CURRAGH RESOURCES INC
GEOLOGY DEPARTMENT
VANGORDA 1990 YEAR END RECONCILIATION

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MINED ORE ACCORDING TO GEOMODEL POLYGONAL CALCULATION - NOT DILUTED | **MINED ORE ACCORDING V9009 BLOCK MODEL - NOT DILUTED** | **MINED ORE ACCORDINS TO BLASTHOLES**

Geomodel Polygonal Reserves 3 meter Bench										Pcmine V9009 Block Model Reserves 3 meter Bench								Actual Mined Reserves From Blastholes. 6 meter Bench							
Bench	Rock	Volume	Dens	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn	Volume	Dens	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn	Volume	Dens	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
1149 Total R&G		4,508	4.00	18,034	5.18	5.58	10.77	935	1,007	4,530	4.13	18,700	5.64	5.67	11.31	1,055	1,060								
"R" ore	65	4,508	4.00	18,034	5.18	5.58	10.77	935	1,007	3,120	4.02	12,540	5.31	5.36	10.67	665	672								
3 m "G" ore	60	0	0.00	0	0.00	0.00	0.00	0	0	1,410	4.37	6,160	6.33	6.30	12.63	390	388								
Siliceous	20	0	0.00	0	0.00	0.00	0.00	0	0	0	0	0	0.00	0.00	0.00	0	0								
1146 Total R&G		15,902	4.00	63,607	4.89	5.70	10.60	3,113	3,628	15,600	3.97	61,910	5.10	5.82	10.92	3,156	3,602								
"R" ore	65	15,902	4.00	63,607	4.89	5.70	10.60	3,113	3,628	11,820	3.96	46,760	5.09	5.97	11.06	2,378	2,793								
3 m "G" ore	60	0	0.00	0	0.00	0.00	0.00	0	0	3,780	4.01	15,150	5.14	5.34	10.48	778	809								
Siliceous	20	0	0.00	0	0.00	0.00	0.00	0	0	0	0	0	0.00	0.00	0.00	0	0								
1146 Total R&G		20,410	4.00	81,641	4.96	5.68	10.64	4,048	4,635	20,130	4.00	80,610	5.16	5.71	10.87	4,211	4,662	26,743	3.91	104,711	3.73	3.63	7.36	3,906	3,801
"R" ore		20,410	4.00	81,641	4.96	5.68	10.64	4,048	4,635	14,940	3.97	59,300	3.73	4.24	7.97	3,043	3,465								
6 m "G" ore	60	0	0.00	0	0.00	0.00	0.00	0	0	5,190	4.11	21,310	5.48	5.62	11.10	1,168	1,197								
Siliceous	20	0	0.00	0	0.00	0.00	0.00	0	0	0	0	0	0.00	0.00	0.00	0	0								

1146 VARIANCE

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Blasthole-Geomodel	6,333	(0.09)	23,079	(1.23)	(2.05)	(3.28)	(142)	(834)
% Variance (Blasthole-Geomodel) /Geomodel	31	(2)	28	(25)	(36)	(31)	(4)	(18)

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Blasthole-Pcmine	6,613	(0)	24,101	(1)	(2)	(4)	(306)	(861)
% Variance (Blasthole-Pcmine) /Pcmine	33	(2)	30	(28)	(36)	(32)	(7)	(18)

