be sunk as opposed to an incline shaft for the following reasons:-

(a) Speed of sinking - a vertical shaft would be sunk in a shorter time than an incline shaft.

(b) Rock stability - vertical shafts in the El Callao area have stood the test of time, whereas incline have not remained intact.

(c) Relatively small operating expenses will be incurred on a vertical shaft, whereas these expenses are relatively large for incline shafts.

(d) Fewer operating problems - skip derailments which could take place in an incline shaft cannot take place in a vertical shaft.

(e) The length of shaft per unit of depth is less in the case of the vertical shaft with a resultant saving in shaft sinking costs.

It is also proposed that a circular shaft of four meters diameter be sunk as opposed to a rectangular shaft. A circular shaft has the strongest section from a rock stability viewpoint and is more amenable to mechanization of the sinking and concrete lining operations. It is proposed to utilize a sinking stage and mechanical rock loading equipment for the purpose of speed and economy during shaft sinking operations. A shaft diameter of four meters was designed to allow an adequate flow of air down the shaft at a reasonable velocity for effective ventilation of the mine workings. The cross-sectional area is such that a cage, sufficiently large to take the largest of the underground equipment, can be utilized. Due to their size the diesel locomotives only will be slung under the cage for transport into the mine.

2.3 Shaft Equipment.

The section of the shaft which traverses the surface weathered zone will require monolithic concrete lining and if the rock is found to be unstable or if water inflow is substantial the shaft will be concrete lined to its final depth. If the rock stability proves acceptable concrete rings will be constructed at bunton elevations and these will be used for rigid support of the steel buntons. Steel buntons and guides are preferred to timber buntons and guides because they will require less maintenance and the associated loss in shaft hoisting time will be minimized. By using steel equipment the shaft fire hazard would be eliminated.

The shaft will be divided into three compartments. Two will be hoisting compartments for interchangeable skip and cage use and the third compartment will be for an excape ladderway to be used in possible emergencies.

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The interchangeable skip and cage design is based on normal mining practice and the interchanging operation does not necessitate removal of the bridle from the shaft. Skips and cages will be suspended from solid fittings in the bridle. This practice will enable the shift to be transported in the shortest available time and, therefore, rock to be hoisted in two skips. The skips would be clutched to hoist rock between two points - the single underground loading box and the headframe chute.

Shaft steel buntons will be installed at five meter centres and will be fabricated with 8 inch x 6 inch R.S.J.'s as can be seen in Drawing No. Z 262. Steel top hat guides will then be attached to the buntons. These will be installed in ten meter lengths.

The escape ladderway will be of steel manufacture and will have platforms at each bunton elevation. As the ladderway is for emergency use only, the provision of a timber brattice wall between the ladderway compartment and the hoisting compartment is not considered necessary.

The following service column will be installed in the shaft :-

(a) Eight inch compressed air.

(b) Six inch clear water pump.

(c) Six inch sludge.

(d) Four inch water.

Cables for the supply of power to the underground workings will also be installed in the shaft.
A cross section of the shaft showing the positions of buntons, guides, ladderway, service columns and cables can be seen on Drawing No. Z 262.

2.4 Shaft Depth.

As can be seen on the ore reserve plans, Drawing Nos. GU/ELC 31A - 33A, the drill indicated ore reserves extend to 350 meters below datum and the greatest portion of the potential and possible ore reserves are situated between 350 and 500 meters below datum. It is recommended that the shaft be sunk to 490 meters below datum and that the bottom level be excavated at 450 meters below datum. The total depth of the shaft will therefore be 472 meters below the collar elevation. The bottom level will be used to explore the ore body and will be excavated in the potential and possible ore reserves, for valuation purposes.

It is felt that it is more than justified to sink the shaft to the depth of the potential and possible ore reserves, as there is a good possibility of locating further ore bodies at depth and sinking this shaft at this stage would obviate the necessity of deepening the shaft at a later date, which is an inconvenient and relatively expensive operation, or of the use of winzes from the bottom level, which is a time-consuming and expensive method of gaining access to and working the lower levels. It is possible that the ore body

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extends considerably in depth. However, based on currently available geological information, there is no justification for sinking the shaft deeper at this stage.

2.5 Shaft Sinking.

The site establishment and pre-sinking operations would be undertaken initially. During this period the shaft would be sunk to 40 meters by manual methods and by utilizing a small winch. The reinforced concrete headframe foundations and collar would be constructed concurrently with the pre-sinking operations. The permanent headframe would then be erected, the main and stage winders installed and the sinking stage constructed in the shaft. The main sinking operation would then proceed on a three shift per day basis for seven days per week. A 2 meter round of about 70 holes would be hand drilled and electrically blasted and the rock would be loaded by means of a cactus grab, which would be suspended under the sinking stage, into five-ton capacity kibbles during a single shift. The construction of either concrete lining or concrete rings would be done concurrently with sinking operations from the sinking stage.

Shaft stations would be excavated from the shaft bottom when the shaft reaches each particular station elevation. The stripping of shaft sinking service columns and the equipping of the shaft with buntons, guides, service columns, cables and ladderway would take place after sinking operations are completed.

3. SHAFT STATIONS:-

It is proposed that shaft stations be established at the elevations shown in the following table:-

Station	Depth Below Datum (Meters)	Depth Below Collar (Meters)
1	150	132
2	200	182
3	250	232
4	300	282
5	350	332
6	400	382
7	450	432
Pump	455	437
Loading	474	455
Shaft Bottom	490	472

The shaft collar will be elevated 2 meters above the surface elevation for the purpose of preventing inflow of possible flood water to the mine.

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Stations will be fifteen meters in depth, four meters wide and the height will taper to three meters from the station brow which will be cut for handling ten meter material lengths.

Initial development rock will be hoisted in side tipping cars.

For flexibility of hoisting operation it is recommended that rock handling be carried out by way of an ore pass and waste pass system which will interconnect all levels and skip loading will take place at a single point. Rock passes, however, have the disadvantage of delaying the start of cross cut development as all rock passes must be completed prior to the start of cross cut development. Each rock pass will intersect the level above in the main cross cut. The tipping point will be equipped with a twelve inch grizzly to reduce the amount of oversize material to be hoisted. An overrun of at least thirty meters will be provided on each level beyond the rock tip to allow for workshops and underground sub-warehouse for servicing equipment and storage of materials. Accommodation of the train after tipping will be provided by this overrun.

It is not proposed at this stage to provide passing tracks at the rock tips as only one locomotive and train will be provided initially per level.

The waste pass will not be extended above the - 300 meter level as it is required on this level for handling the Sosa Mendez cross cut waste rock. Waste from above this level will be tipped into stopes for support purposes if possible.

4. PUMP AND SUMP CHAMBERS:-

The main pump and sump chambers will be excavated approximately two meters below the 450 meter level, i.e. the -455 meter level. Water made on the -450 meter level could then be handled by the main pumps. The rock excavated in the pump chamber will be tipped into the waste pass, through a special connection. Concrete walls will be built across the sump chamber to divide it into settling sumps and clear water sumps. Mine water will gravitate into the settling sumps, which will be closest to the pumps and the clear water will flow into the clear water sump at the rear of the excavation. Clear water will be fed to the pumps from the rear of the clear water sump, i.e. the furthest point from the pumps. The sludge from the settlers will be fed to sludge pumps and pumped to surface. No intermediate pump stations are planned. Water will be pumped from the shaft bottom by a submersible sludge pump to the -450 meter level and will then flow into the sump.

Water made on the upper levels will be coursed down two NX boreholes per level to the -450 meter level and will then flow into the sump. Boreholes are preferred to a shaft column as it prevents water from entering the shaft. Grit traps will be provided ahead of the boreholes to prevent blockages.

Proposed Main Pumps:

2 x 10 000 gallons per hour clear water
2 x 2 500 gallons per hour sludge

Space will be made available in the pump excavation for additional pumps if required at a later stage.

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5. PRE-PRODUCTION DEVELOPMENT:-

Headings will have dimensions of 2,5 meters x 2,5 meters (8 feet x 8 feet). On the -200 -250 meter levels they will be directed northwards and from the -300 meter level to the south to intersect the ore body.

The table below summarizes the planned development to be done before a holing is effected into the old Colombia Mine workings. This development work will be carried out on treble shift for six days per week.

LEVEL - METERS BELOW DATUM	WASTE DEVELOPMENT		ORE DEVELOPMENT				TOTAL
	CROSS CUT	ROCK PASSES	DRIVES		RAISES		
			WEST	EAST	WEST	EAST	
METERS	METERS	METERS	METERS	METERS	METERS	METERS	METERS
150	-	-	-	-	-	-	-
200	200	-	240	80	100	-	620
250	120	50	250	80	200	-	700
300	130	50	250	50	200	-	680
350	240	110	150	-	100	-	600
400	40	110	-	-	-	-	150
450	30	110	-	-	-	-	140
455 (Pump)	130	-	-	-	-	-	130
474 (Loading Box)	-	40	-	-	-	-	40
TOTALS	890	470	890	210	600	-	3 060
TONS	14 000	7 500	14 000	3 300	9 500	-	48 300

Driveswill be developed on the ore body to provide maximum information on geological conditions as well as for ore reserve blocking and valuing. The drives will follow the footwall contour of the ore body. It has been found that carrying the drive with the footwall of the reef contact at shoulder height resultsin straight drives.

The headings will be equipped with 30 pounds per yard tracks spiked directly to five inch x five inch timber ties spaced at thirty inch intervals. A six inch air column and two inch water column will be suspended from steel bolts together with a fourteen inch ventilation column which will be lead from the main columns in the shaft. Ventilation column will be of gauge plate and will operate under exhaust conditions so that blasting can be carried out in each heading without effecting the other levels. Raises will be equipped with four inch air, two inch water and fourteen inch ventilation columns until a holing is effected with the level above. The ventilation column will then be removed.

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The holing from the raise on the-200 meter level into the workings of the old Colombia Mine will be carried out under carefully controlled conditions. Boreholes will be drilled to intersect the old workings, and in addition to the normal six feet round, four pilot holes will be drilled at selected positions in the face before the round is charged up for blasting. Air will be tested for the presence of noxious gases and a spare four inch column will be carried up the raise to pipe any water struck in the raise to the discharge point in the drive below. These special precautions will be taken in addition to normal routine safety measures.

It is proposed that each of the treble shift crews will blast two six feet rounds per shift. If possible, each crew will blast one round in both the west drive and raise on the west side, once the raise position has been reached. Six raises would be established when the holing into the old workings takes place. Refer to Drawing No. GU/ELC 37.

It will be noted that the station on -150 meter level will be established but that no development is initially scheduled on this level. This is due to the necessity to block out ore reserves as rapidly as possible and development on this level will be postponed until a later date. As the greater part of the ore body above this level is worked out, there would be little to gain from establishing the drive at this stage. Similarly, development on the -400 and -450 meter levels will be deferred until a later stage. Once a return airway connection to the old workings has been established, it is proposed to reduce the development crews from treble shift on four levels to single shift on four levels to the west of Gloria fault.

Although the proposed development programme will require a faster rate of development than that required to maintain ore reserves, the establishment of adequate stoping face is vital. The -300 meter level will be extended to the Sosa Mendez-Union ore body when the western extremity of the Colombia ore body has been located. This will be carried out during the life of the mine.

6. POST-PRODUCTION PERIOD DEVELOPMENT

It is proposed that raises at the Colombia ore body be spaced at 100 meter intervals and that development be concentrated on the -200, -250, -300 and -350 meter levels on the west of the Gloria fault followed by the -200 and -250 meter levels east.

The amount of primary development to be done on the main Colombia ore body during the life of the mine is considerable. Exploratory development of the hanging wall and footwall veins will be done if this is indicated by diamond drilling.

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A single cross cut on the -300 meter level will be driven to intersect the eastern extremity of the Sosa Mendez-Union ore body. The distance to about 640 meters from the western edge of the presently known Colombia ore body. The cross cut will then be extended parallel to the ore body in a westerly direction in the footwall. To assess the ore body diamond drilling at regular fifty meter intervals will be carried out.

A holing into the original 5 level of the Sosa Mendez mine for ventilation purposes will be established as soon as a payable oreshoot zone of sufficient size is intersected. It is proposed that this raise be excavated in ore on true dip and another raise to be excavated on a minor dip of 30°. The 30° raise will be used as a man and material way to service the upper levels. Ore from stoping will be gravitated to the -300 meter level and trammed to the Colombia shaft for hoisting to surface.

7. UPCAST VENTILATION:

It is proposed to rehabilitate the old Mocupia shaft and the sub-incline shaft to be used as a return airway. Walls will be built on the 2nd level between the shaft to the north of the dyke. Similarly, the cross cut through the dyke to the western side will be sealed off. This will obviate men being exposed to blasting fumes in the workings north of the dyke.

Equipping of the shaft will consist of concrete lining of the upper portion in the oxidized zone to stabilize the shaft walls, removing the old collapsed timbering, reblocking the old timber sets below the area that has collapsed, gaining access to the sub-incline shaft through the dyke by clearing the station area and dewatering the old workings, if necessary.

It is not anticipated that there will be much difficulty in opening the old workings as conditions seen in the Sosa Mendez and Laguna Mines indicate the hanging wall to be competent. Initially it is proposed that the concrete lining of the shaft be done using a windlass or portable hoist and timber headframe.

On completion of the work a brick building will be erected over the shaft collar with an access door in one wall. Openings will be left in the walls for four 15 inch ventilation fans for upcasting air through the workings from the new shaft. The use of four fans is proposed to provide for flexibility of operation. A ladderway will be attached to the sidewall of the shaft to provide an emergency escapeway.

It is planned that this work will be completed during sinking of the new shaft.

8. STOPING METHOD - COLOMBIA ORE BODY

When the initial raise from the -200 meter level holes into the old Colombia Mine workings thus establishing through ventilation, stoping operations will commence if the stope is payable.

Indications are that the ore will vary in width and dip, but will average about three meters in width and 30° in dip.

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It is proposed that the following stoping method be adopted for the Colombia ore body. Refer to Drawing No. Z 273.

From the raise developed in the hangingwall of the payable ore body panels twelve meters long will be stoped east and west, leaving twelve meter pillars between panels. A three meter crown and two meter sill pillar will be left to protect the sub levels.

The 30 H.P. double drum scraper winch with 1 - 1½ ton and 1 - 1 ton scraper scoops originally installed in the raise connection will be used to scrape the ore to a loading box at the raise bottom. On dips in excess of about 40° where the rock gravitates a winch will not be required.

Each panel will be equipped with a 30 H.P. winch for strike scraping into the central gully. Where unpay ore is encountered the stope length can be reduced, or it can be carried as an end through the unpayable zone and opened out on payable values. Stope width will be dependent on dip and the angle to true dip that the face is carried, however, for a stope width up to two meters, it is anticipated that ore will be removed with one cut. For stope widths in excess of two meters, the footwall will be slashed out as a second cut. Limited timbering may be required to support local areas.

It is proposed to allocate one crew to a panel and to have 8 crews working on stoping to provide the daily tonnage. Two machines per panel, drilling 42 inch holes, will be used. Two stopes will be required to facilitate grade control.

9. STOPING METHOD - SOSA MENDEZ-UNION ORE BODY

Refer to Drawing No. Z 274. Geological information indicates that the dip of this ore body will average 55° and it is proposed to adopt a similar stoping method to that to be used at the Colombia ore body. The method would be a modified sub level practice with sub levels at seven meter intervals and each level will be carried three meters high over the full width of the ore body. As the sub levels advance on strike, raises would be put up at six meter intervals. At the bottom of each raise a loading chute will be installed for loading ore into the side tippers.

A checker board pattern of pillars will be left which would later be extracted from the original raise connection. Unpayable pillars will remain as regional support.

The number of sub levels allocated to each crew would depend on the width of the ore body. Scrapers would not be required in the sub levels.

10. DETAILS

10.1 Ore and Waste Handling:

Waste rock will be packed in stopes if possible or it will be hoisted separately and transferred from the headframe bin to the waste rock bin for transport by dump trucks to the waste disposal area. Ore hoisted in the development period will also be transported by dump truck to a convenient dump site for storage before being fed to the new ore treatment plant. Special precautions will be required to ensure ore and waste rock

are kept separate underground to prevent contaminating the ore treatment plant feed.

10.2 Underground Labour:

It is felt that the labour in the El Callao is favourable, however, the success or otherwise of the project will depend on the attitude adopted by the local labour to discipline and a fair day's work. As a purpose of the project is to provide work for the local population, the basis of the allocation of labour has been liberal. Labour has been considered as being divided into crews rather than jobs and it is envisaged that there will be a rotation of jobs within a crew, each member doing what is required to maintain his crew's production rate.

10.3 Development:

It is envisaged that each crew will have two available ends, except for a short period during the initial cross cutting period. Each crew will be expected to drill, blast and clean two six feet rounds per shift with an advance of ten feet for the shift, i.e. five feet per end. To achieve this, permission will be obtained to store a limited amount of explosives underground, i.e. as blasting will not take place at regular times. To obviate the unauthorised removal from the shaft area of explosives, change house arrangements will be such that employees' clothing will be kept in clean and dirty areas on either side of the shower area. Removal of explosives will then be easily detected.

Crews will operate on a treble shift basis in the pre-production period. Each level should obtain a nine meter daily advance. The crews will be constituted on the following basis :-

1	Crew Leader/Blaster
2	Drilling Machine Operators
1	Drilling Machine Helper
1	Locomotive Driver
1	Locomotive Guard
1	Loader Driver
1	Winch Driver
2	Muckers/Pipe and Track
Total 10	

The crew would be equipped with the following:

2	Airleg-supported rock drills
1	Eimco 12B loader
1	4½ ton diesel locomotive
14	2 ton hoppers.

The use of diesel driven locomotives is standard practice in foreign gold mines and exhaust fumes are reduced by a high standard of maintenance which Venezuelan mechanics should easily achieve. Allowance has been made for the use of these locomotives in mine ventilation calculations.

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10.4 Stoping:

The labour for stoping has been based on one crew operating in a panel. It is proposed that stoping will be carried out on day shift only. Stope crews would consist of :-

1	Crew Leader
2	Rockdrill Machine Operators
2	Rockdrill Machine Helpers
1	Winch Driver
1	Winch Helper
2	Muckers
1	Timberman
Total 10	

It is assumed that the machine men and leader will do their own charging up and blasting.

Each stope crew would operate a face 12 meters long by three meters wide and would have two airleg machines drilling 42 inch holes at 70° to the face. Cleaning would be by 30 H.P. scraper winch in the strike gulley to a centre dip gulley. Loading into the two ton side tippers would be through a loading box in the footwall cross cut.

10.5 Underground Equipment:

1 x 4½ ton locomotive and train of 12 x 2 short ton side tippers.

Load per trip	=	22 tons
Required daily tonnage	=	700 tons
Number of locomotive trips	=	32
Loading time per side tipper	=	½ minute
Total loading time per train	=	6 minutes
Unloading train	=	6 minutes
Total		12 minutes

Max. distance trammed would be about 2000 feet

Time for return trip at 4 miles per hour speed	=	12 minutes
Total trip time	=	24 minutes

In 7 hours underground shift 17.5 trips will be made

Therefore, two trains will handle stope tonnage.

8 Stoping crews require

2 x 4½	ton locomotives
24 x 2	ton side tippers
10 x 30	H.P. winches complete with ropes, etc.
16	Jack hammers complete with airlegs, hoses, etc.

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If stopes worked double shift only 50% of the above equipment woule be required. However, from a supervision point of view it has been found that a single shift is usually the most efficient and leads to better control of grade of ore to the treatment plant.

Double drum scraper winches are proposed, as these are at present in use in the Laguna mine and local labour is conversant with them. Three drum winches are more versatile, but require a high standard of training for efficient operation.

10.6 Hoisting:

Daily tonnage to be hoisted 900 tons. Assume rock hoisting time to be ten hours per day.

Hourly rate of hoisting = 90 tons.

The 600 H.P. proposed hoist would have the following capabilities:

Scheduled time per trip in minutes	
Loading/tipping	0,5
Travelling	2,5
Total cycle time	3,0

Number of trips per hour = 20

Using 5 ton skips, hoisting capacity = 100 metric tons per hour

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METALLURGY.

1. SUMMARY:-

The sulphide ore is readily amenable, after fine grinding, to the extraction of gold by cyanidation. The ore also appears to be very amenable to concentration by flotation. Pre-aeration of the flotation concentrate followed by regrinding and extraction of gold by cyanidation will yield gold recoveries only slightly inferior (about half a per cent) to those obtained by straight cyanidation. In both cases overall gold recovery should exceed 94 per cent.

The economics of three cases have been considered:-

CASE A:

400 tons per day crushing, milling, cyanidation and gold recovery plant.

Capital cost	Bs. 12 765 000
Operating costs per month	176 606
Installed power KW	1 305
Consumed power KWH per month	539 000
Labour, assaying and supervision	40

CASE B:

700 tons per day crushing, milling, cyanidation and gold recovery plant.

Capital cost	Bs. 15 589 000
Operating costs per month	256 579
Installed power KWH	1 954
Consumed power KWH per month	880 000
Labour, assaying and supervision	40

CASE C:

700 tons per day crushing, milling, flotation, cyanidation and gold recovery plant.

Capital cost	Bs. 13 369 000
Operating costs per month	240 935
Installed power KW	1 394
Consumed power KWH per month	549 000
Labour, assaying and supervision	44

It is considered that it will be uneconomic to treat ore at a throughput as low as 400 tons per day. Conventional treatment of the ore by crushing, milling and cyanidation at a throughput of 700 tons per day has the advantages of a simple and proven process and higher gold recoveries, but the disadvantages of higher capital and operating costs, power installations and consumption. Treatment of the ore with a pre-concentration step by flotation interposed between milling and cyanidation has exactly the opposite advantages of lower capital and operating costs, power installation and consumption, and disadvantages of slightly lower gold recoveries and a more complex and sophisticated process.

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Both procedures are recommended: straight cyanidation has the important technical advantage of simplicity; pre-concentration by flotation has the financial advantage of lower capital and operating costs.

No provision has been allowed for in the estimates for an assay laboratory and it is recommended that full use be made of the new assay laboratory and its equipment, which has been built and installed at El Peru.

Regarding the supplier's ore treatment plant, no real benefit can be gained by scavenging equipment. Savings to the Colombia project will be small and at this stage it is recommended that the ore treatment plant be kept as intact as possible.

Security has been an important aspect of the overall project. From a metallurgical point of view, security will be enhanced by an all cyanidation plant and by the streamlining of clarification and precipitation procedures using Stellar filter equipment.

The treatment of oxide ore in the plant is not recommended. Although feasible, treatment of oxide ore presents technical problems which complicate the metallurgy and, for the present, it is advisable that oxide ores be excluded from the circuit.

It will be noted that labour, sodium cyanide and milling, both in power consumption and grinding media, account for some 75 per cent of the overall operating costs. Particular attention must, therefore, be given to these items if operating costs, already high, are to be kept to economic levels.

2. CAPITAL COST ESTIMATES:-

The following estimates cover capital costs for

(i) 400 tons per day crushing, milling, cyanidation and gold recovery plant.

(ii) 700 tons per day crushing, milling, cyanidation and gold recovery plant.

(iii) 700 tons per day crushing, milling, flotation, cyanidation and gold recovery plant.

Item:		Case A	Case B	Case C
Crushing	Bs.	1 935 000	2 301 000	2 301 000
Milling and Cyanidation		7 078 000	8 837 000	7 308 000
Tailings Disposal		276 000	276 000	276 000
Civil Works		1 095 000	1 313 000	1 095 000
Shipping, Insurance, etc.		2 381 000	2 862 000	2 389 000
Total	Bs.	12 765 000	15 589 000	13 369 000

These estimated capital costs are inclusive and cover purchasing of equipment, railage, shipping, insurance, handling, delivery to site and all installation and erection costs. The plant equipment schedule for the three cases can be seen in Appendix No. 6.

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3. OPERATING COST ESTIMATES:- (Refer to Appendix No. 7 for details)

The following estimates cover operating costs for:

Case A 400 tons per day crushing, milling, cyanidation and gold recovery plant.

Case B 700 tons per day crushing, milling, cyanidation and gold recovery plant.

Case C 700 tons per day crushing, milling, flotation, cyanidation and gold recovery plant.

Bolivars per 30 day month - 1970 prices

Item	Case A	Case B	Case C
Labour			
Supervision	Bs 15 411	Bs 15 411	Bs 15 411
Assaying	8 350	8 350	8 350
Operation	30 203	30 203	34 587
Total	53 964	53 964	58 348
Power			
Crushing	1 305	2 043	2 043
Milling	18 869	35 085	11 283
Flotation	-	-	7 304
Cyanidation	2 980	3 546	1 818
Filtration	2 594	3 278	3 179
Gold Recovery	2 254	2 919	2 919
Smelting	341	341	341
Miscellaneous	1 601	1 601	1 601
	29 944	48 813	30 488
Chemicals			
Sodium cyanide	22 848	39 984	34 986
Lime	4 374	7 655	1 922
Zinc Dust	5 834	10 210	10 210
Lead Acetate	667	1 061	1 061
Acids	2 335	4 087	4 087
Other	2 955	5 639	5 639
Flotation Reagents	-	-	29 662
	39 013	68 636	87 477
Operation			
Crushing	8 928	12 600	12 600
Milling	34 250	59 720	38 271
Pumps - Sand	2 934	4 400	2 657
Solution	893	929	898
Vacuum	1 308	1 744	1 308
Compressor	916	1 222	612
Other	230	260	260
Flotation	-	-	3 165
Filtration	623	1 047	623
Miscellaneous	1 270	1 949	2 072
Assaying	1 495	1 495	2 126
	52 847	77 989	62 822
T O T A L:-	Bs 199 329	Bs 249 402	Bs 239 135
Operating cost per ton milled	Bs 16.61	11.88	11.39

4. METALLURGICAL APPRAISAL:-

The predominant gangue minerals are quartz, calcite, chlorite and iron and copper sulphides. The gold grains are mostly less than 29 micron in diameter and occur, together with chalcopyrite, as inclusions in pyrite. The rock may be described as a quartz chlorite schist with disseminated pyrite.

The ore, assaying about 22 grams per ton (see geological report), appears to be free milling and amendable to conventional treatment with sodium cyanide. The ore does, however, require fine grinding to virtually all passing 74 micron (200 mesh Tyler) to achieve optimum liberation and fairly high cyanide consumptions to achieve optimum dissolution. Recovery of gold should exceed 94 per cent.

The ore has a hardness similar to that of the quartzites on the Witwatersrand (a Bond work index of 14.5). The finely milled and cyanided ore has poor settling and filtering characteristics and adequately sized equipment must be allowed for these duties. In pratice, flocculants and filter aids will have to be added to the finely ground pulp.

The ore appears to be very amenable to concentration by flotation due probably to the intimate association of gold with pyrite. Flotation of a coarsely ground product all passing 208 micron (65 Mesh Tyler) yielded gold recoveries of 97 to 98 per cent in concentrations ranging from 20 - 25 per cent by weight. Reagent consumptions were, however, fairly high, particularly copper sulphate. In practice, operation with a return water circuit could well reduce these consumptions appreciably.

Cyanidation of the flotation concentrate after regrinding to 74 micron resulted in poor gold recoveries, under 80 per cent (mowat). These recoveries can, however, be improved substantially by using the following technicques: pre-aeration of the flotation concentrate at controlled pH; regrinding of the aerated concentrate in cyanide sclution; cyanidation at relatively high cyanide concentrations of the reground product in Pachuca type agitators. In this way overall gold recoveries only slightly inferior to those obtained by fine grinding and cyanidation of the entire ore can be achieved. Overall cyanide consumptions in both cases will be very similar.

Dissolution times did not appear to be critical and very little improvement in gold recovery was obtained by increasing the time of dissolution from 24 to 48 hours. The strength of the cyanide solution could well be more important.

5. LABORATORY TESTWORK:- (Refer to Appendix No. 8, 9, 10, 11 for details.)

The following summarises the more important findings from testwork carried out on samples of sulphide ore, oxide ore and mixed sulphide-oxide ores, which were taken during the local investigation in February, 1970. The sulphide ore sample was taken from the Sosa Mendez-Union mine and it has been assumed that the Colombia ore will have similar characteristics.

5.1 Sulphide Ore.

Cyanidation of the sulphide ore milled to all passing 200 mesh (93 per cent passing 325 mesh) gave an average gold recovery of 95.1 per cent from an ore assaying 6.2 grams per ton. Dissolution times longer than 24 hours did not appear to improve recovery and, in fact, might increase consumption of cyanide. Cyanide consumptions of 0.80 kilogram per ton or less should be obtained in practice.

The milling circuit will consist of a 5 feet diameter by 12 feet Marcy rod mill operating in open circuit and two 9 feet diameter by 9 feet Marcy grate discharge ball mills operating in parallel and in closed circuit with a 24 inch diameter linatex lined hydrocyclone and an 8/6 F Warman sand pump. A standby cyclone and pump will be provided, together with a vertical spindle spillage pump. Ore will be milled in cyanide solution to about 95 per cent passing 200 mesh (Tyler).

A steady head tank has been included to ensure that dilution water to the milling circuit is kept constant. This facility, together with automatic control of the feed tonnage, should enable the mill operators to maintain maximum efficiency at all times.

