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TO: FAX #: _____

DAVE TENNEY

FROM: CAM REED

WHITEHORSE OFFICE

DATE: MAY 17/1990

SUBJECT: 1ST QUARTER RECONCILIATION / F8908 comparison.

Dave: Marv asked me to do a first
quarter reconciliation of predicted ore vs.
blasthole. He also wanted suggestions on
how to speed up this process. This
is a copy of that report. If you have
any questions or suggestions
give me a call! *Cam*

If all pages are not received, please contact _____ at 668-8021

THIS TRANSMISSION CONSISTS OF 7 PAGES
(Including cover page)

CURRAGH RESOURCES INC.**Inter-Office Memorandum**

TO: Marvin H. Palley
Executive Vice-President, Mining
Toronto Office

FROM: Cam Reed
Geologist
Whitehorse Office

cc: Gregg A. Jilson
Vice-President, Exploration
Whitehorse Office
Dava Tenney
Chief Geologist
Faro Minesite

RE: **FIRST QUARTER 1990 PREDICTED vs FLAGGED
IN PIT ORE PRODUCTION**

DATE: 05 16 1990**CONCLUSIONS**

At a 5% Pb+Zn cutoff, total metal flagged in pit and mined January 1, 1990 to April 30, 1990 was 153,860 tonnes. Metal predicted by the 1990 budget reserve base (F8908 interpretation) within the actual mined volume was 178,810 tonnes. This represents a shortfall of 14%.

Shortfall is due in part to:

1. Ramp recovery and unconventional mining techniques from 3610 to 3710 benches.
2. Unreliability of blasthole sampling and data handling techniques when sampling twenty foot bench intervals from blastholes drilled two benches at a time. Current blasthole database is poorly suited to volume accounting in a ramp recovery situation.
3. Extra dilution incurred when blasting at a forty foot interval in ore. The reserve prediction is based on a twenty foot composite length and does not account for additional mixing and dilution which occurs in a forty foot blast.

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4. Low grade blasthole comparison in the first quarter are inconclusive because significant material below 5% Pb+Zn was wasted and/or not included in the blasthole database.
5. Unconventional mining methods such as blasting ore on forty foot lifts and wasting lower grade material was carried out to shorten a high grade ore millfeed gap. As predicted, ore grades and tonnes are significantly higher on the 3490 bench and the conservative F8908 prediction is confirmed on the 3470 bench by deep blastholes.

DISCUSSION

Blasthole reserves mined in the first quarter of 1990 were calculated from primary blasthole data collected and compiled at the Faro minesite. For the purposes of this study, blasthole reserves were re-calculated by two different methods.

1. BLASTHOLE FLAGGED IN PIT RESERVES are classified based on the assay of the blasthole and the practicality of selectively mining the blasthole. The block size is defined by the blasthole spacing which is generally 20 ft. x 20 ft. x 20 ft. Classifying, grouping and flagging in the pit of blasthole reserve blocks was completed by the Faro geologists.
2. BLASTHOLE INDICATED RESERVES are classified based entirely on the assay, without regard to the practicality of mining. Comparison of the two types of reserve calculations will give a ball park estimation of the mining dilution encountered.

For the reserves mined in the first quarter of 1990, dilution calculated by this method indicates mining dilution of 10% at 3.37 Pb+Zn for reserves above a 5% Pb+Zn cutoff.

The F8908 interpretation is the reserve base used by the 1990 budget and for the purposes of this comparison. The F8908 interpretation utilizes twenty foot grade composites, 95% mining recovery, and assays are "unclipped". Predicted reserves were calculated between

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the 1989 year end pit and the surveyed April 30, 1990 pit. Comparisons were made within the actual mined volume in the first quarter, 1990. No comparisons were made to the budget predictions directly, although the predicted reserve base for the 1990 budget and this study are the same. Dilution practices are also the same.

Comparisons of the 5% cutoff between predicted and blasthole flagged in the pit for the first quarter, 1990 indicate a shortfall of 14% total metal. The predicted reserve was 355,000 tonnes higher than flagged in the pit. Blasthole grade was 2% higher (7.96 blasthole vs 7.91 predicted).

