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CURRAGH RESOURCES INC.

JANUARY 1, 1989 GEOLOGICAL AND MINING RESERVES

Compiled by: C. Reed February 3, 1989

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SUMMARY

Total company geological reserve on January 1 1989 is 145.2 million tonnes grading 9.59% combined lead and zinc.

Total company mining reserve on January 1, 1989 is 82.4 million tonnes grading 3.49% lead, 6.24% zinc, and 55 grams per tonne silver.

Faro January 1, 1988 and 1989 reserves were calculated by the FI and F8805 model respectively. Comparison of each of the 1988 and 1989 model generated reserves indicate that mine reserves were depleted by 4.4 million tonnes and geological reserves were depleted by only 2.5 million tonnes during 1988. (Actual mined ore reserve was 4.6 million tonnes) Therefore, almost all of the additional reserve predicted by the new F8805 model is outside the current ultimate pit design.

Total Company proven geological reserves decreased by only 290,000 tonnes from 1988 to 1989 despite mining of 4.6 million tonnes at Faro during 1988. Mining depletion at Faro offset due to the following:

(1) New geology interpretation of Faro and Vangorda deposits.
(2) Pulp SG reductions in earlier Faro, Vangorda and Grum models have been removed because mining experience at Faro has shown pulp SG reductions are not justified.

Total company proven and probable mining reserves increased by 11.5 million tonnes from 1988 to 1989. Increase is due to:

(1) Preliminary mine designs proposed for DY and Swim Deposits in 1988
(2) Ore SG reductions present in earlier Faro, Vangorda and Grum (main zone) deposit models has been removed.

Approximately 60 million tonnes of geological reserves upgraded to probable from possible to correspond to OSC definitions.

CURRAGH RESOURCES INC. - GEOLOGICAL RESERVES - JANUARY 1, 1989

DISTRICT/DEPOSIT	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn
ANVIL DISTRICT:								
FARO								
Zone 3 Only	Proven	4.0	16,339,000	8.26	3.08	5.18	35.2	0.13
SW Undergrd	Probable	9.0	2,610,000	12.80	5.04	7.76	67.9	NA
Total deposit		NA	18,949,000	8.88	3.35	5.53	39.7	NA
GRUM								
Main Zone (61W-87W)	Proven	4.0	32,181,000	9.01	3.41	5.60	57.3	0.95
Champ Zone (51W-61)	Probable	4.0	1,700,000	7.80	3.50	4.30	46.0	NA
NW Extension (87W-100W)	Possible	NA	8,000,000	10.00	NA	NA	NA	NA
Total Deposit (51W-100W)	NA	NA	41,881,000	9.15	NA	NA	NA	NA
VANGORDA								
Total Deposit	Proven	4.0	8,161,000	8.67	3.79	4.88	54.0	0.76
DY								
Total Deposit	Probable	9.0	21,060,000	12.20	5.54	6.74	83.8	0.95
SWIM								
Total Deposit	Probable	4.0	5,130,000	7.90	3.50	4.40	47.0	NA
TOTAL ANVIL DISTRICT:		NA	95,181,000	9.66	NA	NA	NA	NA
AKIE DISTRICT								
CIRQUE								
Main Cirque	Probable	0.0	34,549,000	9.97	2.15	7.82	47.0	NA
South Cirque	Possible	0.0	15,453,000	8.26	1.40	6.87	31.3	NA
TOTAL AKIE DISTRICT:		NA	50,002,000	9.44	1.92	7.53	42.1	NA
TOTAL COMPANY		NA	NA 145,183,000	9.59	NA	NA	NA	NA