The cyclone overflow will be laundered to two 75 feet diameter by 10 feet torque drive thickeners, operating in parallel. Thickener overflow will be pumped back to the mill water tank; if necessary some of the thickener overflow can be pumped directly to the unclarified solution storage tank to control the amount of gold-bearing solution in the milling circuit.

Thickener underflow at about 50 per cent solids will be pumped via diaphragm and centrifugal pumps to four 22½ feet diameter Pachuca tanks arranged in series. Cyanide and lime will be added to the thickener underflow to maintain these reagent concentrations at the desired levels in the Pachuca tanks.

Cyanided pulp from the last of the Pachuca tanks will gravitate to two 18 feet diameter by 16 feet rotary drum filters operating in parallel. Sufficient wash water will be added to the filter cake to ensure minimum soluble gold losses. Filter cake will be repulped and pumped to the tailing or slime dam. Pregnant gold-bearing solution will be pumped via a filtrate pump to the unclarified solution storage tank.

The pregnant gold-bearing solution will be clarified in a Stellar type filter. A similar unit will be provided for the precipitation of gold using zinc dust. Both filters will be fitted with air-operated diaphragm valves controlled from an air pilot valve console. Tonnage indicators on each filter, together with pressure gauges, will be included. The Stellar filters use a pre-coat of diatomaceous earth and the associated equipment for mixing and coating the Stellar filters will be incorporated. Also included are a low level Crowe de-aeration tower, vacuum pump, emulsifier, zinc dust and lead acetate feeders.

Barren solution will be pumped from a storage tank to be used either as make-up in the milling circuit, or as wash on the rotary drum filters or both.

Gold-bearing precipitate will gravitate for treatment in mechanically agitated wooden vats with dilute sulphuric acid. After settlement the clear supernatant zinc sulphate solution will be pumped to the zinc sulphate storage tank. The acid treated gold-bearing precipitate will then be pumped through a Johnson filter press. The filter cake will be treated in a Barnes-Birlee electric calcining furnace fitted with stainless steel trays. The calcines will be smelted in a Barnes-Birlee Mark IV Arc Gold Smelter. The furnace comprises basically a conventional type submerged arc furnace consisting of a brick-lined steel bowl with three electrodes so arranged that they can be lowered and raised in and out of the charge in the bowl.

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Thickening tests carried out on pulp samples leached with cyanide indicated that the settling characteristics of the finely milled pulp were affected adversely by increasing the percentage solids in the thickener feed, but markedly improved by the addition of a flocculant (in this case"Superfloc").

Filtering tests carried out on pulp samples leached with cyanide indicated that the pulp had poor filtering characteristics and that filter duties of only 0.3 tons/ft. 2/24 hours could be expected in practice. This was most unsatisfactory and tests using filter aids indicated that these duties could be improved to over 0.45 tons/ft2/24 hours.

The ore was readily amenable to flotation using copper sulphate, xanthate and Aerofloat collectors. The following tabulation shows the effect of fineness of grind on gold recovery in rougher flotation concentrates:

Percent passing 325 mesh	Concentrate Weight %	Recovery %	
		Gold	Sulphur
50.3	10.74	98.13	n.d.
65.3	12.90	98.52	n.d.
84.0	16.92	98.60	97.95

The results indicated that very good recoveries of gold (over 98 per cent) could be obtained at relatively coarse grinds. They also indicated that the good recovery of gold was almost certainly due to its close association with pyrite since sulphur recoveries were also very high. Unfortunately, the low gold value of the sulphide ore sample made is difficult to predict what the weight per cent of the concentrate might have for an ore sample assaying 22 grams per ton. Nevertheless, flotation tests confirmed the results obtained by Mowat and it is reasonable to assume that a normal ore sample will yield flotation concentrates of not more than 25 per cent by weight of the ore.

Thickening tests carried out on reground flotation concentrate samples indicated that the settling characteristics would be more or less similar to those of the finely ground ore.

Filtering tests carried out on reground flotation concentrates indicated that the finely ground concentrates had very poor filtering characteristics, and filter aids would be required to improve filtration characteristics.

5.2 Oxide Ore.

Cyanidation of the oxide ore milled to all passing 200 mesh (98 per cent passing 325 mesh) gave gold recoveries ranging from 97.9 per cent to 99.5 per cent, dissolutions being higher with increasing cyanide additions and consumptions.

Thickening tests carried out on pulp samples leached with cyanide gave some anomalous results, but generally appeared to indicate that with flocculants, settling characteristics would be similar to those for the sulphide ore. Filtering characteristics, however, appeared to be uniformly poor. In fact, it appeared that conventional vacuum filtration of finely milled oxide ore might not be feasible in practice.

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The oxide ore was amenable to flotation using the same reagent combination as that for sulphide ore, although not as selective. The following results are typical:-

Percent passing 325 mesh	Concentrate Weight	Recovery % Gold
96.0	33.24	96.14

Although selectivity and recovery are inferior to that obtained for the flotation of the sulphide ore, oxide ore can nevertheless be floated with a fair degree of success.

5.3 Mixed Sulphide-Oxide Ore.

Thickening and filtering tests on a mixture of 80 per cent sulphide ore and 20 per cent oxide ore indicated that the results would be more or less similar to those obtained on straight sulphide ores.

It can be seen generally that although the treatment of sulphide and oxide ores, either separately or in mixtures, presents few problems in the extraction of gold by cyanidation, their settling and, in particular, filtering characteristics tend to be uniformly poor.

6. CRUSHING PLANT:-

The crushing plant has been designed with particular regard to simplicity of operation and maintenance. For this purpose a two stage open circuit crushing plant has been selected. Adequate storage has been allowed for both coarse and fine ore bins, together with surge capacity of three hours. The plant will operate six days per week, eight hours per day and will crush run of mine ore to a nominal minus $\frac{3}{4}$ inch (19.05 mm).

The flowsheet, except for equipment sizes, is the same for both the 400 and 700 ton per day crushing plants. The 700 ton per day crushing plant is described below.

Run of mine ore will be delivered to a 50 ton capacity mild steel shaft bin fitted with replaceable liners. Ore will be withdrawn from the bin via a Telsmith 24 inch by 5 ft. reciprocating plate feeder on the No. 1 conveyor belt (36 inch width) and then to a 25 by 36 inch Telsmith overhead eccentric type jaw crusher. The crushed ore at minus 4 inch (101.6 mm) will be conveyed via No. 2 conveyor belt (30 inch width) to a mild steel coarse ore bin with a live capacity of about 700 tons. Ore will be withdrawn from the bin via a Telsmith 24 inch by 5 ft. reciprocating plate feeder on to No. 3 conveyor belt (30 inch width) and then to a single deck Vibro-King vibrating screen fitted with a $\frac{3}{4}$ inch (19.05 mm) screen cloth. Minus $\frac{3}{4}$ inch material will discharge on to No. 4 conveyor belt (24 inch width), plus $\frac{3}{4}$ inch material will be crushed in a Symons standard 4 foot cone crusher set at $\frac{5}{8}$ inch (15.87 mm) and then discharged on to No. 4 conveyor belt. The crushed ore, at nominal minus $\frac{3}{4}$ inch, will be discharged into two mild steel fine ore bins, each with a live capacity of 700 tons.

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Features of the crushing plant include crawl beams and hand-operated cranes over both the primary and secondary crushers, a tramp iron magnet ahead of the vibrating screen, sequence starting and a centralised electrical control panel. The design of the ore bins is of the non-plug flow non-segregating type.

7. TREATMENT PLANT:- (Refer to drawing Z 259 for layout.)

7.1 Design Basis.

The treatment plant will be required to treat 700 tons crushed ore per day and to operate continuously 24 hours per day, seven days per week. In view of this, preference has been given, where possible, to the installation of two smaller units rather than one large unit and to the provision of standby equipment wherever necessary. Thus the milling circuit will of one rod and two ball mills, the cyanidation circuit of two thickeners and two rotary drum filters. Although it is obviously more expensive to do so, it is considered that the saving in production when one unit is off line will more than off-set the extra cost. Almost all pumps whether sand, solution, vacuum or compressor, have standbys. Spillage pumps have been included for all milling circuits, in thickener tunnels and under rotary filters. In this way the plant can be properly hosed down and kept clean.

Automatic sample cutters will be provided wherever necessary so that reliable and representative samples can be obtained at all times and proper metallurgical control exercised.

Features of the overall plant design are: the central location of the foreman and shift bosses offices so that operation of the rod and ball mills, rotary drum filters, Stellar filters and smelt houses can be easily seen and supervised: lining up of rod and ball mills to simplify access by overhead crane: provision of a centralised electric control panel for all items except the rod and ball mills.

From a metallurgical point of view, features of the plant are the rod and ball milling circuit which, in our experience of treatment of similar tonnages and grinds, has been shown to be both flexible and efficient; cyanidation of the finely ground ore in air agitated Pachuca tanks where the height of the tank considerably exceeds the diameter. In this way the oxygen requirements for the dissolution of gold by cyanide will be better satisfied. Finally, filtering instead of counter-current washing of the cyanided pulp will result in the reduction of soluble gold losses to under one per cent - typical of Rand metallurgical practice.

7.2 700 Ton per day milling, cyanidation and gold recovery plant.

This section has been designed to treat 700 tons crushed ore per day and to operate 24 hours per day, seven days per week. Overall recovery of gold should exceed 94 per cent from sulphide ore assaying about 22 grams/ton.

Crushed ore from the fine ore bins will be withdrawn via two vibrating feeders onto No. 5 conveyor belt (24 inch). A weightometer will automatically regulate the vibrating feeders and so control the tonnage of ore fed to the rod mill. Provision will be allowed to control the weightometer remotely, together with facilities for indicating, recording and integrating the tonnage fed to the milling circuit.

The bowl will have a capacity of approximately 700 kilogram of slime and flux.

It is anticipated that calcining will be carried out once a week and smelting once every two weeks.

The smelt house will be a suitably constructed brick building with a concrete floor and fitted with two access doors, one on the ground floor for ingress and egress of all material and final product, and one on the operating floor leading from the Stellar filters to the acid vats. The smelt house will be properly equipped with strong room, scale, sink, flux bins, burglar proofing, etc.

7.3 <u>700 Tons per day milling, flotation, cyanidation and gold recovery plant.</u>

Crushed ore from the fine ore bins will be withdrawn and fed to the rod mill exactly as described under 7.2.

The milling circuit will, however, consist of smaller units. The rod mill will be 5 feet diameter (shell dimension) by 12 feet rod mills operating in open circuit and one 8 feet diameter by 6 feet Marcy grate discharge ball mill operating in closed circuit with an 18 inch diameter linatex lined hydrocyclone and a 6/4 E Warman sand pump. Standby cyclone and pump and vertical spindle spillage pump will be provided. Ore will be milled to about 90 per cent passing 65 mesh (Tyler) in fresh water. A steady head tank will ensure that dilution water to the milling circuit can be readily kept constant.

Cyclone overflow will gravitate to two 8 feet diameter by 8 feet heavy duty conditioners in series where the pulp will be conditioned at 30 per cent solids for 15 minutes with copper sulphate followed by rougher flotation in a bank of 15 Denver No. 24 flotation machines. The flotation cells will be arranged in series, as three banks each of five cells. A reagent combination similar to that developed by Mowat will be used for the recovery of the gold-bearing suphide minerals.

The rougher flotation concentrate will be pumped to two 15 feet diameter Pachuca tanks for pre-aeration at a controlled pH of about 9.2. The pre-aerated pulp will then gravitate to a re-grind circuit consisting of a 6 feet diameter (shell dimension) x 7 feet Marcy grate discharge ball mill operating in closed circuit with a 10 inch 10 degree linatex lined hydrocyclone and a Warman 4/3 D sand pump. The flotation concentrate will be milled to about 95 per cent passing 200 mesh in cyanide solution.

Cyclone overflow will gravitate to a 60 feet diameter by 8 feet torque drive thickener. Thickener overflow will be pumped to the unclarified pregnant solution solution storage tank. Thickener underflow will be pumped via diaphragm and centrifugal pumps to four 15 feet diameter Pachuca tanks arranged in series. Cyanide and lime will be added to the thickener underflow to maintain the desired strengths during cyanidation.

Pulp from the last Pachuca will gravitate to two 10 feet diameter by 12 feet rotary drum filters. After washing the filter cake to minimise soluble losses, pregnant gold-bearing solution will be pumped by the filtrate pump to the unclarified pregnant solution storage tank. Thereafter the process and equipment are identical to that described under section 7.2.

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Flotation tailings will gravity to a 75 feet diameter by 10 feet torque drive thickener. Thickener overflow will be pumped back to the primary milling and flotation circuits to provide dilution and launder water. Thickener underflow will be re-pulped with barren filter cake and pumped to the tailings or slimes dam.

8. SLIMES DAM:-

The dam, some 1 100 meters from the treatment plant, will be situated at the head of a valley, thus reducing to a minimum the catchment area on which rain water can fall and endanger the stability of the dam. The construction will consist mainly of an earth embankment, a retaining wall to form the downstream wall of the dam and thus to retain the slime tailings. A penstock will be installed to drain off the settled clear solution. The solution run off will be retained in a small sump and will be pumped back for re-use in the plant. Excess run-off during rainy weather will be run to waste.

The area required to limit the average size of the slimes dam floor to 150 mm per month will be about 20 hectares. The exact location, length and height of the dam wall, will require detailed survey. It is probable that the preliminary wall will be about 600 metres long and the length of the dam down the valley will be about 800 metres.

The slime residue will be delivered by pipe to a series of small hydrocyclones to separate a coarser and drier fraction for deposition near the wall, and a finer and wetter fraction for deposition in the centre of the dam.

9. OXIDE ORE:-

Laboratory testwork on an oxide ore sample taken from surface workings gave the following results:-

(i) Gold values were very evenly distributed throughout the size fractions and the ore sample, when crushed to minus 10 mesh (Tyler), contained over 60 per cent minus 325 mesh material.

(ii) Cyanidation of finely ground material gave excellent gold dissolutions, but with slightly higher cyanide and lime consumptions when compared with those for the cyanidation of sulphide ore.

(iii) The finely ground oxide ore had very poor thickening and filtering characteristics.

Provision for treating ore oxide has been allowed for in the overall plant design. This will consist of an ore bin, rotary scrubber, cyclone, thickener and two batch Pachuca agitators for pre-treatment of the ore with lime before joining the sulphide ore for cyanidation. A weightometer and automatic sample cutter have been included for determining the gold content of the oxide ore.

The capital cost of the oxide ore treatment plant is estimated Bs. . This is for expenditure on the proposed future addition as can be seen on drawing 2259.

It is recommended that no treatment of oxide ore be considered until the sulphide plant is operating satisfactorily.

10. COMMISSIONING AND PERSONNEL TRAINING:-

It is proposed initially that the mill superintendent be one of Minervens senior metallurgical personnel. All other personnel on the treatment plant will be locally recruited.

During the commissioning of the plant, three experienced Minerven shift bosses will be seconded to the Colombia Gold Mine to help with the start-up and the train local personnel in the proper operation of the plant. It is anticipated that the commissioning and personnel training will take from three to six months.

It is intended to make full use of the new assay laboratory at El Peru. Provision has been allowed for in the estimates for one of Minerven's assayers to be seconded as Chief Assayer for a short period, but this may well prove unnecessary.

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OPERATING COST ESTIMATES

Operating costs have been estimated based on 1970 materials prices, labour rates and power costs and on the mine and treatment plant design as outlined in this report.

1. LABOUR:-

The manpower requirements are based on work standards which are considered realistic for the El Callao area.

It is most important that reliable and trustworthy staff be selected to operate this mine and good management will be of prime importance to a successful operation. It has been assumed that the following will be highly experienced foreign personnel and that Venezuelans will be trained to fill these key positions:-

Mine Manager	1
Plant Superintendent	1
Engineer	1
Administrator	1
Geologist	1
Mine Captain	1
Plant Foreman	1
Shift Boss (plant)	4
Shift Boss (underground)	3
Chief Assayer	1
Developers	3
TOTAL:-	17

The total mine complement will amount to 300.

Depending on the ability of the Venezuelan staff it may not be necessary to employ foreign Developers, although this will be necessary during the pre-production development stage.

The adjusted daily rate was calculated as follows:-

		DAYS
(a)	Six days worked, seven day paid	50
(b)	Public Holidays	15
(c)	Severence	15
(d)	Family bonus	15
(e)	Vacation	15
	TOTAL:-	110

i.e. $\frac{110}{300} = \pm 40\%$.

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Included in overheads is the cost of operating a bus for transportation of the workers to and from the mine. An estimate of 10% of the daily basic wage has been assumed for social security benefits. Death benefits are also covered.

Details of the various labour categories and labour cost details are included in Appendix No. 7. The labour rates are relative to 1970. A proposed organization chart can be seen on Drawing No. 276.

2. MATERIALS:-

The prices of materials are based on 1970 prices and on the assumption that these will be obtained in Venezuela from local suppliers.

3. POWER:-

The power tariff was obtained from the power supply authority during the local investigation in March, 1970. Power costs are based on estimates of consumed power for each electrically driven machine.

Estimates of consumed power can be seen in Appendix No. 14.

4. SUMMARY OF OPERATING COST ESTIMATES:-

Operating Cost Analysis. (30 Day Month).

Mining Cost.		PER DAY:	PER METRIC TON:
Labour	Bs	6 827	Bs 9.75
Explosives		2 972	4.25
Rock Drilling		344	0.49
Power		1 286	1.84
Shaft Operation		301	0.43
Other		1 645	2.35
TOTAL MINING	Bs	13 375	Bs 19.11
Ore Treatment Cost.			
Labour	Bs	1 799	Bs 2.57
Power		1 627	2.32
Chemicals		2 100	3.00
Operation		2 846	4.07
Assaying		188	0.27
TOTAL ORE TREATMENT	Bs	8 560	Bs 12.23
Administration Cost.			
Labour	Bs	3 987	Bs 5.70
Travel		387	0.55
Insurance and Fees		486	0.69
Diamond drilling		1 093	1.56
Other		1 764	2.52
TOTAL ADMINISTRATION	Bs	7 717	Bs 11.02
TOTAL OPERATING COST:-	Bs	29 652	Bs 42.36

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5. ANALYSIS OF OPERATING COST ESTIMATES:-

		DAILY LABOUR COST:		DAILY OTHER COST:		DAILY TOTAL COST:	%
Mining	Bs	6 877	Bs	6 548	Bs	13 375	45
Ore Treatment		1 799		6 761		8 560	29
Administration		3 987		3 730		7 717	26
TOTALS:	Bs	12 613	Bs	17 039	Bs	29 652	100
		43%		57%		100%	

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ESTIMATED CAPITAL COST OF BRINGING THE MINE TO PRODUCTION.

1. GENERAL.

A shaft sinking and plant and services construction programme has been planned for the purpose of bringing the mine to the recommended production rate of 700 tons treated per day in the shortest time. As can be seen on the bar chart on Drawing No. Z 320, this could be achieved in about thirty months.

Based on the mine and treatment plant designs the necessary services have been designed and selected. Very little use can be made of existing services in the El Peru area other than the Mocupia power plant, the El Peru explosive magazines, the existing workshop facilities and perhaps various houses and the hospital. These items have been taken into account for the capital cost estimates.

Equipment for the mine and treatment plant and services have been designed and chosen utilizing the following principles:

(a) Economy
(b) Suitability
(c) Standardization
(d) Availability and price of spares.

A compromise has been made between mechanization and manual methods for the most economical end results.

In the shaft sinking and plant and services construction programme it has been assumed that all skilled and unskilled labour will be Venezuelans and that only key foreign supervisory personnel, amounting to about fifteen, will be required.

Arrangements must be made with the power supply authority for the erection of the proposed power line from the Macagua dam to El Peru as soon as possible after the decision is made to proceed with the project.

A summary of the estimated capital cost of bringing the mine to production follows :

ESTIMATED CAPITAL COST OF BRINGING THE MINE TO PRODUCTION

Summary.

SERVICES:

Power Supply	Bs 2 854 000
Water Supply	644 000
Compressed Air Supply	644 000
Staff Housing	1 289 000
Mine Workshops	184 000
Mine Warehouse	184 000
Mine Offices	368 000
Mine Vehicles	736 000
Surface General	829 000
Total Services	Bs 7 732 000

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CIVIL WORKS:		
Total Civil Works		Bs 3 544 000
MINE DEVELOPMENT:		
Access Shaft	- Sinking equipment	Bs 2 301 000
	- Permanent equipment	4 050 000
	- Shaft sinking	4 603 000
Ventilation shaft	- Permanent equipment	184 000
	- Rehabilitation	368 000
Pre-production Development		2 762 000
Development and stoping equipment		1 105 000
Total Mine Development		Bs 15 373 000
ORE TREATMENT PLANT:		
Crushing		Bs 2 301 000
Milling and Cyanidation		8 837 000
Tailings disposal		276 000
Total Treatment Plant		Bs 11 414 000
DESIGN, OVERHEADS AND SUPERVISION:		
Design and Overheads		Bs 2 218 000
Site Supervision:	- Sinking	3 130 000
	- Development	1 749 000
Total Design, Overheads and Supervision		Bs 7 097 000
OTHER:		
Operating Stores		Bs 837 000
Equipment Transportation		3 816 000
Insurance		572 000
Total Other		Bs 5 225 000
GRAND TOTAL:-		Bs 50 385 000

The sub-headings forming the above summary will be discussed below.

The above capital cost estimates are all based on December, 1970, equipment and materials prices, power and labour rates and insurance and shipping costs. These estimates were made in S.A. Rands and converted to Bolivars on the basis of R1.00 = Bs. 6.23. In these estimates no allowance has been made for any Venezuelan customs duties and taxes on the foreign components.

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2. SERVICES

2.1 Power Supply:

The proposed power reticulation diagram and power distribution diagram constitute Appendix No.12 and No. 13 respectively.

It is planned to arrange a temporary power supply from the existing Mocupia power plant by overhauling the two Fairbanks Morse sets and installing additional diesel alternator sets for standby purposes. This is for power supply during the shaft sinking and construction programme. Transmission systems will be installed for power supply to the shaft sinking hoist, compressors, water supply and surface general from the Mocupia power plant.

Permanent power supply will be from the Macagua hydro-electric scheme situated on the Caroni River about 160 kilometers from El Peru. The power line will be installed by the power supply authority, Edelca, from whom power will be purchased when the mine is in production. It is expected that the installed capacity of the mine will be about 4 000 kilowatts.

It must be stressed that power must be available to the mine immediately on completion of the construction programme, about 27 months from the start of the programme. Reference to the prospect duration chart indicates the timing required.

The permanent supply terminal will be situated at the treatment plant, and provision has been made in the Capital Cost estimate for the necessary switchgear, transformers and cables to connect to the permanent supply.

The power distribution and cable specifications can be seen in Appendix No. 14.

2.2 Water Supply:

The total water requirement for the proposed Colombia Gold Mine is 1 000 cubic meters per day.

It is recommended and has been assumed that the permanent water supply will be from the Rio Yuruari which is situated about $3\frac{1}{2}$ kilometers from the mine. A sample of river water previously analysed indicates that this water is acceptable for plant operation. However, water for domestic use, i.e. houses, mine office, underground and changehouse, will be treated before use.

A sample of water taken from the Sosa Mendez underground workings was evidently also analysed and found to contain a high percentage of calcium and magnesium sulphates and carbonates. This water would be unacceptable, as the rapid precipitation of the contained salts in pipe lines restricts their capacity and necessitates costly cleaning operations.

Water will be dammed, for use during the dry season, by the construction of a weir on a rock exposure across the river at Nacupai. The water will then be pumped through a six inch pipe line to the mine, where adequate storage

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facilities consisting of a steel storage reservoir and steady head tank and filtration plant, for domestic water will be installed.

2.3 Compressed Air Supply:

A temporary compressed air supply for shaft collar excavations and initial site work will be provided by a portable, 600 cubic feet per minute diesel operated machine.

The permanent supply will consist of a total capacity of 4 000 cubic feet per minute from a number of machines. The permanent units will be motivated by electric power and will be installed in two stages.

Stage one will cater for 2 000 cubic feet per minute (2 x 1 000 c.f.m. units) and will be installed at the start of the capital expenditure programme to cater for shaft sinking and development requirements. Stage two will also be 2 000 cubic feet per minute (1 x 2 000 c.f.m. units) but will only be required near the end of the capital expenditure programme.

The low pressure air required in the ore treatment plant for pachuca and filter blow-off duties will be generated by a compressor specified in more detail in the pump schedules. There will be a connection to the main compressors for emergency use. The compressors will be housed adjacent to the main hoist building.

2.4 Staff Housing:

Five well-designed permanent houses will be provided for senior personnel. Each house will be complete with three bedrooms, lounge, dining area, bathrooms, kitchen, toilets and all necessary services. Houses will be designed to suit the local climatic conditions and will form part of the mine complex. At this stage siting has not been finalized.

A single quarters building will be provided to accommodate about five persons and will also be complete with lounge, dining area, kitchen and toilets. This will be used during the sinking period to accommodate foreign supervisory personnel and will then be used as a guest house.

2.5 Mine, Workshops and Offices:

The main office, as indicated on Drawing No. Z 258, will be of a permanent nature and will be provided with the necessary furniture and office requirements and will be air-conditioned.

The temporary workshop will be a steel-framed structure, with corrugated, galvanized iron cladding and concrete floor. Only initial machine tools and small equipment will be provided as use will be made of theEl Peru workshops until such time as permanent workshops have been equipped.

The change house will be suitable for underground and surface personnel and will be equipped with shower and toilet facilities. The change house building will consist of a steel-framed structure with suitable cladding and will include a lamp room and laundry. Arrangements for clean and dirty rooms with showers between are recommended.

Electric hot water boilers in the change house will provide water for the ablution facilities. In the initial stages, sewerage will be septic tanks together with adequate french drains.

2.6 Warehouse:

A warehouse building of about 2 500 square feet (232 square meters) with a concrete floor will be provided. The building will be fabricated from standard mild steel sections with galvanized iron roof and side wall cladding. Provision will be made for racks, shelving and interior furnishings. The warehouse yard area will be fenced and an off-loading gantry and crawl beam will be installed.

2.7 Mine Vehicles:

Planned transport requirements for the mine include the provision of motor cars for the senior personnel, light delivery vehicles for departmental use and a bus for transport of workers to and from the village.

A tip-truck for rock handling and a flat back truck for transport of warehouse items have been included.

As it is proposed to use the existing explosives magazines at El Peru, a special explosives transport vehicle will be used for transportation of explosives to the mine.

2.8 Hospital:

It has been assumed in the capital cost estimates that the hopsital facilities available at both El Peru and El Callao will be made available to the mine for a fee of Bs. 120.00 per day per bed occupied.

No provision has therefore been made for hospital construction, improvement or enlargement. Hospital personnel have not been included in the mine labour force.

It is proposed to arrange an insurance policy to cover the hospital charges to be incurred as part of the Social Security cover.

2.9 Surface General:

Security fencing will be provided around the perimeter of the ore treatment plant and shaft area, as well as internal fences for security purposes. The fence will be 8 feet (2,4 meters) high. Posts and standards will be fitted with an overhang carrying strands of barbed wire.

An automatic telephone exchange system will be installed and the system will be complete with two incoming lines and twenty extensions, plus the necessary instruments.

Necessary site clearing will be done to allow the erection of all buildings, head-frame and ore treatment plant. A certain amount has already been completed. A gravel road will be graded from the road at Caratal to the site. Access around the plant and other surface buildings, together with the necessary drainage, will be arranged for convenience.

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3. CIVIL WORKS

The foundations for the various items of equipment comprising the ore treatment plant and shaft head arrangements have been included. Design of the foundations will be finalized after trial pits have been sunk in the ore treatment plant area, but it is not anticipated that any major problems will be encountered. Rock mechanics studies have been concluded to determine if the fact that the ore treatment plant area has been undermined would have an effect on the stability of the foundations. The plant has been orientated in such a manner that no instability of foundations could arise.

4. MINE DEVELOPMENT

4.1 Access Shaft-Sinking Equipment:

The equipment required for shaft sinking will be a sinking stage, stage winder and ropes for the sinking stage. This sinking stage will be equipped for mechanical clearing of broken rock in the shaft bottom. The kibbles will be hoisted by the permanent hoist. Non-spin ropes together with cross-heads and jack catches in the headframe will be used. Temporary tipping chutes will be used for transfer of rock to the tip-truck for disposal in the waste tipping area.

The cost of rockdrills and the initial supply of consumables are also included in this estimate. The cost of temporary fans, service columns and sinking cables and kibbles are also included in this estimate.

4.2 Access Shaft - Permanent Equipment:

The cost of the permanent steel headframe, together with the 600 H.P. hoist and ropes with their attachments for the skips and cages have been estimated. Permanent steel buntons and guides, station kingposts and the ladderway to be installed in the shaft are included. Various pipe columns, as detailed in Drawing No. Z 262, will also be installed.

4.3 Access Shaft - Shaft Sinking:

The expenditure to be incurred in the sinking of the shaft, i.e. labour, explosives, sand, cement and stone are the main items in this category. Equipment maintenance costs and spares used during the shaft sinking period, together with power charges, have also been included.