The shortfall is a result of a combination of several reasons. All reserves mined above the 3490 bench in the first quarter, 1990 were mined from ramp recovery areas (3610 and 3590 benches) or blasted in forty foot and mined in 20 foot lifts (3750 to 3510 benches). These unconventional mining techniques were used to shorten a high grade ore gap and speed release of the bulk of high grade ore which occurs below 3510 bench in "S" phase.

Blasthole reserves were calculated from samples taken from two separate bench intervals from the same 40' blasthole. Samples collected in this manner are subject to considerable error, variance, and bias. It is unlikely that this technique will accurately represent what is actually on the bench.

In addition, blastholes do not have a spacial relationship in the current blasthole database. It may not be interfaced with the actual survey data. Accurate accounting of volumes using the database is not possible in situations where the bench floor and crest is not at the design toe and crest elevation. This is particularly true during ramp recovery phases.

To expedite ore release from the 3490 bench, low grade ore above 3490 was sent to the waste pile. As a result, the blasthole databases are incomplete and do not contain assays for some of the lower grade holes. With the current blasthole data, comparison of low grade blastholes and F8908 predictions are meaningless.

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The conservative nature of the F8908 prediction for benches mined conventionally and within the thick main ore horizon has been confirmed on 3490 bench. The F8908 predicted metal on the 3490 bench was 48,102 at a 5% Pb+Zn cutoff. 60,974 tonnes were flagged out by blastholes. This represents a 26.7% gain in total metal on this bench. Deep blastholes predict the continuation of this trend on the 3470 bench.

RECOMMENDATIONS

To facilitate quicker and more reliable reconciliations of blasthole vs predicted reserves, I propose the following:

1. Blastholes (ore and waste), should be surveyed and entered electronically into a database such as the PCXPLOER or ORECONTROL. This will greatly speed up compilation, plotting, and processing of blasthole data. Assay data may also be electronically entered directly from the assay laboratory. This will allow for more time devoted to either a manual or geostatistical definition of dig packets for the various grade categories. Average grades within the packets can be calculated very quickly. Since blastholes are given co-ordinate and elevation locations in the database, blasthole assays may be used to quickly update long range models. Actual survey data may also be used more effectively for the calculation of actual mined volumes.
2. The predictive capability of the F8908 is suspect for reserves mined in an unconventional manner. The style of compositing and the grade model parameters for the long range model were "fine tuned" based on previous mining experience which used conventional mining methods. Mining dilution is incorporated in the grade modelling process. Should dilution change because of a change in the mining method, the predictive capability of the F8908 is in jeopardy.
3. It was necessary to accept some ore loss at the top of the "S" phase in order to close the high grade ore gap, however every effort should be made to mine the remaining "S" phase and "E" phase by conventional methods, if possible.

