

000487

CURRAGH RESOURCES INC.

INTER-OFFICE MEMORANDUM

TO: Kurt Forgaard
Bill Weymark
Marv Pelley

FROM: Gregg Jilson
Cam Reed

DATE: 1989 08 24

Noted Aug 25/89
① file
② copy to Ref-Ed
BRW

Last month we carried out a number of recalculations of grade for the geological interpretation by Steven Cheeseman using the total assay data base to the end of 1987.

The calculations have involved varying the rules followed during interpolation by computer and the use of various assay composite types. The results are shown on the attached Tables.

Table 1

Compares 4 different calculations to blastholes. On the extreme left is the original model (F8805) as calculated by S. Cheeseman. On the extreme right are blastholes for benches 3410 to 3310 in the BZ phase (the same benches and areas as reconciled by Ed Blaxland).

The columns to the right of Cheesman's calculation are gradually "more relaxed" recalculations. Beside the blasthole columns is our favoured calculation which uses bench composited assays and a loose matching of rock types. We propose to call this calculation the F8908 model. Because of the bench composites this calculation is not diluted. The comparison of high grade volume to blasthole volumes is very good, however, the tonnage comparison is not as good and is due to the low blasthole density used, (the average of 3 tonnes per cubic yard). Overall at a 4% cutoff blastholes and model are still relatively close.

Table 2

Compares the same 4 calculations to the blastholes for the 3630 bench August 1989 mining volume. It is apparent that our favoured model (F8908) came much closer to the actual tonnage blocked out.

Table 3

Compares total volume mined to date by Curragh for the new bench composite model (F8908), as well as the remaining reserves and the overall start of mining reserves. It appears that the new model calculation does not distort the overall tonnage and grade of the deposit at low cutoff grades as what was originally feared.

We therefore recommend that the F8908 model replace the F8805 model and be used for future mine planning. However, in no case should the current dilution practice of 10% dilution at zero grade with a 95% mining recovery be applied to the F8908 model otherwise grades will be far too low. The dilution by blasthole drilling is inherently included in the model blocks because of the bench compositing.

I believe this brief discussion will need much amplification with the Faro Mine staff. Should you agree that the F8908 model is to be used we will see that this information is conveyed and the model will be made available immediately.

