

Anexos

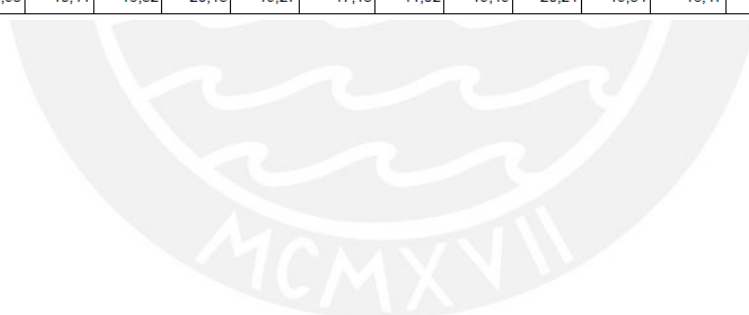
Diana Stephanie Martell Rosas

Anexos

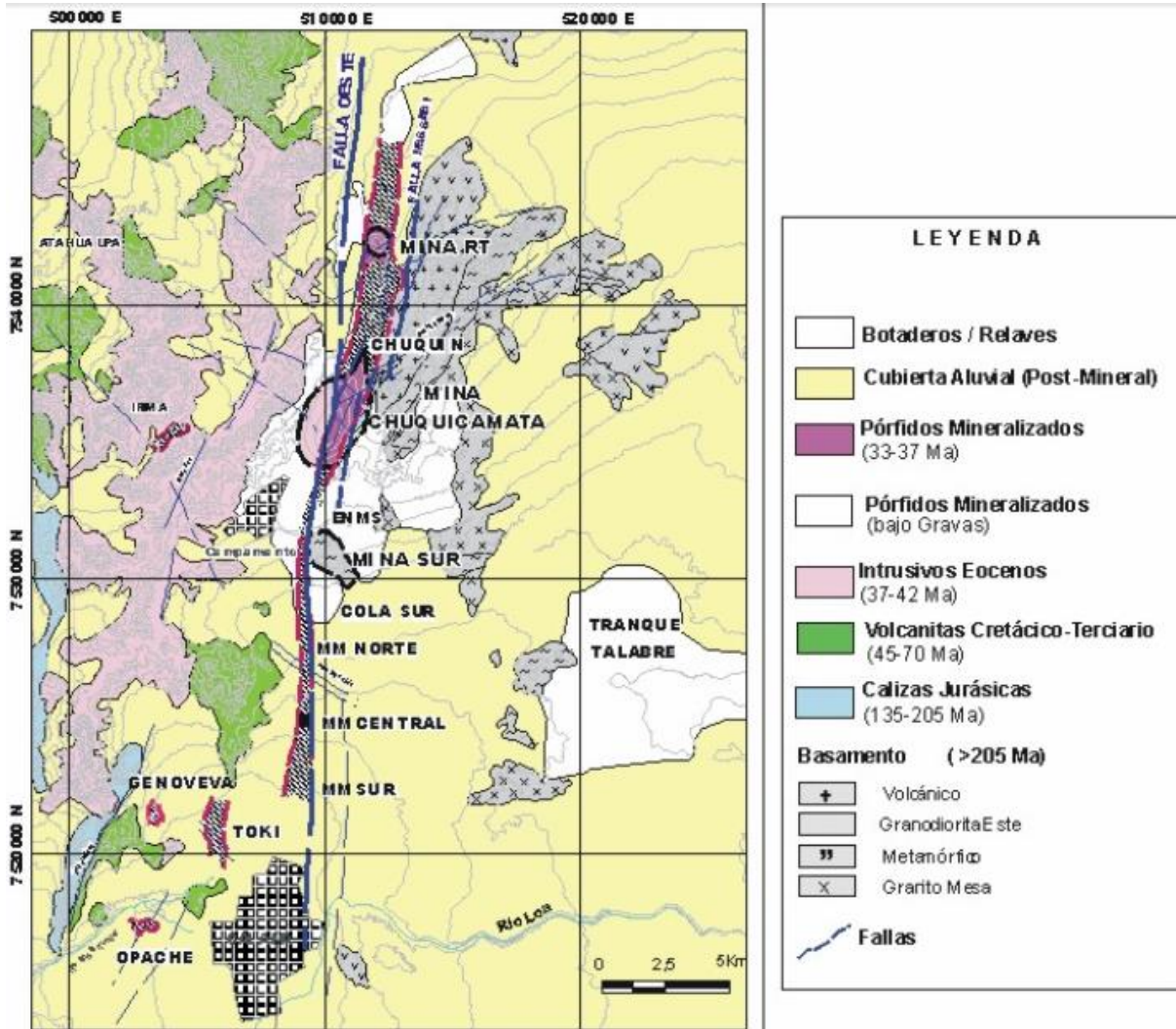
Anexo 01 - Reservas Certificadas	2
Anexo 02 - Despósitos del distrito Codelco Norte	3
Anexo 03 - Sistema de Falla Domeyko.....	4
Anexo 04 - Curva de Kvapil que relaciona diámetro del elipsoide de extracción con la altura de extracción	5
Anexo 05 - Diagrama de flujo para determinar el Radio del Elipsoide de Extracción	6
Anexo 06 - Distribución Triangular Tangente.....	7
Anexo 07 - Distribución Triangular Traslapada Total	8
Anexo 08 - Distribución Mixta Tangente	9
Anexo 09 - Diseño de Malla Cuadrada	10
Anexo 10 - Diseño de Malla Tipo Teniente	11
Anexo 11 - Diseño de Malla Tipo Henderson.....	12
Anexo 12 - Corte transversal modelo de bloques, pit final año 2018.....	13
Anexo 13 - Dominios Geotécnicos Nivel 1841	14
Anexo 14 - Porcentaje de confiabilidad de los niveles de explotación – Ingeniería Básica ..	15
Anexo 15 - Detalle de los puntos de extracción incorporados.....	16
Anexo 16 – Perfil del Slice File para el Nivel 1841	19
Anexo 17 – Ejes para la Curva de la Mezcla de Laubscher	20
Anexo 18 – Reporte detallado del Best Hod de algunos puntos incorporados	21
Anexo 19 – Secuencia por Macro Bloque productivo.....	22
Anexo 20 – Hoja Table: Metas del Plan Productivo	23
Anexo 21 – Hoja Detail	24
Anexo 22 – Tonelaje por Macro Bloque y año	25
Anexo 23 – Leyes por Macro Bloque y año	26
Anexo 24 – Evaluación Económica Caso 1	27

ANEXO 01 - RESERVAS CERTIFICADAS

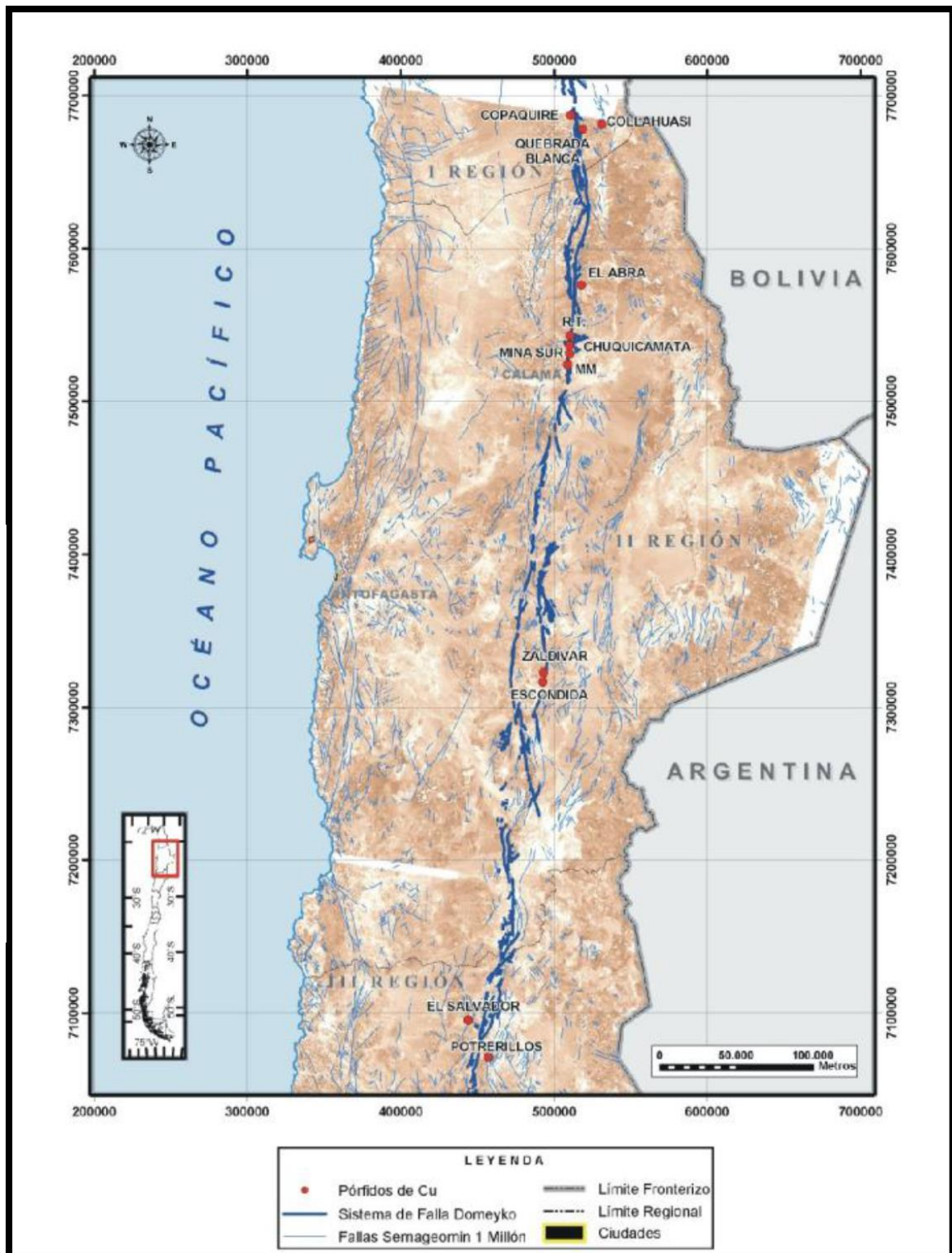
Atributo	Unidad	PLAN CAPACIDAD MÍNIMA, 100 KTPD					PLAN CAPACIDAD MEDIA, 120 KTPD					PLAN CAPACIDAD MÁXIMA, 140 KTPD				
		Total	Niveles de Explotación				Total	Niveles de Explotación				Total	Niveles de Explotación			
			Nv 1841	Nv 1625	Nv 1409	Nv 1193		Nv 1841	Nv 1625	Nv 1409	Nv 1193		Nv 1841	Nv 1625	Nv 1409	Nv 1193
Probadas	Mt	130	112	18	0	0	142	123	18	0	0	133	115	18	0	0
Probables	Mt	320	162	121	37	0	352	187	128	37	0	346	185	125	36	0
R Minerales	Mt	889	106	178	288	318	927	140	184	287	316	921	138	182	284	317
In Situ	Mt	1.339	380	317	324	318	1.420	450	331	323	316	1.400	438	325	320	317
Quebrado	Mt	273	44	71	82	76	294	56	80	82	76	276	47	74	78	77
Total	Mt	1.612	424	388	406	394	1.714	506	411	405	392	1.676	484	399	398	394
Área	m2	2.386.000	553.600	607.200	610.800	614.400	2.472.400	630.400	616.800	610.800	614.400	2.472.400	630.400	616.800	610.800	614.400
Ley CuT	%	0,717	0,899	0,700	0,632	0,625	0,712	0,864	0,686	0,632	0,624	0,714	0,872	0,692	0,635	0,623
Ley Mo	ppm	511	634	529	459	415	497	579	514	459	414	499	583	521	460	413
Ley As	ppm	466	557	481	423	398	456	515	470	423	397	460	524	477	425	397
R Probadas	%	8,08	26,45	4,65	0,00	0,00	8,26	24,35	4,46	0,00	0,00	7,93	23,68	4,55	0,00	0,00
R Probables	%	19,84	38,20	31,21	9,03	0,01	20,51	36,95	31,14	9,03	0,02	20,66	38,15	31,36	9,08	0,03
R Posibles	%	55,15	24,93	45,82	70,82	80,72	54,10	27,68	44,90	70,76	80,64	54,95	28,52	45,59	71,35	80,33
Quebrado	%	16,93	10,41	18,32	20,15	19,27	17,13	11,02	19,49	20,21	19,34	16,47	9,65	18,50	19,57	19,64