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1ST QUARTER 1998 BLASTHOLES VS PREDICTED ORE PRODUCTION

FORMER PREDICTION						FLAGGED IN PIT						BLASTHOLE INDICATED					
Ton	Vol	Dens	Tonnes	SPb+Zn	Metal	Ton	Vol	Dens	Tonnes	SPb+Zn	Metal	Ton	Vol	Dens	Tonnes	SPb+Zn	Metal
CUTOFF = 5% Pb+Zn																	
* 3610	36,236	2.93	106,210	7.44	7,901	3610	16,356	2.99	48,935	7.64	3,741	3610	14,563	2.97	43,303	8.19	3,545
* 3590	25,287	2.96	74,917	8.06	6,037	3590	16,871	2.94	47,279	7.21	3,407	3590	13,952	2.97	41,420	7.96	3,297
* 3570	88,932	2.83	280,741	7.01	16,832	3570	49,015	2.85	139,779	7.26	10,155	3570	43,281	2.84	122,954	7.69	9,868
* 3550	94,742	3.04	287,878	6.95	19,996	3550	49,320	2.92	143,779	7.16	10,300	3550	44,820	2.92	130,906	7.66	10,823
* 3530	116,483	3.04	353,723	8.21	29,848	3530	106,986	3.02	323,355	7.42	23,983	3530	94,538	3.01	290,104	7.93	23,833
* 3510	198,193	3.15	624,464	8.13	50,794	3510	172,577	3.05	525,622	7.86	41,300	3510	152,493	3.06	466,389	8.39	39,112
Subtot:	551,873	3.04	1,675,933	7.75	129,880	Subtot:	410,325	2.99	1,220,769	7.56	92,806	Subtot:	365,655	3.00	1,095,464	8.00	88,470
3490	185,876	3.25	603,535	7.97	40,182	3490	219,852	3.21	705,285	8.65	40,974	3490	203,897	3.23	658,563	9.01	59,309
3470	3,110	3.21	9,985	9.82	901	3470						3470					
Subtot:	188,986	3.25	613,519	7.99	40,082	Subtot:	219,852	3.21	705,285	8.65	40,974	Subtot:	203,897	3.23	658,563	9.01	59,309
Total:	740,859	3.09	2,289,452	7.81	170,810	Total:	630,175	3.07	1,934,055	7.96	153,860	Total:	569,552	3.00	1,754,027	8.43	147,780
CUTOFF = 6% Pb+Zn																	
* 3610	38,699	2.93	98,860	7.76	6,986	3610	11,597	2.91	33,780	8.70	2,938	3610	11,727	2.92	34,382	8.91	3,056
* 3590	17,947	3.05	54,711	8.97	4,980	3590	11,742	2.86	33,540	7.80	2,617	3590	12,420	2.96	36,814	8.29	3,052
* 3570	48,882	2.87	148,211	7.99	11,199	3570	29,835	2.79	81,871	7.73	6,268	3570	32,883	2.84	93,459	8.38	7,836
* 3550	69,641	2.99	208,345	7.49	15,582	3550	26,896	2.86	76,866	8.20	6,388	3550	31,081	2.93	93,300	8.56	7,986
* 3530	97,883	3.00	291,863	8.69	26,239	3530	76,266	3.02	230,669	8.02	18,493	3530	74,795	3.01	225,434	8.63	19,463
* 3510	166,965	3.17	529,264	8.60	45,522	3510	125,554	3.06	384,187	8.59	32,994	3510	125,637	3.06	385,841	8.98	34,595
Subtot:	431,930	3.07	1,324,452	8.34	110,435	Subtot:	281,098	2.99	840,831	8.29	69,611	Subtot:	289,344	3.00	868,350	8.75	75,980
3490	157,874	3.32	521,275	8.38	43,688	3490	187,389	3.24	606,880	9.16	55,564	3490	176,522	3.27	576,787	9.51	54,837
3470	2,426	3.36	8,151	9.79	790	3470						3470					
Subtot:	159,500	3.32	529,426	8.40	44,486	Subtot:	187,389	3.24	606,880	9.16	55,564	Subtot:	176,522	3.27	576,787	9.51	54,837
Total:	591,437	3.13	1,853,878	8.36	154,920	Total:	468,399	3.09	1,446,911	8.65	125,177	Total:	465,865	3.10	1,445,057	9.05	130,825

*Ramp Recovery

Blasted at 40 foot interval, Mined on 20 ft. interval

FLAGGED IN PIT: Reserves actually flagged in pit to be mined

BLASTHOLE INDICATED: Reserves calculated by assays only without regard to the practicality of mining.

CURRAGH RESOURCES INC.