W. H. C. C. C.

WAGH RESOURCES INC.
 10 MINE
 COMPARISON OF PREDICTED TO ACTUAL BENCH ORE

TABLE I

F8805					F8903					BLASTHOLE														
ACTUAL DIG LIMITS					ACTUAL DIG LIMITS					ACTUAL DIG LIMITS					BLASTHOLE									
GEOLOGICAL COMP, STRICT MATCH CALCULATED BY PC/MINE UNDILUTED					GEOLOGICAL COMP, LOOSE MATCH CALCULATED BY PC/MINE UNDILUTED					BENCH COMP, STRICT MATCH CALCULATED BY PC/MINE UNDILUTED					BENCH COMP, LOOSE MATCH CALCULATED BY PC/MINE UNDILUTED					at 3 tonnes/bcy for all rocks				
Tonnes	Volume (bcy)	Pb+Zn (%)	Metal (tonnes)		Tonnes	Volume (bcy)	Pb+Zn (%)	Metal (tonnes)		Tonnes	Volume (bcy)	Pb+Zn (%)	Metal (tonnes)		Tonnes	Volume (bcy)	Pb+Zn (%)	Metal (tonnes)		Tonnes	Volume (bcy)	Pb+Zn (%)	Metal (tonnes)	
10	4-5I	39,660	15,713	4.56	1,810	18,420	21,606	4.54	2,651	112,370	45,176	4.45	5,005		87,900	35,355	4.48	3,936		74,276	24,759	4.56	3,387	
	5-7I	94,760	32,736	5.84	5,334	174,890	55,652	6.14	10,738	173,930	52,378	6.11	10,618		254,870	80,531	6.03	15,361		308,952	102,984	6.08	18,784	
	+7I	490,750	142,731	8.70	42,695	478,610	140,112	8.64	41,338	348,000	101,483	8.57	29,820		420,730	124,399	8.48	35,686		303,569	101,190	9.04	27,443	
	+5I	585,510	175,467	8.24	48,229	633,500	195,764	7.97	52,076	521,930	155,861	7.75	40,439		675,600	204,930	7.56	51,047		612,521	204,174	7.55	46,227	
	+4I	625,170	191,181	8.00	50,039	711,920	217,370	7.69	54,727	634,300	199,837	7.16	45,444		763,500	240,285	7.20	54,983		686,797	228,932	7.22	49,614	
90	4-5I	39,190	17,023	4.68	1,835	12,770	20,951	4.62	2,440	59,120	24,225	4.74	2,800		60,460	22,916	4.68	2,829		77,223	25,741	4.99	3,853	
	5-7I	188,950	7,267	5.99	11,318	186,880	94,936	6.04	16,109	209,950	76,603	5.82	11,978		320,900	112,613	5.96	19,119		200,245	66,748	6.21	12,435	
	+7I	266,570	75,949	8.55	22,802	264,650	81,544	7.92	17,009	251,530	72,675	8.11	20,397		170,430	49,104	7.86	13,401		202,520	67,507	8.54	17,295	
	+5I	455,520	83,216	7.49	34,121	491,530	156,480	6.88	33,118	457,480	149,278	7.08	32,375		491,330	161,718	6.62	32,520		402,765	134,255	7.38	29,730	
	+4I	494,710	100,239	7.27	35,955	544,300	177,431	6.65	35,357	516,600	173,503	6.81	35,175		551,790	184,633	6.41	35,349		479,988	159,996	7.00	33,584	
70	4-5I	51,310	22,261	4.87	2,497	11,980	22,261	4.87	2,530	63,980	27,499	4.40	2,816		55,360	22,916	4.48	2,482		42,875	14,292	4.74	2,032	
	5-7I	69,210	29,463	5.41	3,744	18,910	33,033	5.89	8,768	53,140	20,951	5.69	3,023		126,490	40,593	5.98	7,562		143,172	47,724	6.13	8,776	
	+7I	292,630	86,424	9.04	26,460	292,990	89,401	8.74	20,368	278,340	81,841	8.68	24,146		196,370	58,271	8.47	16,633		256,933	85,651	8.36	21,481	
	+5I	361,840	115,887	8.35	30,203	361,900	122,434	7.63	29,136	331,480	102,792	8.20	27,169		322,860	98,864	7.49	24,194		400,125	133,375	7.56	30,258	
	+4I	413,150	138,147	7.91	32,700	433,880	144,695	7.30	31,666	393,460	130,290	7.58	29,985		378,220	121,779	7.05	26,676		443,000	147,667	7.29	32,290	
130	4-5I	42,220	18,332	4.54	1,918	42,210	18,332	4.54	1,918	21,100	9,166	4.54	957		10,700	4,583	4.45	476		64,167	21,389	4.53	2,907	
	5-7I	34,060	14,404	5.96	2,030	34,080	14,404	5.96	2,032	40,570	17,023	5.81	2,356		36,020	15,059	5.99	2,156		71,083	23,694	6.56	4,663	
	+7I	172,110	49,104	8.44	14,528	171,430	49,104	8.11	13,901	182,760	56,961	8.31	15,180		201,750	64,163	7.94	16,009		102,333	34,111	8.09	8,279	
	+5I	206,170	63,509	8.03	16,558	205,510	63,509	7.75	15,933	223,330	73,984	7.85	17,336		237,770	79,222	7.64	18,165		173,416	57,805	7.46	12,942	
	+4I	248,390	81,841	7.44	18,476	247,720	81,841	7.21	17,850	244,430	83,150	7.57	18,493		248,470	83,805	7.50	18,640		237,583	79,194	6.67	15,849	
130	4-5I	22,600	9,821	4.47	1,011	22,600	9,821	4.47	1,011	21,180	9,166	4.66	986		40,090	17,678	4.51	1,808		36,000	12,000	4.87	1,753	
nd	5-7I	72,650	31,427	6.11	4,437	72,600	31,427	6.11	4,434	68,790	28,153	5.82	4,000		84,350	34,046	6.16	5,192		10,967	3,656	5.75	631	
110	+7I	36,160	10,476	8.40	3,036	38,440	11,130	8.29	3,185	12,160	4,583	7.84	953		27,570	9,821	7.71	2,126		28,606	9,535	8.56	2,449	
	+5I	108,810	41,903	6.87	7,473	111,040	42,557	6.86	7,619	80,950	32,736	6.12	4,953		111,920	43,867	6.54	7,318		39,573	13,191	7.78	3,079	
	+4I	131,410	51,723	6.46	8,484	133,640	52,378	6.46	8,630	102,130	41,903	5.82	5,939		152,010	61,544	6.00	9,126		75,573	25,191	6.39	4,832	
total	4-5I	194,980	83,150	4.65	9,071	227,980	92,971	4.63	10,549	277,750	115,232	4.52	12,565		254,510	103,447	4.53	11,530		294,541	98,180	4.73	13,933	
110	5-7I	459,630	115,297	5.89	27,063	697,360	249,451	6.03	42,080	542,380	195,109	5.90	31,975		822,630	282,843	6.00	49,389		734,419	244,806	6.17	45,290	
110	+7I	1,258,220	364,684	8.70	109,521	1,136,120	331,292	8.43	95,801	1,072,790	317,543	8.44	90,496		1,016,850	305,758	8.25	83,855		893,981	297,994	8.61	76,947	
110	+5I	1,717,850	479,981	7.95	136,584	1,833,480	580,744	7.52	137,881	1,613,170	512,651	7.58	122,471		1,839,480	588,600	7.24	133,244		1,628,400	542,800	7.51	122,236	
110	+4I	1,812,870	547,111	7.41	145,454	2,061,460	673,714	7.20	148,430	1,892,920	627,881	7.11	135,015		2,093,990	692,047	6.91	144,774		1,922,941	640,980	7.08	134,140	