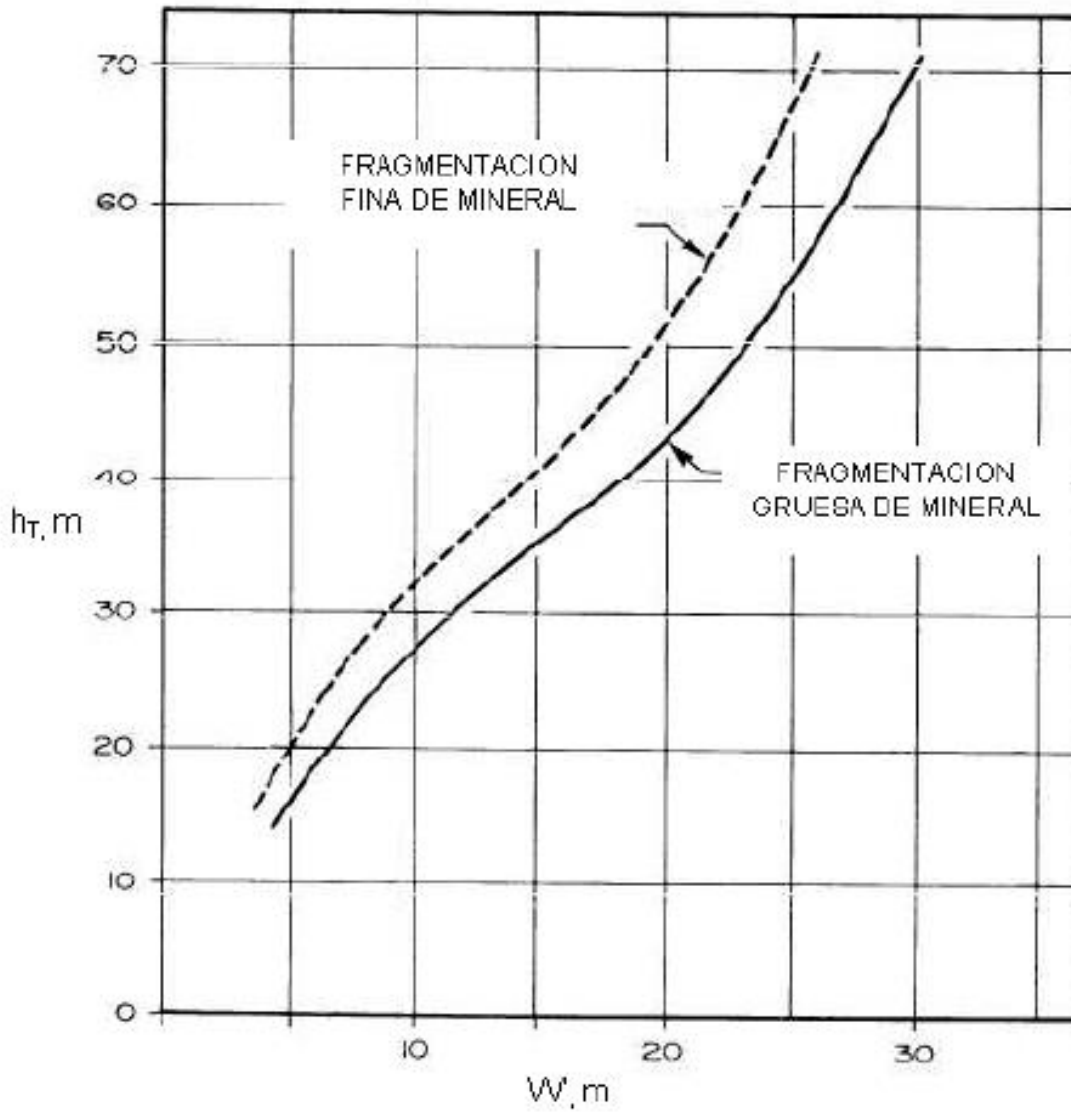
ANEXO 02 - DESPÓSITOS DEL DISTRITO CODELCO NORTE