1ST QUARTER 1990 BLASTHOLES VS PREDICTED ORE PRODUCTION

PREDICTION						FLAGGED IN PIT						BLASTHOLE INDICATED					
Toe	Vol	Dens	Tonnes	Pb+Zn	Metal	Toe	Vol	Dens	Tonnes	Pb+Zn	Metal	Toe	Vol	Dens	Tonnes	Pb+Zn	Metal
CUTOFF = 3% Pb+Zn																	
3610	36,236	2.93	106,210	7.44	7,981	3610	16,356	2.99	48,955	7.64	3,741	3610	29,393	2.99	87,532	6.83	5,280
3590	45,380	2.94	133,427	6.38	8,481	3590	14,871	2.94	47,279	7.21	3,487	3590	24,675	3.02	74,398	6.18	4,548
3570	113,559	2.88	317,984	6.26	19,915	3570	49,992	2.85	142,267	7.22	18,266	3570	76,728	2.81	215,481	6.89	13,131
3550	116,679	3.01	350,769	6.45	22,635	3550	49,985	2.91	145,665	7.13	18,391	3550	96,435	2.96	285,885	5.62	16,858
3530	751,817	3.01	457,320	7.38	33,371	3530	189,791	3.02	331,451	7.31	24,339	3530	145,371	2.95	429,398	6.68	28,686
3510	241,528	3.05	736,195	7.52	55,332	3510	189,232	3.04	576,852	7.53	43,363	3510	288,548	3.02	686,818	7.41	44,884
Subtot:	785,183	2.98	2,181,984	7.02	147,555	Subtot:	431,376	2.99	1,291,671	7.39	95,587	Subtot:	573,134	2.96	1,698,417	6.63	112,579
3490	229,283	3.17	726,288	7.36	53,171	3490	239,792	3.19	765,861	8.29	63,416	3490	243,781	3.28	778,896	8.24	64,219
3470	5,879	3.18	18,786	6.56	1,226	3470						3470					
Subtot:	235,882	3.17	744,914	7.34	54,697	Subtot:	239,792	3.19	765,861	8.29	63,416	Subtot:	243,781	3.28	778,896	8.24	64,219
Total:	948,265	3.03	2,846,818	7.18	202,252	Total:	671,168	3.06	2,056,732	7.73	158,923	Total:	816,914	3.03	2,477,512	7.14	176,798
CUTOFF = 4% Pb+Zn																	
3610	36,236	2.93	106,210	7.44	7,981	3610	16,356	2.99	48,955	7.64	3,741	3610	22,827	2.99	65,887	6.89	4,533
3590	37,635	2.93	118,438	6.87	7,591	3590	17,537	2.98	52,327	7.22	3,777	3590	17,537	2.98	52,327	7.22	3,777
3570	181,927	2.83	288,897	6.54	18,839	3570	49,696	2.85	141,513	7.23	18,234	3570	58,994	2.82	166,149	6.87	11,415
3550	188,148	3.04	328,989	6.65	21,859	3550	49,985	2.91	145,665	7.13	18,391	3550	68,958	2.94	202,981	6.51	13,288
3530	138,989	3.01	417,187	7.64	31,915	3530	188,823	3.02	328,714	7.37	24,233	3530	122,268	2.98	364,286	7.24	26,388
3510	228,992	3.18	685,672	7.81	53,578	3510	179,857	3.05	545,722	7.72	42,152	3510	182,947	3.04	555,883	7.77	43,164
Subtot:	643,847	3.01	1,957,812	7.31	141,688	Subtot:	421,453	3.08	1,262,897	7.49	94,531	Subtot:	472,715	2.98	1,487,273	7.28	182,478
3490	218,659	3.18	685,847	7.53	52,397	3490	228,483	3.19	729,711	8.58	62,881	3490	224,348	3.21	728,218	8.62	62,185
3470	4,324	3.17	13,788	7.76	1,864	3470						3470					
Subtot:	222,983	3.18	789,555	7.53	53,461	Subtot:	228,483	3.19	729,711	8.58	62,881	Subtot:	224,348	3.21	728,218	8.62	62,185
Total:	866,829	3.05	2,646,567	7.37	195,141	Total:	649,856	3.07	1,992,688	7.86	156,532	Total:	697,855	3.05	2,127,321	7.74	144,574

*Ramp Recovery

#Blasted at 48 foot interval, Mined on 28 ft. interval

FLAGGED IN PIT: Reserves actually flagged in pit to be mined

BLASTHOLE INDICATED: Reserves calculated by assays only without regard to the practicality of mining.

SENT BY: Xerox Telecodier 7020 : 5-17-90 : 8:28AM : CURRAGH Whitehorse

Faro Mine # 7