TABLE III

	ACTUAL DIG LIMITS F8805 MODEL GEOL COMP, STRICT MATCH CALCULATED BY PCNINE UNDILUTED					ACTUAL DIG LIMITS F8805 MODEL GEOL COMP, STRICT MATCH CALCULATED BY PCNINE DILUTED					ACTUAL DIG LIMITS F8908 MODEL BENCH COMP, LOOSE MATCH CALCULATED BY PCNINE UNDILUTED					BLASTHOLE CALCULATION (AVERAGE ORE DENSITY = 3MT/BCY)					
	Tonnes	Volume	Density	Pb+Zn	Metal	Tonnes	Pb+Zn	Metal	Tonnes	Volume	Density	Pb+Zn	Metal	Tonnes	Volume	Density	Pb+Zn	Metal			
			at/bcy	(%)	(tonnes)		(%)	(tonnes)			at/bcy	(%)	(tonnes)		bcy	at/bcy	(%)	(tonnes)			
art-up	4-52	893,260	357,481	2.50	4.54	40,536		933,457	4.13	38,509	4-52	1,839,920	643,073	2.86	4.51	82,962					
	5-62	1,261,120	472,746	2.67	5.50	69,412		1,317,870	5.00	65,941	5-62	2,214,860	753,264	2.94	5.53	122,482					
	ne 30 89	6-72	1,525,020	524,470	2.91	6.49	99,020		1,593,646	5.90	94,069	6-72	2,193,740	715,323	3.07	6.51	142,747				
		+72	9,359,150	2,895,171	3.23	10.16	950,796		9,780,312	9.24	903,256	+72	7,930,020	2,498,210	3.17	9.70	769,291				
		+62	10,884,170	3,419,640	3.18	9.65	1,049,816		11,373,958	8.77	997,325	+62	10,123,760	3,213,532	3.15	9.01	912,038				
		+52	12,145,290	3,892,386	3.12	9.22	1,119,228		12,691,828	8.38	1,063,266	+52	12,338,620	3,966,796	3.11	8.38	1,034,520	+52	12,279,176	4,093,059	3.00
+42	13,038,550	4,249,868	3.07	8.89	1,159,764		13,625,285	8.09	1,101,776	+42	14,178,540	4,609,870	3.08	7.88	1,117,482	+42	13,722,635	4,574,212	3.00	8.07	1,107,671
ne 30 89	4-52	1,377,870	535,698	2.57	4.17	61,605		1,439,874	4.06	58,524	4-52	2,360,490	829,507	2.85	4.49	105,939					
	5-62	1,092,250	429,141	2.55	5.50	60,030		1,141,401	5.00	57,029	5-62	2,037,340	710,150	2.87	5.50	112,135					
	tinate	6-72	1,179,520	446,000	2.64	6.32	76,940		1,232,598	5.93	73,093	6-72	2,039,860	698,627	2.92	6.49	132,285				
		+72	7,821,850	2,461,778	3.18	9.96	779,134		8,173,833	9.06	740,178	+72	6,863,540	2,212,587	3.10	9.27	636,525				
		+62	9,001,370	2,907,778	3.10	9.51	856,075		9,406,432	8.65	813,271	+62	8,903,400	2,911,214	3.06	8.64	768,810				
		+52	10,893,620	3,336,919	3.02	9.08	916,105		10,547,833	8.25	870,299	+52	10,940,740	3,621,364	3.02	8.05	880,945				
+42	11,471,490	3,872,617	2.96	8.32	977,709		11,987,707	7.75	928,824	+42	13,301,230	4,450,871	2.99	7.42	986,884						
tal ning serves	4-52	2,271,130	893,180	2.54	6.00	102,141		2,373,331	4.09	97,034	4-52	4,200,410	1,472,580	2.85	4.50	188,901					
	5-62	2,353,370	901,887	2.61	5.50	129,442		2,459,272	5.00	122,970	5-62	4,252,200	1,463,414	2.91	5.52	234,617					
	6-72	2,704,540	970,470	2.79	6.51	175,960		2,826,244	5.91	167,162	6-72	4,233,600	1,413,950	2.99	6.50	275,032					
	+72	17,181,000	5,356,949	3.21	10.07	1,729,931		17,954,145	9.15	1,643,434	+72	14,793,560	4,710,797	3.14	9.50	1,405,816					
	+62	19,885,540	6,327,419	3.14	9.58	1,905,890		20,780,389	8.71	1,810,596	+62	19,027,160	6,124,747	3.11	8.83	1,680,848					
	+52	22,238,910	7,229,306	3.08	9.15	2,035,332		23,239,661	8.32	1,933,566	+52	23,279,360	7,588,161	3.07	8.23	1,915,464					
+42	24,510,040	8,122,485	3.02	8.72	2,137,473		25,612,992	7.93	2,030,599	+42	27,479,770	9,060,741	3.03	7.66	2,104,365						

LOADING SAG
HAULING SAG - FARD
OFF LOAD FARD
STORAGE & HANDLE - FARD
REHANDLE TO MILL -
PROCESSING MILL - 2x Current 14.80
ASSAY & ANALYSIS -
HAZARD WASTE EXPERT -
FUTURE LIABILITY -
INDEM FROM PCB ETC ->