ANEXO 03 - SISTEMA DE FALLA DOMEYKO

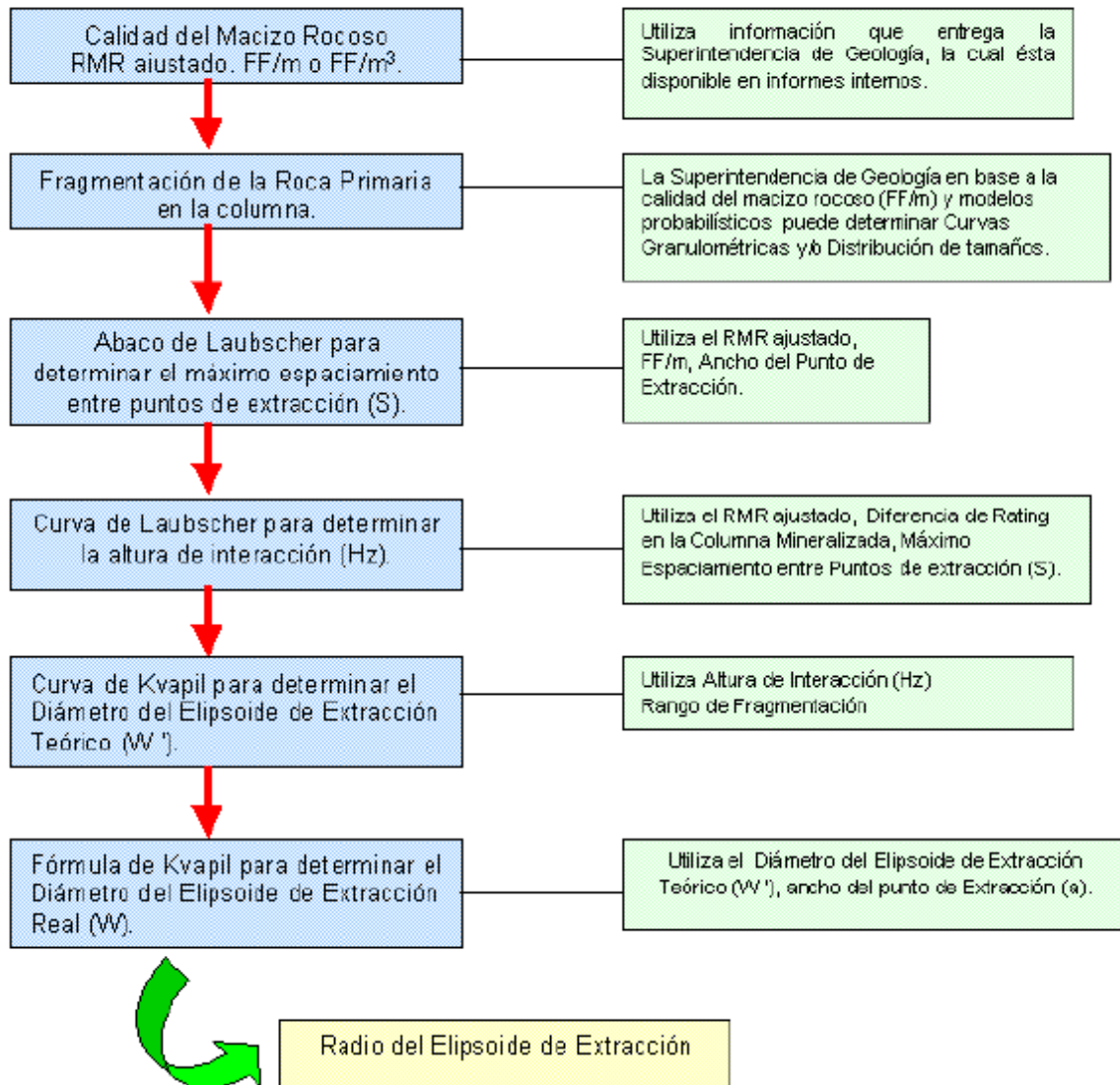


ANEXO 04 - CURVA DE KVAPIL QUE RELACIONA DIÁMETRO DEL ELIPSOIDE DE EXTRACCIÓN CON LA ALTURA DE EXTRACCIÓN



ANEXO 05 - DIAGRAMA DE FLUJO PARA DETERMINAR EL RADIO DEL ELIPSOIDE DE EXTRACCIÓN

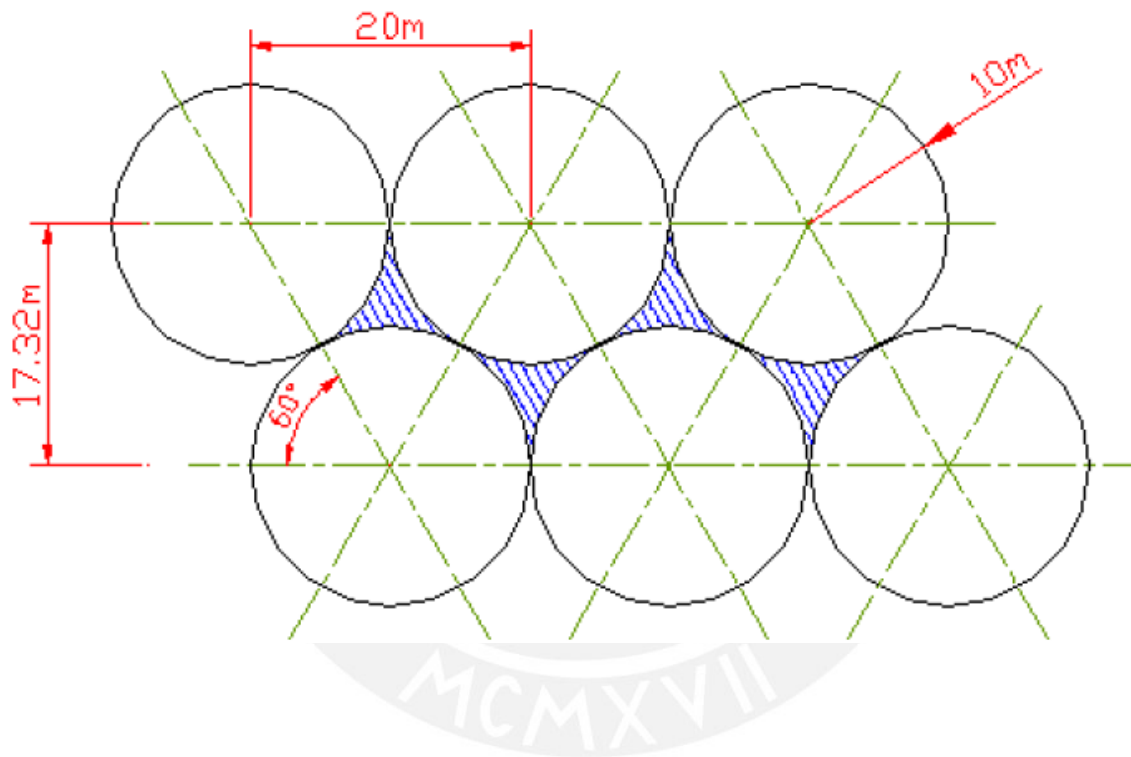
DETERMINACION DEL RADIO DEL ELIPSOIDE DE EXTRACCIÓN



ANEXO 06 - DISTRIBUCIÓN TRIANGULAR TANGENTE

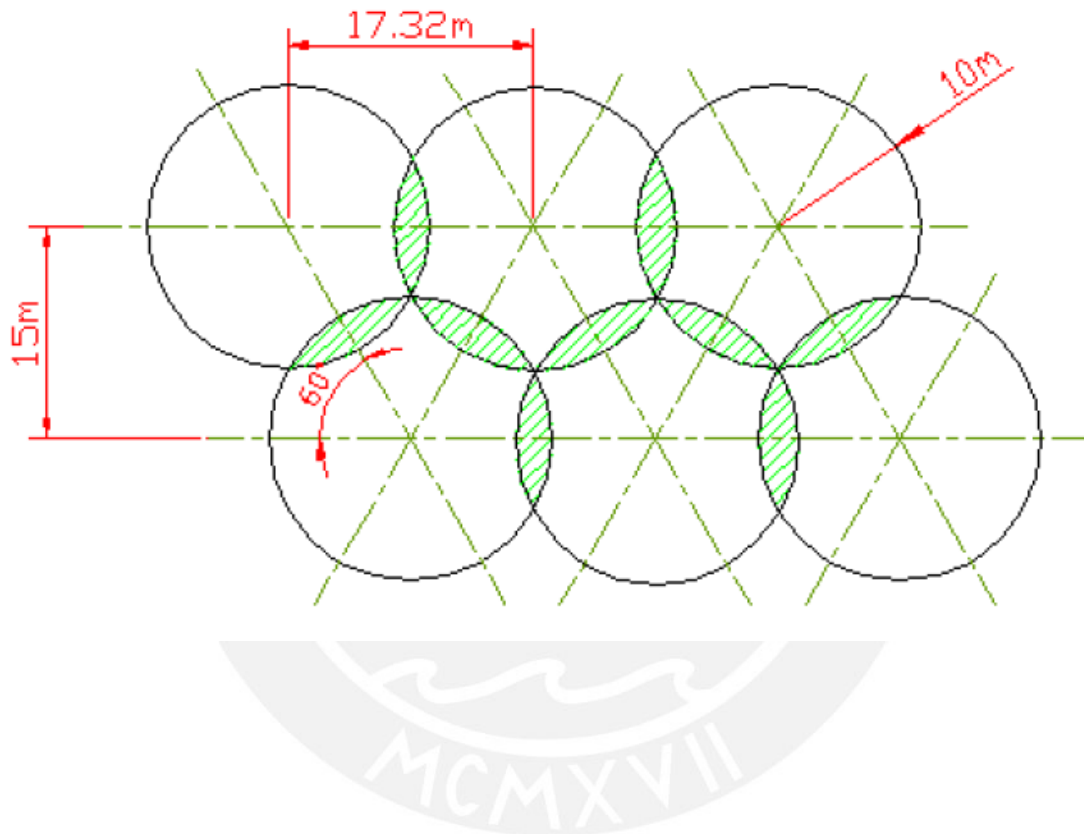
CONFIGURACION TRIANGULAR TANGENTE

17.32x20.00m 346.4m²



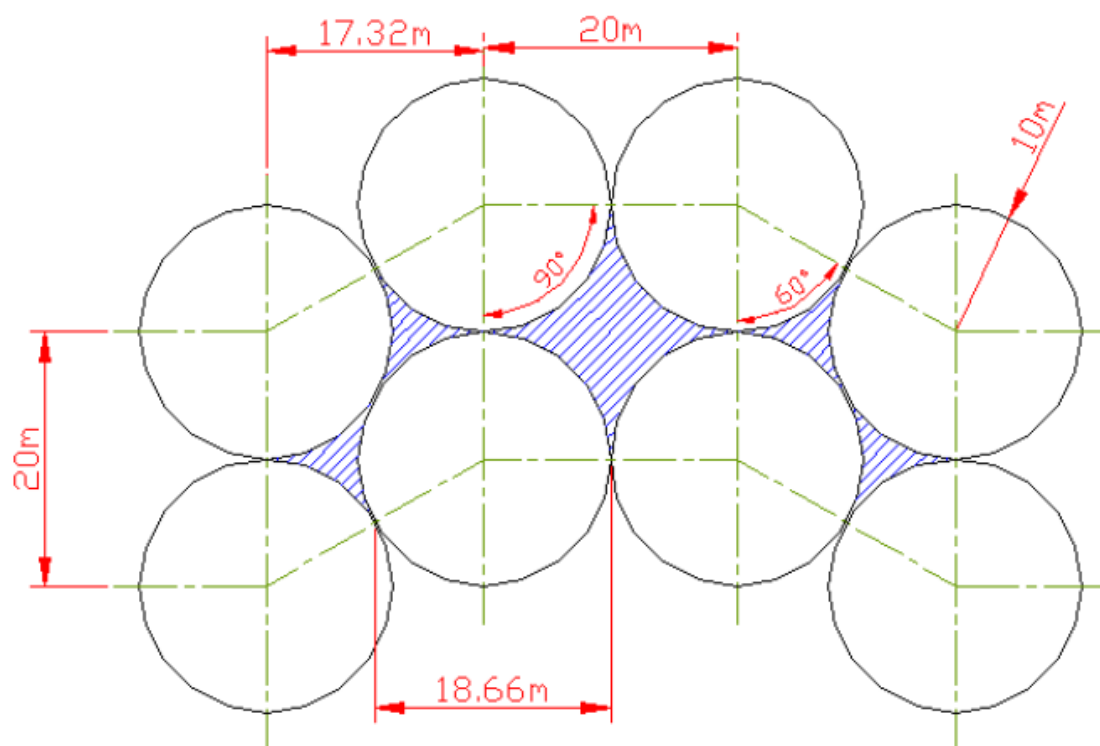
ANEXO 07 - DISTRIBUCIÓN TRIANGULAR TRASLAPADA TOTAL

CONFIGURACION TRIANGULAR TRASLAPADA TOTAL
15.00x17.32m 259.8m²



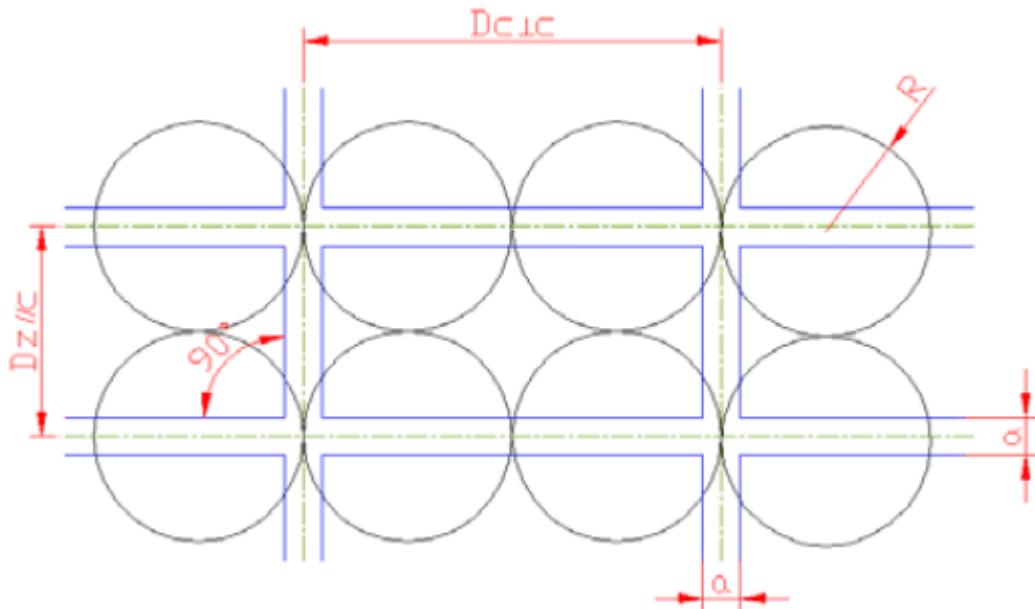
ANEXO 08 - DISTRIBUCIÓN MIXTA TANGENTE

CONFIGURACION MIXTA TANGENTE

18.66x20.00m 373.2m²

MCMXVII

ANEXO 09 - DISEÑO DE MALLA CUADRADA



Donde:

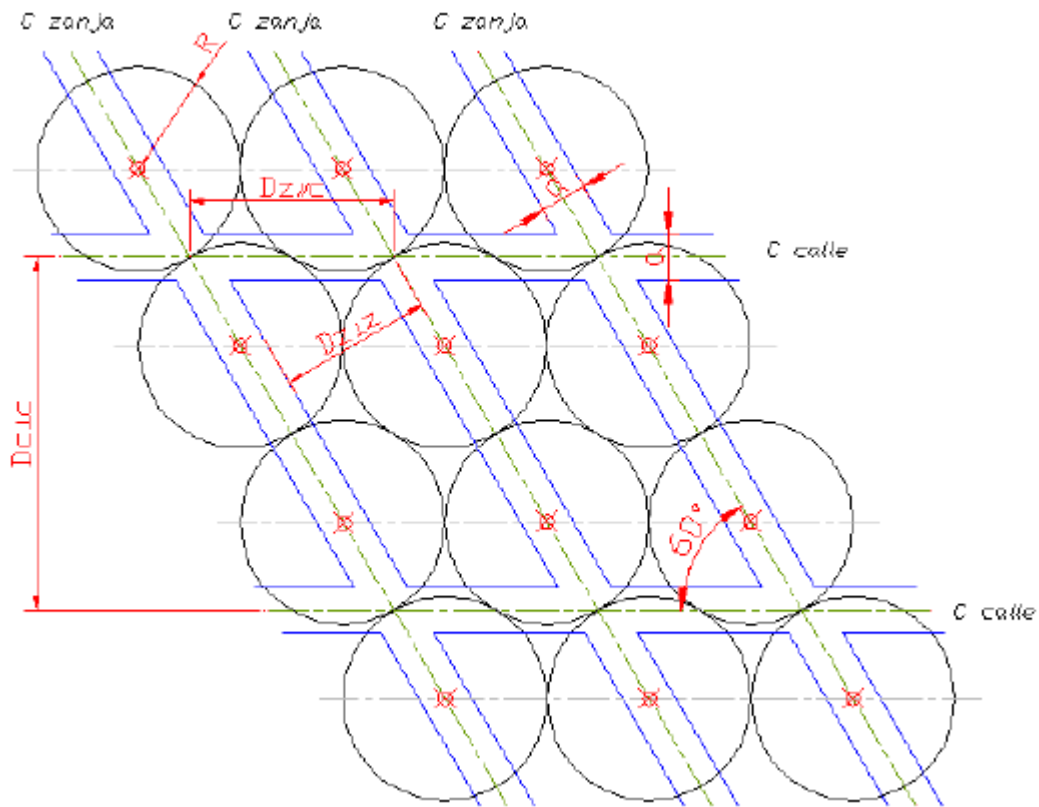
R: Radio del Elipsoide de Extracción

$D_{c/c}$: Distancia entre Calles de Producción

$D_{z/c}$: Distancia entre Galerías Zanjas

a: Ancho de Calles de Producción y de Galerías Zanjas

ANEXO 10 - DISEÑO DE MALLA TIPO TENIENTE



Donde:

R: Radio del Elipsoide de Extracción.

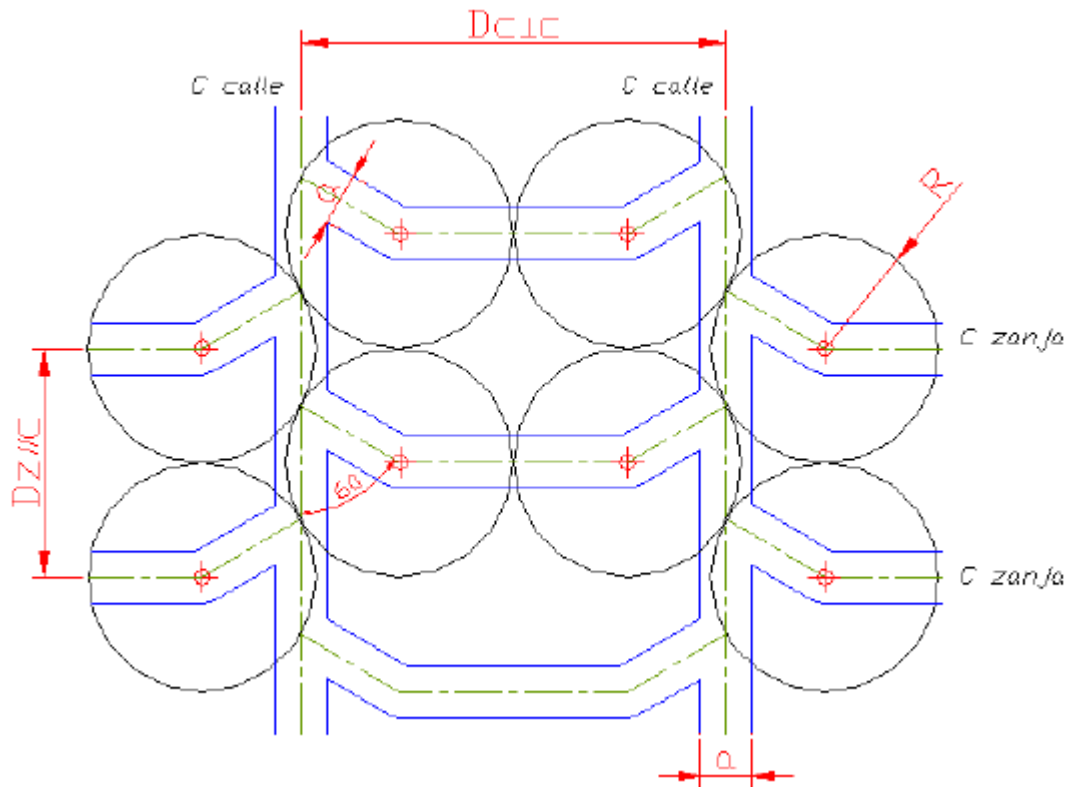
$D_{C\perp C}$: Distancia entre Calles de Producción, medida perpendicularmente entre calles.

$D_{Z\parallel C}$: Distancia entre Galerías Zanjas, medida paralelamente a las calles.