1143 Total R&G		23,530	4.00	94,119	4.64	5.59	10.23	4,366	5,265	23,700	3.92	92,830	4.55	5.58	10.13	4,221	5,182								
"R" ore	65	23,530	4.00	94,119	4.64	5.59	10.23	4,366	5,265	18,480	3.93	72,690	4.54	5.58	10.12	3,300	4,055								
3 m "G" ore	60	0	0.00	0	0.00	0.00	0.00	0	0	5,220	3.86	20,140	4.57	5.59	10.17	921	1,126								
Siliceous	20	711	2.94	2,090	NO GRADE DATA AVAILABLE					0	0	0	0.00	0.00	0.00	0	0								
1140 Total R&G		36,668	4.00	146,674	4.69	5.21	9.90	6,885	7,637	38,140	3.94	150,170	4.57	5.26	9.83	6,863	7,903								
"R" ore	65	36,668	4.00	146,674	4.69	5.21	9.90	6,885	7,637	28,130	3.96	111,490	4.57	5.21	9.78	5,092	5,812								
3m "G" ore	60	0	0.00	0	0.00	0.00	0.00	0	0	10,010	3.86	38,680	4.58	5.41	9.99	1,771	2,091								
Siliceous	20	1,733		5,095	NO GRADE DATA AVAILABLE					560	3.07	1,720	2.95	4.94	7.89	51	85								
1140 Total R&G		60,198	4.00	240,793	4.67	5.36	10.03	11,251	12,903	61,840	3.93	243,000	4.60	5.43	10.04	11,084	13,085	62,173	3.98	247,241	4.44	4.79	9.23	10,978	11,843
"R" ore	65	60,198	4.00	240,793	4.67	5.36	10.03	11,251	12,903	46,610	3.95	184,180	3.49	4.10	7.58	8,392	9,867								
6 m "G" ore	60	0	0.00	0	0.00	0.00	0.00	0	0	15,230	3.86	58,820	4.58	5.47	10.05	2,692	3,218								
Siliceous	20	2,444	2.94	7,186	NO GRADE DATA AVAILABLE					560	3.07	1,720	2.95	4.94	7.89	51	85								

1140 VARIANCE

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Blasthole-Geomodel	1,975	(0.02)	6,448	(0.23)	(0.57)	(0.80)	(273)	(1,060)
% Variance (Blasthole-Geomodel) /Geomodel	3	(1)	3	(5)	(11)	(8)	(2)	(8)

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Blasthole-Pcmine	333	0	4,241	(0)	(1)	(1)	(106)	(1,242)
% Variance (Blasthole-Pcmine) /Pcmine	1	1	2	(4)	(12)	(8)	(1)	(9)

1137 Total R&G		43,039	4.00	172,155	4.55	5.22	9.76	7,826	8,978		40,970	3.98	163,150	4.61	5.17	9.78	7,518	8,440														
"R" ore	65	25,579	4.00	102,315	4.73	5.07	9.80	4,836	5,192		24,340	4.01	97,680	4.81	5.17	9.98	4,698	5,051														
3 @ "G" ore	60	17,460	4.00	69,839	4.28	5.42	9.70	2,989	3,786		16,630	3.94	65,470	4.31	5.18	9.48	2,820	3,389														
Siliceous	20	1,523	2.94	4,479	NO GRADE DATA AVAILABLE						0	0	0	0.00	0.00	0.00	0	0														
1134		41,389	4.00	165,555	4.62	5.38	10.00	7,652	8,904		35,830	4.03	144,460	4.69	5.42	10.11	6,780	7,828														
"R" ore	65	25,435	4.00	101,741	4.79	5.29	10.08	4,869	5,387		13,660	4.05	55,380	4.93	5.42	10.35	2,731	3,002														
3 @ "G" ore	60	15,954	4.00	63,814	4.36	5.51	9.87	2,783	3,517		22,170	4.02	89,080	4.54	5.42	9.96	4,048	4,826														
Siliceous	20	2,632	2.94	7,739	NO GRADE DATA AVAILABLE						750	3.24	2,430	3.29	5.10	8.40	80	124														
1134 Total R&G		84,427	4.00	337,709	4.58	5.29	9.88	15,478	17,881		76,800	4.01	307,610	4.23	4.82	9.05	14,297	16,268		68,769	4.09	280,965	4.26	4.46	8.72	11,969	12,531				
"R" ore		51,014	4.00	204,056	4.76	5.18	9.94	9,706	10,579		38,000	4.03	153,060	3.64	3.95	7.59	7,430	8,053														
6 @ "G" ore	60	33,413	4.00	133,653	4.32	5.46	9.78	5,772	7,302		38,800	3.98	154,550	4.44	5.32	9.76	6,868	8,215														
Siliceous	20	4,156	2.94	12,218	NO GRADE DATA AVAILABLE						750	3.24	2,430	3.29	5.10	8.40	80	124														