4.4 Ventilation Shaft - Permanent Equipment:

It is proposed to provide a reinforced concrete and brick building over the old Mocupia shaft. Provision will be made for the installation of four fans in the walls of the building to provide upcast ventilation in preference to one large fan, as the small fans can be installed as required. In case of breakdown the remaining fans can be used to ventilate the mine, thus avoiding unnecessary hold-ups. A ladderway for emergency use will be provided in the Mocupia shaft.

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4.5 Ventilation Shaft - Rehabilitation:

This work will include the opening up and making safe of the old Mocupia shaft. Stoppings will be built to isolate the shaft from the old Mocupia workings and the mine dewartered and made safe.

4.6 Pre-Production Development:

The proposed development methods were outlined previously in this report and the costs incurred during the planned four-month period have been estimated. These costs will include the training period for the development crews and all charges for labour and stores used for this work.

4.7 Development and Stoping Equipment:

Equipment to be used during the pre-production development period will consist of Eimco loaders, 4½ ton diesel driven locomotives, two-ton side-tipping hoppers, airleg-supported jackhammers and sundry small tools. Scraper winches, together with ropes, snatch blocks and scraper scoops and jack hammers will be the main items of stoping equipment used.

5. ORE TREATMENT PLANT

This has been discussed in detail in the Metallurgy section of this report. The proposed plant layout can be seen in Drawing No. Z 258.

6. DESIGN, OVERHEADS AND SUPERVISION

6.1 Design and Overheads:

During the initial period after the signing of a shaft sinking and construction contract to establish the mine, a considerable amount of activity will take place in the preparation of detailed designs and drawings and the recruitment of supervisory personnel will proceed.

The placing of orders and expediting of equipment for transport to Venezuela will enjoy high priority for the purpose of starting operations as soon as possible.

For the purpose of supervising the work efficiently, the foreign contractor's personnel will be required to visit the site periodically. The cost of these personnel has been included in the capital cost estimates.

6.2 Site Supervision:

Local supervision in Venezuela will be required to ensure efficient performance of the shaft sinking and development crews, and to carry out the necessary administrative functions together with liaison with Government Departments. This will necessitate certain transportation expenses and the use of accommodation at the mine.

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7. OTHER

7.1 Operating Stores:

On completion of the development programme, the mine warehouse will be equipped with a full range of consumables to obviate long delays if breakdowns occur. The purchase of these items will be carried out over the period during which the development of the mine is in progress.

7.2 Equipment Transportation:

The transportation of the equipment from the various foreign sources to port and shipment to Venezuela constitute the major components of this cost. Handling at port in Venezuela, together with transport to and handling at site are also included.

Contracts will be placed for this work with the most competitive suppliers of these services.

7.3 Insurance:

A contractors' All Risks insurance policy will be purchased from international insurance companies to cover all risks during erection of equipment and sinking of the shaft.

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GOLD MARKETING AND PRICE

1. SALE AND TRANSFER OF GOLD:-

The existing international arrangements for the sale and transfer of gold are as follows:-

(a) Existing gold in the monetary system is transferred at a fixed price of U.S. $35.00 per troy ounce.

(b) Newly mined gold is sold either to monetary authorities at a fixed price of U.S. $35.00 per troy ounce or on the free market. The free market price depends on the supply and demand for gold. Several free markets exist throughout the world, the major markets being London and Zurich.

2. CONSUMPTION AND FREE MARKET PRICE:-

World consumption of gold in industry and by hoarding at present exceeds world production and indications are that it will continue to do so in the future. It is expected that this excess of demand over the supply for gold will result in an increasing free market price. The free market price in London has been in excess of the fixed monetary price of U.S. $35.00 per troy ounce since March, 1970 and at the time of writing is U.S. $38.12 per troy ounce.

3. GOLD CONSUMPTION IN VENEZUELA:-

The consumption of gold in industry and by hoarding in Venezuela currently amounts to about 600 kilograms per month. Approximately 60 kilograms per month are currently produced in Venezuela, the balance of Venezuela's requirements is purchased mainly in Canada, United Kingdom and Switzerland at free market prices.

4. MARKETING OF THE GOLD PRODUCED AT THE COLOMBIA GOLD MINE:-

Production of gold from the Colombia Gold Mine is expected to average about 430 kilograms per month over a period of 8 years. It will thus be possible to market the entire output from the Colombia Gold Mine in Venezuela.

It is recommended that the gold produced at the Colombia Gold Mine be sold for industrial and hoarding purposes in Venezuela at the ruling London free market price on the date of the sale.

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PROJECT VIABILITY

The schedule on page 60 shows the projected operating results and cash flow projection for the Colombia Gold Mine. The following are the parameters used in this projection.

1. TONNAGE MILLED

In this study only the ore described as Drill Indicated, Possible and Potential, i.e. 2 036 000 tons has been considered and no cognisance has been taken of the ore contained in other known ore bodies. At the recommended milling rate of 700 tons per day the life of the mine is eight years. For the purpose of this study it has been assumed that the larger and higher value indicated ore reserves of the Colombia ore body will be exploited before the Sosa Mendez-Union ore body. During the three months commissioning period it is expected that a total of 47 250 tons will be treated.

2. RECOVERY GRADE

The ore reserve and recovery grades indicated previously in this report have been used. Allowance has been made for gold absorption of 124.4 kilograms in the plant during the first four months of operation.

3. GOLD SALES

It has been assumed that the revenue from the sale of gold will be received by the mining company one month after the gold is dispatched from the mine.

4. PRICE OF GOLD

It is assumed that the gold produced from the Colombia Gold Mine will be sold at London free market prices. For the purpose of this study a gold price of U.S. $37.50 has been used. This price is considered conservative in view of the expected industrial demand for gold.

Allowance has been made for a refining charge of U.S. $0.70 per ounce.

5. OPERATING COST

The estimated operating cost of Bs 42.36 is based on 1970 prices and details can be seen elsewhere in this report. In this study the operating cost has been increased at the rate of 3½% per annum throughout the life of the mine to cover escalation of labour rates and the cost of materials and power, etc.

6. EXPLOITATION TAX

This tax is based on 1% of the value of production at the shaft.

7. AMORTIZATION

The total capital cost of the project has been amortized on a straight line basis over the expected eight year mine life.

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8. PROFIT SHARING

In terms of the Venezuelan Labour Law employees are to participate in the profits of the mine. In this study it is assumed that 10% of the operating profit after deduction of the amortization allowance and exploitation tax will be allocated for distribution to employees.

9. PROFIT TAX

In this study it has been assumed that no profit tax will be payable during the first five years of production. Thereafter profits have been taxed at the rates set out in Tarifa B of the Income Tax Law.

10. CAPITAL, TRANSPORTATION AND STORES EXPENDITURE

The estimates as set out previously in this report are based on December 1970 prices. These costs were increased at the rate of 4½% per annum to cover cost escalation of labour rates, mining equipment, materials, shipping insurance, transportation and power. Allowance has been made for post production capital expenditure at the rate of Bs 200 000 per annum.

It is assumed that mine establishment will commence in July, 1971, and that the mine will come into production in October, 1973. The phasing of the capital, transportation and stores expenditure will be as set out in the following table:

HALF YEAR		1st	2nd	3rd	4th	5th	TOTALS
Capital	Bs 000	4931	12089	15287	12449	4054	48810
Transportation	"	-	568	3870	-	-	4438
Stores and Materials	"	-	221	226	231	235	913
T O T A L S	"	4931	12878	19383	12680	4289	54161

PROJECT VIABILITY AND RECOMMENDATION

The rate of return on capital employed, i.e. Bs 54 161 000 is 13.8%. This is the rate of return which shareholders can expect if the total capital requirements are raised in the form of share capital. This rate of return is considered adequate particularly in view of the likelihood of proving additional payable reserves and obtaining gold prices in excess of those used in this study.

It is concluded that this project is viable and it is recommended that the mine be established and brought into production as soon as possible.

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ESTIMATED OPERATING RESULTS AND CASH FLOW PROJECTIONS FOR COLOMBIA GOLD MINE - VENEZUELA:

YEAR		1971	1972		1973		1974		1975	1976	1977	1978	1979	1980	1981	TOTALS & AVERAGES
		2ND HALF	1ST HALF	2ND HALF	1ST HALF	2ND HALF	1ST HALF	2ND HALF								
Tons Treated						47 250	126 000	126 000	252 000	252 000	252 000	252 000	252 000	252 000	226 750	2 038 000
Recovery Grade	grams/ton					13,14	21,48	22,40	22,40	22,40	22,40	22,40	22,40	18,23	12,60	20,56
Gold Produced	kilograms					620,90	2706,05	2822,40	5644,80	5644,80	5644,80	5644,80	5644,80	4593,75	2857,05	41 824,15
Gold Sold	"					279,45	2577,10	2822,40	5644,80	5644,80	5644,80	5644,80	5644,80	4799,55	3121,65	41 824,15
Revenue per gram	Bs					5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265
Operating Cost per Ton Treated	Bs					62,10	47,38	48,20	49,46	51,19	52,98	54,84	56,76	58,74	60,80	54,93
Revenue	Bs 000					1 471	13 568	14 860	29 720	29 720	29 720	29 720	29 720	25 270	16 435	220 204
Operating Cost	"					2 934	5 970	6 073	12 464	12 900	13 351	13 820	14 304	14 802	15 322	111 940
Operating Profit	"					-1 463	7 598	8 787	17 256	16 820	16 369	15 900	15 416	10 468	1 113	108 264
Less: Exploitation Tax	"					4	113	126	250	249	247	245	244	197	107	1 786
Profit Sharing	"						419	537	1 039	992	943	892	836	336		6 413
Profit Tax	"											518	2 340	807		3 665
Profit after Taxes and Profit Sharing	"					-1 467	7 066	8 124	15 967	15 579	15 179	14 245	11 996	9 128	1 006	96 823
Less: Capital Expenditure	"	4 931	12 089	15 287	12 449	4 054	100	100	200	200	200	200	200	200	-	50 210
Transportation Expenditure	"		568	3 870												4 438
Expenditure on Stores & Materials	"		221	226	231	235										913
Balance		-4 931	-12 878	-19 383	-12 680	- 5 756	6 966	8 024	15 767	15 379	14 979	14 045	11 796	8 928	1 006	41 262

61/.....

Supremo

ESTIMATED OPERATING RESULT
FOR COLOMBIA GOLD M

YEAR		1971	1972		1973		1974	
		2ND HALF	1ST HALF	2ND HALF	1ST HALF	2ND HALF	1ST HALF	2ND HALF
Tons Treated						47 250	126 000	126 000
Recovery Grade	grams/ton					13,14	21,48	22,40
Gold Produced	kilograms					620,90	2706,05	2822,40
Gold Sold	"					279,45	2577,10	2822,40
Revenue per gram	Bs					5,265	5,265	5,265
Operating Cost per Ton Treated	Bs					62,10	47,38	48,20
Revenue	Bs 000					1 471	13 568	14 860
Operating Cost	"					2 934	5 970	6 073
Operating Profit	"					-1 463	7 598	8 787
Less: Exploitation Tax	"					4	113	126
Profit Sharing	"						419	537
Profit Tax	"							
Profit after Taxes and Profit Sharing	"					-1 467	7 066	8 124
Less: Capital Expenditure	"	4 931	12 089	15 287	12 449	4 054	100	100
Transportation Expenditure	"		568	3 870				
Expenditure on Stores & Materials	"		221	226	231	235		
Balance		-4 931	-12 878	-19 383	-12 680	- 5 756	6 966	8 024

S RESULTS AND CASH FLOW PROJECTIONS
) GOLD MINE - VENEZUELA:

	1975	1976	1977	1978	1979	1980	1981	TOTALS & AVERAGES
2ND HALF								
126 000	252 000	252 000	252 000	252 000	252 000	252 000	226 750	2 038 000
22,40	22,40	22,40	22,40	22,40	22,40	18,23	12,60	20,56
2822,40	5644,80	5644,80	5644,80	5644,80	5644,80	4593,75	2857,05	41 824,15
2822,40	5644,80	5644,80	5644,80	5644,80	5644,80	4799,55	3121,65	41 824,15
5.265	5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265
,40	49,46	51,19	52,98	54,84	56,76	58,74	60,80	54,93
14 860	29 720	29 720	29 720	29 720	29 720	25 270	16 435	220 204
6 073	12 464	12 900	13 351	13 820	14 304	14 802	15 322	111 940
8 787	17 256	16 820	16 369	15 900	15 416	10 468	1 113	108 264
126	250	249	247	245	244	197	107	1 786
537	1 039	992	943	892	836	336		6 413
				518	2 340	807		3 665
8 124	15 967	15 579	15 179	14 245	11 996	9 128	1 006	96 823
100	200	200	200	200	200	200	-	50 210
								4 438
								913
8 024	15 767	15 379	14 979	14 045	11 796	8 928	1 006	41 262

61/.....

FINANCE

1. FINANCING OF THE COLOMBIA GOLD MINE

It is recommended that a company be formed to take cession of the mining concessions and to exploit the Colombia and Sosa Mendez-Union ore bodies.

By raising a proportion of the total capital requirements for the establishment of the Colombia Gold Mine in the form of loan capital the funds to be provided by the shareholders will be reduced and, at the same time, shareholders will obtain an increased rate of return on their funds.

It is considered that for a gold mining project such as this it may be possible to raise about 40% of the total capital requirements in the form of loan capital provided that suitable guarantees can be furnished. The schedule on page 62 shows the flow of funds which can be expected by financing the project with a share capital of Bs 34 800 000 called up in four equal calls over a two year period and raising loans totalling Bs 23 200 000 bearing interest at 9½% per annum and repayable in equal instalments over the first 7 years of production. By financing the project in this manner the funds to be provided by the shareholders will be reduced from Bs 54 161 000 to Bs 34 800 000 and the rate of return on shareholders' funds is 15.2% compared with the rate of return of 13.8% in the previous chapter.

The possibility also exists of making a proportion of the share capital available to local private investors or institutions with the object of issuing such shares at a premium and/or linking an equity participation to the provision of loan funds.

2. CREDIT FACILITIES

Credit facilities are obtainable from several foreign countries for the purchase of equipment and for specific contract work. These facilities are usually provided for period of up to 10 years and are made available through exporters and contractors in the foreign country. In most cases the facilities cover a large proportion of the cost of the equipment purchased or contract prices and usually stipulate a minimum content by value from the country providing the facility. It is normal practice for the foreign institution providing such credit facilities to require guarantees from the local central bank or from an acceptable Government agency.

As it is intended to contract out the work for the establishment of the Colombia Gold Mine to a foreign contractor with experience in establishing and operating gold mines consideration must be given to using these available credit facilities.

62/.....

ESTIMATED OPERATING RESULTS AND CASH FLOW PROJECTIONS

FOR COLOMBIA GOLD MINE - VENEZUELA

Share Capital Bs 34 800 000
Loan Capital Bs 23 200 000
Total Capital Bs 58 000 000

YEAR	1971	1972		1973		1974	1975	1976	1977	1978	1979	1980	1981	TOTALS
	2ND HALF	1ST HALF	2ND HALF	1ST HALF	2ND HALF									
Tons Treated					47 250	252 000	252 000	252 000	252 000	252 000	252 000	252 000	226 750	2 038 000
Recovery Grade grams per ton					13,14	21,94	22,40	22,40	22,40	22,40	22,40	18,23	12,60	20,56
Gold Produced kilograms					620,90	5528,45	5644,80	5644,80	5644,80	5644,80	5644,80	4593,75	2857,05	41 824,15
Gold Sold "					279,45	5399,5	5644,80	5644,80	5644,80	5644,80	5644,80	4799,95	3121,65	41 824,15
Revenue per gram Bs					5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265
Operating Cost per Ton Treated Bs					62,10	47,79	49,46	51,19	52,98	54,84	56,76	58,74	60,80	
Revenue Bs 000					1 471	28 428	29 720	29 720	29 720	29 720	29 720	25 270	16 435	220 204
Operating Cost "					2 934	12 043	12 464	12 900	13 351	13 820	14 304	14 802	15 322	111 940
Operating Profit "					-1 463	16 385	17 256	16 820	16 369	15 900	15 416	10 468	1 113	108 264
Less Interest Payable "		51	442	754	1 064	2 204	1 889	1 574	1 260	945	630	315		11 128
Profit before Taxes and Profit Sharing		-51	-442	-754	-2 527	14 181	15 367	15 246	15 109	14 955	14 786	10 153	1 113	97 136
Less Exploitation Tax "					4	239	250	249	247	245	244	197	107	1 782
Profit Sharing "						736	850	835	817	797	773	304		5 112
Profit Tax "										457	2119	727		3 303
Profit after Taxes and Profit Sharing		-51	-442	-754	-2 531	13 206	14 267	14 162	14 045	13 456	11 650	8 925	1 006	86 939
Less Capital Exp. "	4 931	12 089	15 287	12 449	4 054	200	200	200	200	200	200	200		50 210
Transportation Expenditure "		568	3 870											4 438
Expenditure on Stores and Materials "		221	226	231	235									913
Loans Repaid "						3 314	3 314	3 314	3 314	3 314	3 315	3 315		23 200
Add Share Capital Received "	8 700	8 700	8 700	8 700										34 800
Loans Received "		1 500	11 000	4 750	5 950									23 200
Balance for Period	3 769	-2 729	-125	16	-870	9 692	10 753	10 648	10 531	9 942	8 135	5 410	1 006	
Balance Carried Forward	3 769	1 040	915	931	61									
Available for Distribution						9 753	10 753	10 648	10 531	9 942	8 135	5 410	1 006	66 178

63/.....

2

ESTIMATED OPERATING RE

FOR COLOMBIA

Share Capital Bs 34 800 000
Loan Capital Bs 23 200 000
Total Capital Bs 58 000 000

Y E A R		1971	1972		1973		197
		2ND HALF	1ST HALF	2ND HALF	1ST HALF	2ND HALF	
Tons Treated						47 250	252
Recovery Grade	grams per ton					13,14	21,
Gold Produced	kilograms					620,90	5528,
Gold Sold	"					279,45	5399,
Revenue per gram	Bs					5,265	5,
Operating Cost per Ton Treated	Bs					62,10	47,
Revenue	Bs 000					1 471	28
Operating Cost	"					2 934	12
Operating Profit	"					-1 463	16
Less Interest Payable	"		51	442	754	1 064	2
Profit before Taxes and Profit Sharing			-51	-442	-754	-2 527	14
Less Exploitation Tax	"					4	
Profit Sharing	"						
Profit Tax	"						
Profit after Taxes and Profit Sharing			-51	-442	-754	-2 531	13
Less Capital Exp.	"	4 931	12 089	15 287	12 449	4 054	
Transportation Expenditure	"		568	3 870			
Expenditure on Stores and Materials	"		221	226	231	235	
Loans Repaid	"						3
Add Share Capital Received	"	8 700	8 700	8 700	8 700		
Loans Received	"		1 500	11 000	4 750	5 950	
Balance for Period		3 769	-2 729	-125	16	-870	9
Balance Carried Forward		3 769	1 040	915	931	61	
Available for Distribution							9

RESULTS AND CASH FLOW PROJECTIONS

A GOLD MINE - VENEZUELA

1974	1975	1976	1977	1978	1979	1980	1981	TOTALS
52 000	252 000	252 000	252 000	252 000	252 000	252 000	226 750	2 038 000
21,94	22,40	22,40	22,40	22,40	22,40	18,23	12,60	20,56
28,45	5644,80	5644,80	5644,80	5644,80	5644,80	4593,75	2857,05	41 824,15
29,5	5644,80	5644,80	5644,80	5644,80	5644,80	4799,95	3121,65	41 824,15
5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265	5,265
47,79	49,46	51,19	52,98	54,84	56,76	58,74	60,80	
28 428	29 720	29 720	29 720	29 720	29 720	25 270	16 435	220 204
12 043	12 464	12 900	13 351	13 820	14 304	14 802	15 322	111 940
16 385	17 256	16 820	16 369	15 900	15 416	10 468	1 113	108 264
2 204	1 889	1 574	1 260	945	630	315		11 128
14 181	15 367	15 246	15 109	14 955	14 786	10 153	1 113	97 136
239	250	249	247	245	244	197	107	1 782
736	850	835	817	797	773	304		5 112
				457	2119	727		3 303
13 206	14 267	14 162	14 045	13 456	11 650	8 925	1 006	86 939
200	200	200	200	200	200	200		50 210
								4 438
								913
3 314	3 314	3 314	3 314	3 314	3 315	3 315		23 200
								34 800
								23 200
9 692	10 753	10 648	10 531	9 942	8 135	5 410	1 006	
9 753	10 753	10 648	10 531	9 942	8 135	5 410	1 006	66 178

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APPENDIX NO. 1

GOLD PRODUCTION

EL CALLAO AREA

1969

A. NATIONAL CONCESSION AREAS

Concession	Mine	Ore Tons	g/t	Gold Production Grams
AUSTIN 1	Morrocoy	17,2	5,87	101
" 2	No. 33	118,4	6,07	719
" 2	Corina 1	43,1	7,01	302
" 4	Trapichito	61,2	4,74	290
" 5	Juan	1 102,9	8,64	9 533
" 5	Bartolo 2	1 241,5	10,48	13 010
" 5	Austin 5	156,8	5,75	901
" 6	Santa Elena	758,3	6,66	5 049
" 8	D-14	700,1	10,25	7 179
" 8	D-14/2	13,4	9,48	126
" 8	Laguna A.6	7 149,2	10,71	76 550
" 8	Laguna level 4/A	1 572,3	10,20	16 052
" 8	Arena Agitador	29,3	5,05	148
" 9	Chile	605,1	13,82	8 361
TOTAL AGRUPACION AUSTIN :		13 569,8	10,19	138 322
CENICERO	Cenicero	351,2	5,40	1 897
EL CALLAO	Culebra 2	296,7	6,74	1 999
" "	San Miguel	2 591,0	8,18	21 204
" "	Santa Catalina	129,2	6,56	848
TOTAL EL CALLAO :		3 016,9	7,97	24 051
LA INCREIBLE :	Cali	1 597,0	8,00	12 778
" "	San Francisco	142,5	8,95	1 275
" "	Ordaz	1 124,3	7,02	7 895
" "	Increible	517,7	6,75	3 496
" "	Las Rosas	801,2	7,57	6 067
" "	Mérida	46,7	5,78	270
" "	Salvador	276,0	9,08	2 505
" "	Salvador 2	177,1	7,15	1 267
" "	Salvador 3	661,3	9,09	6 014
" "	La Fea B.	726,3	6,41	4 658
" "	Alta C.	191,3	5,60	1 071
" "	Kepp	419,3	5,80	2 433
" "	La Revancha	44,2	5,84	258
" "	Mina C.	1 131,7	6,98	7 904
" "	Ortega	53,0	6,34	336
" "	Mina A.	1 215,0	15,21	18 487
" "	Matilde	2 196,0	7,89	17 323
" "	Valdez	73,0	6,49	474
" "	La Española	333,0	6,97	2 323
" "	La Reforma	418,9	6,76	2 831
" "	B-13	691,2	7,55	5 222
" "	Catire	975,0	7,89	7 695
" "	La Lapa	1 976,4	6,85	13 542
" "	Negro Primero	280,4	7,60	2 131
" "	Doble Fea	145,9	6,80	992
TOTAL LA INCREIBLE		16 214,4	7,97	129 247

Concession	Mine	Ore Tons	g/t	Gold Production Grams
LOS FRAILES :	Los Frailes	1 714,9	6,78	11 621
" "	Hansa 2	343,7	6,61	2 272
" "	El Valle	103,9	5,12	532
TOTAL LOS FRAILES:		2 162,5	6,67	14 425
NUEVO MÉJICO	Méjico	159 9	10,16	1 625
POTOSI DE ORO	Batting Ball	18,8	6,22	177
" " "	Ropeway	796,5	8,47	6 745
" " "	La Eureka	1 202,5	6,02	7 243
" " "	El Onoto	174,4	5,21	908
" " "	La Vieja	631,8	8,18	5 800
" " "	El Futuro	271,7	6,04	1 315
TOTAL POTOSI DE ORO:		3 041,7	7,27	22 128
REHABILITACION	Mediodia	90,3	6,78	612
SAN LUIS	Túnel No.2	309,8	5,97	1 849
" "	San Luis 3	10,4	4,13	43
TOTAL SAN LUIS:		320,2	5,91	1 892
SANTA ISABEL	Santa Isabel	781,9	7,22	5 646
" "	Santa Isabel 2	416,1	7,10	2 995
TOTAL SANTA ISABEL:		1 198,0	7,18	8 601
SANTA ROSA DE LIMA: Regreso P.		32,5	5,82	189
SOSA MENDEZ	Cecilia	513,1	6,29	3 230
" "	El Mamón	193,6	6,87	1 330
" "	Sosa Méndez	376,2	9,02	3 383
" "	Someoeste (77,4)	77,4	7,51	581
TOTAL SOSA MENDEZ:		1 160,3	7,35	8 534
SUBE PALO	Sube Palo	21,3	8,97	191
TROYA	Los Aceites	617,2	7,23	4 464
UNION	Unión Acosta	786,6	7,76	6 104
"	Unifá	430,5	7,72	3 322
"	Santa Maria	191,6	5,81	1 113
"	Regreso	5,6	6,96	39
"	Medina	23,5	9,19	216
TOTAL UNION :		1 437,8	7,51	10 794
WINCHESTER	Winchester	1 192,7	10,68	12 744
"	No.26	1 870,6	11,22	20 992
"	Caratal	878,2	8,50	4 064
TOTAL WINCHESTER:		3 541,5	10,67	37 800
TOTAL NACIONALES :		46 931,5	8,62	404 772

NOTE:

1. Concession Nacionales : 18 x 18km Concession including Colombia Mine.

2. Concession Particulares : Concessions outside the Concession Nationales.

B. INDIVIDUAL CONCESSION AREAS:

Concession	Mine	Ore Tons	g/t	Gold Production grams
NEUVA PANAMA	Lagunita	159,1	6,00	955
" "	Panamá	796,6	11,39	9 072
" "	Panamá 1	293,6	10,06	2 955
" "	Panamá 3	7,2	4,31	31
" "	Laguna Level 3	2 864,8	12,04	34 494
" "	Laguna Level 4	1 646,0	11,06	18 207
" "	Pryor	391,7	6,22	2 438
" "	Mónica	31,8	13,81	439
" "	Mónica 1	49,5	5,94	294
" "	A 100 Oeste	274,1	5,20	1 424
" "	A Level 1 Este	121,9	6,71	818
" "	San José	68,7	5,90	405
TOTAL NEUVA PANAMA :		6 705,0	10,67	71 532
LA EXPERIENCIA	Sofia	2 679,3	8,21	21 994
" "	La Experiencia	4 154,9	7,68	31 920
" "	El Crucero	371,4	6,90	2 562
TOTAL LA EXPERIENCIA:		7 205,6	7,84	56 476
TALISMAN	Tiapa	66,2	5,06	335
"	Talismán	203,8	5,41	1 102
"	Talismán 4.	6,1	4,26	26
TOTAL TALISMAN:		276,1	5,30	1 463
TIGRITO	Tigrito	114,0	6,22	709
LA CAMORRA	La Camorra	109,4	9,52	1 042
CANAIMA	Canaima	235,1	16,70	3 925
SAN RAFAEL	San Rafael	343,3	12,09	4 150
" "	Arenas San Rafael	74,7	14,56	1 088
TOTAL SAN RAFAEL:		418,0	12,53	5 238
LA AUSTRALIANA	La Australiana	611,2	8,30	6 003
LA VICTORIA	Sorpresa	2 108,2	8,30	17 488
" "	Sorpresa 3.	973,3	6,41	6 234
" "	Sorpresa 4.	948,4	7,82	7 420
TOTAL LA VICTORIA:		4 029,9	7,73	31 142
TOMI	Tomi	519,7	6,06	3 149
LA PRUEBA	La Preuba 2.	25,3	4,11	104
POTOSI	Potosí	291,3	8,40	2 448
TOTAL:		20 540,6	8,92	183 231

S U M M A R Y

CONCESIONES NACIONALES :	46 935,5	8,62	404 772
CONCESIONES PARTICULARES :	20 540,6	8,92	183 231
GRAND TOTAL :	67 476,1	8,71	588 003

APPENDIX NO. 2

COLOMBIA GOLD MINE - VENEZUELA

SURFACE BOREHOLE INTERSECTIONS

BH. No.	VEIN	Vert. Depth (m)	INTERSECTION		
			g/t	Width (m)	Cm - g
M1	C1	-226	14,92	3,84	5729
	A	-181	6,36	0,92	585
M2	C1	-183	7,76	3,08	2390
	A	-142	4,30	0,71	305
M3	C1	-237	13,07	3,02	3947
	A	-186	10,61	5,54	5878
M4	C1	-209	15,83	4,31	6823
	A	-142	4,80	2,00	960
M5	C1	-249	46,17	3,48	1607
M6	C1	-224	14,29	6,15	8788
	A	-181	12,17	2,68	3262
M7	C1	-300	13,71	1,22	1673
M8	C1	-307	11,89	6,92	8228
M9	C1	-273	8,40	6,15	5166
M10	C1	-286	11,98	2,92	3498
M12	C1	-225	5,60	5,38	3012
M13	C1	-252	2,95	1,85	547
	C2	-276	4,63	5,50	2546
	A	-185	6,98	0,77	537
M17	C1	-149	11,55	4,62	5336
	A	-105	-	-	-
M18	C1	-194	7.92	6,93	5489
	A	-150	3,55	0,77	273
M19	C1	-217	30,95	1,69	5231
M20	C1	-257	5,20	1,29	670
M21	C1	-157	12,33	4,00	4932
	C2	-162	22,41	0,61	1342
M22	C1	-150	24,92	2,31	5757
M23	C1	-173	27,63	1,38	3813
M24	C1	-225	2,31	0,92	212
	A	- 75	0,58	3,08	178
M25	C1	-197	53,34	1,54	8214
M28	C1	-145	-	-	-
M30	-	-	-	-	-

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COLOMBIA GOLD MINE - VENEZUELA

SURFACE BOREHOLE INTERSECTIONS

BH No.	VEIN	Vert. Depth (m)	INTERSECTION		
			g/t	Width (m)	Cm - g
M33	C1	-158	13,79	7,69	10605
M34	C1	-232	74,90	2,31	17302
V35	C1	- 90	10,30	1,83	1885
	C2	-100	18,00	3,05	5490
M36	C1	-147	17,47	2,46	4582
	C2	-152	12,00	1,85	2220
M37	C1	-160	50,00	1,54	770
	C2	-205	0,67	0,77	52
M39	C1	-164	12,57	5,39	6775
M40	C1	-228	9,18	0,61	560
			5,44	0,92	500
	C2	-	-	-	-
M42	C1	-188	37,39	2,61	9759
	C2	-198	14,66	2,15	3152
	A	-155	30,36	0,92	2793
M43	C1	-216	44,55	4,61	20538
	C2	-236	11,34	2,92	3311
	A	-207	3,04	0,92	280
M45	C1	-177	14,51	4,00	5804
M48	C1	-179	53,13	1,22	6482
	A	-107	22,85	1,54	3519
M50	C1	-313	0,75	1,08	81
	A	-238	3,09	1,22	337
M51	C1	-295	15,05	3,08	4635
M53	C1	-286	13,07	3,02	3947
M60	C1	-216	14,27	2,31	3296
M61	-	Fault	-	-	-
M62	C1	-146	-	-	-
M63	C1	-169	34,41	6,92	23812
M64	C1	-175	0,85	1,54	130
M65	C1	-157	9,45	3,81	3600
	A	-145	-	-	-
M66	C1	-192	32,29	6,10	19697
	A	-128	-	-	-

2

COLOMBIA GOLD MINE - VENEZUELA

SURFACE BOREHOLE INTERSECTIONS

BH No.	VEIN	Vert. Depth (m)	INTERSECTION		
			g/t	Width (m)	Cm - g
383	C1	-118	5,68	1,52	863
384	Deep Veins	-385	4,95	3,05	1509
385	C1	- 93	23,12	6,10	14103
386	C1	-143	3,70	4,87	1802
387	C1	-100	1,92	10,97	2106
417	C1	-102	8,00	4,26	3408
	C2	-104	23,85	3,05	7274
421	Dyke				
422	Dyke				
423	C1	-128	11,41	7,62	8694
424	C1	-135	2,00	5,00	100
425	C1	-134	4,15	3,05	1266
	C2	-138	4,15	0,76	315
427	Dyke				
428	C1	-116	1,79	2,43	434
429	Dyke				
433	C1	-164	1,00	9,00	90
473	Dyke				
475	C1	-139	22,12	3,05	6747
476	C1	-220	1,00	8,50	85
477	C1	-194	1,00	3,50	35
478	C1	-166	23,84	3,81	9083
479	C1	-203	Not available		
480	C1	-208	Not available		
485-72	C1	-328	18,83	3,81	7174
498 (GM I) Incomplete	Sta Elena	- 58	42,52	7,62	32400

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APPENDIX NO. 3

COLOMBIA GOLD MINE - VENEZUELA

SUMMARY OF ORE RESERVE BLOCKS IN ORDER OF VALUE (grams/m.ton).