$D_{Z\perp Z}$: Distancia entre Zanjas, medida perpendicularmente entre zanjas.

a: Ancho de Calles de Producción y de Galerías Zanjas

ANEXO 11 - DISEÑO DE MALLA TIPO HENDERSON



Donde:

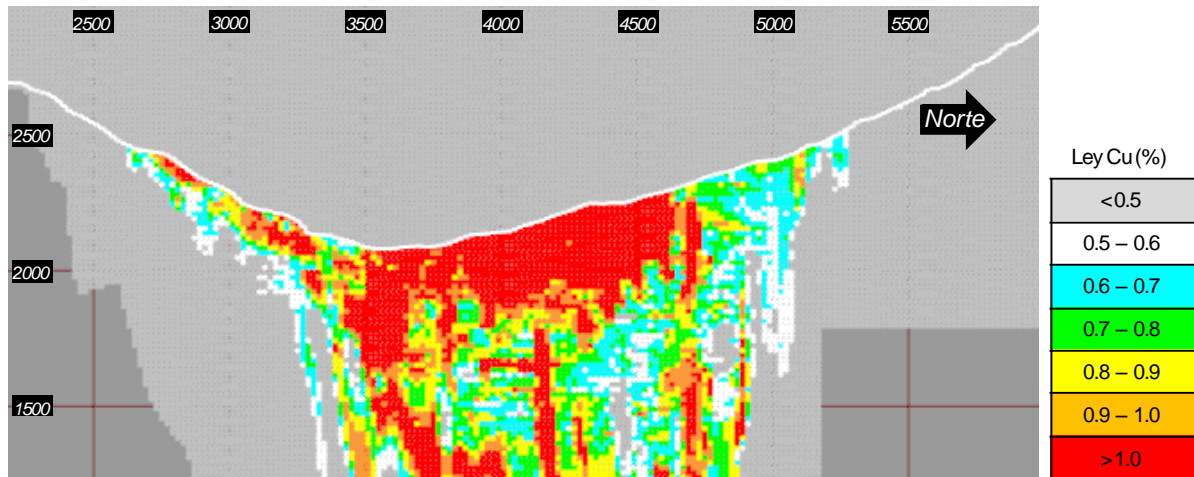
R: Radio del Elipsoide de Extracción

$D_{C\pm C}$: Distancia entre Calles de Producción

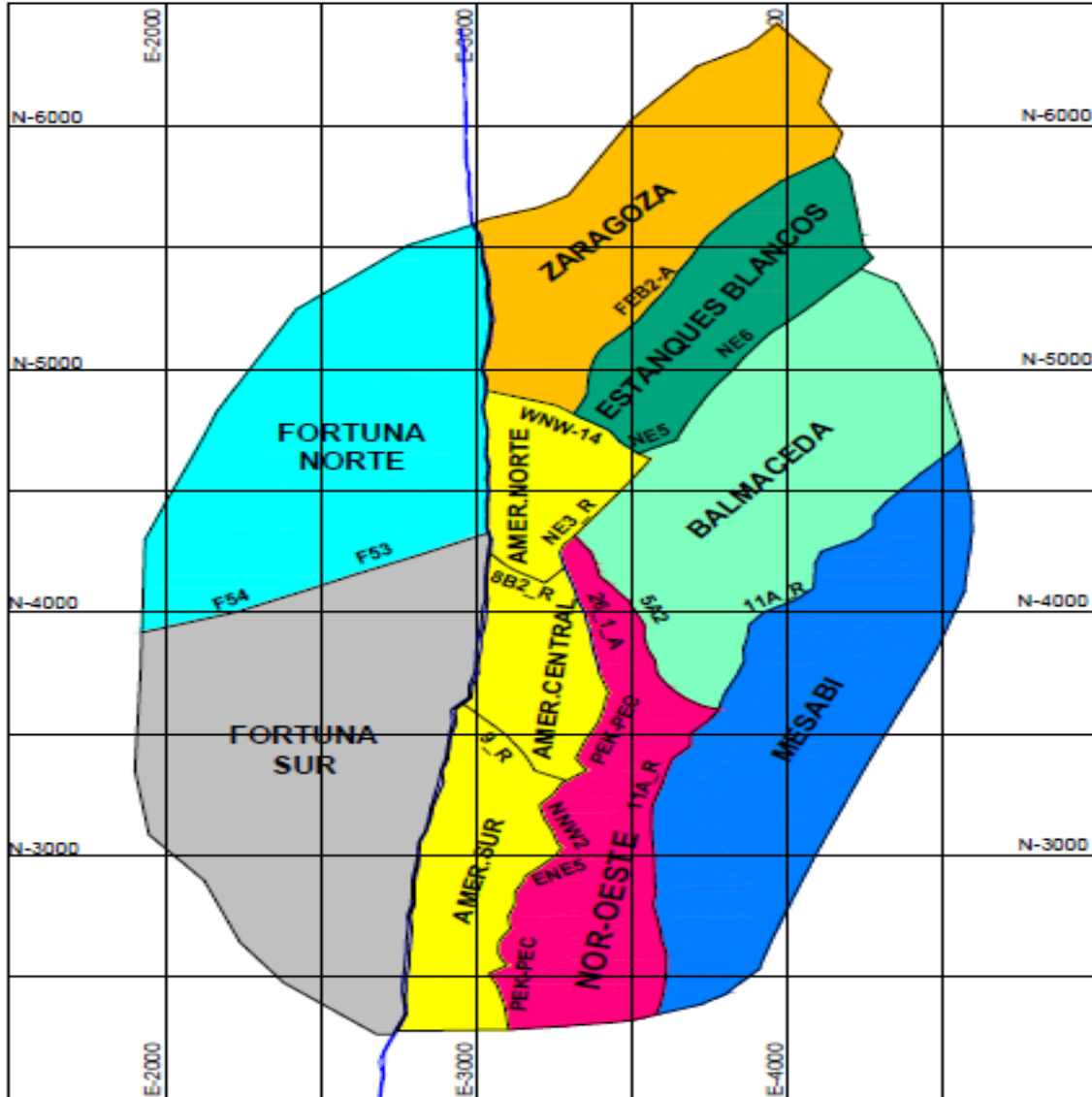
$D_{Z/\pm C}$: Distancia entre Galerías Zanjas

a: Ancho de las Galerías

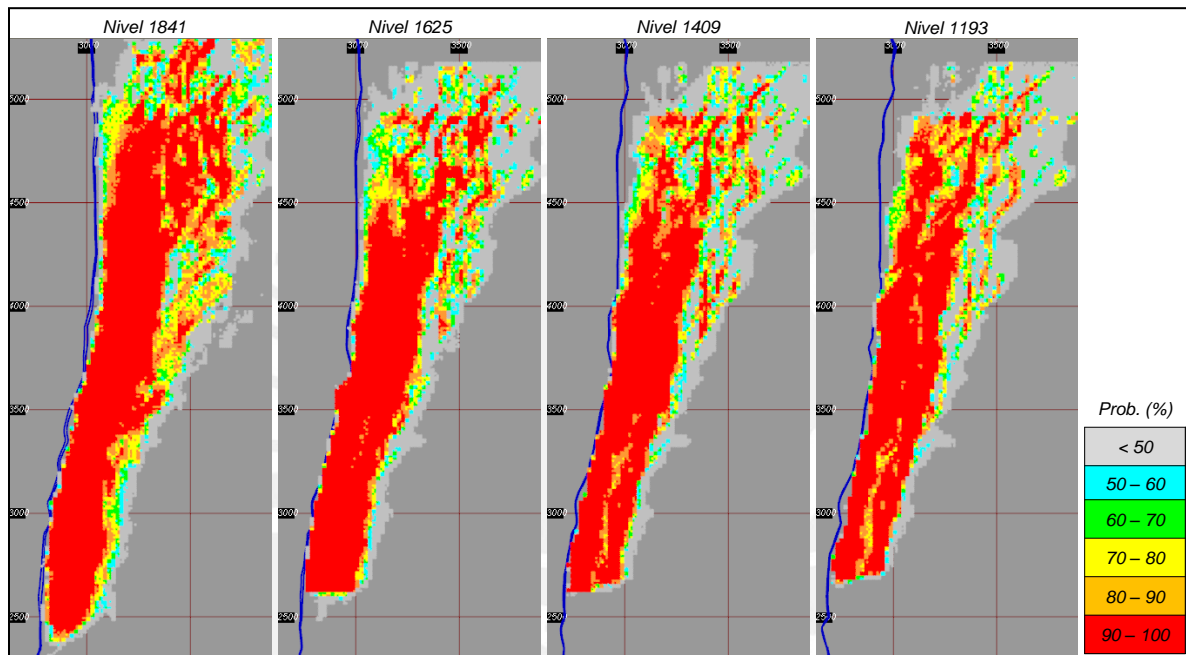
ANEXO 12 - CORTE TRANSVERSAL MODELO DE BLOQUES, PIT FINAL AÑO 2018



ANEXO 13 - DOMINIOS GEOTÉCNICOS NIVEL 1841



ANEXO 14 - PORCENTAJE DE CONFIABILIDAD DE LOS NIVELES DE EXPLOTACIÓN –
INGENIERÍA BÁSICA



ANEXO 15 - DETALLE DE LOS PUNTOS DE EXTRACCIÓN INCORPORADOS

1	0	0	0		1	0	0	0	
9433					9433				
N1S0502S21	2916.551	3138.301	1841	9141	N1S0301N21	2951.384	3441.699	1841	9082
N1S0503N22	2901.876	3189.699	1841	9142	N1S0301N22	2966.384	3441.699	1841	9083
N1S0503N23	2916.876	3189.699	1841	9143	N1S0301N23	2981.384	3441.699	1841	9084
N1S0503N24	2931.876	3189.699	1841	9144	N1S0301S20	2947.584	3422.301	1841	9085
N1S0503S21	2883.076	3170.301	1841	9145	N1S0301S21	2962.584	3422.301	1841	9086
N1S0503S22	2898.076	3170.301	1841	9146	N1S0301S22	2977.584	3422.301	1841	9087
N1S0503S23	2913.076	3170.301	1841	9147	N1S0302N24	2947.909	3473.699	1841	9088
N1S0504N23	2898.401	3221.699	1841	9148	N1S0302N25	2962.909	3473.699	1841	9089
N1S0504N24	2913.401	3221.699	1841	9149	N1S0302N26	2977.909	3473.699	1841	9090
N1S0504N25	2928.401	3221.699	1841	9150	N1S0302S22	2944.109	3454.301	1841	9091
N1S0504S23	2894.601	3202.301	1841	9151	N1S0302S23	2959.109	3454.301	1841	9092
N1S0504S24	2909.601	3202.301	1841	9152	N1S0302S24	2974.109	3454.301	1841	9093
N1S0504S25	2924.601	3202.301	1841	9153	N1S0303N25	2974.433	3505.699	1841	9094
N1S0601N19	2850.048	2967.699	1841	9154	N1S0303N26	2989.433	3505.699	1841	9095
N1S0601N20	2865.048	2967.699	1841	9155	N1S0303N27	3004.433	3505.699	1841	9096
N1S0601N21	2880.048	2967.699	1841	9156	N1S0303S24	2955.633	3486.301	1841	9097
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N1S0601S19	2861.248	2948.301	1841	9158	N1S0303S26	2985.633	3486.301	1841	9099
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N1S0602N21	2861.573	2999.699	1841	9161	N1S0304N28	3000.958	3537.699	1841	9102
N1S0602N22	2876.573	2999.699	1841	9162	N1S0304S26	2967.158	3518.301	1841	9103
N1S0602S19	2857.773	2980.301	1841	9163	N1S0304S27	2982.158	3518.301	1841	9104
N1S0602S20	2872.773	2980.301	1841	9164	N1S0304S28	2997.158	3518.301	1841	9105
N1S0602S21	2887.773	2980.301	1841	9165	N1S0401N20	2922.605	3283.699	1841	9106
N1S0603N21	2858.097	3031.699	1841	9166	N1S0401N21	2937.605	3283.699	1841	9107
N1S0603N22	2873.097	3031.699	1841	9167	N1S0401N22	2952.605	3283.699	1841	9108
N1S0603N23	2888.097	3031.699	1841	9168	N1S0401S20	2918.805	3264.301	1841	9109
N1S0603S20	2854.297	3012.301	1841	9169	N1S0401S21	2933.805	3264.301	1841	9110
N1S0603S21	2869.297	3012.301	1841	9170	N1S0401S22	2948.805	3264.301	1841	9111
N1S0603S22	2884.297	3012.301	1841	9171	N1S0402N22	2919.13	3315.699	1841	9112
N1S0604N22	2854.622	3063.699	1841	9172	N1S0402N23	2934.13	3315.699	1841	9113
N1S0604N23	2869.622	3063.699	1841	9173	N1S0402N24	2949.13	3315.699	1841	9114
N1S0604N24	2884.622	3063.699	1841	9174	N1S0402S21	2915.33	3296.301	1841	9115
N1S0604S22	2850.822	3044.301	1841	9175	N1S0402S22	2930.33	3296.301	1841	9116
N1S0604S23	2865.822	3044.301	1841	9176	N1S0402S23	2945.33	3296.301	1841	9117
N1S0604S24	2880.822	3044.301	1841	9177	N1S0403N23	2930.655	3347.699	1841	9118
N1S0701N21	2821.269	2809.699	1841	9178	N1S0403N24	2945.655	3347.699	1841	9119
N1S0701N22	2836.269	2809.699	1841	9179	N1S0403N25	2960.655	3347.699	1841	9120
N1S0701N23	2851.269	2809.699	1841	9180	N1S0403S22	2926.855	3328.301	1841	9121
N1S0701S20	2817.469	2790.301	1841	9181	N1S0403S23	2941.855	3328.301	1841	9122
N1S0701S21	2832.469	2790.301	1841	9182	N1S0403S24	2956.855	3328.301	1841	9123
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N1S0702N24	2847.794	2841.699	1841	9186	N1S0404S23	2923.379	3360.301	1841	9127
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N1S0702S22	2843.994	2822.301	1841	9188	N1S0404S25	2953.379	3360.301	1841	9129
N1S0702S23	2858.994	2822.301	1841	9189	N1S0501N19	2893.826	3125.699	1841	9130
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N1S0703S22	2825.519	2854.301	1841	9193	N1S0501S19	2905.026	3106.301	1841	9134
N1S0703S23	2840.519	2854.301	1841	9194	N1S0501S20	2920.026	3106.301	1841	9135
N1S0703S24	2855.519	2854.301	1841	9195	N1S0502N21	2890.351	3157.699	1841	9136
N1S0704N24	2825.843	2905.699	1841	9196	N1S0502N22	2905.351	3157.699	1841	9137
N1S0704N25	2840.843	2905.699	1841	9197	N1S0502N23	2920.351	3157.699	1841	9138
N1S0704N26	2855.843	2905.699	1841	9198	N1S0502S19	2886.551	3138.301	1841	9139
N1S0704S24	2822.043	2886.301	1841	9199	N1S0502S20	2901.551	3138.301	1841	9140