1134 VARIANCE

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Blasthole-Geomodel	(15,658)	0.09	(56,744)	(0.32)	(0.83)	(1.16)	(3,509)	(5,350)
% Variance (Blasthole-Geomodel) /Geomodel	(19)	2	(17)	(7)	(16)	(12)	(23)	(30)

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Blasthole-Pcmine	(8,031)	0	(26,645)	0	(0)	(0)	(2,328)	(3,737)
% Variance (Blasthole-Pcmine) /Pcmine	(10)	2	(9)	1	(7)	(4)	(16)	(23)

TOTAL TONNAGES FOR 1990 Geomodel Polygonal Calculations.									PCMINE Block Model Calculation - V9009								Blast Hole Database - Actual Mined							
"R" ore	131,622	4.00	526,489	4.75	5.34	10.09	25,004	28,117	99,550	3.98	396,540	4.76	5.39	10.15	18,865	21,385									
"G" ore	33,413	4.00	133,653	4.32	5.46	9.78	5,772	7,302	59,220	3.96	234,680	4.57	5.38	9.95	10,728	12,630									
									1,310	3.17	4,150	3.15	5.04	8.19	131	209									
TOTAL R&G ORE +/- Siliceous	165,036	4.00	660,143	4.66	5.37	10.03	30,777	35,419	160,080	3.97	635,370	4.68	5.39	10.06	29,723	34,224	157,685	4.01	632,917	4.24	4.45	8.69	26,852	28,175

1990 MINED ORE RESERVE VARIANCES FOR TOTAL "R" & "G" ORE

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Blasthole-Geomodel	(7,351)	0.01	(27,226)	(0.42)	(0.91)	(1.33)	(3,924)	(7,244)
% Variance (Blasthole-Geomodel) /Geomodel	(4)	0	(4)	(9)	(17)	(13)	(13)	(20)

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Blasthole-Pcmine	(2,395)	0.04	(2,453)	(0.44)	(0.93)	(1.37)	(2,871)	(6,049)
% Variance (Blasthole-Pcmine) /Pcmine	(1)	1	(0)	(9)	(17)	(14)	(10)	(18)

The existing interpretation for Vangorda shows several thin discontinuous baritic ore horizons (62) above the main horizon (61). The 62 horizon has undergone more extreme deformational events. When comparing blasthole assay maps with interpreted planviews these 62 bands do not compare favourably. The folded and faulted nature of these thin bands makes mining a difficult task. A significant amount of the 62 horizon has not been recovered due to strucural complexity, and the thin TRUE thickness of these bands.

Several times shovels have free dug into areas of ore. Free digging of ore sometimes results in losses in ore due to uncertainty in ore location. In addition to ore being wasted, over digging inhibits an accurate blasthole inventory The 1140 bench was over excavated in several instances.

The present V9009 interpretation has a band of 61 smeared along a fault zone. This thin band is moderatly discontinuous and does not show up on some of the benches.

Upon visual comparisons between geomodel bench plans and blasthole plans, several 62 horizon polygons were not recovered, or no blast hole record was kept.(Due to Free digging) The polygon tonnages and grades are:

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Unrecovered polygons	21,453	4.00	85,810	5.30	5.01	10.31	4,549	4,299

VARIANCES WITH UNRECOVERED POLYGONS SUBTRACTED FROM MODEL VALUES

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Geomodel -								
Unrecovered polygons	143,583	4.00	574,332	4.57	5.42	9.99	26,227	31,120
Blasthole-Geomodel	14,102	0.01	58,585	(0.32)	(0.97)	(1.29)	625	(2,945)
% Variance								
(Blasthole-Geomodel)	10	0	10	(7)	(18)	(13)	2	(9)
/Geomodel								

	Volume	Dens.	Tonnage	%Pb	%Zn	%Pb+Zn	t Pb	t Zn
Pcmine -								
Unrecovered polygons	138,627	3.96	549,560	4.38	5.21	9.59	25,174	29,925
Blasthole-Pcmine	19,058	0.05	83,357	(0.14)	(0.76)	(0.90)	1,678	(1,750)
% Variance								
(Blasthole-Pcmine)	14	1	15	(3)	(15)	(9)	7	(6)
/Pcmine								

MINING LOSS & DILUTION CALCULATIONS

Assuming the grade of the dilution is 0 a rough estimate of the dilution and the recovery can be done through ratios.