A. DRILL INDICATED RESERVES.

C.I. ZONE WEST OF FAULT

BLOCK NO.	METRIC tons.	WIDTH cm.	VALUE. g/t	VALUE. cmg	CONTENTS grams.	Metri	VALUE. g/t	VALUE. cmg	CONTENTS grams.	PROGRESSIVE. Metric tons	PROGRESSIVE. Value g/t	PROGRESSIVE. Contents g
C 25 A	46 300	356	73,10	26 024	3 384 530	46	73,10	26 024	3 384 530	46 300	73,10	3 384 530
C 24 A	84 900	559	66,88	37 387	5 678 112	131	66,88	37 387	5 678 112	131 200	69,08	9 062 642
C 23 A	109 900	557	45,78	25 499	5 031 222	241	45,78	25 499	5 031 222	241 100	58,46	14 093 864
C 25	51 800	379	36,31	13 762	1 880 858	292	36,31	13 762	1 880 858	292 900	54,54	15 974 722
C 4	50 100	366	35,74	13 080	1 790 574	343	35,74	13 080	1 790 574	343 000	51,79	17 765 296
C 24	52 600	384	32,72	12 564	1 721 072	395	32,72	12 564	1 721 072	395 600	49,26	19 486 368
C 22	48 500	346	29,51	10 212	1 832 735	444	29,51	10 212	1 832 735	444 100	48,01	21 319 103
C 20	39 800	264	29,33	7 744	1 167 334	483	29,33	7 744	1 167 334	483 900	46,47	22 486 437
C 18	28 400	223	27,43	6 116	779 012	512	27,43	6 116	779 012	512 300	45,41	23 265 449
C 18 A	20 400	250	26,24	6 559	535 296	532	26,24	6 559	535 296	532 700	44,68	23 800 745
C 19	44 200	410	24,80	10 168	1 096 160	576	24,80	10 168	1 096 160	576 900	43,16	23 896 905
C 1	68 100	276	24,10	6 652	1 641 210	645	24,10	6 652	1 641 210	645 000	41,14	26 538 115
C 8	41 100	459	24,06	11 044	988 866	686	24,06	11 044	988 866	686 100	40,12	27 526 981
C 7	52 700	254	23,50	5 969	1 238 450	738	23,50	5 969	1 238 450	738 800	38,94	28 765 431
C 23	36 000	267	22,75	6 532	819 000	774	22,75	6 532	819 000	774 800	38,18	29 584 431
C 2	81 900	337	21,14	7 291	1 772 316	856	21,14	7 291	1 772 316	856 700	36,60	31 356 747
C 5	58 800	433	20,72	8 972	1 218 336	915	20,72	8 972	1 218 336	915 500	35,58	32 575 083
C 3	121 600	373	20,18	7 526	2 453 882	1 037	20,18	7 526	2 453 882	1 037 100	33,78	35 028 971
C 9	62 400	459	18,97	8 706	1 183 728	1 099	18,97	8 706	1 183 728	1 099 500	32,94	36 212 699
C 17	40 800	318	17,89	5 688	729 912	1 140	17,89	5 688	729 912	1 140 300	32,40	36 942 611
C 16	14 400	462	17,27	7 978	248 688	1 154	17,27	7 978	248 688	1 154 700	32,21	37 191 299
C 15	32 400	335	15,82	5 299	512 568	1 187	15,82	5 299	512 568	1 187 100	31,76	37 703 867
C 11	39 200	326	15,57	5 077	610 344	1 226	15,57	5 077	610 344	1 226 300	31,24	38 314 211
C 14	40 300	307	15,12	4 641	609 336	1 266	15,12	4 641	609 336	1 266 600	30,73	38 923 547
C 21	29 200	282	13,75	3 878	401 500	1 295	13,75	3 878	401 500	1 295 800	30,35	39 325 047
C 12	30 200	365	13,47	5 185	406 794	1 326	13,47	5 185	406 794	1 326 000	29,96	39 731 841
C 10	51 300	379	11,39	4 315	584 307	1 377	11,39	4 315	584 307	1 377 300	29,27	40 316 148
C 6	46 400	348	10,99	3 825	509 936	1 423	10,99	3 825	509 936	1 423 700	28,68	40 826 084
C 13	55 600	410	9,55	3 915	530 980	1 479	9,55	3 915	530 980	1 479 300	27,96	41 357 064
TOTALS	1 479 300	361	27,96	10 094	41 357 064	1 479	27,96	10 094	41 357 064	1 479 300	27,96	41 357 064
GRAND TOTAL	1 907 300	337	26,51	8 934	50 570 757	1 907	26,51	8 934	50 570 757	1 907 300	26,51	50 570 757

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COLOMBIA GOLD MINE - VENEZUELA

SUMMARY OF ORE RESERVE BLOCKS IN ORDER OF VALUE (g

A. DRILL INDICATED RESERVES.

C.I. ZONE WEST OF FAULT

BLOCK NO.	METRIC tons.	WIDTH cm.	V A L U E .		CONTENTS grems.	Metri
			g/t	cmg		
C 25 A	46 300	356	73,10	26 024	3 384 530	46
C 24 A	84 900	559	66,88	37 387	5 678 112	131
C 23 A	109 900	557	45,78	25 499	5 031 222	241
C 25	51 800	379	36,31	13 762	1 880 858	292
C 4	50 100	366	35,74	13 080	1 790 574	343
C 24	52 600	384	32,72	12 564	1 721 072	395
C 22	48 500	346	29,51	10 212	1 832 735	444
C 20	39 800	264	29,33	7 744	1 167 334	483
C 18	28 400	223	27,43	6 116	779 012	512
C 18 A	20 400	250	26,24	6 559	535 296	532
C 19	44 200	410	24,80	10 168	1 096 160	576
C 1	68 100	276	24,10	6 652	1 641 210	645
C 8	41 100	459	24,06	11 044	988 866	686
C 7	52 700	254	23,50	5 969	1 238 450	738
C 23	36 000	287	22,75	6 532	819 000	774
C 2	81 900	337	21,14	7 291	1 772 316	856
C 5	58 800	433	20,72	8 972	1 218 336	915
C 3	121 600	373	20,18	7 526	2 453 882	1 037
C 9	62 400	459	18,97	8 706	1 183 728	1 099
C 17	40 800	318	17,89	5 688	729 912	1 140
C 16	14 400	462	17,27	7 978	248 688	1 154
C 15	32 400	335	15,82	5 299	512 568	1 187
C 11	39 200	326	15,57	5 077	610 344	1 226
C 14	40 300	307	15,12	4 641	609 336	1 266
C 21	29 200	282	13,75	3 878	401 500	1 295
C 12	30 200	385	13,47	5 185	406 794	1 326
C 10	51 300	379	11,39	4 315	584 307	1 377
C 6	46 400	348	10,99	3 825	509 936	1 423
C 13	55 600	410	9,55	3 915	530 980	1 479
TOTALS	1 479 300	361	27,96	10 094	41 357 064	1 479
GRAND TOTAL	1 907 300	337	26,51	8 934	50 570 757	1 907

APPENDIX NO. 3

COLOMBIA GOLD MINE - VENEZUELA

RE RESERVE BLOCKS IN ORDER OF VALUE (grams/m.ton).

A. DRILL INDICATED RESERVES.

VALUE.		CONTENTS grams.	PROGRESSIVE.		
g/t	cmg		Metric tons	Value g/t	Contents g
73,10	26 024	3 384 530	46 300	73,10	3 384 530
66,68	37 387	5 678 112	131 200	69,08	9 062 642
45,78	25 499	5 031 222	241 100	58,46	14 093 864
36,31	13 762	1 880 858	292 900	54,54	15 974 722
35,74	13 080	1 790 574	343 000	51,79	17 765 296
32,72	12 564	1 721 072	395 600	49,26	19 486 368
29,51	10 212	1 832 735	444 100	48,01	21 319 103
29,33	7 744	1 167 334	483 900	46,47	22 486 437
27,43	6 116	779 012	512 300	45,41	23 265 449
26,24	6 559	535 296	532 700	44,68	23 800 745
24,80	10 168	1 096 160	576 900	43,16	23 896 905
24,10	6 652	1 641 210	645 000	41,14	26 538 115
24,06	11 044	988 866	686 100	40,12	27 526 981
23,50	5 969	1 238 450	738 800	38,94	28 765 431
22,75	6 532	819 000	774 800	38,18	29 584 431
21,14	7 291	1 772 316	856 700	36,60	31 356 747
20,72	8 972	1 218 336	915 500	35,58	32 575 083
20,18	7 526	2 453 882	1 037 100	33,78	35 028 971
18,97	8 706	1 183 728	1 099 500	32,94	36 212 699
17,89	5 688	729 912	1 140 300	32,40	36 942 611
17,27	7 978	248 688	1 154 700	32,21	37 191 299
15,82	5 299	512 568	1 187 100	31,76	37 703 867
15,57	5 077	610 344	1 226 300	31,24	38 314 211
15,12	4 641	609 336	1 266 600	30,73	38 923 547
13,75	3 878	401 500	1 295 800	30,35	39 325 047
13,47	5 185	406 794	1 326 000	29,96	39 731 841
11,39	4 315	584 307	1 377 300	29,27	40 316 148
10,99	3 825	509 936	1 423 700	28,68	40 826 084
9,55	3 915	530 980	1 479 300	27,96	41 357 064
27,96	10 094	41 357 064	1 479 300	27,96	41 357 064
26,51	8 934	50 570 757	1 907 300	26,51	50 570 757

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COLOMBIA GOLD MINE - VENEZUELA

SUMMARY OF ORE RESERVE BLOCKS IN ORDER OF VALUE (grams/m. ton)

A. DRILL INDICATED RESERVES.

BLOCK NO.	METRIC tons	WIDTH cm.	VALUE. g/t	VALUE. cmg	CONTENTS grams.	PROGRESSIVE. Metric tons	PROGRESSIVE. Value g/t	PROGRESSIVE. Contents g
FOOTWALL BODY C.2								
C.1. ZONE WEST OF FAULT	121 900	173	32,06	5 546	3 908 114	121 900	32,06	3 908 114
C.1. ZONE EAST OF FAULT	36 600	190	19,90	3 794	730 902	158 500	29,20	4 639 016
SUB TOTAL : Lower Colombia Ore Body (C2) : Width 177 cm.						158 500	29,20	4 639 016
AMERICA ORE BODY								
A.1	16 100	132	21,56	2 846	347 116	16 100	21,50	347 116
A.3	17 600	119	14,50	1 725	255 200	33 700	17,80	602 316
A.2	47 800	167	13,76	2 298	657 728	81 500	15,40	1 260 044
A.4	15 300	88	13,11	1 154	200 583	96 800	15,10	1 460 627
SUB TOTAL : America Ore Body : Width 133 cm.						96 800	15,10	1 460 627

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APPENDIX NO. 4

COLOMBIA, LOWER COLOMBIA AND AMERICA OREBODIES
SURFACE BOREHOLE INTERSECTIONS
UTILISED FOR CORRELATIONS AND FOR ORE RESERVE CALCULATIONS.

BH. No.	Section E	Vein	Vert. Depth of Vein (m)	INTERSECTION.		
				Au g/t	Width (m)	Cm - g
M 1	300	C1	-230	14,92	3,84	5 729
		A	-181	6,36	0,92	585
M 2	400	C1	-183	7,76	3,08	2 390
		A	-142	7,70	1,08	832
M 3	400	C1	-237	11,29	4,6	5 193
		A	-186	22,63	2,00	4 526
M 4	250	C1	-209	15,83	4,31	6 823
		A	-142	29,25	1,52	4 446
M 5	250	C1	-249	46,17	3,48	16 067
M 6	350	C1	-224	14,29	6,15	8 788
		A	-181	12,17	2,68	3 262
M 7	350	C1	-255	13,71	1,22	1 673
M 8	250	C1	-307	11,89	6,92	8 228
M 9	350	C1	-273	8,40	6,15	5 166
M 10	400	C1	-286	11,98	2,92	3 498
M 12	200	C1	-225	6,31	2,92	1 843
M 13	200	C1	-278	4,63	5,5	2 546
		A	-185	6,98	0,77	537
M 17	450	C1	-149	17,27	4,62	7 978
		A	-105	13,80	0,92	1 270
M 18	450	C1	-194	9,01	4,62	4 163
		A	-150	3,55	0,77	273
M 19	450	C1	-217	30,95	1,69	5 231
M 20	450	C1	-265	3,43	1,45	497
		C2	-293	13,69	0,70	958
M 21	850	C1	-157	12,33	4,00	4 932
		C2	-162	22,41	0,61	1 342
M 22	800	C1	-153	24,92	2,31	5 757
		A	- 68	4,87	0,77	375
M 23	900	C1	-171	27,63	1,38	3 813
M 24	800	C1	-225	2,31	0,92	212
		A	- 75	0,58	3,08	178
M 25	850	C1	-197	53,34	1,54	8 214
M 28	300	C1	-145	-	-	-
M 30	700	C1	?	?	?	-

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COLOMBIA GOLD MINE - VENEZUELA

SUMMARY OF ORE RESERVE BLOCKS IN ORDER OF VALUE (grams/m. ton)

A. DRILL INDICATED RESERVES.

C.I. ZONE EAST OF FAULT

BLOCK NO.	METRIC tons	WIDTH cm.	VALUE. g/t	VALUE. cmg	CONTENTS Grams.	PROGRESSIVE. Metric tons	PROGRESSIVE. Value g/t	PROGRESSIVE. Contents g
C 27	28 900	254	70,53	17 914	2 038 317	28 900	70,53	2 038 317
C 34	8 800	138	27,63	3 813	243 144	37 700	60,52	2 281 461
C 35	9 600	138	27,63	3 813	265 248	47 300	53,84	2 546 709
C 29A	36 800	204	25,97	5 297	955 696	84 100	41,65	3 502 405
C 29	49 700	262	24,05	6 301	1 195 285	133 800	35,11	4 697 690
C 36	58 500	610	23,12	14 103	1 352 520	192 300	31,46	6 050 210
C 38	26 200	343	23,08	7 915	604 696	218 500	30,46	6 654 906
C 31	40 500	231	21,92	5 064	887 760	259 000	29,12	7 542 666
C 37	34 600	483	16,93	8 175	585 778	293 600	27,69	8 128 444
C 32	20 900	231	14,27	3 296	298 243	314 500	26,79	8 426 687
C 30	20 200	168	8,18	1 374	165 236	334 700	25,67	8 591 923
C 28	40 900	305	7,17	2 186	293 253	375 600	23,65	8 885 176
C 26	43 500	366	6,39	2 337	277 965	419 100	21,86	9 163 141
C 33	8 900	152	5,68	863	50 552	428 000	21,53	9 213 693
	428 000	275	21,53	5 921	9 213 693	428 000	21,53	9 213 693

COLOMBIA GOLD MINE - VENEZUELA

SUMMARY OF ORE RESERVE BLOCKS IN ORDER OF VALUE (grams/m. ton)

A. DRILL INDICATED RESERVES.

C.I. ZONE EAST OF FAULT

COLOMBIA GOLD MINE - VENEZUELA

SUMMARY OF ORE RESERVE BLOCKS IN ORDER OF VALUE (grams/m. ton)

B. POSSIBLE ORE RESERVES.

BLOCK NO.	METRIC tons	WIDTH cm.	VALUE. g/t	VALUE. cmg	CONTENTS grams.	PROGRESSIVE. Metric tons	PROGRESSIVE. Value g/t	PROGRESSIVE. Contents g
MAIN COLOMBIA ORE BODY (CI) :								
Possible	693 000	322	-	-	-	693 000	-	-
C. POTENTIAL ORE RESERVES								
MAIN COLOMBIA ORE BODY (CI):								
Potential	603 000	336	-	-	-	603 000	-	-

COLOMBIA GOLD MINE - VENEZUELA

SUMMARY OF ORE RESERVE BLOCKS IN ORDER OF VALUE (grams/m. ton)

B. POSSIBLE ORE RESERVES.

WIDTH cm.	VALUE. g/t	VALUE. cmg	CONTENTS grams.	PROGRESSIVE. Metric tons	PROGRESSIVE. Value g/t	PROGRESSIVE. Contents g
(CI) :						
322	-	-	-	693 000	-	-
C. POTENTIAL ORE RESERVES						
(CI):						
336	-	-	-	603 000	-	-

NOTE: In estimating the economically mineable ore reserves and grades a payability factor is applicable to all above tonnages.

g the economically mineable ore reserves and grades a payability factor
e to all above tonnages.

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COLOMBIA GOLD MINE - VENEZUELA

SUMMARY OF ORE RESERVE BLOCKS IN ORDER OF VALU

A. DRILL INDICATED RESERVES.

C.I. ZONE EAST OF FAULT

BLOCK NO.	METRIC tons	WIDTH cm.	V A L U E .		CONTENTS Grams.	M
			g/t	cmg		
C 27	28 900	254	70,53	17 914	2 038 317	
C 34	8 800	138	27,63	3 813	243 144	
C 35	9 600	138	27,63	3 813	265 248	
C 29A	36 800	204	25,97	5 297	955 696	
C 29	49 700	262	24,05	6 301	1 195 285	
C 36	58 500	610	23,12	14 103	1 352 520	
C 38	26 200	343	23,08	7 915	604 696	
C 31	40 500	231	21,92	5 064	887 760	
C 37	34 600	483	16,93	8 175	585 778	
C 32	20 900	231	14,27	3 296	298 243	
C 30	20 200	168	8,18	1 374	165 236	
C 28	40 900	305	7,17	2 186	293 253	
C 26	43 500	366	6,39	2 337	277 965	
C 33	8 900	152	5,68	863	50 552	
	428 000	275	21,53	5 921	9 213 693	

COLOMBIA GOLD MINE - VENEZUELA

SUMMARY OF ORE RESERVE BLOCKS IN ORDER OF VALU

B. POSSIBLE ORE RESERVES.

BLOCK NO.	METRIC tons	WIDTH cm.	V A L U E .		CONTENTS grams.	M
			g/t	cmg		
MAIN COLOMBIA ORE BODY (CI) :						
Possible	693 000	322	-	-	-	
			C. POTENTIAL ORE RESERVES			
MAIN COLOMBIA ORE BODY (CI):						
Potential	603 000	336	-	-	-	

NOTE: In estimating the economically mineable ore reserves is applicable to all above tonnages.

COLOMBIA GOLD MINE - VENEZUELA

Y OF ORE RESERVE BLOCKS IN ORDER OF VALUE (grams/m. ton)

A. DRILL INDICATED RESERVES.

LT

WIDTH cm.	V A L U E .		CONTENTS Grams.	P R O G R E S S I V E .		
	g/t	cmg		Metric tons	Value g/t	Contents g
254	70,53	17 914	2 038 317	28 900	70,53	2 038 317
138	27,63	3 813	243 144	37 700	60,52	2 281 461
138	27,63	3 813	265 248	47 300	53,84	2 546 709
204	25,97	5 297	955 696	84 100	41,65	3 502 405
262	24,05	6 301	1 195 285	133 800	35,11	4 697 690
610	23,12	14 103	1 352 520	192 300	31,46	6 050 210
343	23,08	7 915	604 696	218 500	30,46	6 654 906
231	21,92	5 064	887 760	259 000	29,12	7 542 666
483	16,93	8 175	585 778	293 600	27,69	8 128 444
231	14,27	3 296	298 243	314 500	26,79	8 426 687
168	8,18	1 374	165 236	334 700	25,67	8 591 923
305	7,17	2 186	293 253	375 600	23,65	8 885 176
366	6,39	2 337	277 965	419 100	21,86	9 163 141
152	5,68	863	50 552	428 000	21,53	9 213 693
275	21,53	5 921	9 213 693	428 000	21,53	9 213 693

COLOMBIA GOLD MINE - VENEZUELA

Y OF ORE RESERVE BLOCKS IN ORDER OF VALUE (grams/m. ton)

B. POSSIBLE ORE RESERVES.

WIDTH cm.	V A L U E .		CONTENTS grams.	P R O G R E S S I V E .		
	g/t	cmg		Metric tons	Value g/t	Contents g
(CI) : 322	-	-	-	693 000	-	-
C. POTENTIAL ORE RESERVES						
(CI): 336	-	-	-	603 000	-	-

g the economically mineable ore reserves and grades a payability factor
e to all above tonnages.

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BH. No.	Section E	Vein	Vert. Depth of Vein (m)	INTERSECTION.		
				Au g/t	Width (m)	Cm - g
M 33	650	C1	-158	16,48	4,61	7 597
M 34	650	C1	-235	56,92	3,08	17 531
M 35	850	C1	- 95	10,30	1,83	1 885
		C2	-100	11,50	2,13	2 450
M 36	600	C1	-147	17,47	2,46	4 582
		C2	-152	12,00	1,85	2 220
M 37	600	C1	-160	50,00	1,54	7 700
		C2 ?	-205	0,67	0,77	52
M 39	550	C1	-164	12,57	5,39	6 775
M 40	550	C1	-228	9,18	0,61	560
				5,44	0,92	500
		C2	-234	31,27	0,92	2 877
M 42	500	C1	-188	37,39	2,61	9 759
		C2	-198	14,66	2,15	3 152
		A	-155	30,36	0,92	2 793
M 43	500	C1	-216	44,55	4,61	20 538
		C2	-236	11,34	2,92	3 311
M 45	800	C1	-177	108,56	2,77	30 071
M 48	250	C1	-179	53,13	1,22	6 482
		A	-107	22,85	1,54	3 519
M 50	200	C1	-310	8,38	1,54	1 291
		A	-238	3,09	1,22	337
M 51	350	C1	-295	15,05	3,08	4 635
M 53	400	C1	-249	13,07	3,02	3 947
M 60	850	C1	-216	14,27	2,31	3 296
M 61	800	-	Fault	-	-	-
M 62	750	C1	-146	21,37	2,46	5 257
		C1 A	-127	14,51	4,00	5 804
M 63	750	C1	-165	34,41	6,92	23 812
M 64	700	C1	-175	0,85	1,54	130
M 65	500	C1	-157	9,45	3,81	3 600
		A	-145	-	-	-
M 66	350	C1	-195	32,29	6,10	19 697
		A	-128	-	-	-

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BH.No.	Section E	Vein	Vert. Depth of Vein (m)	INTERSECTION.		
				Au g/t	Width (m)	Cm - g
383	900	C1	-118	5,68	1,52	863
384	1 100	Deep Veins	-385	4,95	3,05	1 509
385	1 000	C1	- 93	23,12	6,10	14 103
386	1 100	C1	-143	3,70	4,87	1 802
387	900	C1	-100	1,92	10,97	2 106
417	800	C1	-100	8,00	4,26	3 408
		C2	-102	23,85	3,05	7 274
421	850	Dyke				
422	800	Dyke				
423	950	C1	-125	11,41	7,62	8 694
424	1 100	C1	-135	2,00	5,00	1 000
425	800	C1	-134	4,15	3,05	1 266
		C2	-138	4,15	0,76	315
427	1 000	Dyke				
428	950	C	-106	1,79	2,43	434
429	1 100	Dyke				
433	950	C1	-164	1,00	9,00	900
473	800	Dyke				
475	1 000	C1	-139	22,12	3,05	6 747
476	1 000	C1	-227	0,64	6,00	390
477	950	C1	-196	1,00	3,50	350
478	1 000	C1	-166	23,84	3,81	9 083
479	1 000	C1	-203	Not available		
480	850	C1	-208	Not available		
485 M72	400	C1	-328	18,83	3,81	7 174
498	1 000	Sta Elena	- 70	42,52	7,62	32 400
(GMI)		C1	-342 ?	3,00	?	
494 M99	800	C1	-220	19,22	2,28	4 382

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BH. No.	Section E	Vein	Vert. Depth of Vein (m)	INTERSECTION.		
				Au g/t	Width (m)	Cm - g
M 33	650	C1	-158	16,48	4,61	7 597
M 34	650	C1	-235	56,92	3,08	17 531
M 35	850	C1	- 95	10,30	1,83	1 885
		C2	-100	11,50	2,13	2 450
M 36	600	C1	-147	17,47	2,46	4 582
		C2	-152	12,00	1,85	2 220
M 37	600	C1	-160	50,00	1,54	7 700
		C2 ?	-205	0,67	0,77	52
M 39	550	C1	-164	12,57	5,39	6 775
M 40	550	C1	-228	9,18	0,61	560
				5,44	0,92	500
		C2	-234	31,27	0,92	2 877
M 42	500	C1	-188	37,39	2,61	9 759
		C2	-198	14,66	2,15	3 152
		A	-155	30,36	0,92	2 793
M 43	500	C1	-216	44,55	4,61	20 538
		C2	-236	11,34	2,92	3 311
M 45	800	C1	-177	108,56	2,77	30 071
M 48	250	C1	-179	53,13	1,22	6 482
		A	-107	22,85	1,54	3 519
M 50	200	C1	-310	8,38	1,54	1 291
		A	-238	3,09	1,22	337
M 51	350	C1	-295	15,05	3,08	4 635
M 53	400	C1	-249	13,07	3,02	3 947
M 60	850	C1	-216	14,27	2,31	3 296
M 61	800	-	Fault	-	-	-
M 62	750	C1	-146	21,37	2,46	5 257
		C1A	-127	14,51	4,00	5 804
M 63	750	C1	-165	34,41	6,92	23 812
M 64	700	C1	-175	0,85	1,54	130
M 65	500	C1	-157	9,45	3,81	3 600
		A	-145	-	-	-
M 66	350	C1	-195	32,29	6,10	19 697
		A	-128	-	-	-