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N1S0801N19	2852.49	2651.699	1841	9204	
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N1S0801S18	2848.69	2632.301	1841	9207	
N1S0802N19	2819.015	2683.699	1841	9208	
N1S0802N20	2834.015	2683.699	1841	9209	
N1S0802N21	2849.015	2683.699	1841	9210	
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N1S0802S19	2830.215	2664.301	1841	9212	
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N1S0804N22	2814.065	2747.699	1841	9220	
N1S0804N23	2829.065	2747.699	1841	9221	
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N1N3201S14	3593.08	4182.301	1841	9248	
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N1N3201S16	3623.08	4182.301	1841	9250	
N1N3201S17	3638.08	4182.301	1841	9251	
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N1N3202N04	3472.755	4233.699	1841	9253	
N1N3202N05	3487.755	4233.699	1841	9254	
N1N3202N06	3502.755	4233.699	1841	9255	
N1N3202N07	3517.755	4233.699	1841	9256	
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N1N3202N09	3547.755	4233.699	1841	9258	
N1N3202N10	3562.755	4233.699	1841	9259	

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9433					
N1N3202N11	3577.755	4233.699	1841	9260	
N1N3202N12	3592.755	4233.699	1841	9261	
N1N3202N13	3607.755	4233.699	1841	9262	
N1N3202N14	3622.755	4233.699	1841	9263	
N1N3202N15	3637.755	4233.699	1841	9264	
N1N3202S04	3461.555	4214.301	1841	9265	
N1N3202S05	3476.555	4214.301	1841	9266	
N1N3202S06	3491.555	4214.301	1841	9267	
N1N3202S07	3506.555	4214.301	1841	9268	
N1N3202S08	3521.555	4214.301	1841	9269	
N1N3202S09	3536.555	4214.301	1841	9270	
N1N3202S10	3551.555	4214.301	1841	9271	
N1N3202S11	3566.555	4214.301	1841	9272	
N1N3202S12	3581.555	4214.301	1841	9273	
N1N3202S13	3596.555	4214.301	1841	9274	
N1N3202S14	3611.555	4214.301	1841	9275	
N1N3202S15	3626.555	4214.301	1841	9276	
N1N3202S16	3641.555	4214.301	1841	9277	
N1N3203N02	3476.231	4265.699	1841	9278	
N1N3203N03	3491.231	4265.699	1841	9279	
N1N3203N04	3506.231	4265.699	1841	9280	
N1N3203N05	3521.231	4265.699	1841	9281	
N1N3203N06	3536.231	4265.699	1841	9282	
N1N3203N07	3551.231	4265.699	1841	9283	
N1N3203N08	3566.231	4265.699	1841	9284	
N1N3203N09	3581.231	4265.699	1841	9285	
N1N3203N10	3596.231	4265.699	1841	9286	
N1N3203N11	3611.231	4265.699	1841	9287	
N1N3203N12	3626.231	4265.699	1841	9288	
N1N3203N13	3641.231	4265.699	1841	9289	
N1N3203N14	3656.231	4265.699	1841	9290	
N1N3203S03	3465.031	4246.301	1841	9291	
N1N3203S04	3480.031	4246.301	1841	9292	
N1N3203S05	3495.031	4246.301	1841	9293	
N1N3203S06	3510.031	4246.301	1841	9294	
N1N3203S07	3525.031	4246.301	1841	9295	
N1N3203S08	3540.031	4246.301	1841	9296	
N1N3203S09	3555.031	4246.301	1841	9297	
N1N3203S10	3570.031	4246.301	1841	9298	
N1N3203S11	3585.031	4246.301	1841	9299	
N1N3203S12	3600.031	4246.301	1841	9300	
N1N3203S13	3615.031	4246.301	1841	9301	
N1N3203S14	3630.031	4246.301	1841	9302	
N1N3203S15	3645.031	4246.301	1841	9303	
N1N3204N01	3464.706	4297.699	1841	9304	
N1N3204N02	3479.706	4297.699	1841	9305	
N1N3204N03	3494.706	4297.699	1841	9306	
N1N3204N04	3509.706	4297.699	1841	9307	
N1N3204N05	3524.706	4297.699	1841	9308	
N1N3204N06	3539.706	4297.699	1841	9309	
N1N3204N07	3554.706	4297.699	1841	9310	
N1N3204N08	3569.706	4297.699	1841	9311	
N1N3204N09	3584.706	4297.699	1841	9312	
N1N3204N10	3599.706	4297.699	1841	9313	
N1N3204N11	3614.706	4297.699	1841	9314	
N1N3204N12	3629.706	4297.699	1841	9315	
N1N3204N13	3644.706	4297.699	1841	9316	
N1N3204S02	3468.506	4278.301	1841	9317	
N1N3204S03	3483.506	4278.301	1841	9318	
N1N3204S04	3498.506	4278.301	1841	9319	

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9433				
N1N3204S05	3513.506	4278.301	1841	9320
N1N3204S06	3528.506	4278.301	1841	9321
N1N3204S07	3543.506	4278.301	1841	9322
N1N3204S08	3558.506	4278.301	1841	9323
N1N3204S09	3573.506	4278.301	1841	9324
N1N3204S10	3588.506	4278.301	1841	9325
N1N3204S11	3603.506	4278.301	1841	9326
N1N3204S12	3618.506	4278.301	1841	9327
N1N3204S13	3633.506	4278.301	1841	9328
N1N3204S14	3648.506	4278.301	1841	9329
N1N2201N04	3438.059	4043.699	1841	9330
N1N2201N05	3453.059	4043.699	1841	9331
N1N2201N06	3468.059	4043.699	1841	9332
N1N2201N07	3483.059	4043.699	1841	9333
N1N2201N08	3498.059	4043.699	1841	9334
N1N2201N09	3513.059	4043.699	1841	9335
N1N2201N10	3528.059	4043.699	1841	9336
N1N2201N11	3543.059	4043.699	1841	9337
N1N2201N12	3558.059	4043.699	1841	9338
N1N2201N13	3573.059	4043.699	1841	9339
N1N2201N14	3588.059	4043.699	1841	9340
N1N2201N15	3603.059	4043.699	1841	9341
N1N2201N16	3618.059	4043.699	1841	9342
N1N2201N22	3441.859	4024.301	1841	9343
N1N2201S05	3456.859	4024.301	1841	9344
N1N2201S06	3471.859	4024.301	1841	9345
N1N2201S07	3486.859	4024.301	1841	9346
N1N2201S08	3501.859	4024.301	1841	9347
N1N2201S09	3516.859	4024.301	1841	9348
N1N2201S10	3531.859	4024.301	1841	9349
N1N2201S11	3546.859	4024.301	1841	9350
N1N2201S12	3561.859	4024.301	1841	9351
N1N2201S13	3576.859	4024.301	1841	9352
N1N2201S14	3591.859	4024.301	1841	9353
N1N2201S15	3606.859	4024.301	1841	9354
N1N2201S16	3621.859	4024.301	1841	9355
N1N2202N03	3441.534	4075.699	1841	9356
N1N2202N04	3456.534	4075.699	1841	9357
N1N2202N05	3471.534	4075.699	1841	9358
N1N2202N06	3486.534	4075.699	1841	9359
N1N2202N07	3501.534	4075.699	1841	9360
N1N2202N08	3516.534	4075.699	1841	9361
N1N2202N09	3531.534	4075.699	1841	9362
N1N2202N10	3546.534	4075.699	1841	9363
N1N2202N11	3561.534	4075.699	1841	9364
N1N2202N12	3576.534	4075.699	1841	9365
N1N2202N13	3591.534	4075.699	1841	9366
N1N2202N14	3606.534	4075.699	1841	9367
N1N2202N15	3621.534	4075.699	1841	9368
N1N2202S04	3445.334	4056.301	1841	9369
N1N2202S05	3460.334	4056.301	1841	9370
N1N2202S06	3475.334	4056.301	1841	9371
N1N2202S07	3490.334	4056.301	1841	9372
N1N2202S08	3505.334	4056.301	1841	9373
N1N2202S09	3520.334	4056.301	1841	9374
N1N2202S10	3535.334	4056.301	1841	9375
N1N2202S11	3550.334	4056.301	1841	9376
N1N2202S12	3565.334	4056.301	1841	9377

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9433				
N1N2202S13	3580.334	4056.301	1841	9378
N1N2202S14	3595.334	4056.301	1841	9379
N1N2202S15	3610.334	4056.301	1841	9380
N1N2202S16	3625.334	4056.301	1841	9381
N1N2203N02	3445.009	4107.699	1841	9382
N1N2203N03	3460.009	4107.699	1841	9383
N1N2203N04	3475.009	4107.699	1841	9384
N1N2203N05	3490.009	4107.699	1841	9385
N1N2203N06	3505.009	4107.699	1841	9386
N1N2203N07	3520.009	4107.699	1841	9387
N1N2203N08	3535.009	4107.699	1841	9388
N1N2203N09	3550.009	4107.699	1841	9389
N1N2203N10	3565.009	4107.699	1841	9390
N1N2203N11	3580.009	4107.699	1841	9391
N1N2203N12	3595.009	4107.699	1841	9392
N1N2203N13	3610.009	4107.699	1841	9393
N1N2203N14	3625.009	4107.699	1841	9394
N1N2203S03	3436.809	4088.301	1841	9395
N1N2203S04	3451.809	4088.301	1841	9396
N1N2203S05	3466.809	4088.301	1841	9397
N1N2203S06	3481.809	4088.301	1841	9398
N1N2203S07	3496.809	4088.301	1841	9399
N1N2203S08	3511.809	4088.301	1841	9400
N1N2203S09	3526.809	4088.301	1841	9401
N1N2203S10	3541.809	4088.301	1841	9402
N1N2203S11	3556.809	4088.301	1841	9403
N1N2203S12	3571.809	4088.301	1841	9404
N1N2203S13	3586.809	4088.301	1841	9405
N1N2203S14	3601.809	4088.301	1841	9406
N1N2203S15	3616.809	4088.301	1841	9407
N1N2204N01	3448.485	4139.699	1841	9408
N1N2204N02	3463.485	4139.699	1841	9409
N1N2204N03	3478.485	4139.699	1841	9410
N1N2204N04	3493.485	4139.699	1841	9411
N1N2204N05	3508.485	4139.699	1841	9412
N1N2204N06	3523.485	4139.699	1841	9413
N1N2204N07	3538.485	4139.699	1841	9414
N1N2204N08	3553.485	4139.699	1841	9415
N1N2204N09	3568.485	4139.699	1841	9416
N1N2204N10	3583.485	4139.699	1841	9417
N1N2204N11	3598.485	4139.699	1841	9418
N1N2204N12	3613.485	4139.699	1841	9419
N1N2204N13	3628.485	4139.699	1841	9420
N1N2204S02	3437.285	4120.301	1841	9421
N1N2204S03	3452.285	4120.301	1841	9422
N1N2204S04	3467.285	4120.301	1841	9423
N1N2204S05	3482.285	4120.301	1841	9424
N1N2204S06	3497.285	4120.301	1841	9425
N1N2204S07	3512.285	4120.301	1841	9426
N1N2204S08	3527.285	4120.301	1841	9427
N1N2204S09	3542.285	4120.301	1841	9428
N1N2204S10	3557.285	4120.301	1841	9429
N1N2204S11	3572.285	4120.301	1841	9430
N1N2204S12	3587.285	4120.301	1841	9431
N1N2204S13	3602.285	4120.301	1841	9432
N1N2204S14	3617.285	4120.301	1841	9433