% Apparent Internal Dilution = ((Undiluted Grade - Diluted Grade)/Diluted Grade)*100
% Apparent Internal Dilution = 15.33 %

% Recovery = (Tonnes Metal Recovered/Tonnes insitu-metal)*100
% Recovery = 87.13 %

RESERVE CALCULATIONS AND METHODS

Geomodel Polygonal Reserves **3 meter Bench**

Geomodel tonnes, volumes and grades were calculated by using the MINE MODEL module in GEOMODEL. Actual pit mining limits were digitized from the survey year end status map. These outlines were then merged into GEOMODEL. The MINE MODEL module produced polygonal areas & average grades for baritic polygons. Bench Heights were adjusted in areas of High floors. Refractory & Good ore was calculated from a visual inspection of the oxidation surface on sections. This enabled plan polygons to be labled as "G" or "R" ore. Reserves are undiluted with no mining loss.

Pcmine V9009 Block Model Reserves **3 meter Bench**

Pcmine tonnes, grades and volumes were calculated from the V9009 block model. The surveyed topographic surface was used for the top mining surface. The bottom surface used was the Dec 1990 month end surface. The baritic ore was calcuated using only massive pyritic & baritic ore types (50 & 60). No cut off grades were used. The siliceous ore calculations only used rock types 20 & 80, a 6% Pb+Zn cut off was used. Refractory ore determination was done using a contoured oxidation surface derived from DDH information. Good ore was determined from subtracting refractory ore from the total baritic ore. Reserves are undiluted with no mining loss.

Actual Mined Reserves From Blastholes. **6 meter Bench**

Blasthole values were calculated from a daily inventory symphony spread sheet. Grades were determined from blasthole assays, sampling only ore. Volumes were calculated using polygons encompassing each blasthole. Partial polygon volumes were used for blastholes containing waste and ore. Tonnes were calculated from a specific gravity determined from a regression formula.

REMAINING RESERVES ACCORDING TO THE V9009 PCMINE INTERPRETATION - AS OF DEC 28TH 1990

	Volume bcm	Dens. t/bcm	Tonnage	%Pb	%Zn	%Pb+Zn	Ag g/t	Au g/t	t Pb	t Zn	Oz Ag	Oz Au
Good Baritic Ore > 0%	1,032,290	4.10	4,230,810	4.36	5.39	9.74	54.32	0.842	184,284	227,886	7,388,152	114,540
Refractory Baritic Ore >0%	95,920	4.05	388,140	4.78	5.29	10.06	57.23	0.770	18,534	20,521	714,174	9,609
Non-Baritic Ore > 6%	166,710	3.09	514,750	3.07	4.73	7.80	40.62	0.682	15,808	24,337	672,246	11,287
Non-Baritic Ore 5 - 6 %	101,320	2.92	296,280	2.18	3.30	5.49	28.64	0.535	6,468	9,783	272,815	5,096
Non-Baritic Ore 4 - 5 %	117,570	2.96	348,210	1.80	2.69	4.49	24.32	0.528	6,268	9,367	272,268	5,911
Sulfide Waste	3,330,600	2.98	9,909,350	0.00	0.00	0.00	0.00	0.000	0	0	0	0
Phylite Waste	936,120	2.70	2,527,520	0.00	0.00	0.00	0.00	0.000	0	0	0	0
Overburden	2,349,930	2.10	4,932,640	0.00	0.00	0.00	0.00	0.000	0	0	0	0
Total Material	8,130,460	2.85	23,147,700									
Total Ore	1,513,810	3.82	5,778,190	4.00	5.05	9.06	50.17	0.788	231,362	291,895	9,319,656	146,443

PRELIMINARY

No mining Recovery or dilution factors have been applied for the remaining reserves listed above.
The west ramp pit design was used for the remaining reserve calculation.