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BH.No.	Section E	Vein	Vert. Depth of Vein (m)	INTERSECTION.		
				Au g/t	Width (m)	Cm - g
383	900	C1	-118	5,68	1,52	863
384	1 100	Deep Veins	-385	4,95	3,05	1 509
385	1 000	C1	- 93	23,12	6,10	14 103
386	1 100	C1	-143	3,70	4,87	1 802
387	900	C1	-100	1,92	10,97	2 106
417	800	C1	-100	8,00	4,26	3 408
		C2	-102	23,85	3,05	7 274
421	850	Dyke				
422	800	Dyke				
423	950	C1	-125	11,41	7,62	8 694
424	1 100	C1	-135	2,00	5,00	1 000
425	800	C1	-134	4,15	3,05	1 266
		C2	-138	4,15	0,76	315
427	1 000	Dyke				
428	950	C	-106	1,79	2,43	434
429	1 100	Dyke				
433	950	C1	-164	1,00	9,00	900
473	800	Dyke				
475	1 000	C1	-139	22,12	3,05	6 747
476	1 000	C1	-227	0,64	6,00	390
477	950	C1	-196	1,00	3,50	350
478	1 000	C1	-166	23,84	3,81	9 083
479	1 000	C1	-203	Not available		
480	850	C1	-208	Not available		
485 M72	400	C1	-328	18,83	3,81	7 174
498	1 000	Sta Elena	- 70	42,52	7,62	32 400
(GMI)		C1	-342 ?	3,00	?	
494 M99	800	C1	-220	19,22	2,28	4 382

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BH.No.	Section E	Vein	Vert. Depth of Vein (m)	INTERSECTION.		
				Au g/t	Width (m)	Cm - g
492 M98	750	C1	-244	27,86	2,28	6 352
493 M97	700	C1	-257	94,61	4,83	45 697
486 M70	200	C1	-348	15,21	2,97	4 517
487 M73	300	C1	-342	36,51	2,00	7 302
491 M75	500	C1	-327	7,88	2,71	2 135
489 M95	600	C1	-304	31,48	6,31	19 864
490 M96	650	C1	-303	55,29	8,85	48 932
		C2	-309	66,71	1,47	9 806
488 M74	450	C1	-306	35,55	3,55	12 620
		C2	-323	77,40	2,12	16 409
496 M101	900	C1	-238	1,28	1,82	233

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APPENDIX NO. 5

COLOMBIA GOLD MINE - VENEZUELA

PROPOSED UNDERGROUND CORE DRILLING PROGRAMME

A. EXPLORATION HOLES

PROFILE	LEVEL	LENGTH OF HOLE TO VEIN OBJECTIVE (m)					
		C	C2	America	Parallels	St.Elena	Total
200 E	-150			160			160
250 E	-150		50				50
	-250				150		150
300 E	-200		100				100
350 E	-150			70	70		140
	-250				200		200
400 E	-150			60			60
	-250		60	80			140
450 E	-150		70				70
	-200				70		70
	-250			60			60
500 E	-150		60	60			120
	-250	100					100
550 E	-150			100	200		300
600 E	-150	100	100	80			280
650 E	-150		80	80			160
700 E	-150			70	200		270
750 E	-150		120	170		100	390
	-200	180	60				240
800 E	-150	100	70	150		130	450
	-200	150					150
	-300	100					100
850 E	-200			180	250		430
	-250	100					100
900 E	-200				250		250
950 E	-150		70				70
	-200		100		70	180	350
1000 E	-150				150		150
	-200	70				150	220
1100 E	-200					250	250
TOTAL		900	940	1320	1610	810	5580

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B. VALUATION HOLES

VEIN	STRIKE/ LEVEL	NO. OF HOLES (15m)	METERS OF DRILLING ON LEVELS					TOTAL
			-150	-200	-250	-300	- 350	
C1	900	60	900	900	900	900	900	4500
C2	400	30	450	450	450	-	-	1350
AMERICA	400	30	450	450	450	-	-	1350
-	1700	120	1800	1800	1800	900	900	7200

SUMMARY OF UNDERGROUND CORE DRILLING REQUIRED

LEVEL	METERS OF DRILLING			TOTAL
	VEIN EXPLORATION	STRUCTURE	VALUATION	
-150	2670	1500	1800	5970
-200	2060	1300	1800	5160
-250	750	1200	1800	2850
-300	100	1200	900	2200
-350	1000	1000	900	2900
TOTAL	6580	6200	7200	19080
Average per level	1645	1550	1440	3816

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APPENDIX NO. 6

PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY	
		CASE A 400 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION	CASE B 700 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION
Crushing	1	30 Ton Shaft Bin M/S with liners	50 Ton Shaft Bin M/S with liners
	2	Reciprocating Plate Feeder 24 inch by 5ft.	Reciprocating Plate Feeder 24 inch by 5ft.
	3	No.1. Conveyor belt 36 inches	No.1. Conveyer belt 36 inches
	4	Jaw Crusher 18 inch by 32 inch 3½ inch set	Jaw Crusher 25 inch by 32 inch 4 inch set
	5	No. 2 Conveyor belt 30 inch	No.2 Conveyor belt 30 inch
	6	Coarse Ore Bin M/S Live capacity 510 S. tons or 10,500 $ft.^3$	Coarse Ore Bin M/S Live capacity 770 S. tons or 15,400 $ft.^3$
	7	Reciprocating Plate Feeder 24 inch by 5 ft.	Reciprocating Plate Feeder 24 inch by 5 ft.
	8	No. 3 Conveyor Blet 30 inch	No. 3 Conveyor Belt 30 inch
	9	Magnet	Magnet

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PLANT EQUIPMENT SCHEIDULE

SECTION	ITEM	PLANT CAPACCITY	
		400 TON PER DAY CRUSHING MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION	700 TON PER DAY CRUSHING, MILLING AND CYNIDATION PLANT EQUIPMENT DESCRIPTION
Crushing	10	Single Deck vibrating screen 3 ft. by 8.ft ½ inch square opening.	Single Deck vibrating screen 4ft. by 8ft. ½ inch square opening.
	11	Symons Standard Cone Crusher 3 ft. Coarse bowl set at ½ inch.	Symons Standard Cone Crusher 4 ft. Medium bowl set at ⅜ inch.
	12	No. 4 Conveyor Belt 24 inch	No. 4 Conveyor Belt 24 inch
	13	2 Fine Ore Bins live capacity each bin 525 s. tons or 10,500 ft.^{3} Non-plug flow type bin.	2 Fine Ore Bins live capacity each bin 770 s.tons or 15,400 ft.^{3} Non-plug flow type bin.
	14	Vibrating Feeders (2)	Vibrating Feeders (2)
	15	Rod Mill Feed Conveyor Belt 24 inch.	Rod Mill Feed Conveyor Belt 24 inch.
		5 TON PER HOUR OXIDISED ORE WASHING AND PRELIMINARY TREATMENT PLANT DESCRIPTION	
Washing	16	120 ton. oxidised ore bin 2,640 ft. Bin to be suitable for tipping by lorries.	
	17	Draw Off	
	18	No. 5 Conveyor Belt 30 inch.	

PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY 5 TON PER HOUR OXIDISED ORE WASHING AND PRELIMINARY TREATMENT PLANT DESCRIPTION
Crushing	19	Weightometer 0-10 tons per hour. Indicating, integrating, recording.
	20	Rotary Scrubber 3ft. dia by 5ft.
	21	Automatic Sample Cutters
	22	Scrubber discharge Pump 340 Warman 3/2C.
	23	6 inch Spargo Cyclone 428 10° included angle 20 p.s.i.
	24	60ft. by 8ft. Torque 19,000 Thickener M/S Tank.
	25	Thickener U/F Pumps 2 Inch Diaphragm Warman 1½/1b.
	26	Vertical Spindle Spillage Pump 3 inch.
	27	2 Pachuca tanks for pre-aeration with lime.

PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY CASE A 400 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION	CASE B 700 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION
Milling	28	Weightometer, 0-25 s.tons per hour Indicating, integrating, recording and controlling.	Weightometer, 0-35 s.tons per hour Indicating, integrating, recording and controlling
	29	Rod Mill 5ft. dia (S.D.) by 12ft. Marcy Rod Mill	Rod Mill 5ft. dia by 12ft. Marcy Rod Mill
	30	2 Ball Mills 7ft. dia by 5ft. Grate discharge Marcy	2 Ball Mills 9ft. dia 9ft. Grate discharge Marcy
	31	2 Warman 8/6F Sand Pumps one as standby	2 Warman 8/6F Sand Pumps one as standby
	32	2 Spargo 20° 21 inch hydrocyclones one as standby	2 Spargo 20° 24 inch hydrocyclones one as standby
	33	Warman 3 inch vertical spindia spillage pump	Warman 3 inch vertical spindle spillage pump
	34	Mill water tank 35 ft. dia by 10 ft.	Mill water tank 45 ft. dia by 10ft.
	35	2 Harland SNB 5 water pumps one as standby	2 Harland SNB 6 water pumps one as standby
	36	Steady head tank 8ft. dia by 8ft.	Steady head tank 10ft.dia by 10ft.
	37	2 Minequip 60ft. dia by 8ft. Torque drive thickener M/S tank Complete with tank	2 Minequip 75ft. dia by 10ft. Torque drive thickener M/S tank Complete with tank
	38	Thickener overflow tank 8ft. dia by 8ft. M/S	Thickener overflow tank 10ft. dia by 10ft. M/S

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PLANT EQUIPMENT SCHE

SECTION	ITEM	PLANT CAPAC	
		CASE A 400 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION	CASE B 700 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION
Milling	39	2 Harland SNA6 solution pumps, one as standby	2 Harland SNA6 solution pumps, one as standby
	40	Warman 3 inch vertical spindle spillage pump	Warman 3 inch vertical spindle spillage pump
	41	4 Dorrco 4 inch duplex diaphragm pumps 2 under each thickener, one as standby.	4 Dorrco 6 inch duplex diaphragm pumps 2 under each thickener, one as standby.
	42	2 Warman 4/3D. Sand pumps one as standby.	2 Warman 4/3 D. Sand Pumps one as standby.
Cyanidation	43	4 Pachuca Tanks M/S 22½ ft. dia Cylindrical section 25ft. conical section 19½ft. Total height 44½ ft. 60° cone.	4 Pachuca Tanks M/S 22½ft. dia Cylindrical section 40ft. conical section 19½ft. Total height 59½ft. 60° cone.
	44	2 Ingersoll-Rand Size 14 by 11 ESH Single stage compressors water cooled complete with drive and belt guards, starters air receiver cooling tower, cooling pump and motors. One pump on standby.	2 Ingersoll-Rand Size 17 by 11 ESH Single stage compressors water cooled complete with drive and belt guards, starters air receiver, cooling tower, cooling pump and motors. One pump on standby.
Filtration	45	2 Minequip Rotary Drum Filters 14 ft. dia by 12ft. complete with filter and agitator driver.	2 Minequip Drum Filters 18ft. dia by 16ft. complete with filter and agitator driver.

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PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY	
		CASE A 400 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION	CASE B 700 TON PER DAY CRUSHING, MILLING AND CYNIDATION PLANT EQUIPMENT DESCRIPTION
Filtration	46	15 ft. dia by 5ft. heavy duty repulper.	16ft. dia by 6ft. heavy duty repulper.
	47	2 Warman 3/2C. Sand Pumps One as standby 3,940 ft. 4inch residue pipe line.	2 Warman 3/2C. Sand Pumps. One as standby 3,940 ft. 4inch residue pipe line.
	48	Warman 3inch vertical spindle spillage pump.	Warman 3inch vertical spindle spillage pump.
	49	Filtrate Receiver with sight glass.	Filtrate Receiver with sight glass.
	50	2 Ingersoll-Rand Size 22 by 7 ESH single stage vacuum pumps water cooled complete with drive and belt guards, starters, cooling tower, cooling pump and motors. One pump as standby.	2 Ingersoll-Rand Size 26 by 9 ESH single stage vacuum pumps water cooled complete with drive and belt guards, starters, cooling tower, cooling pump and motors. One pump as standby.
	51	2 Harland SNB 3 filtrate pumps One as standby	2 Harland SNB3filtrate pumps One as standby
Clarification	52	Unclarified pregnant solution storage tank 25ft. dia by IOft.	Unclarified pregnant solution storage 30ft. dia by 12ft.
	53	1 Harland SNC 2 unclarified solution pump.	1 Harland SNC 2 unclarified solution pump.
	53(a)	1 Harland SNB 3 precoat slurry pump	1 Harland SNB 3 precoat slurry pump

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PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY	
		CASE A 400 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION	CASE B 700 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION
Clarification	54	1 Steller clarification filter Type SW 330/220/AV	1 Steller clarification filter Type SW 330/220/AV
	55	Clarified pregnant solution storage tank 25ft. dia by 10ft.	Clarified pregnant solution storage tank 30ft. dia by 12ft.
	56	Low level Crowe de-aeration tower fitted with butterfly control valve.	Low level Crowe de-aeration tower fitted with butterfly control valve.
	57	2 Ingersoll-Rand Size 22 by 7 ESH Vacuum pumps as specified under item 50. One pump as standby	2 Ingersoll-Rand Size 26 by 9 ESH Vacuum pumps as specified under item 50. One pump as standby
	58	1 Harland SNB 3 clarified solution pump.	1 Harland SNB clarified solution pump.
	58(a)	1 Harland SNB 3 precoat slurry pump	1 Harland SNB 3 precoat slurry pump
	58(b)	1 Harland SNC 2 de-aerated solution pump.	1 Harland SNC 2 de-aerated solution pump.
	59	1 Steller precipitation filter Type SW 330/220/AV	1 Stellar precipitation filter Type SW 330/220/AV
	60	Barren solution storage tank 25ft. dia by 10ft.	Barren solution storage tank 30ft. dia by 12ft.
	61	1 Harland SNC 2 Barren solution pump	1 Harland SNC 2 Barren solution pump

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PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY	
		CASE A 400 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION	CASE B 700 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION
Smelt House	62	2 Wooden Acid Vats IOft. dia by 8ft. Mechanically agitated and air vented.	2 Wooden Acid Vats IOft. dia by 8ft. Mechanically agitated and air vented.
	63	1 Worthington 3/2 filter press pump	1 Worthington 3/2 filter press pump
	64	1 Johnson filter leaf press 30 leaves 30 inch.	1 Johnson filter leaf press 30 leaves 30 inch.
	65	1 Acid Solution Vat 8ft. dia by 6ft.	1 Acid Solution Vat 8ft. dia by 6ft.
	66	1 Sand pit for filtrate from Johnson press	1 Sand pit for filtrate from Johnson press
	67	Warman 3 inch vertical spindle spillage pump	Warman 3 inch vertical spindle spillage pump
	68	Fresh water tank 45ft. dia by IOft.	Fresh water tank 50ft. dia by 12ft.
	69	1 Harland SNC 2 fresh water pump	1 Harland SNC 2 fresh water pump
	70	1 Harland SNC 1½ gland service pump	1 Harland SNC 1½ gland service pump
	71	1 Barnes-Birlec Electric Calcining Furnace, 6 tray type 42 KW.	1 Barnes-Birlec Electric Calcining Furnace 6 tray type, 42 KW.
	72	1 Barnes-Birlec Arc Gold Smelter Mark IV.Complete with transformer and dust extraction.	1 Barnes-Birlec Arc Gold Smelter Mark IV.Complete with transformer and dust extraction.
	73	Platform scale 1 Strong Room	Platform scale 1 Strong Room

PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY 700 TON PER DAY CRUSHING, MILLING FLOTATION AND CYANIDATION PLANT, CASE C EQUIPMENT DESCRIPTION
Milling	28	Weightometer 0-35 S. tons per hour indicating integrating, recording and controlling.
	29	Rod Mill 5ft. (S.D.) by 12ft. Marcy Rod Mill
	30	1 Ball Mill 8ft. dia by 6 ft. Grate discharge Marcy
	31	2 Warman 6/4E Sand Pumps. One as standby
	32	2 Spargo 20° 18 inch hydrocyclones One as standby.
	33	Warman 3 inch vertical spindle spillage pump
	34	Mill water tank 25ft. dia by 10ft.
	35	2 Harland SNC 2 water pumps. One as standby
	36	Steady Head tank, 8ft. in dia by 8ft.
Flotation	(i)	2 Wemco Conditioners 8ft in dia. by 8ft. Heavy duty
	(ii)	15 Denver No 24 (43 inch by 43 inch) Flotation cells 3 banks 5 cells
	(iii)	2 Warman 3/2C. Sand pumps. One as standby.
	(iv)	2 Warman 4/3D Sand pumps. One as standby.
	(v)	1 Ball Mill 6 ft. dia (S.D.) by 7ft. Grate discharge Marcy
	(vi)	2 Spargo 10° 10 inch hydrocyclones One as standby
	(vii)	1 Minequip 75 ft. dia by 10ft. Torque drive thickener M/S tank. Complete with tank.
	(viii)	Thickener overflow tank. 10ft. dia by 10ft.
	(ix)	2 Harland SNC 2 water pumps. One as standby
	(x)	4 Dorrco 4 inch duplex diaphragm pumps, 2 as standby.
	(xi)	Warman 3 inch vertical spindle spillage pump
Cyanidation	37	1 Minequip 60ft. in dia by 8ft. Torque drive thickener. M/S tank Complete with tank
	38	Thickener overflow tank. 8ft. dia by 8ft. M/S
	39	2 Harland SNC 2 solution pumps, One as standby
	40	Warman 3 inch vertical spindle spillage pump
	41	2 Dorrco 4 inch duplex diaphragm pumps. One as standby
	42	2 Warman 3/2 C. sand pumps. One as standby
	43	6 Pachuca tanks M/S 15ft. dia Cylindrical section 17ft. conical section 13ft. Total height 30ft. 60° cone.
	44	2 Ingersoll-Rand Size 12 by 7 ESH single stage compressors water cooled complete with drive and belt guards, starters, air receiver cooling tower, cooling pump and motors. One pump as standby.

PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY	
		CASE A 400 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION	CASE B 700 TON PER DAY CRUSHING, MILLING AND CYANIDATION PLANT EQUIPMENT DESCRIPTION
Smelt House	74	6 Automatic sample cutters	6 Automatic sample cutters
	76	Yuruari River Pump Items 53, 53(a), 54, 56, 58(a), 58(b) 59 plus all ancillary equipment such as piping, metering feeders and tanks.	Yuruari River Pump Items 53, 53(a), 54, 56, 58(a), 58(b), 59 plus all ancillary equiment such as piping, metering feeders and tanks.

PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY 700 TON PER DAY CRUSHING, MILLING FLOTATION AND CYANIDATION PLANT, CASE C EQUIPMENT DESCRIPTION
Filtration	45	2 Minequip Rotary Drum Filters. 10ft. dia by 12 ft. Complete with filter and agitetor driver.
	46	
	47	2 Warman Sand pumps in series, 4 altogether 2 as standby. 3,940 ft. 3 inch residue pipe line.
	48	Warman 3 inch vertical spindle spillage pump
	49	Filtrate Receiver with sight glass
	50	2 Ingersoll-Rand 18 size 5 by ESH single stage vacuum pumps water cooled complete with drive and belt guards, starters, cooling tower, cooling pump and motors. One pump as standby.
	51	2 Harland SNB 3 filtrate pumps One as standby
Clarification	52	Unclarified pregnant solution storage tank. 30ft. dia by 12ft.
	53	1 Harland SNC 2 Unclarified solution pump
	53(a)	1 Harland SNB 3 precoat slurry pump
	54	1 Steller clarification filter Type SW/220/AV
	55	Clarification pregnant solution storage tank 30ft. dia by 12 ft.
	56	Low level Crowe de-aeration tower fitted with butterfly control valve.

SECTION	ITEM	PLANT CAPACITY 700 TON PER DAY CRUSHING, MILLING FLOTATION AND CYANIDATION PLANT, CASE C EQUIPMENT DESCRIPTION
	57	2 Ingersoll-Rand size.26 by 9 ESH single stage vacuum pumps water cooled complete with drive and belt guards, starters, cooling tower, cooling pump and motors. One pump as standby.
	58	1 Harland SNB 3 clarified solution pump
	58 (a)	1 Harland SNB 3 precoat slurry pump
	58 (b)	1 Harland SNC 2 de-aerated solution pump
	59	1 Steller precipitation filter Type SW 330/220/AV
	60	Barren solution storage tank. 30ft. dia by 12ft.
	61	1 Harland SNC 2 Barren solution pump.
Smelt House	62	2 Wooden Acid vats 10ft. dia by 8ft. Mechanically agitated and air vented
	63	1 Worthington 3/2 filter press pumps
	64	1 Johnson filter leaf press. 30 leaves 30inch
	65	1 Acid solution vat. 8ft dia by 6ft.
	66	1 Sand pit for filtrate from Johnson press.
	67	Warman 3 inch vertical spindle spillage pump
	68	Fresh water tank 45ft. dia by 10ft.
	69	1 Harland SNC 2 fresh water pump
	70	1 Harland SNC 1½ gland service pump
	71	1 Barnes-Birlec Electric Calcining Furnace, 6 tray type 42 KW

PLANT EQUIPMENT SCHEDULE

SECTION	ITEM	PLANT CAPACITY 700 TON PER DAY CRUSHING, MILLING, FLOTATION AND CYANIDATION PLANT EQUIPMENT DESCRIPTION — CASE C
Smelt House	72	1 Barnes-Birlec Arc Gold Smelter Mark IV complete with transformer and dust extraction
	73	1 Platform scale. / 1 Strongroom
	74	8 Autometic sample cutters. Items 53, 53(a), 54, 56, 58(a), 58(b), 59 plus all ancillary equipment such as piping, metering, feeders tanks.
General	75	6 Clarkson Duplex Reagent Feeders
	76	Yuruari River Pump

OPERATING COSTS

APPENDIX NO. 7

ORE TREATMENT: LABOUR

	No	Basic Wage Bs.	Bonus covering Sundays, Pension Vacation. 40%	Social Security 10%	Overtime 1 hour per day	Night shift 20%	Total Day shift	Total Night shift	Total per day	Total per 30 day Month	Overtime per Month	
1 SUPERVISION												
Plant Superintendant	1									6 168		
Plant Foreman	1	43.33	17.33	4.33	7.31		72.30			2 169		
Shift Bosses	4	33.33	13.33	3.33	5.63	6.66	111.24	124.56	235.80	7 074		
								124.56	235.80	15 411		
2 ASSAYING (8 hours per day, 5½ days per week)												
Chief Assayer	1									3 925		
Assayer	1	33.33	13.33	3.33	5.63		55.62		55.62	1 669		
Helper	1	15.00	6.00	1.50	2.55		25.05		25.05	752		
Sample Preparation	2	20.00	8.00	2.00	3.40		66.80		66.80	2 004		
									147.47	8 350		
3 CRUSHING PLANT (8 hours per day, 6 days per week												
Crusherman	1	20.00	8.00	2.00	3.40		33.40		33.40	1 002	20 hours	68.0
Assistants	2	17.00	6.80	1.70	2.90		28.40		28.40	852	40 hours	116.0
									61.80	1 854		184.0
4. MILL (24 hours per day, 7 days per week)												
Mill	4	20.00	8.00	2.00	3.40	4.00	66.80	74.80	141.60	4 248	80 hours	272.0
Cyanidation	4	20.00	8.00	2.00	3.40	4.00	66.80	74.80	141.60	4 248	40 hours	136.0
Filtration	4	20.00	8.00	2.00	3.40	4.00	66.80	74.80	141.60	4 248	40 hours	136.0
Clean up	4	17.00	6.80	1.70	2.90	3.40	56.80	63.60	120.40	3 612	80 hours	232.0
								288.00	545.20	16 356		776.0
5. DAY SHIFT: GENERAL												
Slimes Dam	1	20.00	8.00	2.00	3.40		33.40		33.40	1 002		
Assistant	1	15.00	6.00	1.50	2.55		25.05		25.05	752		
Crusher Relief	1	17.00	6.80	1.70	2.90		28.40		28.40	852		
Smelter	1	33.33	13.33	3.33	5.63		55.62		55.62	1 669		
Assistants	2	20.00	8.00	2.00	3.40		66.80		66.80	2 004		
Maintenance:												
Fitter	1	30.00	12.00	3.00	5.10		50.10		50.10	1 503	24 hours	122.4
A/Fitter	1	25.00	10.00	2.50	4.25		41.75		41.75	1 253	24 hours	102.0
Helper	1	17.00	6.80	1.70	2.90		28.40		28.40	852	24 hours	69.6
Greaser	1	17.00	6.80	1.70	2.90		28.40		28.40	852		294.0
	40								357.92	10 739		1254.0
										52 710		
										1 254		
TOTAL:	40							412.56	1348.79	53 964		

For Case (A) and (B) personnel required will be 40. For Case (C) personnel required will be 44, the extra four operators being required for the flotation section.

NOMBRE NAME

OPERATING COSTS - ORE TREATMENT POWER

Item	Equipment	400 ton per day Crushing, Milling, Cyanidation Plant				700 ton per day Crushing, Milling, Cyanidation Plant				700 ton per day Crushing, Milling, Flotation and Cyanidation Plant			
		Instal H.P.	Consumed H.P.	Consumed KW	Running Time hr	Instal H.P.	Consumed H.P.	Consumed KW	Running Time Hr	Instal H.P.	Consumed H.P.	Consumed KW	Running Time Hr
1.	CRUSHING PLANT												
2.	Plate Feeder	2	1½	1.12	7 1/3	2	1½	1.12	8	2	1½	1.12	8
3.	No.1 Conveyor Belt	10	5	3.73	7 1/3	10	5	3.73	8	10	5	3.73	8
4.	Primary Crusher	60	50	37.30	7 1/3	100	80	59.68	8	100	80	59.68	8
5.	No.2 Conveyor Belt	10	7½	5.60	7 1/3	10	7½	5.60	8	10	7½	5.60	8
7.	Plate Feeder	2	1½	1.12	7 1/3	2	1½	1.12	8	2	1½	1.12	8
8.	No.3 Conveyor Belt	10	6	4.48	7 1/3	10	6	4.48	8	10	6	4.48	8
9.	Magnet and Rectifier	7½	6	4.48	7 1/3	7½	6	4.48	8	7½	6	4.48	8
10.	Vibrating Screen	5	4	2.98	7 1/3	7½	6	4.48	8	7½	6	4.48	8
11.	Secondary Crusher	60	50	37.30	7 1/3	100	80	59.68	8	100	80	59.68	8
12.	No.4 Conveyor Belt	15	12	8.95	7 1/3	15	12	8.95	8	15	12	8.95	8
		181½		107.06	kWh/day 784	264		153.32	kWh/day 1 227	204		153.22	kWh/ 1 22
2.	MILL												
14.	Vibrating Feeders (2)	2	2	1.49	24	2	2	1.49	24	2	2	1.49	24
15.	Conveyor Belt	3	2	1.49	24	3	2	1.49	24	3	2	1.49	24
29.	Rod Mill	125	110	82.06	24	150	140	104.44	24	125	110	82.06	24
30.	Ball Mills	500	460	343.16	24	1 000	950	708.70	24	250	233	173.82	24
31.	Mill Disch. Pump(s)	100	35	26.11	24	150	55	40.88	24	60	25	18.27	24
35.	Mill Water Pump(s)	60	24	17.90	24	60	28	20.87	24	15	7	5.22	24
	(i) Conditioner (2)									10	8	5.97	24
	(ii) Flotation Cells (15)									80	72	53.71	24
	(iii) Regrind Mill Pump(s)									40	13	9.70	24
	(iv) Cleaner Concl. Pump(s)									20	15	11.19	24
	(v) Regrind Mill									150	130	97.00	24
	(vii) Thickener 75ft. dia									10	7½	5.60	24
	(ix) Thickener O/F Pump(s)									15	5	3.73	24
	(x) Diaphragm Pump(s)									8	8	5.97	24
39.	Thickener O/F Pump(s)	30	9	6.71	24	30	9	6.71	24	15	5	3.73	24
41.	Diaphragm Pump(s)	8	8	5.97	24	8	8	5.97	24	4	4	2.98	24
42.	Thickener U/F Pump(s)	40	13	9.70	24	40	13	9.70	24	20	7	5.22	24
44.	Compressor	150	60	44.76	24	200	79	58.93	24	80	35	26.11	24
45.	Rotary Drum Filters (2)	25	25	18.65	24	25	25	18.65	24	16	14	10.44	24
46.	Repulper	7½	5	3.73	24	7½	5	3.73	24	7½	5	3.73	24
47.	Residue Pump(s)	40	13	9.70	24	40	13	9.70	24	80	23	17.16	24
50.	Vacuum Pump(s)	120	40	29.84	24	200	63	47.00	24	120	48	35.81	24
51.	Filtrate Pump(s)	10	4	2.98	24	10	4	2.98	24	8	3	2.24	24
53.	Solution Pump	20	14	10.44	20	20	14	10.44	20	20	14	10.44	20

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OPERATING COSTS - ORE TREATMENT POWER (CONTINUED)