ANEXO 16 – PERFIL DEL SLICE FILE PARA EL NIVEL 1841

	Name	Value	Comment
1	FRACTIONS	1	Calculate fractions (0/1) (1)
2	MULTI_LIFT	1	Use sectors for multi-lift fractions (0)
3	INIT_FRAC	1	Initialize all fractions first
4	TRANSFER	1	Transfer blocks to slice file
5	SLICE_SECTOR	1841	Transfer only for this SECTOR
6	SKIP_SURFACES	1	Skip use of surfaces (0/1) (0)
7	INIT_SLICEFILE	0	Initialize slice file first
8	REPORT_FRACTIONS	0	Report on fractions
9	BLK_SELECT	1	(0=Off, 1=Sel, 2=Not sel)
10	CHOP_USE	0	(0=Off, 1=Sel, 2=Not sel)
11	CHOP_SECTOR	LIFT2	Sector to be Chopped
12	CHOP_HEIGHT	0	Usually the lift height (400)
13	CHOP_ANGLE	0	Auto chop angle (Eg 80 or 0 to skip)
14	USE_PERFIN_BLKs	1	Use perfin block model (0/1)
15	!MIX_SLICEFILE	VMIX	Pre-mix Adv prof name (VMIX)



ANEXO 17 – EJES PARA LA CURVA DE LA MEZCLA DE LAUBSCHER

Slice	Y1	Y2	Diln
1	-50.9090919	69.0909119	1
2	-41.8181877	78.1818237	1
3	-32.7272758	87.2727356	1
4	-23.6363678	96.3636398	1
5	-14.5454597	105.454544	1
6	-5.45454788	114.545456	1
7	3.63636017	123.636368	1
8	12.7272682	132.72728	1
9	21.8181801	141.818192	1
10	30.9090843	150.909088	1
11	39.9999962	160	1
12	49.0909081	169.090912	0
13	58.1818123	178.181824	0
14	67.2727203	187.272736	0
15	76.3636322	196.363632	0
16	85.4545441	205.454544	0
17	94.5454559	214.545456	0
18	103.636368	223.636368	0
19	112.727264	232.727264	0
20	121.818176	241.818176	0
21	130.909088	250.909088	0
22	140	260	0
23	149.090912	269.090912	0
24	158.181824	278.181824	0
25	167.272736	287.272736	0
26	176.363632	296.363647	0
27	185.454544	305.454559	0
28	194.545456	314.545471	0
29	203.636353	323.636353	0
30	212.727264	332.727264	0
31	221.818176	341.818176	0
32	230.909088	350.909088	0
33	240	360	0
34	249.090912	369.090912	0
35	258.181824	378.181824	0
36	267.272705	387.272705	0
37	276.363647	396.363647	0
38	285.454529	405.454529	0
39	294.545471	414.545471	0
40	303.636353	423.636353	0
41	312.727264	432.727264	0
42	321.818176	441.818176	0
43	330.909088	450.909088	0
44	340	460	0
45	349.090912	469.090912	0
46	358.181824	478.181824	0
47	367.272736	487.272736	0
48	376.363647	496.363647	0
49	385.454529	505.454529	0
50	394.545441	514.545471	0

Slice	Y1	Y2	Diln
51	403.636353	523.636353	0
52	412.727264	532.727295	0
53	421.818176	541.818176	0
54	430.909088	550.909119	0
55	440	560	0
56	449.090912	569.090942	0
57	458.181824	578.181824	0
58	467.272705	587.272705	0
59	476.363647	596.363647	0
60	485.454529	605.454529	0
61	494.54541	614.54541	0
62	503.636353	623.636353	0
63	512.727295	632.727295	0
64	521.818176	641.818176	0
65	530.909058	650.909058	0
66	540	660	0
67	549.090942	669.090942	0
68	558.181824	678.181824	0
69	567.272705	687.272705	0
70	576.363647	696.363647	0
71	585.454529	705.454529	0
72	594.545471	714.545471	0
73	603.636353	723.636353	0
74	612.727295	732.727295	0
75	621.818176	741.818176	0
76	630.909058	750.909058	0
77	640	760	0
78	649.090881	769.090881	0
79	658.181824	778.181824	0
80	667.272705	787.272705	0
81	676.363647	796.363647	0
82	685.454529	805.454529	0
83	694.545471	814.545471	0
84	703.636353	823.636353	0
85	712.727295	832.727295	0
86	721.818176	841.818176	0
87	730.909058	850.909058	0
88	740	860	0
89	749.090881	869.090881	0
90	758.181824	878.181824	0
91	767.272705	887.272705	0
92	776.363647	896.363647	0
93	785.454529	905.454529	0
94	794.545471	914.545471	0
95	803.636353	923.636353	0
96	812.727295	932.727295	0
97	821.818176	941.818176	0
98	830.909058	950.909058	0
99	840	960	0
100	849.090881	969.090881	0

ANEXO 18 – REPORTE DETALLADO DEL BEST HOD DE ALGUNOS PUNTOS

INCORPORADOS

Best HOD		Footprint: 4Levels nDpts= 9433 Compute bes PC-BC Version 6.4													
Record	Draw Point Name	OK?	Best HOD	Ave_Dol	Net_Dol	Tot_Dol	Ton_eco	CUT	MOLY	RECU	LASTRE	OXIDO	QUEBRA	SULFUR	Dil %
9082	N150301N21	OK	152.98	16.21	1882.35	1882.35	116126.55	0.74	0.01	88.15	0.01	0.00	0.00	0.99	0.97
9083	N150301N22	LIMIT	350.00	28.99	6406.69	6406.69	220972.77	0.97	0.01	88.27	0.00	0.00	0.00	1.00	0.31
9084	N150301N23	LIMIT	350.00	53.63	11796.31	11796.31	219946.38	1.39	0.04	88.55	0.00	0.00	0.01	0.99	0.86
9085	N150301S20	LIMIT	350.00	20.00	8160.63	8160.63	408001.72	0.81	0.01	86.95	0.02	0.00	0.00	0.98	1.89
9086	N150301S21	LIMIT	350.00	45.99	14415.19	14415.19	313429.84	1.30	0.02	88.36	0.00	0.00	0.00	1.00	0.39
9087	N150301S22	LIMIT	350.00	60.49	18849.54	18849.54	311636.69	1.51	0.04	88.71	0.00	0.00	0.01	0.99	0.72
9088	N150302N24	LOW	100.00	13.84	1250.55	1250.55	90366.68	0.69	0.01	84.87	0.04	0.00	0.00	0.96	4.16
9089	N150302N25	OK	188.96	30.14	3594.55	3594.55	119254.66	1.01	0.01	87.98	0.01	0.00	0.00	0.99	0.52
9090	N150302N26	LIMIT	350.00	37.51	8311.41	8311.41	221571.31	1.13	0.02	87.96	0.00	0.00	0.01	0.99	0.66
9091	N150302S22	LOW	100.00	2.32	215.51	215.51	92837.48	0.45	0.00	83.81	0.06	0.00	0.00	0.94	5.88
9092	N150302S23	OK	162.05	21.74	2230.71	2230.71	102599.09	0.85	0.01	88.98	0.00	0.00	0.00	1.00	0.01
9093	N150302S24	LIMIT	350.00	33.78	7530.28	7530.28	222930.14	1.06	0.02	88.09	0.00	0.00	0.01	0.99	0.53
9094	N150303N25	OK	270.03	37.49	7822.13	7822.13	208633.94	1.13	0.02	88.61	0.00	0.00	0.00	1.00	0.00
9095	N150303N26	LIMIT	350.00	54.09	12051.19	12051.19	222785.28	1.44	0.03	87.90	0.00	0.00	0.01	0.99	0.95
9096	N150303N27	LIMIT	350.00	64.15	14135.86	14135.86	220345.23	1.59	0.04	87.81	0.00	0.00	0.01	0.99	1.46
9097	N150303S24	OK	152.97	25.67	3505.74	3505.74	136579.66	0.92	0.01	88.66	0.00	0.00	0.00	1.00	0.00
9098	N150303S25	LIMIT	350.00	28.09	6475.59	6475.59	230541.75	0.96	0.01	86.79	0.02	0.00	0.00	0.98	2.05
9099	N150303S26	LIMIT	350.00	51.41	11335.29	11335.29	220479.97	1.40	0.02	88.01	0.00	0.00	0.01	0.99	0.90
9100	N150304N26	OK	171.08	34.02	6392.02	6392.02	187880.47	1.08	0.01	87.52	0.01	0.00	0.00	0.99	0.97
9101	N150304N27	LIMIT	350.00	31.46	9763.49	9763.49	310343.69	1.01	0.02	86.10	0.02	0.00	0.01	0.97	2.70
9102	N150304N28	LIMIT	350.00	48.63	15126.59	15126.59	311041.00	1.32	0.03	87.88	0.00	0.00	0.01	0.99	1.36
9103	N150304S26	OK	179.98	35.17	6184.82	6184.82	175855.41	1.10	0.01	86.54	0.02	0.00	0.00	0.98	2.28
9104	N150304S27	LIMIT	350.00	37.55	8217.46	8217.46	218846.44	1.13	0.02	87.65	0.01	0.00	0.01	0.99	1.18
9105	N150304S28	LIMIT	350.00	54.19	11936.96	11936.96	220263.30	1.43	0.03	87.87	0.00	0.00	0.01	0.99	1.15
9106	N150401N20	OK	270.04	24.47	5186.74	5186.74	211980.33	0.88	0.01	88.17	0.00	0.00	0.00	1.00	0.00
9107	N150401N21	LIMIT	350.00	42.25	9475.24	9475.24	224240.38	1.19	0.03	88.12	0.00	0.00	0.00	1.00	0.00
9108	N150401N22	LIMIT	350.00	63.35	14141.38	14141.38	223229.91	1.51	0.06	89.07	0.00	0.00	0.00	1.00	0.00
9109	N150401S20	OK	279.00	20.74	6945.24	6945.24	334858.09	0.82	0.01	88.15	0.00	0.00	0.00	1.00	0.00
9110	N150401S21	LIMIT	350.00	38.58	12278.38	12278.38	318268.44	1.13	0.02	87.92	0.00	0.00	0.00	1.00	0.00
9111	N150401S22	LIMIT	350.00	60.60	19212.30	19212.30	317025.84	1.46	0.06	89.10	0.00	0.00	0.00	1.00	0.00
9112	N150402N22	OK	179.99	16.31	2826.01	2826.01	173318.39	0.71	0.01	89.35	0.00	0.00	0.00	1.00	0.00
9113	N150402N23	LIMIT	350.00	35.69	7986.76	7986.76	223789.05	1.08	0.02	87.99	0.00	0.00	0.00	1.00	0.22
9114	N150402N24	LIMIT	350.00	60.73	13683.04	13683.04	225325.17	1.53	0.04	88.39	0.00	0.00	0.00	1.00	0.04
9115	N150402S21	OK	180.03	18.93	3393.75	3393.75	179249.48	0.77	0.01	88.98	0.00	0.00	0.00	1.00	0.00
9116	N150402S22	LIMIT	350.00	30.52	6804.82	6804.82	222949.52	0.99	0.02	87.60	0.01	0.00	0.00	0.99	0.51
9117	N150402S23	LIMIT	350.00	55.65	12456.92	12456.92	223833.81	1.42	0.04	88.39	0.00	0.00	0.00	1.00	0.00
9118	N150403N23	OK	296.99	17.27	3941.05	3941.05	228163.78	0.73	0.01	85.98	0.03	0.00	0.00	0.97	3.00
9119	N150403N24	LIMIT	350.00	49.44	10950.18	10950.18	221491.91	1.37	0.02	88.29	0.00	0.00	0.00	1.00	0.27
9120	N150403N25	LIMIT	350.00	64.95	14361.05	14361.05	221092.45	1.62	0.04	89.26	0.00	0.00	0.00	1.00	0.20
9121	N150403S22	OK	252.02	20.24	4103.15	4103.15	202759.00	0.78	0.01	88.44	0.00	0.00	0.00	1.00	0.23
9122	N150403S23	LIMIT	350.00	46.88	10330.99	10330.99	220356.88	1.30	0.03	87.95	0.00	0.00	0.00	1.00	0.40
9123	N150403S24	LIMIT	350.00	65.11	14338.34	14338.34	220219.83	1.61	0.04	88.89	0.00	0.00	0.00	1.00	0.09
9124	N150404N24	OK	252.07	14.58	4081.34	4081.34	279851.25	0.70	0.01	81.95	0.07	0.00	0.00	0.93	7.36
9125	N150404N25	LIMIT	350.00	41.67	13043.13	13043.13	313025.69	1.23	0.02	87.48	0.01	0.00	0.00	0.99	1.12
9126	N150404N26	LIMIT	350.00	60.31	18956.78	18956.78	314304.28	1.57	0.03	88.70	0.00	0.00	0.00	1.00	0.27
9127	N150404S23	OK	171.02	3.88	618.26	618.26	159476.05	0.47	0.01	85.48	0.04	0.00	0.00	0.96	3.65
9128	N150404S24	LIMIT	350.00	31.13	6922.46	6922.46	222384.72	1.01	0.01	87.47	0.01	0.00	0.00	0.99	1.26
9129	N150404S25	LIMIT	350.00	60.14	13318.65	13318.65	221464.63	1.57	0.03	88.77	0.00	0.00	0.00	1.00	0.06