LIKELY TOO HIGH SINCE BIASED TOWARDS HIGH DILUTION

REMAINING RESERVES WITH MINING LOSS AND DILUTION ADDED - 17 % MINING LOSS AND 15 % DILUTION (TO EQUATE TO BLASTHOLE RESERVES)
(USING DILUTION AND MINING LOSS CALCULATED FROM ALREADY MINED MATERIAL)

	Volume bcm	Dens. t/bcm	Tonnage	%Pb	%Zn	%Pb+Zn	Ag g/t	Au g/t	t Pb	t Zn	Oz Ag	Oz Au
Good Baritic Ore > 0%	1,011,644	4.10	4,146,194	3.69	4.56	8.25	46.00	0.713	152,956	189,146	6,132,167	95,068
Refractory Baritic Ore >0%	94,002	4.05	380,377	4.04	4.48	8.52	48.47	0.652	15,383	17,032	592,765	7,975
Non-Baritic Ore > 6%	163,376	3.09	504,455	2.60	4.00	6.61	34.40	0.578	13,121	20,200	557,964	9,368
Non-Baritic Ore 5 - 6 %	99,294	2.92	290,354	1.85	2.80	4.65	24.26	0.453	5,368	8,120	226,436	4,230
Non-Baritic Ore 4 - 5 %	115,219	2.96	341,246	1.52	2.28	3.80	20.60	0.447	5,202	7,774	225,983	4,906
Sulfide Waste	3,360,876	2.98	10,024,914	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Phylite Waste	936,120	2.70	2,527,520	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Overburden	2,349,930	2.10	4,932,640	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Total Material	8,130,460	2.85	23,147,700									
Total Ore	1,483,534	3.82	5,662,626	3.39	4.28	7.67	42.49	0.668	192,030	242,272	7,735,314	121,547

PRELIMINARY

Dilution grades are assumed to be equal to zero.
The ore which contributes to the high mining loss is the baritic 62 horizon. This horizon is most prevalent in the areas where mining occured in 1990.
As mining progresses in 1991 the main horizon ore becomes the dominant source of high grade. The result should be a lower mining loss.

REMAINING RESERVES WITH MINING LOSS AND DILUTION ADDED - 10 % MINING LOSS AND 20 % DILUTION (AS USED BY J. HENDRY & C. REED)

	Volume bcm	Dens. t/bcm	Tonnage	%Pb	%Zn	%Pb+Zn	Ag g/t	Au g/t	t Pb	t Zn	Oz Ag	Oz Au
Good Baritic Ore > 0%	1,135,519	4.10	4,653,891	3.56	4.41	7.97	44.44	0.689	165,856	205,098	6,649,337	103,086
Refractory Baritic Ore >0%	105,512	4.05	426,954	3.91	4.33	8.23	46.82	0.630	16,680	18,469	642,757	8,648
Non-Baritic Ore > 6%	183,381	3.09	566,225	2.51	3.87	6.38	33.23	0.558	14,227	21,904	605,022	10,158
Non-Baritic Ore 5 - 6 %	111,452	2.92	325,908	1.79	2.70	4.49	23.43	0.438	5,821	8,805	245,533	4,587
Non-Baritic Ore 4 - 5 %	129,327	2.96	383,031	1.47	2.20	3.67	19.90	0.432	5,641	8,430	245,041	5,320
Sulfide Waste	3,179,219	2.94	9,331,531	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Phylite Waste	936,120	2.70	2,527,520	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Overburden	2,349,930	2.10	4,932,640	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Total Material	8,130,460	2.85	23,147,700									
Total Ore	1,665,191	3.82	6,356,009	3.28	4.13	7.41	41.65	0.645	209,225	262,705	8,387,690	131,798

PRELIMINARY

Dilution grades are assumed to be equal to zero.