ITEM	EQUIPMENT	400 ton per day Crushing, Milling, Cyanidation Plant: Instal H.P.	Consumed H.P.	Consumed KW	Running Time Hr	700 ton per day Crushing, Milling, Cyanidation Plant: Instal H.P.	Consumed H.P.	Consumed KW	Running Time Hr	700 ton per day Crushing, Milling, Flotation and Cyanidation Plant: Instal H.P.	Consumed H.P.	Consumed KW	Running Time Hr
53.(a)	Precoat Pump	7½	5	3.73	4	7½	5	3.73	4	7½	5	3.73	4
57	Vacuum Pump(s)	120	40	29.84	24	200	63	47.00	24	200	63	47.00	24
58.	Solution Pump	5	4	2.98	20	5	4	2.98	20	5	4	2.98	20
58(a)	Precoat Pump	7½	5	3.73	2	7½	5	3.73	2	7½	5	3.73	2
58(b)	Solution Pump	20	14	10.44	20	20	14	10.44	20	20	14	10.44	20
61 .	Solution Pump	7½	5	3.73	24	7½	5	3.73	24	7½	5	3.73	24
63.	Acid Pump	30	24	17.90	2	30	24	17.90	2	30	24	17.90	2
37.	Thickener 75ft. dia	15	10	7.46	24	15	10	7.46	24	15	10	7.46	24
69.	Fresh Water Pump	5	4	2.98	24	7½	5	2.98	24	5	4	2.98	24
70.	Gland Service Pump	5	4	2.98	24	5	4	2.98	24	5	4	2.98	24
71.	River Pump	75	52	38.80	20	75	52	38.80	20	120	100	74.60	20
72.	Spillage Pump	7½	5	3.73	3	7½	5	3.73	3	7½	5	3.73	3
40.	Spillage Pump	7½	5	3.73	3	7½	5	3.73	3	7½	5	3.73	3
41.	Spillage Pump	7½	5	3.73	3	7½	5	3.73	3	7½	5	3.73	3
(x)	Spillage Pump	7½	5	3.73	3	7½	5	3.73	3	7½	5	3.73	3
		1 568	1 011	707		2 355½	1 609	11.61		1 605		691	

	400 ton per day Crushing, Milling, Cyanidation Plant		700 ton per day Crushing, Milling, Cyanidation Plant		700 ton per day Crushing, Milling, Flotation and Cyanidation Plant	
Power consumed	15 629.76	continuous	26 529.36	continuous	15 522.96	continuous
	1 356.14	intermittent	1 356.14	intermittent	1 356.14	intermittent
	16 985.90	kWh/day	27 885.50	kWh/day	16 879.10	kWh/day
Mill			1 227.00		1 227.00	
Crusher	784.00					
	17 769.90	kWh/day	29 112.50	kWh/day	18 106.10	kWh/day
	533 097	kWh/month	873 375	kWh/month	543 183	kWh/month
Smelter						
Calcine 42 kW for 32 hrs	1 344		1 344		1 344	
Smelting 240 kW for 20 hrs	4 800		4 800		4 800	
TOTAL	539 241		879 519		549 327	
COST : @ 5.55c/kWh	Bs 29 944		Bs 48 813		Bs 30 488	

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OPERATING COSTS - ORE TREATMENT CONSUMABLES

Item	Cost Bs	400 ton per day Crushing, Milling, Cyanidation Plant Kg/ton	Kg/month	Bs/month	700 ton per day Crushing and Milling, Cyanidation Plant Kg/ton	Kg/month	Bs/month	700 ton per day Crushing and Milling, Flotation and Cyanidation Plant Kg/ton	Kg/month	Bs/month
1. CHEMICALS										
Sodium Cyanide	2.38/kg	0.80	9 600	22 848	0.80	16 800	39 984	0.70	14 700	34 986
Lime (60%CaO)	3.00/20 kg	2.43	29 160	4 374	2.43	51 030	7 655	0.61	12 810	1 922
Zinc Dust	4.42/kg	0.11	1 320	5 834	0.11	2 310	10 210	0.11	2 310	10 210
Lead Acetate	5.05/kg	0.01	132	667	0.01	210	1 061	0.01	210	1 061
Hydrochloric Acid	1.61/kg	0.05	600	966	0.05	1 050	1 691	0.05	1 050	1 691
Sulphuric Acid	1.63/kg	0.07	840	1 369	0.07	1 470	2 396	0.07	1 470	2 396
				36 058			62 997			52 266
FLOTATION REAGENTS										
Copper Sulphate ($5H_2O$)	2.17/kg							0.39	8 190	17 772
Aerofloat 208	3.83/kg							0.08	1 680	6 434
Aerofloat 15	3.78/kg							0.03	630	2 381
Aeroxanthate 301	3.77/kg							0.08	1 680	6 334
TEB Frother	3.35/kg							0.02	420	1 407
Lime	3.00/20/kg									
Flocculant	18.70/kg							0.007	147	2 749
										37 077
Flotation reagent costs taken at 80 per cent with recirculation of tailing thickener O/F										29 662
MISCELLANEOUS										
Kieselguhr	0.55/lb	0.27	3 190	1 755	0.27	5 670	3 119	0.27	5 670	3 119
Borax	1.20/kg	0.05	600	720	0.05	1 050	1 260	0.05	1 050	1 260
Soda	0.50/kg									
Manganese Dioxide	0.80/kg	0.05	600	480	0.05	1 050	1 260	0.05	1 050	1 260
				2 955			5 639			5 639
2. CRUSHING PLANT		Bs./ton			Bs./ton			Bs./ton		
Jaw Crusher		0.18		2 160	0.14		2 940	0.14		2 940
Cone Crusher		0.41		4 920	0.33		6 930	0.33		6 930
Vibrating Screen		0.06		720	0.05		1 050	0.05		1 050
Conveyors etc.		0.09		1 128	0.08		1 680	0.08		1 680
				8 928			12 600			12 600

OPERATING COSTS - OPERATING COSTS - ORE TREATMENT CONSUMABLES (CONTINUED).

Item	Cost Bs.	400 ton per day Crushing, Milling, Cyanidation Plant Kg/ton	Kg/month	Bs/month	700 ton per day Crushing, Milling, Cyanidation Plant Kg/ton	Kg/month	Bs/month	700 ton per day Crushing, Milling, Flotation and Cyanidation Plant Kg/ton	Kg/month	Bs/month
3. GRINDING										
Rod Mill Liners	2.59/kg	0.07	887	2 300	0.07	1 470	3 807	0.07	1 470	3 807
Rods	0.88/kg	0.40	4 800	4 224	0.40	8 400	7 392	0.33	6 930	6 098
Ball Mill Liners	2.59/kg	0.22	2 640	6 838	0.22	4 620	11 966	0.07	1 470	3 807
Balls	1.03/kg	1.69	20 280	20 888	1.69	35 490	36 555	0.85	17 850	18 386
Regrind Mill Liners	2.59/kg							0.026	546	1 414
Balls	1.03/kg							0.22	4 620	4 759
				34 250			59 720			38 271
4. PUMP SPARES										
Centrifugal Sand Pumps										
Mill Discharge Pump				2 056			3 084			1 027
Regrind Mill Pump				-			-			439
Rougher Conc. Pump				-			-			298
Thickn. U/F Pump				439			658			298
Residue Pump				439			658			595
				2 934			4 400			2 657
Diaphragm Pumps				110			140			280
Solution Pumps				893			929			898
Vacuum Pumps				1 308			1 744			1 308
Compressor				916			1 222			612
Spillage Pumps				120			120			120
				3 347			4 155			3 218
5. MISCELLANEOUS										
Cyclones				209			234			279
Flotation				-			-			3 165
Thickener				94			94			141
Filters				623			1 047			623
Assaying	(640 assays @ Bs. 2.336)			1 495	(640 assays @ Bs. 2.336)		1 495	(910 assays @ Bs. 2.336)		2 126
Other				1 405			1 621			1 652
				3 826			4 491			7 986

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OPERATING COSTS

ADMINISTRATION ENGINEERING AND MINING LABOUR:

	No.	Basic Wage Bs.	Bonus covering Sundays, Pension Vacation 40%	Social Secuity 10'	Overtime 1 hour per day	Night shift 20%	Total Day shift	Total Night shift	Total per day Bs.	Total per 30 day Month	Overtime per Month	Remarks
1. ADMINISTRATION:-												
Mine Manager (foreign)	1						390		390	10 140		
Engineer (foreign)	1						290		290	7 540		
Administrator (foreign)	1						195		195	5 070		
Geologist (foreign)	1						245		245	6 370		
Mine Captain (foreign)	1						290		290	7 540		
Shift Boss (foreign)	3						195		585	15 210		
Developers (foreign)	3						195		585	15 210		
Surveyor	1	70.00	28.00	700			105		105	2 730		
Mining Engineer	1	100.00	40.00	1000			150		150	3 900		
Sampler	1	50.00	20.00	1000			80		80	2 080.		
Security Chief	1	70.00	28.00	700			105		105	2 730		
Assistant Geologist	1	60.00	24.00	600			90		90	2 340		
Assistant Survey	2	33.00	13.00	400			50		100	2 600		
Assistant Sampler	2	33.00	13.00	400			50		100	2 600		
Assistant Security	6	33.00	13.00	400	5.60	6.60	56	62	354	9 204		
Bookkeeper	1	50.00	20.00	1000			80		80	2 080		
Clerk	2	33.00	13.00	400			50		100	2 600		
Typist	1	25.00	10.00	300			38		38	988		
Storekeeper	1	60.00	24.00	600			90		90	2 340		
Assistant Warehouseman	1	33.00	13.00	400			50		50	1 300		
Issuer - Warehouse	1	33.00	13.00	400			50		50	1 300		
Drivers	2	25.00	10.00	250	4.25	5.00	42	47	89	2 314		
Chauffeur	1	25.00	10.00	250			38		38	988		
Timekeeper	1	40.00	16.00	400			60		60	1 560		
Assistant Timekeeper	2	33.00	13.00	400			50		100	2 600		
TOTAL:-	39								4 359	113 334		
2. DEVELOPMENT:-												
Machine men	2	25.00	10.00	250	4.25	5.00	42	47		4 628		
Machine assistant	1	22.00	9.00	220	3.75	4.40	37	42		4 108		
Loco Driver	1	20.00	8.00	200	3.40	4.00	34	38		3 744		
Loco Guard	1	20.00	8.00	200	3.40	4.00	34	38		3 744		
Loader Driver	1	22.00	9.00	220	3.75	4.40	37	42		4 108		
Winch Driver	1	20.00	8.00	200	3.40	4.00	34	38		3 744		
Pipe Track man	2	20.00	8.00	200	3.40	4.00	34	38		3 744		
Crew Leader	1	30.00	12.00	300	5.15	6.00	51	57		5 616		
TOTAL:-	10						303	340				
TOTAL:-	40						606	680	1286	33 436		Single Shift 4 crews

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ADMINISTRATION, ENGINEERING AND MINING LABOUR (CONTINUED):

	No.	Basic Wage Bs.	Bonus covering Sundays, Pension Vacation 40%	Social Security 10%	Overtime 1 hour per day	Night shift 20%	Total Day shift	Total Night shift	Total per day	Total per 30 day Month	Overtime per Month	Remarks
3. SHAFT OPERATION:-												
Hoistman	3	25.00	10.00	2.50	4.25	5.00	42	47	136	3 536		
Banksman	3	20.00	8.00	2.00	3.40	4.00	34	38	110	2 860		
Bank Assistant	3	19.00	8.00	1.90	3.20	3.80	32	36	104	2 704		
Onsetter	3	19.00	8.00	1.90	3.20	3.80	32	36	104	2 704		
Pumpman	6	20.00	8.00	2.00	3.40	4.00	34	38	220	5 720		
Waste Truck	3	20.00	8.00	2.00	3.40	4.00	34	38	110	2 860		
Lamp Man	3	20.00	8.00	2.00	3.40	4.00	34	38	110	2 860		
Changehouseman	3	20.00	8.00	2.00	3.40	4.00	34	38	110	2 860		
First-aid/Safety	2	22.00	9.00	2.20	3.75	4.40	37	42	79	2 054		
Shaft Timberman	2	23.00	9.20	2.30	3.90	4.60	39	43	82	2 132		
Assistant Shaft Timberman	2	19.00	8.00	1.90	3.20	3.80	32	36	68	1 768		
Shaft Clerk	1	19.00	8.00	1.90	3.20		32		32	832		
Replacements	15	19.00	8.00	1.90	3.20	3.80	32	36	520	13 520		
Diamond Driller	4	25.00	10.00	2.50	4.25		42		168	4 368		
Assistant Diamond Driller	4	20.00	8.00	2.00	3.40		34		136	3 536		
TOTAL:-	57								2089	54 314		
4. STOPING:-												
Machine Operator	2	25.00	10.00	2.50	4.25		42		84	2 184		
Assistant Machine Operator	2	22.00	9.00	2.20	3.75		37		74	1 924		
Winch Driver	1	20.00	8.00	2.00	3.40		34		34	884		
Assistant Winch Driver	1	19.00	8.00	1.90	3.20		32		32	832		
Mucker	2	19.00	8.00	1.90	3.20		32		64	1 664		
Crew Leader	1	30.00	12.00	3.00	5.15		51		51	1 326		
Timberman	1	23.00	9.20	2.30	3.90		39		39	1 014		
TOTAL:-	10								378	9 828		
TOTAL:-	80								3024	78 624		8 crews.
5. STOPING ANCILLIARY:-												
Winch Driver	2	20.00	8.00	2.00	3.40		34		68	1 768		
Loco Driver	2	20.00	8.00	2.00	3.40		34		68	1 768		
Guard	2	20.00	8.00	2.00	3.40		34		68	1 768		
Timberman	2	23.00	9.20	2.30	3.90		39		78	2 028		
Assistant Timberman	2	19.00	8.00	1.90	3.20		32		64	1 664		
Assistant Winch Driver	2	19.00	8.00	1.90	3.20		32		64	1 664		
Compressor Operator	3	20.00	8.00	2.00	3.40	4.00	34	38	110	2 860		
TOTAL:-	15								520	13 520		

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ADMINISTRATION, ENGINEERING AND MINING LABOUR (CONTINUED):

	No.	Basic Wages Bs.	Bonus covering Sundays, Pension Vacation 40%	Soc Soci 10%	Overtime 1 hour per day	Night shift 20%	Total day shift	Total night shift	Total per day	Total per 30 per Month	Overtime per Month	Remarks
6. ENGINEERING:-												
Mechanical Foreman	1	50.00	20.00	5.00	8.55		84		84	2 184		
Turner	1	40.00	16.00	4.00	6.75		67		67	1 742		
Diesel Fitter	1	40.00	16.00	4.00	6.75		67		67	1 742		
Mine Fitter	1	25.00	10.00	2.50	4.25		43		43	1 118		
Plant Fitter	1	25.00	10.00	2.50	4.25		43		43	1 118		
Shop Fitter	2	25.00	10.00	2.50	4.25		43		43	1 118		
Motor mechanic	1	25.00	10.00	2.50	4.25	5.00	43	48	91	2 366		
Assistant Fitter	1	25.00	10.00	2.50	4.25		43		43	1 118		
Assistant Motor Mechanic	3	20.00	8.00	2.00	3.40	4.00	34	38	106	2 756		
Boilermaker/Welder	1	20.00	8.00	2.00	3.40		34		34	884		
Carpenter	2	25.00	10.00	2.50	4.25		43		86	2 236		
Assistant Boilermaker/ Welder	1	30.00	12.00	3.00	5.10		51		51	1 326		
	2	20.00	8.00	2.00	3.40		34		68	1 768		
Assistant Carpenter	1	20.00	8.00	2.00	3.40		34		34	884		
Electrical Foreman	1	50.00	20.00	5.00	8.55		84		84	2 184		
Mine Electrician	1	25.00	10.00	2.50	4.25		43		43	1 118		
Plant Electrician	1	25.00	10.00	2.50	4.25		43		43	1 118		
Shop Electrician	3	25.00	10.00	2.50	4.25	5.00	43	48	134	3 484		
Assistant Electrician	3	20.00	8.00	2.00	3.40	4.00	34	38	106	2 756		
Rock Drill Fitter	1	25.00	10.00	2.50	4.25		43		43	1 118		
Drill Sharpener	1	22.00	9.00	2.20	3.75		37		37	962		
Assistant Drill Sharpener	1	19.00	8.00	1.90	3.20		32		32	832		
TOTAL:-	30								1339	34 814		
TOTAL EMPLOYEES	261								12 617	328 042		

APPENDIX NO. 8

MICROSCOPICAL EXAMINATION OF SULPHIDE ORE FROM

COLOMBIA GOLD MINE - VENEZUELA

MINERALOGICAL REPORT

DESCRIPTION OF SAMPLES ..... Sulphide ore from El Callao. (P70/2)

ORIGIN OF SAMPLES ..... Mr. M.v.R. Steyn, Divisional Consulting Geologist,

DATE RECEIVED : 19. 3. 70

INVESTIGATION REQUIRED : ..... Mioroscopical examination.

RESULTS OBTAINED .....

Two specimens were selected from the bulk sample of sulphide ore received from El Callao, Venezuela, for mineralogical examination :

Sample A : Polished Section :

In order of abundance the following opaque minerals were observed : pyrite, chalcopyrite, hematite and gold. The gold grains are mostly less than 0.029mm in diameter and occur, together with chalcopyrite, as inclusions in the pyrite. The pyrite is up to ca. 5 mm in diameter.

Thin section : Quartz, calcite, chlorite and sulphides are present. The rock can be described as quartz-chlorite-schist with disseminated pyrite.

Sample B : Polished Section :

In order of abundance : pyrite, chalcopyrite, hematite and gold. The maximum grain size of the gold is ca. 0.020mm and it occurs as inclusions, together with chalcopyrite, in pyrite.

Thin Section : Calcite, quartz, albite, sericite. The rock is a quartz-sericite schist.

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Both samples are intensely brecciated and cemented together by quartz and calcite. The calcite in both samples is probably largely of secondary origin and was precipitated by the hydrothermal solutions. Some of the grains identified as pyrite are rather strongly anisotropic and may even be marcasite. As far as the ore-minerals are concerned, they appear to have been precipitated in the order - pyrite, chalcopyrite, gold and the inclusions of the latter two minerals in pyrite probably represent replacement along hairline cracks.

APPENDIX NO. 9

FLOTATION AND GOLD DISSOLUTION TESTS ON ORE SAMPLES FROM COLOMBIA GOLD MINE - VENEZUELA

SUMMARY :

Two samples of ore were received from El Callao, Venezuela, a sulphide ore and an oxide ore, for metallurgical testing.

Flotation of the sulphide ore, ground to 84% minus 325 mesh, gave a gold recovery of 98.6% in 16.9% of the bulk. Cyanidation of the flotation concentrate after regrinding to 98.8% minus 325 mesh gave dissolution efficiencies ranging between 95.6 and 96.3% depending on cyanide addition, giving an average net overall recovery of 94.6% over the combined flotation/cyanidation process.

Straight cyanidation of the sulphide ore ground to 93.3% minus 325 mesh gave an average dissolution of 95.1%.

Cyanidation of the oxide ore gave dissolution efficiencies ranging between 97.88% and 99.54% for cyanide additions ranging between 1.2 and 2.4 kg/ton and dissolution times ranging between 24 and 48 hours.

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FLOTATION AND DISSOLUTION TESTS ON ORE SAMPLES FROM COLOMBIA GOLD MINE - VENEZUELA

Samples of oxide and sulphide ore were received from El Callao Venezuela, for gold recovery tests.

Gold recovery from the oxide sample was to be by cyanide dissolution, while recovery from the sulphide ore was to be examined by straight cyanidation, and also by flotation followed by gold dissolution from the flotation concentrate.

1. SULPHIDE ORE SAMPLES :

Three drums of sulphide ore were crushed through a jaw crusher to minus half inch, thoroughly mixed by quartering and coning, and split into two parts with a divider. One part was crushed in a cone crusher to all passing 10 mesh, thoroughly mixed and divided into two parts -

Parts A and B.

PART A. :

This fraction was wet milled at 60% solids to all passing 65 mesh for flotation tests, followed by cyanidation of the float concentrate :

Screen Analysis of the Milled Product :

MESH						
+65	+100	+150	+200	+270	+325	-325
Nil	0.2	1.0	2.1	5.9	6.8	84.0

(a) Flotation :

The minus 65 mesh material was floated at 30% solids and pH 7.6 - 7.8, under the following conditions :

	Reagents added - Kg/ton					Time - min.	
	$CuSO_4$	Aerofloat 208	Aeroxanthate 301	Aerofloat 15	T.E.B.	Cond.	Froth
Conditioning	0.025	-	-	-	-	15	-
Rougher Conc. (1)	-	0.025	0.025	0.030	0.015	2	3
" " (2)	-	0.025	0.025	-	-	1	3
" " (3)	-	0.025	0.025	-	-	1	3

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The flotation was carried out for a total period of nine minutes, successive concentrates being collected at three minute intervals.

The results of the flotation tests were as follows :

	Weight %	Gold g/t	% Distribution	% S	% Distribution
Rougher Tail	83.08	0.08	1.40	0.03	2.05
" Conc.(1)	9.97	45.16	95.34	11.51	94.33
" " (2)	2.68	4.13	2.52	1.20	2.88
" " (3)	4.07	0.85	0.74	0.21	0.74
Head (Calc)	100.00	4.72	100.00	1.22	100.00
Calc.Combined) Rougher Concs)	16.92	27.52	98.60	7.05	97.95

(b) Cyanidation :

A series of twelve flotations was carried out as described above and the combined rougher concentrate (approximately 2 kilos) was aerated in a pachuca for four hours with 3.5 kg/ton CaO (pH approximately 9.2) at 40% solids. No frothing occurred during aeration. After aeration the pulp was reground with 1.0 kg/ton NaCN to all passing 200 mesh. (NaCN concentration at the commencement of grinding was 0.66 g/l - and after 3 hours grinding the concentration had dropped to 0.36 g/l, pH approximately 9.6)

Screen Analysis after Regrind :

	MESH		
+200	+270	+325	-325
% Nil	% 0.3	% 0.9	% 98.8

The reground pulp was split into two portions and gold dissolutions carried out for 48 hours at two different levels of cyanide respectively.

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The schedule of reagent addition during the dissolutions was as follows :

Reagent Addition Schedule	No. 1				No. 2			
	Added kg/ton		Residual kg/ton		Added kg/ton		Residual kg/ton	
	NaCN	CaO	NaCN	CaO	NaCN	CaO	NaCN	CaO
Aeration	-	3.5	-	-	-	3.5	-	-
Regrind	1.0	-	-	-	1.0	-	-	-
Dis. after 0 hrs.	1.0	-	0.36	0.04	1.5	-	0.37	0.04
" " 3 hrs.	0.5	1.0	0.30	0.03	1.0	1.0	0.38	0.03
" " 5 hrs.	1.5	-	0.44	0.06	2.5	-	0.54	0.06
" " 21 hrs.	-	-	0.26	0.18	-	-	0.30	0.32
" " 24 hrs.	2.0	-	-	-	3.0	-	-	--
" " 29 hrs.	-	-	0.64	0.30	-	-	0.90	0.64
" " 48 hrs.	-	-	0.47	0.39	-	-	0.72	0.75
Total	6.0	4.5	-	-	9.0	4.5	-	-

The addition of 1 kg/ton CaO after three hours caused a very heavy froth (pH 11.0) which subsided after an hour with a simultaneous drop in pH to 10.2 The heavy cyanide additions increased the free alkalinity, but the pH remained below 10.6, and no heavy frothing occurred.

The results for these dissolution tests are as follows :

	Wt. kilos	Au. g/t	% Distribution	
			Ind. *1	Overall *2
No.1 -				
Filtrate	3.302	6.69	95.67	94.33
Residue	0.800	1.25	4.33	3.27
Rougher Conc.	0.800	28.85	100.00	98.60
No.2 -				
Filtrate	3.388	6.83	96.29	94.95
Residue	0.808	1.10	3.71	3.65
Rougher Conc.	0.808	29.71	100.00	98.60

NOTE : *1 Calculated on the head to the dissolution
*2 Calculated on the head to the flotation.

PART B :

A straight cyanidation was done on this part after being wet milled to all passing 200 mesh. The cyanide concentration was at two levels, and dissolution times 24 and 48 hours respectively at 50% solids.

Screen Analysis of the Milled Product

MESH			
+200	+270	+325	-325
%	%	%	%
0.4	2.0	4.3	93.3

Lime and Cyanide Addition :

Time Hours	No. 1				No. 2			
	Added kg/ton		Residual kg/ton		Added kg/ton		Residual kg/ton	
	NaCN	CaO	NaCN	CaO	NaCN	CaO	NaCN	CaO
0	-	2.0	-	-	-	2.0	-	-
2	1.0	2.0	-	-	1.25	2.0	-	-
8	-	0.5	0.41	0.10	-	0.5	0.52	0.10
24	-	-	0.30	0.05	-	-	0.46	0.05
Total	1.0	4.5	-	-	1.25	4.5	-	-
	No. 3				No. 4			
0	-	2.0	-	-	-	2.0	-	-
2	1.4	2.0	-	-	1.65	2.0	-	-
8	-	0.5	0.54	0.10	-	0.5	0.72	0.12
24	-	0.5	0.50	0.06	-	0.5	0.66	0.06
30	-	0.5	0.42	0.08	-	0.5	0.64	0.10
48	-	-	0.34	0.04	-	-	0.58	0.04
Total :	1.4	5.5	-	-	1.65	5.5	-	-

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Dissolution Results :

	Wt. kilos	Au. g/t.	% Distrib.	Cyanide Addition kg/ton	Dissolution Time - Hours
NO.1				1.00	24
Filtrate	2.210	2.92	95.87		
Residue	1.113	0.25	4.13		
Head(Calc.)	1.113	6.05	100.00		
NO.2				1.25	24
Filtrate	2.205	3.00	93.49		
Residue	1.152	0.40	6.51		
Head(Calc.)	1.152	6.14	100.00		
NO.3				1.40	48
Filtrate	2.215	2.66	95.82		
Residue	1.069	0.24	4.18		
Head(Calc.)	1.069	5.75	100.00		
NO.4				1.65	48
Filtrate	2.140	2.72	95.16		
Residue	0.986	0.30	4.84		
Head(Calc.)	0.986	6.87	100.00		

Thus the average gold recovery in a single stage (cyanidation) process is 95.1% compared with 94.6 for the two stage (flotation and cyanidation) process.

2. OXIDE ORE SAMPLE:

One drum of oxide ore was air dried and screened through a 10 mesh screen. The plus 10 mesh fraction was cone crushed to all passing 10 mesh and recombined with the minus 10 mesh fraction. After thorough mixing, a 1000 gram sample was riffled out for screen analysis :

Screen Analysis of the Milled Product :

Mesh	% Retained	Gold g/ton	Gold % Distrib.	% S.	S % Distrib.
+14	3.56	5.66	3.11	0.26	6.25
+20	7.70	5.74	6.85	0.11	5.56
+35	7.33	7.41	8.42	0.13	6.94
+48	4.77	6.14	4.54	0.21	6.94
+65	3.72	5.72	3.30	0.16	4.17
+100	2.71	4.10	1.72	0.21	4.17
+150	2.47	4.08	1.57	0.25	4.17
+200	3.28	8.94	4.54	0.16	3.47
+270	2.75	8.06	3.44	0.16	2.78
+325	0.73	9.70	1.10	0.15	0.69
-325	60.98	6.49	61.41	0.13	54.88
Calc. Head	100.00	6.45	100.00	0.14	100.02

The remaining portion was wet milled to all passing 200 mesh at 50% solids.

Screen Analysis of Milled Product

M E S H			
+200	+270	+325	-325
%	%	%	%
0.3	0.5	0.9	98.3

Gold Dissolution :

Four gold dissolution tests were carried out using cyanide concentrations at two levels and dissolution times of 24 and 48 hours respectively at 35% solids (pH of pulp 6.6 at start).

NOTE : Due to viscosity effects, higher solid/liquid ratios were impracticable.

Lime and Cyanide Consumption :

The lime and cyanide consumptions for the respective tests are as follows :

Time Hours	TEST NO. 1				TEST NO. 2			
	Added kg/ton		Residual kg/ton		Added kg/ton		Residual kg/ton	
	NaCN	CaO	NaCN	CaO	NaCN	CaO	NaCN	CaO
0		4.0				4.0		
2	1.0	2.0			1.3	2.0		
6	0.2	0.5	0.28	0.04	0.2	0.5	0.43	0.04
24			0.26	0.02			0.40	0.02
Total	1.2	6.5	-	-	1.5	6.5	-	-
	TEST NO. 3				TEST NO. 4			
0	-	4.0	-	-	-	4.0	-	-
2	1.3	2.0	-	-	1.6	2.0	-	-
6	0.5	0.5	-	-	0.5	0.5	-	-
24	-	1.0	0.44	0.02	0.3	1.0	0.46	0.02
48	-	-	0.36	0.02	-	-	0.50	0.02
Total	1.5	7.5	-	-	2.4	7.5	-	-

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The results of the four tests were as follows :

	Wt. Kilos	Au. g/t	% Distrib.	Cyanide Addition kg/ton	Dissolution Time - Hours
NO. 1				1.2	24
Filtrate	3.315	1.440	97.88		
Residue	0.860	0.120	2.12		
Head(Calc.)	0.860	5.67	100.00		
NO.2				1.5	24
Filtrate	3.340	1.40	98.57		
Residue	0.850	0.080	1.43		
Head(Calc.)	0.850	5.580	100.00		
NO.3				1.5	48
Filtrate	3.217	1.400	98.49		
Residue	0.862	0.080	1.51		
Head(Calc.)	0.862	5.310	100.00		
NO.4				2.4	48
Filtrate	3.347	1.360	99.54		
Residue	0.871	0.040	0.46		
Head(Calc.)	0.871	5.270	100.00		

APPENDEX NO. 10

FURTHER FLOTATION AND CYANIDATION TESTS ON ORES FROM THE COLOMBIA GOLD MINE - VENEZUELA

SUMMARY :

Flotation of the sulphide ore at various grinds indicates that coarser grinds give substantially the same gold recovery in a smaller bulk as shown by the following data :-

Grind (%-325)	Gold recovery %	Flotation bulk (% of feed)
84.0	97.95	16.9
65.3	98.52	12.9
50.3	98.13	10.7

A preliminary flotation test on the oxide ore indicates that 96% of the gold can be recovered in 33% of the bulk.