ANEXO 19 – SECUENCIA POR MACRO BLOQUE PRODUCTIVO

Production block	Azimuth	Guide
N2-N62	90	N45W.asc
N2-S7	90	N45E.asc
N2-N71	90	N45W.asc
N2-N72	90	N45W.asc
N3-N1	90	N45W.asc
N3-S1	90	N45E.asc
N3-N21	90	N45W.asc
N3-S2	90	N45E.asc
N3-N31	90	N45W.asc
N3-S3	90	N45E.asc
N3-N41	90	N45W.asc
N3-S4	90	N45E.asc
N3-N51	90	N45W.asc
N3-S5	90	N45E.asc
N3-N52	90	N45W.asc
N3-S6	90	N45E.asc
N3-N61	90	N45W.asc
N3-N62	90	N45W.asc
N3-N71	90	N45W.asc
N3-N72	90	N45W.asc
N4-N1	90	N45W.asc
N4-S1	90	N45E.asc
N4-N2	90	N45W.asc
N4-S2	90	N45E.asc
N4-N3	90	N45W.asc
N4-S3	90	N45E.asc
N4-N4	90	N45W.asc
N4-S4	90	N45E.asc
N4-N51	90	N45W.asc
N4-S5	90	N45E.asc
N4-N52	90	N45W.asc
N4-S6	90	N45E.asc
N4-N61	90	N45W.asc
N4-S7	90	N45E.asc
N4-N62	90	N45W.asc
N4-N71	90	N45W.asc
N4-N72	90	N45W.asc

Production block	Azimuth	Guide
N1-22	90	N20W.asc
N1-32	90	N20W.asc
N1-N1	90	N16W.asc
N1-N42	90	N20W.asc
N1-S1	90	N20E.asc
N1-N52	90	N20W.asc
N1-N2	90	N16W.asc
N1-S2	90	N18E.asc
N1-N3	90	N25W.asc
N1-S3	90	N18E.asc
N1-N41	270	N-S.asc
N1-S4	90	N20E.asc
N1-N51	270	N10E.asc
N1-S5	90	N20E.asc
N1-N61	90	N25W.asc
N1-S6	90	N36E.asc
N1-N62	90	N20W.asc
N1-S7	90	N36E.asc
N1-N71	90	N20W.asc
N1-S8	90	N36E.asc
N1-N72	90	N20W.asc
N1-S9	90	N36E.asc
N2-N1	90	N45W.asc
N2-S1	90	N45E.asc
N2-N2	90	N45W.asc
N2-N3	90	N45W.asc
N2-N41	90	N45W.asc
N2-S2	90	N45E.asc
N2-N42	90	N45W.asc
N2-S3	90	N45E.asc
N2-N51	90	N45W.asc
N2-S4	90	N45E.asc
N2-N52	90	N45W.asc
N2-S5	90	N45E.asc
N2-N61	90	N45W.asc
N2-S6	90	N45E.asc

ANEXO 20 – HOJA TABLE: METAS DEL PLAN PRODUCTIVO

Step	Period	Days/period	Method	TONS	New	SHUT	END
						US\$/ton	
1	2019	360	SMOOTH	3,600,000			
2	2020	360	SMOOTH	5,400,000			
3	2021	360	SMOOTH	7,200,000			
4	2022	360	SMOOTH	14,400,000			
5	2023	360	SMOOTH	28,800,000			
6	2024	360	SMOOTH	36,000,000			
7	2025	360	SMOOTH	43,200,000			
8	2026	360	SMOOTH	46,800,000			
9	2027	360	SMOOTH	50,400,000			
10	2028	360	SMOOTH	50,400,000			
11	2029	360	SMOOTH	50,400,000			
12	2030	360	SMOOTH	50,400,000			
13	2031	360	SMOOTH	50,400,000			
14	2032	360	SMOOTH	50,400,000			
15	2033	360	SMOOTH	50,400,000			
16	2034	360	SMOOTH	50,400,000			
17	2035	360	SMOOTH	50,400,000			
18	2036	360	SMOOTH	50,400,000			
19	2037	360	SMOOTH	50,400,000			
20	2038	360	SMOOTH	50,400,000			
21	2039	360	SMOOTH	50,400,000			
22	2040	360	SMOOTH	50,400,000			
23	2041	360	SMOOTH	50,400,000			
24	2042	360	SMOOTH	50,400,000			
25	2043	360	SMOOTH	50,400,000			
26	2044	360	SMOOTH	50,400,000			
27	2045	360	SMOOTH	50,400,000			
28	2046	360	SMOOTH	50,400,000			
29	2047	360	SMOOTH	50,400,000			
30	2048	360	SMOOTH	50,400,000			
31	2049	360	SMOOTH	50,400,000			
32	2050	360	SMOOTH	50,400,000			
33	2051	360	SMOOTH	50,400,000			
34	2052	360	SMOOTH	50,400,000			
35	2053	360	SMOOTH	50,400,000			
36	2054	360	SMOOTH	50,400,000			
37	2055	360	SMOOTH	50,400,000			
38	2056	360	SMOOTH	50,400,000			
39	2057	360	SMOOTH	50,400,000			
40	2058	360	SMOOTH	49,680,000			
41	2059	360	SMOOTH	43,200,000			
42	2060	360	SMOOTH	34,200,000			
43	2061	360	SMOOTH	19,800,000			
44	2062	360	SMOOTH	3,600,000			
	END						

ANEXO 21 – HOJA DETAIL

1	NEW_PBLOCK	N1-N1	146
4	NEW_PBLOCK	N1-N2	150
2	NEW_PBLOCK	N1-22	104
5	NEW_PBLOCK	N1-N3	153
3	NEW_PBLOCK	N1-32	104
7	NEW_PBLOCK	N1-N41	141
6	NEW_PBLOCK	N1-N42	103
9	NEW_PBLOCK	N1-N51	144
8	NEW_PBLOCK	N1-N52	112
11	NEW_PBLOCK	N1-N61	143
10	NEW_PBLOCK	N1-N62	112
12	NEW_PBLOCK	N1-N71	135
13	NEW_PBLOCK	N1-N72	113
1	NEW_PBLOCK	N1-S1	152
6	NEW_PBLOCK	N1-S2	153
7	NEW_PBLOCK	N1-S3	157
8	NEW_PBLOCK	N1-S4	147
9	NEW_PBLOCK	N1-S5	139
10	NEW_PBLOCK	N1-S6	132
11	NEW_PBLOCK	N1-S7	148
12	NEW_PBLOCK	N1-S8	128
13	NEW_PBLOCK	N1-S9	101
14	NEW_PBLOCK	N2-N1	144
14	NEW_PBLOCK	N2-S1	135
15	NEW_PBLOCK	N2-N2	136
16	NEW_PBLOCK	N2-N3	142
17	NEW_PBLOCK	N2-N41	140
17	NEW_PBLOCK	N2-S2	138
18	NEW_PBLOCK	N2-N42	91
18	NEW_PBLOCK	N2-S3	133
19	NEW_PBLOCK	N2-N51	141
19	NEW_PBLOCK	N2-S4	128
20	NEW_PBLOCK	N2-N52	113
20	NEW_PBLOCK	N2-S5	111
21	NEW_PBLOCK	N2-N61	122
21	NEW_PBLOCK	N2-S6	101
22	NEW_PBLOCK	N2-N62	113
22	NEW_PBLOCK	N2-S7	107
23	NEW_PBLOCK	N2-N71	120
23	NEW_PBLOCK	N2-N72	113
24	NEW_PBLOCK	N3-N1	146
24	NEW_PBLOCK	N3-S1	134
25	NEW_PBLOCK	N3-N21	142
25	NEW_PBLOCK	N3-S2	137
26	NEW_PBLOCK	N3-N31	155
26	NEW_PBLOCK	N3-S3	126
27	NEW_PBLOCK	N3-N41	157
27	NEW_PBLOCK	N3-S4	114
28	NEW_PBLOCK	N3-N51	150
28	NEW_PBLOCK	N3-S5	111
29	NEW_PBLOCK	N3-N52	104
29	NEW_PBLOCK	N3-S6	103
30	NEW_PBLOCK	N3-N61	131
30	NEW_PBLOCK	N3-N62	109
31	NEW_PBLOCK	N3-N71	111
31	NEW_PBLOCK	N3-N72	109
32	NEW_PBLOCK	N4-N1	138
32	NEW_PBLOCK	N4-S1	140
33	NEW_PBLOCK	N4-N2	142
33	NEW_PBLOCK	N4-S2	128
34	NEW_PBLOCK	N4-N3	160
34	NEW_PBLOCK	N4-S3	120
35	NEW_PBLOCK	N4-N4	163
35	NEW_PBLOCK	N4-S4	106
36	NEW_PBLOCK	N4-N51	149
36	NEW_PBLOCK	N4-S5	103
37	NEW_PBLOCK	N4-N52	101
37	NEW_PBLOCK	N4-S6	94
38	NEW_PBLOCK	N4-N61	136
38	NEW_PBLOCK	N4-S7	101
39	NEW_PBLOCK	N4-N62	103
39	NEW_PBLOCK	N4-N71	117
40	NEW_PBLOCK	N4-N72	104
	END		

ANEXO 22 – TONELAJE POR MACRO BLOQUE Y AÑO

The table is a grid of approximately 30 columns and 100 rows. The columns represent different macro blocks or categories, and the rows represent data points for various years. The cells contain numerical values, some of which are highlighted in yellow. The table is organized into several distinct sections, likely corresponding to different geographic regions or economic sectors.



ANEXO 23 – LEYES POR MACRO BLOQUE Y AÑO



ANEXO 24 – EVALUACIÓN ECONÓMICA CASO 1

EVALUACION PROYECTO	UNIDAD	TOTAL/ PROM.	2013	2014	2015	2016	2017	2018	2019	2020	2021
Producción Proyecto											
MINERAL	KTMS	1,894,552							3,600	5,400	7,200
LEY Cu	%	0.63							1.06	1.10	1.15
LEY Mo	%	0.04							0.07	0.07	0.08
RecuCuPlanta	%	87.76							86.15	86.36	86.75
RecuMoPlanta	%	67.46							65.71	65.83	65.84
Precio Cu	USD/lb	240							245	245	245
Precio Mo	USD/kg	30							30	30	30
Ingreso por Cu	MUSD	51,500							177	276	387
Ingreso por Mo	MUSD	14,382							52	79	108
Ingreso por CuCo	MUSD	7,908	0	0	0	0	0	10	88	92	745
Otros Ingresos	MUSD	9,420	0	0	0	0	0	0	-1	7	30
Ingreso Total	MUSD	84,282	0	0	0	0	0	11	316	455	1,271
Costos operacionales											
Minas Rajo	MUSD\$	133	0	0	0	0	0	0	-7	-9	-22
Mina Subterránea	MUSD\$	15,412	0	0	0	0	0	0	92	198	263
Planta concentradora	MUSD\$	14,519	0	0	0	0	0	0	1	2	66
Proceso Tostación	MUSD\$	1,542	0	0	0	0	0	0	0	0	0
Plantas FURE	MUSD\$	9,918	0	0	0	0	0	0	0	0	0
Plantas Hidro	MUSD\$	1,468	0	0	0	0	0	-1	0	0	-2
Administración	MUSD\$	5,523	0	0	0	0	0	4	2	20	64
Total Costos	MUSD\$	48,517	0	0	0	0	0	3	88	210	369
Inversiones											
Inversiones Gastadas	MUSD\$	134	134								
Inversiones Sustentabilidad	MUSD\$	11,177	382	491	906	758	530	326	391	207	277
Costos de cierre	MUSD\$	0	0	0	0	0	0	0	0	0	0
Total Inversiones	MUSD\$	11,831	516	491	906	758	530	326	391	207	277
IAS	MUSD\$	72	0	0	0	0	0	0	0	0	0
Flujo de Caja	MUSD\$	23,862	-516	-491	-906	-758	-530	-319	-163	38	625
VAN	MUSD\$	4,402									
TIR	%	17%									
IVAN		1.13									