The cyanidation of a mixture containing 50% flotation concentrate from the sulphide ore, and 50% oxide ore gave dissolutions ranging between 86.3 and 89.9% of the contained gold.

The cyanidation of a mixture of 80% sulphide ore and 20% oxide ore gave a gold dissolution of 98%.

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FURTHER FLOTATION AND CYANIDATION TESTS ON ORES FROM THE COLOMBIA GOLD MINE - VENEZUELA

In previous flotation tests on the Colombia sulphide ore, the ore was milled to 84% minus 325 mesh prior to flotation. Further tests have now been completed on a coarser grind to examine the effect on gold recovery.

In addition, cyanidation tests have been carried out on various admixtures of sulphide flotation concentrates with the oxide ore.

A preliminary flotation test on the oxide ore indicates that about 96% of the gold can be recovered in about 33% of the bulk.

1. THE FLOTATION OF THE SULPHIDE ORE AT DIFFERENT GRINDS :

(a) Milling :

Two samples (A and B) were wet milled at 60% solids for different time periods, giving the following screen analysis of the milled products :

Sample	M E S H						
	+65	+100	+150	+200	+270	+325	-325
A	0.5	5.0	8.4	12.8	2.0	21.0	50.3
B	0.1	1.4	4.5	10.6	9.1	10.0	65.3

(b) Flotation :

Flotation was done on the above two samples, at 30% solids and a pH of 7.6 - 7.8 under the following conditions :

	Reagents added - Kg/ton					Time - Mins	
	$CuSO_4$	Aerofloat 208	Aeroxanthate 301	Aerofloat 15	T.B.E.	Cond.	Froth.
Conditioning	0.25	-	-	-	-	15	-
Rougher Conc.1	-	0.025	0.025	0.030	0.015	2	3
" " 2	-	0.025	0.025	-	-	1	3
" " 3	-	0.025	0.025	-	-	1	3

The flotation was carried out for a total period of nine minutes successive concentrates being collected at three minute intervals.

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The results of the flotation tests were as follows :

	SAMPLE A			SAMPLE B		
	Weight %	Gold g/t.	% Distrib.	Weight %	Gold g/t.	% Distrib.
Rougher Tail	89.26	0.13	1.87	87.10	0.11	1.48
Rougher Conc.1	5.43	107.10	93.75	8.23	76.11	96.32
" " 2	3.03	6.20	3.03	2.32	3.74	1.34
" " 3	2.28	3.69	1.35	2.35	2.40	0.86
Head Calculated	100.00	(6.20)	100.00	100.00	(6.50)	100.00
Calc.combined Rougher concs.	10.74	56.68	98.13	12.90	49.67	98.52

2. THE CYANIDATION OF A MIXTURE OF 50% ROUGHER CONCENTRATE PLUS 50% OXIDE ORE :

(a) Flotation of the Sulphide Ore :

A series of floats was carried out as described above on the remainder of sample B. The combined rougher concentrate (approximately 1.1 Kg) was aerated at 40% solids in a pachuca for four hours. Lime was added at different periods to keep the pH just above 9 (pH 9.0-9.2). A total of 3.5 Kg.CaO/ton was added. No frothing occurred during aeration. After aeration the pulp was reground with 1.0 Kg/ton NaCN for three hours. (Screen analysis after regrind was not determined, but should be approximately as in Report 1).

The reground pulp was split into two portions for subsequent cyanidation.

(b) Cyanidation of the mixed Sulphide Concentrate/Oxide Ore :

Two samples (C and D) of oxide ore were wet milled at 60% solids to all passing 200 mesh. 500 grams of each were put into two pachucas. Lime (1.0 Kg/ton) was added to each, which brought the pH up from 6.6 to 10.2. They were then aerated for 30 minutes to bring the pH back to 9.0 (sample "C" - pH 9.2, sample "D" - pH 9.6).

To these were added 0.5 Kg NaCN/ton and the two portions of reground rougher concentrate pulp. Sample "C" with the lower pH frothed a little, but "D" with the higher pH gave a very heavy froth. After two hours the frothing subsided. Lime had to be added in small quantities after 4 hours to keep the pH at 9.0. The total CaO added amounted to 3.0 Kg/ton). 1.6 Kg.NaCN/ton was also added. Gold dissolution was carried out for 24 hours.

The residual reagents were :

NaCN - 0.26 Kg/ton, CaO - 0.03 Kg/ton.

The results for these dissolution tests are as follows :

	SAMPLE "C"			SAMPLE "D"		
	Wt.Kilos	g/t-Au	% Distr.	Wt.Kilos	g/t-Au.	% Distrib.
Filtrate	1.110	5.18	89.94	1.040	4.58	86.32
Residue	0.392	1.64	10.06	0.353	2.14	13.68
Head (calc.)	0.392	(16.31)	100.00	0.353	(15.63)	100.00

3. THE CYANIDATION OF A MIXTURE OF 80% SULPHIDE ORE PLUS 20% OXIDE ORE :

(a) Milling :

A mixture of 80% sulphide and 20% oxide ore was wet milled at 60% solids, giving the following screen analysis of the milled product :

MESH			
+200	+270	+325	-325
%	%	%	%
0.3	1.9	4.7	93.1

(b) Cyanidation :

Cyanidation was carried out for 48 hours with the following reagent addition :

Added Kg/ton		Residual Kg/ton	
NaCN	CaO	NaCN	CaO
1.0	6.5	0.14	0.04

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Dissolution Results :

	Wt. Kilos	Au. g/t.	% Distribution
Filtrate	0.419	2.42	98.06
Residue	0.147	0.15	1.94
Head (Calc.)	0.147	(7.00)	100.00

4. THE FLOTATION OF THE OXIDE ORE FOR GOLD RECOVERY :

(a) Milling :

A sample of oxide ore was wet milled at 60% solids giving the following screen analysis of the milled product :

96% - minus 325 mesh.

(b) Flotation :

Flotation was done on the above sample at 30% solids and a pH of 7.6 (with soda carb) under the following conditions :

	Reagents added - Kg/ton					Time - Mins.	
	$CuSO_4$	Aerofloat 208	Aeroxanthate 301	Aerofloat 31	T.B.E.	Cond.	Froth.
Conditioning.	0.25	-	-	-	-	15	-
Rougher Conc. 1	-	0.025	0.025	0.030	0.015	2	3
" " 2	-	0.025	0.025	-	-	1	3
" " 3	-	0.025	0.025	-	-	1	3

The flotation was carried out for a period of nine minutes, successive concentrates being collected at three minute intervals, to give three separate concentrate samples.

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The results of the flotation tests were as follows :

	Wt. %	Au. g/t.	% Distribution
Rougher Tail	66.76	0.32	3.87
Rougher Conc.1	26.52	17.38	83.29
" " 2	3.63	11.85	7.77
" " 3	3.09	9.08	5.08
Head (Calc)	100.00	(5.53)	100.01
Calc.combined) Rougher Concs)	33.24	16.00	96.14

NOTE : (1) The ground ore in this test was too fine, thus the high yield in Weight % in the rougher concentrate, because of slime.

(2) The $CuSO_4$ is not needed and should be replaced with sodium silicate to suppress the slime.

(3) Aeroxanthate should be left out.

No further investigation was done.

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APPENDIX NO. 11

FILTRATION AND THICKENING TESTS ON CYANIDED PULPS FROM COLOMBIA GOLD MINE - VENEZUELA

SUMMARY

Filtration tests on the sulphide ore and oxide ore indicate that maximum filter duties are achieved on a four minute filtration cycle. The results obtained using a four minute cycle were as follows :

	Filter duty Tons dry solids (Sq.ft)(day)
Sulphide ore	0.320
Oxide ore	0.204
80% Sulphide ore plus 20% Oxide ore	0.328
Flotation concentrate (Sulphide)	0.268

Thickening tests on unflocculated cyanided pulps gave the following results :

	Thickener area required Sq. ft/(ton)(day)	Terminal Pulp Density (% Solids)
Sulphide ore	22.5	54.0
Oxide ore	17.5	42.0
80% Sulphide ore + 20% Oxide Ore	23.5	55.3
Flotation concentrate (Sulphide)	24.0	52.9

With flocculant, marked improvements in thickener duty for both sulphide and oxide ores were obtained.

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FILTRATION AND THICKENING TESTS ON CYANIDED PULPS FROM THE COLOMBIA GOLD MINE - VENEZUELA

Filtration Tests :

Filtration tests were carried out on samples after leaching with cyanide for 24 hours, using a standard immersion test filter having an area of 0.1 sq. ft. at a vacuum of 650 mm mercury.

Cycles used :

	Pick Up Time in Seconds	Drying Time in Seconds	Discharge Time in Seconds
4 minute cycle	60	132	48
8 " "	120	264	96
10 " "	150	330	120

Results :

Sample	Cycles in mins.	Cake Thickness in inches.	Wet Wt. of Cake in gms.	Dry Wt. of Cake in gms.	% H_2O	pH	S.G.	Filter Duty-Tons/(sq.ft)(day)	Remarks
Sulphide	4	1/8	88	60	9.1	9.3	1.3	0.320	(Cracks
"	8	13/32	223	160	28.3	9.1	1.4	0.320	(150 (seconds (drying.
Oxide	4	5/32	84	51	39.3	10.1	1.2	0.204	(Cracks (after (60 (seconds (drying
Oxide	8	9/32	126	78	38.1	10.1	1.2	0.156	
"	10	11/32	142	87	38.8	10.1	1.2	0.139	
80% Sulphide) 20% Oxide)	4	1/4	122	82	32.8	9.5	1.2	0.328	(Cracks (after (20 (seconds (drying
"	8	11/32	173	118	31.8	9.5	1.2	0.236	
Float Conc (Sulphide)	4	3/16	93	67	28.0	8.3	1.34	0.268	
"	8	1/4	138	100	27.5	8.3	1.34	0.200	
"	10	9/32	163	118	27.6	8.3	1.34	0.189	

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Thickening Tests :

All thickening tests were carried out on pulp samples after leaching with cyanide for 24 hours.

Flocculant used = Superfloc 16.

Results :

Sample	% Solids	Area in sq. ft./ton/24 hours	
		1) No Flocculant	2) Flocculant
Oxide	6.7	14.42	1.13
"	10.0	16.32	13.48
"	22.5	9.32	22.13
Sulphide	6.3	9.74	0.99
"	10.0	18.81	3.79
"	18.0	22.12	10.09
"	25.0	20.50	11.15
80% Sulphide) 20% Oxide)	10.0	14.69	
"	15.0	17.79	
"	20.0	20.50	
Sulphide) Concentrate)	6	15.12	
"	10	15.39	
"	18	21.57	
"	30	23.42	
"	33	22.00	

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Calculations :

Sample	Test No. as shown on Graph	% Solids	Super Floc 16 K/gm/ton	F*	R*	D*	A*
Oxide	A	6.7	Nil	14.50	1.21	1.38	14.42
"	B	6.7	0.060	14.50	15.42	1.38	1.13
"	C	10.0	Nil	9.11	0.63	1.38	16.32
"	D	10.0	0.080	9.11	0.77	1.38	13.48
"	E	22.5	Nil	4.04	0.38	1.38	9.32
"	F	22.5	0.040	4.04	0.16	1.38	22.13
Sulphide	1A	10.0	Nil	9.62	0.62	0.85	18.81
"	1B	10.0	0.040	9.62	3.08	0.85	3.79
"	2A	18.0	Nil	5.17	0.26	0.85	22.12
"	2B	18.0	0.020	5.17	0.57	0.85	10.09
"	3A	25.0	Nil	3.62	0.18	0.85	20.50
"	3B	25.0	0.015	3.62	0.33	0.85	11.15
"	4A	6.3	Nil	15.49	2.00	0.85	9.74
"	4B	6.3	0.060	15.49	19.58	0.85	0.99
80%Sulphide) 20% Oxide)	1	15.0	Nil	6.03	0.39	0.81	17.79
"	2	20.0	Nil	4.51	0.24	0.81	20.50
"	3	10.0	"	9.76	0.81	0.81	14.69
Sulphide Conc.	4	18.0	"	5.43	0.28	0.89	21.57
" "	5	10.0	"	9.79	0.77	0.89	15.39
" "	6	6.0	"	16.35	1.36	0.89	15.12
" "	7A	33.0	"	2.71	0.11	0.89	22.00
" "	7B	30.0	"	3.00	0.12	0.89	23.42

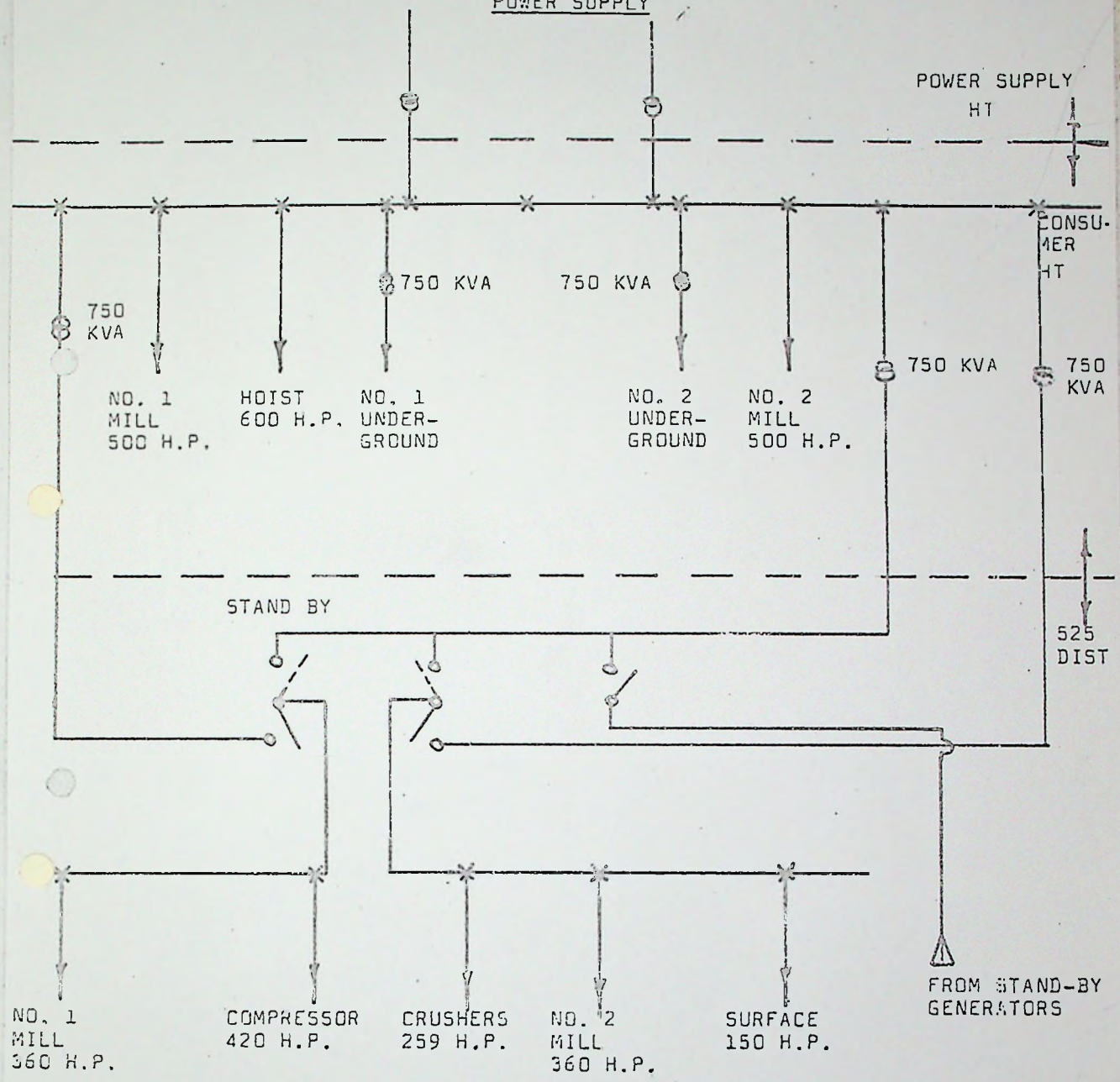
*F = Liquid : Solid Ratio (By weight of original pulp)
*R = Rate in ft/hour
*D = Liquid : Solid Ratio (by weight) of final settled pulp
*A = $\frac{1.33\ (F-D)}{R_p}$ = sq. ft./(ton) (24 hours)

p = density of liquid

APPENDIX NO. 12

COLOMBIA GOLD MINE - VENEZUELA

POWER RETICULATION DIAGRAM
POWER SUPPLY



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APPENDIX NO. 13

COLOMBIA GOLD MINE - VENEZUELA

POWER DISTRIBUTION DIAGRAM

APPENDIX NO. 14

POWER DISTRIBUTION AND CABLE SPECIFICATION

Power Distribution : (525 v. 60 cps.)

1. Crushing Plant:

Equipment	Installed H.P.	Consumed H.P.
Plate Feeder	2.0	1.5
No. 1 Conveyor	10.0	5.0
No. 2 Conveyor	10.0	7.5
No. 3 Conveyor	10.0	6.0
Primary Crusher	100.0	80.0
Magnet Rectifier	7.5	6.0
Vibrating Screen	7.5	6.0
Secondary Crusher	100.0	80.0
No. 4 Conveyor	15.0	12.0
No. 1 Welding Plug	60.0	50.0
No. 2 Welding Plug	600.0	-
Lighting Circuit	15.0	5.0
Spare 15 H.P.	15.0	-
Crushing Plant Total	412.0	259.0

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2. Mill Plant:

	Installed H.P.	Consumed H.P.
No. 1 Vibrating Feeder	1.0	1.0
No. 2 Vibrating Feeder	1.0	1.0
Conveyor Belt	3.0	2.0
Rod Mill	150.0	140.0
Ball Mill	1000.0	950.0
Mill Discharge Pumps No.1	75.0	55.0
Mill Discharge Pumps No.2	75.0	-
Mill Water Pump No. 1	30.0	28.0
Mill Water Pump No. 2	30.0	-
Thickener O.F. Pump No. 1	15.0	9.0
Thickener O.F. Pump No. 2	15.0	-
Diaphragm Pumps	8.0	8.0
Thickener U.F. Pumps No. 1	20.0	13.0
Thickener U.F. Pumps No. 2	20.0	-
Compressor No. 1	100.0	79.0
Compressor No. 2	100.0	-
Rotary Drum Filter No. 1	12.5	12.5
Rotary Drum Filter No. 2	12.5	12.5
Repulper	7.5	5.0
Residue Pump No. 1	20.0	13.0
Residue Pump No. 2	20.0	-
Vacuum Pump No. 1	100.0	63.0
Vacuum Pump No. 2	100.0	-
Filtrate Pump No. 1	5.0	4.0
Filtrate Pump No. 2	5.0	4.0
Solution Pump	20.0	14.0
Precoat Pump	7.5	5.0
Vacuum Pump No. 3	100.0	63.0
Vacuum Pump No. 4	100.0	-
Solution Pump	5.0	4.0
Precoat Pump	7.5	5.0
Solution Pump	20.0	14.0
Solution Pump	7.5	5.0

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Mill Plant (Cont'd.)

	Installed H.P.	Consumed H.P.
Acid Pump	30.0	24.0
Thickener	15.0	10.0
Fresh Water Pump	7.5	5.0
Gland Service Pump	5.0	4.0
Spillage Pump No. 1	7.5	5.0
Spillage Pump No. 2	7.5	5.0
Spillage Pump No. 3	7.5	5.0
Spillage Pump No. 4	7.5	5.0
Welding Plug No. 1	60.0	50.0
Welding Plug No. 2	60.0	-
Welding Plug No. 3	60.0	-
Lighting Transformer	50.0	40.0
Air Extraction Fan No. 1	5.0	4.0
Air Extraction Fan No. 2	5.0	4.0
Air Extraction Fan No. 3	5.0	4.0
Air Extraction Fan No. 4	5.0	4.0
Spare	2.0	-
Spare	7.5	-
Spare	7.5	-
Spare	20.0	-
Spare	30.0	-
Spare	15.0	-
Spare	5.0	-
Mill Plant Total	2617.0	1675.0

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3. Compressors:

Requirements 20 Drills = 400 H.P.
Install 2 x 10 Drill Compressors = 2 x 200 H.P.

Equipment	Installed H.P.	Consumed H.P.
Compressor No. 1	200	200
Compressor No. 2	200	200
Aux. No. 1	30	10
Aux. No. 2	30	10
Aux. No. 3	30	-
Compressors Total	460	420

4. Underground Equipment:

	Installed H.P.
11 x 30 H.P. Winches	330
4 x 15 H.P. Fans	60
3 x 5 H.P. Pumps	15
3 x 200 H.P. Pumps	600
3 x 50 H.P. Sludge	150
Underground Total	1255

Of the above pumps, 1 x 200 H.P. and 1 x 50 H.P. will be standby.

5. Hoist: Installed H.P. 600

Power Installation Summary:

		Installed H.P.	Consumed H.P.
1.	Crushing Plant	412	259
2.	Mill Plant	2617	1675
3.	Compressors	460	420
4.	Underground Equipment	1255	1005
5.	Hoist	600	600
6.	Surface General	200	150
	Grand Total	5544	4109
	=	4130 KW	3070 KW
	At 0.8 pF =	5170 KVA	3820 KVA

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6. Cable Specifications:

Cable Size	Length in Feet 7.036	.04	0.1	0.15	0.2	0.25
Crushers	7,000			600		400
Mill	21,000	600	400	800	400	600
Compressors	1,000					1,000
Surface General	10,000					
Underground General	5,000	3,000				4,000
Total Lengths	44,000	3,600	400	1,400	400	6,000

7. General:

1. L.T. Control

(a) Centralised control desk for each plant containing :

(i) Ammeters

(ii) Stop push buttons

(iii) Indicator lights

(iv) Mimic (If possible)

(b) All circuits to be equipped with :

(i) Circuit Breaker/Fuse protection

(ii) Earth Leakage protection relays

(iii) Stop/Start and Indicator Light control at motor.

(c) Mills to be fitted with locally mounted KW meters, ammeters.

(d) Flood lighting should be used on all outside areas for economy of capital costs, and maintenance.

8. Weekly Power Consumption:

			KWH.
(1)	1000 KW x 7 hrs. x 6 days	=	42,000
(2)	500 KW x 14 hrs. x 6 days	=	42,000
(3)	450 KW x 24 hrs. x 7 days	=	76,000
(4)	300 KW x 7 hrs. x 6 days	=	12,600
(5)	750 KW x 24 hrs. x 7 days	=	126,000
(6)	550 KW x 24 hrs. x 7 days	=	92,500
(7)	200 KW x 24 hrs. x 6 days	=	28,800
(8)	50 KW x 24 hrs. x 1 day	=	1,200
		Total	421,100
		Say	450,000

For the above, refer to the power distribution diagram in Appendix No. 13.

Peak load will occur between 0700 hours and 1400 hours, Monday to Saturday inclusive and will be in the order of 4 - 4.5 MW.

Monthly power requirements = 4,5 x 450 000 KWH
= 2 000 000 KWH

Power variations (oscillations) during the year will be negligible, demand apart from a few fans and heaters being substantially constant, as indicated above.

The power supply would have to be secure, power outage of 3 - 4 hours could be tolerated, but no more from a personnel safety and plant operation viewpoint.

Stand-by power supply 500 KW.

Single source of supply only is required at a central sub-station, plus the 75 H.P. river pump which could be considered as a second point.

FUNDACIÓN RAÚL y MENCA DE LEONI

ARCHIVO RAÚL LEONI OTERO
DOCUMENTOS OFICIALES
CARPETA B-115
(1971)

13/11/71. 1

ELOY LARES MARTINEZ

Mi querido Presidente:

No logré hallar la sentencia de 28 de abril de 1964, citada en Ultimas Noticias. Es raro que no aparezca en la Gaceta Forense, numero correspondiente a esa época (abril a junio de 1964).

Acompaño la sentencia de 1937, dictada en el juicio seguido contra Portocarrero y ratificada en ese mismo año en el juicio contra Silva Tellería.

No pude hacer la copia del tipo forma que Ud. me había ofrecido.

Cualquier cosa me llama, pues estoy en casa.

Un abrazo de afectísimo

Gen Arvelo

Sentencia por la cual se declara la nulidad del juicio seguido por ante un Tribunal Militar, al ciudadano Hernani Portocarrero.

No. 11

LOS ESTADOS UNIDOS DE VENEZUELA

EN SU NOMBRE

LA CORTE FEDERAL Y DE CASACION,

EN SALA DE CASACION

Vistos, con la Ponencia del Vocal Vicepresidente, doctor Rafael Marcano Rodríguez.

Inició este proceso en la jurisdicción militar, en virtud de denuncia hecha por el ciudadano Ministro de Guerra y Marina, fechada a 16 de abril de 1936, al ciudadano Comandante de la Tercera Zona Militar, para que, luego de constituido el Tribunal Militar, abriera la averiguación sumaria correspondiente, con motivo de ciertos conceptos injuriosos emitidos contra el Ejército Nacional por el ciudadano Hernani Portocarrero, venezolano, mayor y vecino de Caracas, en un discurso pronunciado en el mitin político que se efectuó el día 9 del mismo mes de abril, en el pueblo de Charallave.

Abierta la averiguación judicial del caso, y en la oportunidad legal, el ciudadano Fiscal Militar formuló cargos contra Portocarrero *"como autor intencional del delito de injuria contra el Ejército Nacional*, previsto en el artículo 137 del Código de Justicia Militar y Naval"; y en la audiencia señalada al efecto, que lo fué la del 13 de junio de 1936, leído el escrito de cargos, los defensores de aquél los contestaron "rechazándolos de la manera más absoluta y categórica", y concluyeron pidiendo "la absolución del enjuiciado, con todas las consecuencias legales".

Concluido el término de pruebas, durante el cual las partes promovieron y evacuaron las que consideraron pertinentes; hecha la relación de la causa y oídos los Informes del Fiscal Militar y de los defensores, el Consejo de Guerra dictó sentencia definitiva, condenando al indiciado Hernani Portocarrero, "a la pena de dos años y seis meses de prisión" que, "al tenor de lo dispuesto en el artículo 44 del Código de Justicia Militar y Naval, cumplirá en la Penitenciaría o Fortaleza que al efecto designe el ciudadano Presidente de la República; y a la inhabilitación política por el tiempo de la pena, de conformidad con lo que disponen el artículo 43, ordinal 1°, y el 57 *ejusdem*, por haber cometido el delito de ofensas

al Ejército Nacional contenidas en las palabras que el día 9 de abril de 1936 pronunció en las reuniones públicas efectuadas en la Plaza Bolívar de Ocumare del Tuy y en el Cine Bolívar de Charallave".

Subido este juicio a la Corte Marcial en virtud de apelación y consulta, ésta, en su fallo del 24 de octubre del mismo año, confirmó en todas sus partes la sentencia dictada por el Consejo de Guerra, el 23 de setiembre siguiente. Del fallo de la Corte Marcial anunció recurso de casación la Defensa de Portocarrero, el cual le fué admitido por auto del 29 del propio mes, y a tal efecto han venido los autos procesales a esta Corte.

El recurso fué formalizado e impugnado oportunamente en réplica, ni contra-replica, iniciandose con el siguiente

Punto previo:

Al problema planteado en este punto, se le da por fundamento la infracción del artículo 7° del Código de Procedimiento Civil y consiguientemente del artículo 32 de la Constitución Nacional, en sus ordinales 17 (letra "b") y 18 (letra "a"). Estos dos últimos preceptos son especies del género 'garantías constitucionales' relativas a la *"seguridad individual"* y a la *"igualdad individual,* respectivamente. El primero dispone: *"ningún ciudadano podrá ser juzgado por Tribunales o Comisiones especiales creadas, sino por sus Jueces naturales* y en virtud de ley preexistente salvo lo establecido en la garantía 2ª de este artículo: y en conformidad con el segundo precepto, contenido en el ordinal 18, letra "a", *todos serán juzgados por las mismas leyes* y gozarán por igual de la protección de estas en el territorio de la Nación". Y en cuanto al enunciado artículo 7° del Código de Procedimiento Civil, él estatuye que "cuando la ley vigente cuya aplicación se pida, colidiere con alguna disposición constitucional, los Tribunales aplicarán ésta con preferencia".

Luego los abogados recurrentes, exponen: — "No se concibe que el civil autor de un *hecho no militar*, sea sometido a la jurisdicción militar. Si injuriar, en cualquiera de sus formas jurídicas, fuera un *hecho militar*, esto es, propio de militares o peculiar de las gentes de armas, el Consejo de Guerra y la Corte Marcial tendrían razón: se trataría de un delito militar, y podrían conocer de tal hecho, cualquiera que fuese la persona que lo hubiere realizado. En el caso concreto,—prosiguen los recurrentes, — ante un hecho no militar, la injuria, y dado el contenido del artículo 137 del Código de Justicia Militar y Naval, la primera cuestión judicial debió ser descompuesta así: a) ¿Puede el Código Militar erigir en delito militar un hecho cualquiera no militar o simplemente, un hecho ya previsto por las leyes punitivas como delito político o como delito contra las personas? b) En caso afirmativo ¿puede también el Código de

Justicia Militar, sin suspensión de garantías, sacar al civil, autor del hecho no militar aludido, de la jurisdicción de sus jueces naturales para someterlo a la jurisdicción militar?"

"Dadas las disposiciones constitucionales arriba citadas,—continúan los formalizantes, — para la segunda cuestión la respuesta tiene que ser necesariamente negativa: cuando un hecho dado y bajo una misma forma o bajo diferentes fases está erigido en delito a un mismo tiempo por la Ley penal y por otra Ley especial, cualquiera que ella sea, en el caso concreto el Código de Justicia Militar y Naval, si el hecho es de la naturaleza de la Ley especial, ha de aplicarse la Ley especial en cuanto a penalidad y la ley común en cuanto a jurisdicción; pero si el hecho, lejos de ser de la naturaleza de la ley especial, es simplemente un hecho genérico, ha de aplicarse la Ley penal, y en el caso más favorable, la especial, sólo en cuanto a la pena, pero nunca en cuanto a la jurisdicción".

Y concluyen así: "De hacerlo, se crearía un *fuero privilegiado* vedado por la garantía de la *igualdad ante la ley* . . . . Si el aludido artículo 137 estuviese en semejante caso, tocaba al Tribunal Militar, por aplicación conjunta de los Códigos de Enjuiciamiento Criminal y de Justicia Militar y Naval, aplicar, para resolver tal caso de colisión no previsto, y mientras la Corte Federal no hubiere pronunciado aquella nulidad, el Código de Procedimiento Civil, artículo 7°, ya trascrito. Con mayor raón en el caso concreto en que, de haber cometido Portocarrero el hecho previsto por el artículo 137 del Código de Justicia Militar y Naval, resultaría odioso y anticonstitucional, y contrario al honor militar, ser a un mismo tiempo *ofendido y Juez del ofensor*".

Y, por su parte, el ciudadano Fiscal Militar, en su escrito de impugnación, sintetiza sus alegatos en los siguientes términos: — "Es principio fundamental del derecho, que allí en donde la ley no distingue, el juez o el intérprete no puede distinguir. Es el caso que el precepto constitucional contenido en la letra b), garantía 17, artículo 32 de nuestra Carta Fundamental, garantiza a los venezolanos que no serán juzgados sino por sus *jueces naturales*, sin hacer la más ligera distinción, ni aun violentando la interpretación presuntiva, si únicamente se contrae a los jueces naturales-ordinarios y excluye los jueces naturales especiales. De todo lo cual es fuerza inferir que siendo los jueces del orden militar, jueces naturales-especiales, su jurisdicción sobre los ciudadanos no es anticonstitucional, ni va contra el texto de la letra b), correspondiente a la garantía ya invocada".

"En Venezuela existe una ley preexistente que extiende la jurisdicción penal-militar hasta los ciudadanos no militares: el artículo 3° del

Código de Justicia Militar y Naval. Luego tal proceder no es ni puede ser violatorio de la seguridad individual en lo que atañe a la letra b), garantía 17, artículo 32 de nuestra Constitución Nacional; pues lo que asegura dicho precepto a los ciudadanos es que no serán juzgados por ley creada especialmente para un juicio determinado y con posterioridad al hecho o hechos que le dieron origen. En el caso concreto, la ley que ha comprendido a Portocarrero dentro de la jurisdicción militar, aun siendo ciudadano civil, preexiste, está vigente con anterioridad al juicio que se le sigue y del cual conoce actualmente esta Superioridad, y no ha sido esa ley creada especialmente para juzgar a Portocarrero y para conocer de los hechos delictuosos de que se le ha acusado".

"Las poderosas razones que están consignadas antecedentemente, cubren también de manera indiscutible y favorable el procedimiento seguido en la causa de Portocarrero, por lo que respecta a la garantía 18, letra a), artículo 32 de la Constitución Nacional, y así queda alegado".

Expuestos los dos términos del problema previo, se entra a examinar en conjunto las cuestiones que deben ser decididas con antelación a las materias concernientes a la forma y al fondo del presente recurso, y al efecto, *la Corte considera:*

La "difamación" y la "injuria" envuelven imputaciones de hecho capaces de exponer a aquel contra quien se dirigen al desprecio o al odio público, o de constituir ofensas a su honor o reputación, y ambos conceptos, tomados de la realidad de las cosas, han penetrado en el campo de las disciplinas jurídicas, ya en relación directa con las personas físicas, ya con las de mera creación moral. Respecto de estas últimas, la injuria y la difación pueden formar delitos de la jurisdicción penal ordinaria o desmembraciones de ella hacia un fuero especial: así, el Código Penal, en su artículo 226, erige en delito "el caso del que de palabra o de obra ofendiere el honor, la reputación, decoro o dignidad de algún *Cuerpo judicial, político o administrativo*"; y el Código de Justicia Militar y Naval considera incurso en pena "al que de palabra o por escrito injurie u ofenda *al Ejército o a la Armada Nacionales* o a alguna de sus unidades" (Art. 137).

Entre la jurisdicción ordinaria y la jurisdicción militar pueden mediar conflictos determinantes de atracción de la primera a la segunda, en los casos en que se trate de *varios delitos de ambos fueros, conexos entre sí,* conclusión que deriva del artículo 9° del Código de Enjuiciamiento Criminal, cuando, en su primer aparte, expresa: *"Si entre unos y otros delitos hubieren fueros distintos,* el conocimiento de la causa corresponderá siempre a la *jurisdicción ordinaria"*. Mas, por el contrario, puede acontecer que se trate *de un solo delito militar o de varios delitos igualmente pe-*

culiares de este fuero, aun cuando sea un civil quien los haya cometido; y en estos casos, su conocimiento no sufre mudanza de fuero, sino que continua correspondiendo al fuero militar, pues, debido a la índole exclusivamente militar del delito, que es fuente de jurisdicción, no hay oposición de otro fuero que pueda ofrecer un conflicto y obtener primacía sobre aquél. Hay además una tercera clase de delitos, a la cual pertenecen los que, no obstante estar catalogados en el Código de Justicia Militar y Naval, no son otra cosa que derivaciones de la jurisdicción ordinaria, con aplicación militar. En tal virtud, con respecto a estos últimos, entre los cuales se cuenta la "injuria al Ejército Nacional", acontece, que si es cometido por un militar, caerá su juzgamiento bajo esta jurisdicción, más si lo fuere por un civil, la competencia de concer han de asumirla los Tribunales de la jurisdicción ordinaria, y la pena será impuesta por ellos, dentro de los extremos que establece la ley militar en el citado artículo 137.

Un hecho puede asumir varias modalidades, según se realice en el ambiente de la vida cívica o en el de la vida militar. En tal evento, a pesar de ofrecer dos aspectos según la persona moral contra quien se dirija, en realidad, por cuanto el hecho es *único*, también el delito es *único*, siendo de advertir que el artículo 137, no establece, *jurisdicción* sino *sanción*. Y por cuanto la circunstancia de ser un militar el ofensor del Ejército, añadirá a su hecho una nota de particular gravedad, que convertirá el género injuria en delito de la especie militar; por una razón contraria, cuando el ofensor del cuerpo militar sea un civil, la jurisdicción ordinaria a la cual pertenece, será la que ha de privar en la formación procesal del delito, por no asumir respecto de este ofensor el carácter de gravedad que ofrece cuando se trata de un militar.

En puridad de justicia, sólo por delitos típicamente militares sería que un civil pudiera ser juzgado por tribunales militares; y si la infracción cometida sólo fuere una derivación o desviación del derecho común al militar, el Código Militar dará ciertamente el delito, pero del seno de la jurisdicción ordinaria es que ha de salir el Juez competente que conozca, en juicio ordinario y conforme al procedimiento común, de la infracción cometida por el civil, tomando en consideración para atenuarla, si tal fuere el caso, la condición civil del ofensor.

En esta tesis, que ajusta con el caso de autos, no es posible someter al indiciado a una jurisdicción especial, siendo que él está amparado y protegido por la jurisdicción común, o sea, por la de todos los ciudadanos no aforados especialmente; por la que está sobre todas las demás, en los casos que no formen propiamente delitos de un fuero restrictivo. Es, pues, de principio, que el civil que cometa un delito genuinamente *no mi-*

La revelación de secretos militares, no es un delito típicamente militar, pues está prevista y sancionada en el Código Penal (artículos 134, 135 y 136).

litar, como el de "injuria", aun bajo su derivación militar, está exento de ser enjuiciado por la ley procesal de excepción, y con mayor abundamiento, si el delito está previsto y forma parte integrante del Código Penal.

Siendo, pues, el ciudadano Hernani Portocarrero extraño a la milicia nacional y por tanto de estatuto exclusivamente civil, su enjuiciamiento y condenación por Tribunales del orden militar, dada la incompetencia de éstos, fué violatorio del artículo 32, ordinal 1° (letra "b") de la Constitución Nacional que garantiza a los venezolanos la seguridad de "*no ser juzgados sino por sus jueces naturales*", y así se declara. — En cuanto a la denuncia del mismo artículo 32, en su ordinal 18 (letra "a"), su violación resulta asimismo de todo lo dicho precedentemente, ya que el enjuiciado, persona del fuero ordinario por no estar sometido a ninguno excepcional, debió ser juzgado conforme a las reglas del Código de Enjuiciamiento Criminal que son las del derecho procesal común, y no por las del Código de Justicia Militar y Naval, privativas de este fuero: razones por las cuales se declara: que el expresado ordinal 18 del artículo 32 (letra "a") también fué violado, como lo alegan los recurrentes. — pero no así el artículo 7° del Código del Procedimiento Civil, por ser insusceptible de ninguna aplicación a los fines de este recurso, en virtud de no existir colisión entre leyes de las cuales una debe aplicarse con preferencia a la otra, y no haber, por tanto, sino simples violaciones de las dos garantías constitucionales enunciadas, en la sentencia que ha sido objeto del presente recurso.

Por los fundamentos expuestos, administrando justicia por autoridad de la Ley, se declara con lugar el punto previo que se ha venido examinando; y por cuanto ha quedado establecido en él la incompetencia de los Tribunales militares que sentenciaron esta causa, de acuerdo con el artículo 233 del Código de Justicia Militar y Naval, a tenor del cual "la incompetencia de un tribunal militar será causa de nulidad de los juicios", se declara la nulidad del presente juicio seguido contra Hernani Portocarrero, sin que haya para qué entrar en las materias relativas a la forma y al fondo del recurso.

Publíquese, regístrese y devuélvase el expediente.

Dada, firmada y sellada en la Sala de Audiencias de la Corte Federal y de Casación, en el Capitolio Federal, en Caracas, a los diez días del mes de marzo de mil novecientos treinta y siete.—Años 127° de la Independencia y 79° de la Federación.

El Presidente,

R. PARPACÉN.

Vocal Ponente: R. Macsan Rodríguez -
Vocales: Pedro Arismendi Laint
Elías Calatrava.
José Ramón Ayala.
José Manuel Mejía
Maximo Barros —

En agosto de 1937, hoy de primera del Dr José Amando Mejía, en el pase seguido ante el Dr Ismael Silva Tellería, se confirmó exactamente este Auto. Es cierto que en él con Salvo el Voto el Dr Ayala.

FUNDACIÓN RAÚL y MENCA DE LEONI

ARCHIVO RAÚL LEONI OTERO
DOCUMENTOS OFICIALES
CARPETA B-155
(1971)

MEMORANDUM CONFIDENCIAL

Caracas, 8 de Noviembre de 1.971

DE : Raúl Leoni, Ex-Presidente de Acción Democrática

AL : Presidente del Comite Ejecutivo Nacional de Acción Democrática, Doctor Gonzalo Barrios.

Muy apreciado compañero y amigo:

En conocimiento de las declaraciones de prensa del Secretario General y del Jefe de la Fracción Parlamentaria de Acción Democrática donde se hace pública la posición asumida por la Dirección Nacional del Partido frente al problema representado por la violación de la inmunidad parlamentaria actualmente en discusión en el seno de las Camras Legislativas, he creído conveniente hacerles conocer la opinión que sustento sobre esta espinoza y delicada materia:

Los motines callejeros, los pronunciamientos militares, la guerrilla rural y el terrorismo urbano fueron las distintas fases de la escalada de la subversión comunista, iniciada prácticamente el mismo día en que el resultado de las urnas electorales anunciaban la derrota del Almirante W. Larrazabal.

Desde ese momento, cada día que pasaba escenificaba uno de los tantos ejercicios de violencia, característicos de la " guerra larga " decretada por el Partido Comunista y el MIR, con la notoria colaboración de numerosos miembros de Unión Republicana Democrática, contra el ordenamiento constitucional vigente y la estabilidad del gobierno legítimamente constituidos.

El Gobierno del Presidente Betancourt respondió a tal desafío con energía y firmeza, pero las acciones de la fuerza pública para lograr el objetivo perse -

guido o sea la pacificación del país, tropezaba con un tremendo obstáculo, representado por la majestad del Poder Legislativo, bajo cuya sombra protectora los parlamentarios de los partidos extremistas, organizaban y dirigían la guerra larga de la subversión comunista.

Durante casi todo su período constitucional, el Presidente Betancourt y su Gobierno hicieron gala de respeto a la Constitución y al ordenamiento jurídico en vigor, aún en las diversas oportunidades de suspensión de las garantías constitucionales.

En la memoria de todos los venezolanos estan siempre presente los desgraciados y dolorosos levantamientos armados de unidades del Ejército en Barcelona y de la Marina de Guerra en Carúpano y Puerto Cabello y de la arrogancía con que los parlamentarios extremistas en el seño de las Cámaras Legislativas y a través de las columnas de la prensa diaria, particularmente de " Tribuna Popular " , vocero oficial del Partido Comunista, asumieron la responsabilidad de tan lamentables sucesos, defendieron y aplaudieron la participación de sus copartidarios y la actuación de los oficiales desleales que habían dirigido esos alzamientos militares, reducidos después de corta pero sangrienta lucha, con doloroso saldo de daños materiales y de muertos y heridos en combate.

Los parlamentarios extremistas y sus asociados en el Congreso y en la calle, no solamente hicieron la apología de estos ejercicios de violencia contrarios a la legalidad democrática, sino que antes y después de esos sucesos fueron obcecados propagandistas, utilizando variadas formas de comunicación social y de acciones de masas, de la campaña estimuladora de la subversión comunista, dirigida no solamente a alterar la paz interior y a impedir o dificultar el ejercicio del Gobierno sino a lo que era mucho más grave aún, a destruir la forma republicana y democrática de gobierno establecida en la Constitución, todo ello de acuerdo con una Nación extranjera y para servicio del expansionismo social-imperialis-

ta, disfrazado bajo llamativas consignas demagógicas y nacionalistas.

Frente a estos hechos, el Gobierno del Presidente Betancourt ordenó instruir el correspondiente juicio militar, cuyas actuaciones fueron elevadas luego a conocimiento de la Corte Suprema de Justicia, la cual al encontrar que había méritos suficientes para la continuación de la causa remitió a la Cámara de Diputados el expediente respectivo a los fines de que ésta allanara a los diputados indiciados. No prosperó mucho este procedimiento, porque en la Cámara de Diputados constituia mayoria indiscutible la coalición integrada por los parlamentarios del Partido Comunista, del MIR y de Unión Republicana Democrática.

Así la situación, ocurrió la matanza en el tren de " El Encanto " donde perdieron la vida varios Guardias Nacionales y pacíficos ciudadanos vacacionistas, ejecutada con ensañamiento, premeditación y alevosía, crimen que no tiene explicación ni siquiera alegando la exacerbación de las pasiones producidas por la guerra fratricida, desatada por los agentes del terrorismo internacional.

Esta nueva provocación fué otra condenable manifestación de la guerra larga de la subversión comunista, dirigida, organizada y conducida por parlamentarios venezolanos, que habían convertido la inmunidad protectora del cabal e integral ejercicio de la representación popular en coraza de impunidad para poder cometer toda clase de crímenes desde el de traición a la patria y la rebelión armada al servicio de intereses de naciones o potencias enemigas hasta delitos contra las personas y contra los bienes, públicos o privados.

Fué a consecuencia de esta salvaje matanza colectiva cuando el Presidente Betancourt asume ante la historia, con la valentía que le es propia, la responsabilidad de ordenar la detención de los parlamentarios que en el Congreso Nacional eran los representantes del Partido Comunista y del MIR, excluyendo de

la medida, inteligentemente por cierto, a parlamentarios de Unión Republicana Democrática, de los cuales unos cuantos estaban comprometidos en estos ejercicios antidemocráticos.

En el fondo, la aplicación de tal medida deriva de una tesis jurídica, de muy sutil elaboración, que desde hacía algún tiempo se discutía en el seno de Acción Democrática y sobre la cual, si la memoria no me engaña, no había recaido pronunciamiento alguno, a la hora en que el Presidente Betancourt, desde el Puerto de Güiria, ordenó su pronta e inmediata ejecución.

Esa tesis perseguia poner en manos de un gobierno serio y responsable un medio para contrarrestar eficazmente la acción disolvente de los enemigos de la Nación y su regimen constitucional y democrático. Concebida como una respuesta a situaciones políticas de extrema peligrosidad, sostiene que la inmunidad no tiene por objeto proteger ni amparar a los miembros del Congreso Nacional por delitos cometidos contra la existencia misma de la Nación, especialmente cuando esos delitos tipifican los de traición a la patria, espionaje y rebelión, ejecutados de acuerdo con una nación extranjera, manifiestamente contrarios a la independencia y a la integridad del territorio nacional y al sistema republicano y democrático que constitucionalmente se ha dado la Nación.

Cuando el Gobierno del Presidente Betancourt ordenó esta medida, yo andaba por el interior de Venezuela realizando la campaña electoral que me llevó a la Presidencia de la República. Siempre y en todo momento sostuve una opinión contraria a la violación de la inmunidad parlamentaria, consagrada en el articulo 143 de la Constitución, inclusive en la situación creada cuando los delitos imputados a Senadores ó Diputados fueran de naturaleza típicamente militar, sometidos por ello mismo a la Jurisdicción de los Tribunales Militares, pero en este caso, sin embargo, me mostré de acuerdo con ella. Ello obedeció a la razón de

tratarse de una medida excepcional impuesta por circunstancias de extrema, necesidad y porque, ademas, existia un sentimiento nacional bastante generalizado que consideraba que el desaffo de la subversión comunista, representado por la continuidad de hechos constitutivos de la llamada " guerra larga ", proclamada y ejecutada por los partidos de la subversión comunista, debía ser contestado por toda clase de medios, inclusive con aquellos que pudieran implicar un transitorio desconocimiento de normas, reglas y principios de obligatorio cumplimiento. En efecto con su aplicación el fin que se buscaba era el de impedir el derrocamiento por la fuerza de un gobierno legítimamente constituido, emanado del libre ejercicio de la soberanía popular y de preservar, al mismo tiempo, la intangibilidad del sistema de vída democrático, establecido en la Constitución, aprobada sin votos salvados de ninguna de las parcialidades políticas comprometidas o alzadas en armas contra esa Constitución, la que por mandato establecido en su artículo 250 " no perderá su vigencia si dejare de observarse por acto de fuerza o fuere derogada por cualquier otro medio distinto del que ella misma dispone. En tal eventualidad, todo ciudadano investido o no de autoridad, tendrá el deber de colaborar en el restablecimiento de su efectiva vigencia". El principio de la inviolabilidad de la Constitución obliga y compromete a todos los venezolanos por igual, esten o no investidos de autoridad, pues, la violación de la Constitución puede ser cometida no solamente por el Poder Ejecutivo o Gobierno como es la regla general y como lo supone el artículo 250, sino por cualquier grupo de ciudadanos, como aparece de los hechos imputados a los parlamentarios extremistas.

Esta fué la responsabilidad que asumió el Presidente Betancourt, con la cuál cumplió con su elemental obligación presidencial de mantener el orden público y de impedir por todos los medios el derrocamiento del gobierno constitui-

do por ejercicios de violencia interna, protegidos y financiados por potencias extranjeras.

Y con ella, repito, me solidaricé plenamente, manteniendo la medida, hasta que mi leal saber y entender me aconsejó la conveniencia de dejarla sin efecto, como en efecto lo hice, en ejercicio de las facultades discrecionales que, en los juicios militares, corresponden al Presidente de la República.

Si tal fuera la naturaleza y las circunstancias que rodean el caso actualemente en discusión, no tendría la menor vacilación moral ni el menor escrúpulo jurídico en darle mi completo y total respaldo .

Ahora bien, la situación política nacional de la hora presente, vistas las reiteradas declaraciones de los más calificados personeros del gobierno, no guarda ninguna semejanza con la existente para la del día en que el Presidente Betancourt ordenó la detención militar de los parlamentarios extremistas, medida considerada siempre como necesaria e indispensable para mantener la paz interior, la estabilidad del gobierno y la del sistema democrático.

Una medida semejante, tanto ayer comp hoy, podría encontrar su justificación política y moral en ese estado de subversión o de guerra civil imperante en el país, pero su cuestionabilidad jurídica y constitucional no puede encontrar ninguna defensa fuerte ni en sutilieza hermenéuticas como esa de que el Constituyente excluyó tácitamente del fuero parlamentario a quienes incurrían en delitos sometidos a la competencia de la jurisdicción militar, ni siquiera invocando para justificar esta interpretación esa tesis jurídica, tan peregrina como arbitraria, de la llamada " autonomía del delito militar ", eco y reflejo de aquella sutileza, y con la que se pretende sostener que, cuando un civil, amparado o no por el fuero parlamentario, comete un delito tipificado, tanto en el Código Penal como en el de Justicia Militar, queda de pleno derecho so-

metido a esta última jurisdicción, aún cuando ésta no esté conociendo de ninguna causa incoada contra un militar en servicio activo o en disponibilidad ni aparezca la menor conexidad delictual ni buscándola con microscopio electrónico.

Y en este instante de la vida nacional en el que de manera notoria predomina el malestar político, el malestar económico, el malestar social, el malestar agro-pecuario, el malestar educacional y estudiantil, el malestar militar, y donde una impresionante corriente de grupos sociales antagónicos coinciden en manifestar, sin el menor recato, su aspiración y su deseo de terminar de un solo manotazo con un gobierno considerado por la generalidad de las gentes como inepto, incapaz e incompetente y en el cual solamente resalta como cualidad sobresaliente la singular virtud de haber democratizado el peculado, el tráfico de influencias y todas las formas imaginables del enriquecimiento ilícito, todos en Acción Democrática, sin excepción alguna, están conformes con que el Presidente Caldera debe terminar legal y normalmente su mandato constitucional. Nadie en Acción Democrática se pronuncia por estimular el estallido de tantos malestar propiciando ejercicios de violencia militar que pueda romper el hilo constitucional, como podría desprenderse de la conducta seguida por Acción Democrática, en una etapa crucial de la historía venezolana, cuando ella se convirtió en factor determinante y decisivo de la Revolución de Octubre, cuyas progresistas consecuencias trata de borrar radicalmente la política del gobierno copeyano. Como se vé al alegar consecuencias con pasadas líneas de conducta no conduce a nada positivo, así como el hilar demasiado finamente con el fin de defender una determinada posición, adoptada con propósitos desconocidos, nos lleva fatalmente a terminar enredados en una manea entrabadora de la acción independiente dirigida a la consecución de objetivos propios, mientras facilita, por el

contrario, el fácil logro de los perseguidos por el enemigo de siempre.

Yo, que como Presidente de la República, veo mi responsabilidad personal e histórica, doblemente comprometida por haber mantenido por largo tiempo la medida ordenada por el Presidente Betancourt, la cual también se aplicó, en algunos casos, bajo mi administración, me pronuncio pura y simplemente para considerar que los gobiernos del decenio democrático sí violaron ka inmunidad parlamentaria establecida en el artículo 143 de la Constitución, hecho impuesto por la extrema necesidad de mantener el órden público, la estabilidad del gobierno y la inviolabilidad de la constitución. Por razones similares considero que cuando los principios fundamentales sobre los cuales descansa nuestro sistema de vida democrático, a pesar de su carácter obligatorio, están amenazados por ejercicios de violencia, desde el terrorismo urbano y la guerrilla rural hasta la rebelión militar, el mandatario responsable debe arriesgarse a aparecer ante la historía y la justicia de los hombres como alguien que prefirió violar normas constitucionales de ineludible observancia antes que entregar el Poder, ganado en limpia y honesta contienda electoral, a los alzados en armas contra la legalidad democrática y el orden constitucional. Y fué precisamente por prever la ocurrencia de situaciones similares y la necesidad de preservar un instrumento político de tan peligrosos alcances - y no para eludir responsabilidades que nunca rehuzo-, lo que me llevó cuando la Corte Suprema de Justicia dijo " vistos " en el expediente del juicio contra los parlamentarios extremistas, a decretar la suspensión o el sobreseimiento del mismo, de manera que la Corte no tuviera materia sobre qué decidir. El problema de la inmunidad parlamentaria está de nuevo haciendo su carrera hasta llegar a los estrados de la Corte Suprema de Justicia, la que otra vez tendrá sobre su conciencia la responsabilidad de decidir conforme a derecho.

La Dirección Nacional de Acción Democrática ha comprometido ya su respaldo moral y su solidario apoyo político a las medidas que el Presidente Caldera y su Partido han puesto en marcha con el propósito, según se dice en la calle, de desmantelar el poderío económico y el imperio editorial que, de mala manera, había logrado constituir el Senador Miguel Angel Capriles, hasta hace poco buen aliado del Presidente Caldera quien, esponjado de satisfacción, entró a la Casa de los Presidentes de Venezuela llevando, con visible orgullo, del brazo derecho a Marcos Perez Jiménez y del brazo izquierdo a Miguel Angel Capriles. Los votos del prófugo del 23 de Enero y las campañas publicitarias de los organos de comunicación de masas de Miguel Angel Capriles, fueron los factores determinantes de la dudosa y discutible victoria electoral del hoy Presidente de la República. Permítaseme manifestarles que dudo mucho que de la liquidación del imperio periodístico o del poderío económico de Miguel Angel Capriles le pueda quedar a Acción Democrática siquiera unas cuantas migajas irrisorias, en lo que, por lo demás, ésta ni las busca ni en ello tiene interés alguno. No tengo la menor duda de que este nuevo respaldo solidario, como tantos anteriores, será una de las mejores contribuciones, gratuitas por lo demás y valga esto en favor de la elevación de miras y de la honestidad de propósitos de la Dirección Nacional, a la permanencia del Copey en el ejercicio del Gobierno de Venezuela, el cual cada día se va alejando más de los ideales democráticos, nacionalistas y revolucionarios de Acción Democrática.

El único ganador en este discutido asunto donde, a mi juicio, quedan bastante comprometidas la moral política y las reglas del juego democrático, será el Presidente Caldera y su Partido Copey, quienes por si mismos o por interpósita persona pueden llegar a usufructar en cualquier forma el imperio económico de Miguel Angel Capriles y a controlar, directa o indirectamente, los periodi-

cos y revistas de la Cadena Capriles, de manera que la indiscutible influencia que sobre amplias capas de la población ejerce su vasta circulación se volcará a favor del Gobierno y su partido, así esto sea en forma de total neutralidad política. El Gobierno y el Copey disponen de medios y recursos suficientes para lograr esta voltereta, que en nada beneficiará a Acción Democrática, pues ahora su enemigo de ayer, y de hoy, se volverá más rencoroso y enconado.

Con esta somera exposición, desprovista de ingenio, sutilezas y galas literarias, me libero de cualquier sombra de responsabilidad ante una decisión que considero políticamente desacertada, de la que me hubiera visto obligado a disentir públicamente si estuviera asistiendo al Senado de la República o compartiendo responsabilidades en la conducción de Acción Democrática.

La filosofía propia, la independencia organizativa y la autonomía de acción, son características celosamente defendidas por cualquier partido popular, y las cuales procura ratificar y realzar en cuanta oportunidad se presente. Empero, lo que ningun partido popular estaría dispuesto a consentir, particularmente cuando está honestamente convencido de que todavía no ha periclitado la función transformadora de la realidad que le corresponde realizar en la sociedad donde actua, es que se le pueda contemplar como un partido cansado y derrotado de antemano, uncido al carro victorioso del partido que mañosamente lo desalojó del Poder.

El Presidente del Partido puede hacer de este Memorandum el uso que considerare más conveniente a los intereses del Partido.

Con toda consideración y aprecio y con saludos de compañero y amigo, me despido de Usted con nuestra consigna de siempre: Por una Venezuela libre y de los Venezolanos,