EVALUACION PROYECTO	UNIDAD	TOTAL/ PROM.	2022	2023	2024	2025	2026	2027	2028	2029	2030
Producción Proyecto											
MINERAL	KTMS	1,894,552	14,400	25,073	36,000	43,200	46,800	50,400	50,400	50,400	50,400
LEY Cu	%	0.63	1.10	0.98	0.80	0.69	0.72	0.70	0.66	0.65	0.65
LEY Mo	%	0.04	0.07	0.05	0.04	0.03	0.04	0.04	0.04	0.04	0.04
RecuCuPlanta	%	87.76	86.61	86.46	86.04	86.04	86.04	86.04	86.04	86.03	86.03
RecuMoPlanta	%	67.46	65.91	65.86	65.86	65.87	65.86	65.88	65.87	65.78	65.84
Precio Cu	USD/lb	240	245	245	245	245	245	245	245	245	245
Precio Mo	USD/kg	30	30	30	30	30	30	30	30	30	30
Ingreso por Cu	MUSD	51,500	740	1,150	1,334	1,387	1,498	1,689	1,647	1,550	1,516
Ingreso por Mo	MUSD	14,382	186	254	280	282	328	405	400	382	384
Ingreso por CuCo	MUSD	7,908	1,057	942	1,002	774	1,008	830	95	18	0
Otros Ingresos	MUSD	9,420	112	118	123	90	130	111	29	20	-16
Ingreso Total	MUSD	84,282	2,095	2,464	2,739	2,533	2,963	3,036	2,171	1,970	1,884
Costos operacionales											
Minas Rajo	MUSD\$	133	26	-9	-8	-34	-35	-38	-10	27	31
Mina Subterránea	MUSD\$	15,412	292	331	336	379	387	379	376	330	370
Planta concentradora	MUSD\$	14,519	232	228	228	228	241	238	241	241	307
Proceso Tostación	MUSD\$	1,542	0	0	0	0	0	0	37	37	37
Plantas FURE	MUSD\$	9,918	10	11	11	11	11	11	13	13	13
Plantas Hidro	MUSD\$	1,468	10	14	15	22	18	18	23	23	39
Administración	MUSD\$	5,523	106	101	95	111	111	111	118	120	140
Total Costos	MUSD\$	48,517	676	677	676	717	721	723	796	791	937
Inversiones											
Inversiones Gastadas	MUSD\$	134									
Inversiones Sustentabilidad	MUSD\$	11,177	199	113	232	284	263	266	307	140	191
Costos de cierre	MUSD\$	0	0	0	0	0	0	-8	-159	-159	-1,405
Total Inversiones	MUSD\$	11,831	199	113	232	283	263	258	148	-19	-1,214
IAS	MUSD\$	72	0	0	0	0	0	0	0	0	-696
Flujo de Caja	MUSD\$	23,862	1,220	1,674	1,831	1,533	1,979	2,055	1,228	1,198	2,857
VAN	MUSD\$	4,402									
TIR	%	17%									
IVAN		1.13									

EVALUACIÓN PROYECTO	UNIDAD	TOTAL/ PROM.	2031	2032	2033	2034	2035	2036	2037	2038	2039
Producción Proyecto											
MINERAL	KTMS	1,894,552	50,400	50,400	50,400	50,400	50,400	50,400	50,400	50,400	50,400
LEY Cu	%	0.63	0.68	0.70	0.69	0.64	0.62	0.61	0.59	0.54	0.56
LEY Mo	%	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
RecuCuPlanta	%	87.76	86.03	86.04	86.02	86.01	85.99	85.96	88.95	88.92	88.97
RecuMoPlanta	%	67.46	65.82	65.82	65.78	65.62	65.28	65.31	65.39	70.51	70.36
Precio Cu	cUSD/lb	240	245	245	245	245	245	245	245	245	245
Precio Mo	USD/kg	30	30	30	30	30	30	30	30	30	30
Ingreso por Cu	MUSD	51,500	1,600	1,641	1,620	1,507	1,446	1,429	1,434	1,308	1,349
Ingreso por Mo	MUSD	14,382	423	443	425	406	401	390	401	402	398
Ingreso por CuCo	MUSD	7,908	51	13	113	132	53	0	0	0	0
Otros Ingresos	MUSD	9,420	301	299	303	305	300	305	291	291	291
Ingreso Total	MUSD	84,282	2,375	2,396	2,462	2,349	2,199	2,124	2,127	2,001	2,039
Costos operacionales											
Minas Rajo	MUSD\$	133	54	57	36	25	26	25	0	0	0
Mina Subterránea	MUSD\$	15,412	350	354	367	382	359	373	375	362	390
Planta concentradora	MUSD\$	14,519	300	300	300	302	300	300	490	490	488
Proceso Tostación	MUSD\$	1,542	46	50	50	50	50	50	50	50	50
Plantas FURE	MUSD\$	9,918	329	356	324	323	323	323	300	300	300
Plantas Hidro	MUSD\$	1,468	53	54	51	49	50	50	45	45	45
Administración	MUSD\$	5,523	177	175	169	167	165	162	155	155	155
Total Costos	MUSD\$	48,517	1,310	1,345	1,297	1,299	1,272	1,282	1,415	1,402	1,428
Inversiones											
Inversiones Gastadas	MUSD\$	134									
Inversiones Sustentabilidad	MUSD\$	11,177	211	184	162	189	153	173	150	150	150
Costos de cierre	MUSD\$		0	0	2	0	0	130	130	130	130
Total Inversiones	MUSD\$	11,831	211	184	163	189	154	303	280	280	280
IAS	MUSD\$	72	2	2	2	2	2	2	2	2	2
Flujo de Caja	MUSD\$	23,862	851	865	1,000	859	772	536	429	316	328
VAN	MUSD\$	4,402									
TIR	%	17%									
IVAN		1.13									

EVALUACIÓN PROYECTO	UNIDAD	TOTAL/ PROM.	2040	2041	2042	2043	2044	2045	2046	2047	2048
Producción Proyecto											
MINERAL	KTMS	1,894,552	50,400	50,400	50,400	50,400	50,400	50,400	50,400	50,400	50,400
LEY Cu	%	0.63	0.58	0.59	0.57	0.59	0.62	0.62	0.60	0.59	0.61
LEY Mo	%	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
RecuCuPlanta	%	87.76	88.95	89.00	89.01	88.98	88.95	88.93	88.87	88.91	88.94
RecuMoPlanta	%	67.46	70.75	70.61	70.84	70.89	70.74	70.55	70.01	69.29	69.40
Precio Cu	cUSD/lb	240	245	245	245	245	245	245	245	245	245
Precio Mo	USD/kg	30	30	30	30	30	30	30	30	30	30
Ingreso por Cu	MUSD	51,500	1,403	1,439	1,374	1,427	1,496	1,497	1,451	1,438	1,476
Ingreso por Mo	MUSD	14,382	414	443	412	422	438	435	421	414	422
Ingreso por CuCo	MUSD	7,908	0	0	0	0	83	0	56	114	0
Otros Ingresos	MUSD	9,420	291	291	278	285	261	276	263	262	266
Ingreso Total	MUSD	84,282	2,108	2,173	2,064	2,134	2,277	2,208	2,190	2,228	2,164
Costos operacionales											
Minas Rajo	MUSD\$	133	0	0	0	0	0	0	0	0	0
Mina Subterránea	MUSD\$	15,412	395	396	397	401	410	394	392	396	417
Planta concentradora	MUSD\$	14,519	486	483	397	397	398	397	399	399	397
Proceso Tostación	MUSD\$	1,542	50	50	50	50	50	50	50	50	50
Plantas FURE	MUSD\$	9,918	300	300	318	318	317	317	317	317	317
Plantas Hidro	MUSD\$	1,468	45	45	45	45	43	45	44	44	44
Administración	MUSD\$	5,523	155	155	147	147	147	147	147	147	147
Total Costos	MUSD\$	48,517	1,430	1,428	1,354	1,356	1,364	1,348	1,348	1,352	1,372
Inversiones											
Inversiones Gastadas	MUSD\$	134									
Inversiones Sustentabilidad	MUSD\$	11,177	150	150	290	207	258	156	174	193	115
Costos de cierre	MUSD\$		130	0	0	0	0	0	0	0	0
Total Inversiones	MUSD\$	11,831	280	150	290	207	258	156	174	193	115
IAS	MUSD\$	72	2	2	2	2	2	2	2	2	2
Flujo de Caja	MUSD\$	23,862	396	593	418	568	653	702	666	681	675
VAN	MUSD\$	4,402									
TIR	%	17%									
IVAN		1.13									

EVALUACION PROYECTO	UNIDAD	TOTAL/ PROM.	2049	2050	2051	2052	2053	2054	2055	2056	2057
Producción Proyecto											
MINERAL	KTMS	1,894,552	50,400	50,400	50,400	50,400	50,400	50,400	50,400	50,400	50,400
LEY Cu	%	0.63	0.58	0.54	0.51	0.48	0.42	0.40	0.40	0.40	0.39
LEY Mo	%	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
RecuCuPlanta	%	87.76	89.01	89.01	88.98	88.97	88.96	88.91	88.92	88.91	88.74
RecuMoPlanta	%	67.46	69.84	70.68	70.82	70.60	70.26	69.72	68.91	68.32	66.44
Precio Cu	cUSD/lb	240	245	245	245	245	245	245	245	245	245
Precio Mo	USD/kg	30	30	30	30	30	30	30	30	30	30
Ingreso por Cu	MUSD	51,500	1,414	1,312	1,243	1,155	1,015	970	966	958	933
Ingreso por Mo	MUSD	14,382	406	371	357	340	305	286	286	281	269
Ingreso por CuCo	MUSD	7,908	0	0	0	0	0	72	104	0	0
Otros Ingresos	MUSD	9,420	276	280	295	289	281	261	263	233	240
Ingreso Total	MUSD	84,282	2,096	1,964	1,894	1,783	1,601	1,589	1,619	1,473	1,443
Costos operacionales											
Minas Rajo	MUSD\$	133	0	0	0	0	0	0	0	0	0
Mina Subterránea	MUSD\$	15,412	429	403	416	406	399	391	385	378	340
Planta concentradora	MUSD\$	14,519	396	396	394	395	395	398	398	396	395
Proceso Tostación	MUSD\$	1,542	50	50	50	50	50	50	50	50	50
Plantas FURE	MUSD\$	9,918	317	317	317	317	317	317	317	317	317
Plantas Hidro	MUSD\$	1,468	44	44	45	45	45	45	45	44	45
Administración	MUSD\$	5,523	147	147	143	143	143	143	143	132	110
Total Costos	MUSD\$	48,517	1,382	1,356	1,364	1,354	1,347	1,342	1,336	1,317	1,256
Inversiones											
Inversiones Gastadas	MUSD\$	134									
Inversiones Sustentabilidad	MUSD\$	11,177	150	186	169	313	157	108	124	133	130
Costos de cierre	MUSD\$		0	0	0	0	0	0	0	0	0
Total Inversiones	MUSD\$	11,831	150	186	169	313	157	108	124	133	130
IAS	MUSD\$	72	2	2	2	2	2	2	2	2	2
Flujo de Caja	MUSD\$	23,862	562	420	358	113	95	137	156	20	54
VAN	MUSD\$	4,402									
TIR	%	17%									
IVAN		1.13									

EVALUACION PROYECTO	UNIDAD	TOTAL/ PROM.	2058	2059	2060	2061	2062
Producción Proyecto							
MINERAL	KTMS	1,894,552	49,680	43,200	34,200	19,800	3,600
LEY Cu	%	0.63	0.41	0.41	0.39	0.41	0.50
LEY Mo	%	0.04	0.03	0.03	0.03	0.03	0.04
RecuCuPlanta	%	87.76	88.58	88.58	88.58	88.58	88.58
RecuMoPlanta	%	67.46	63.55	63.10	66.44	63.55	63.10
Precio Cu	cUSD/lb	240	245	245	245	245	245
Precio Mo	USD/kg	30	30	30	30	30	30
Ingreso por Cu	MUSD	51,500	972	837	636	388	85
Ingreso por Mo	MUSD	14,382	272	234	187	114	26
Ingreso por CuCo	MUSD	7,908	0	0	0	0	456
Otros Ingresos	MUSD	9,420	247	263	264	315	0
Ingreso Total	MUSD	84,282	1,490	1,334	1,087	816	567
Costos operacionales							
Minas Rajo	MUSD\$	133	0	0	0	0	0
Mina Subterránea	MUSD\$	15,412	288	274	239	226	195
Planta concentradora	MUSD\$	14,519	404	397	365	316	210
Proceso Tostación	MUSD\$	1,542	50	50	0	0	0
Plantas FURE	MUSD\$	9,918	317	317	316	316	0
Plantas Hidro	MUSD\$	1,468	45	0	0	0	0
Administración	MUSD\$	5,523	78	61	89	61	62
Total Costos	MUSD\$	48,517	1,181	1,098	1,009	920	467
Inversiones							
Inversiones Gastadas	MUSD\$	134					
Inversiones Sustentabilidad	MUSD\$	11,177	97	67	59	4	0
Costos de cierre	MUSD\$		0	6	159	159	1,274
Total Inversiones	MUSD\$	11,831	98	73	217	163	1,274
IAS	MUSD\$	72	2	2	2	2	698
Flujo de Caja	MUSD\$	23,862	209	161	-142	-269	-1,873
VAN	MUSD\$	4,402					
TIR	%	17%					
IVAN		1.13					