CURRAGH RESOURCES INC. - MINING RESERVES - JANUARY 1, 1989

DISTRICT/DEPOSIT	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	STRIP RATIO
ANVIL DISTRICT									
FARO									
Zone 3 Pit *	Proven	4.0	14,051,000	7.75	2.96	4.79	33.3	0.11	1.78
SW Underground	Prob.	9.0	2,014,000	11.59	4.59	7.00	61.3	NA	NA
Total deposit	NA	NA	16,065,000	8.23	3.16	5.07	36.8	NA	NA
GRUM PIT									
Main Zone Pit ** (61W-87W)	Proven	4.0	25,161,000	7.97	2.96	5.01	50.4	0.81	6.96
VANGORDA PIT									
Total Deposit **	Proven	4.0	6,935,000	8.00	3.49	4.51	49.7	0.65	2.23
DY UNDERGROUND									
Total Deposit	Prob.	9.0	11,404,000	13.94	6.47	7.47	95.1	1.02	NA
SWIM PIT									
Total Deposit **	Prob.	4.0	3,910,000	7.13	3.22	3.91	42.0	NA	6.21
TOTAL ANVIL DISTRICT:		NA	63,475,000	9.06	3.72	5.34	54.4	NA	NA
AKIE DISTRICT									
CIRQUE									
Main Cirque	Prob.	8.0	18,925,000	11.99	2.74	9.25	57.0	NA	NA
TOTAL COMPANY:			82,400,000	9.73	3.49	6.24	55.0	NA	NA

* Mining recovery 95%, Diluted 10% at 0% Pb+Zn
** Mining recovery 95%, Diluted 15% at 0% Pb+Zn

CURRAGH RESOURCES INC. - GEOLOGICAL RESERVES - JANUARY 1, 1989

C. Reed
February 2, 1989

	CLASS	CUT-OFF %Pb+Zn	VOLUME bcm*1000	DENSITY tns/bcm	TONNES tns*1000	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Method	Model Name	Model Date	Source #	SG Reduction	Top Surface	Bottom Surface
ANVIL DISTRICT:																	
FARO																	
Zone 3 Only	Proven	4.00	4,261	3.83	16,339	8.26	3.08	5.18	35.2	0.13	3D Block (1/d2)	FB805	May/88	7	NO	Dec 31/88 Pit	Model limit
SW Underground	Probable	9.00	675	3.90	2,610	12.80	5.04	7.76	67.9	NA	Polygonal	NA	Feb/87	2	NO	NA	NA
Total deposit		NA	4,936	3.84	18,949	8.88	3.35	5.53	39.7	NA							
GRUM																	
Main Zone (61N-87N)	Proven	4.00	8,971	3.59	32,181	9.01	3.41	5.60	57.3	0.95	3D Block (1/d2)	GB606	May/87	8	NO	Topo 1979	Model limit
Change Zone (51N-61)	Probable	4.00	NA	NA	1,700	7.80	3.50	4.30	46.0	NA				9			
NW Extension (87N-100N)	Possible	NA	NA	NA	8,000	10.00	NA	NA	NA	NA				10			
Total Deposit (51N-100N)	NA	NA	NA	NA	41,881	9.15	NA	NA	NA	NA							
VANGORDA																	
Total Deposit	Proven	4.00	2,122	3.85	8,161	8.67	3.79	4.88	54.0	0.76	3D Block (1/d2)	VB803	March/88	11	NO	Topo 1979	Model limit
BY																	
Total Deposit	Probable	9.00	5,297	3.98	21,060	12.20	5.54	6.74	83.8	0.95	Polygonal	NA	May/88	17			
SWIM																	
Total Deposit	Probable	4.00	1,353	3.79	5,130	7.90	3.50	4.40	47.0	NA	Polygonal	NA	March/88	5	NO	NA	NA
AKIE DISTRICT																	
CIRQUE																	
Main Cirque Zone	Probable	0.00	NA	NA	34,549	9.97	2.15	7.82	47.0	NA	Sectional	NA	1986	12	NO	NA	NA
South Cirque	Possible	0.00	NA	NA	15,453	8.26	1.40	6.87	31.3	NA	Sectional	NA	1986	6	NO	NA	NA
			NA	NA						NA							
Total Deposit	NA	NA	NA	NA	50,002	9.44	1.92	7.53	42.1	NA							

SOURCES

02 Kilborn Limited (February 1987); Faro Underground Mining, page 6-3.
05 Vintila, I. (March 1988); Preliminary Open Pit Reserve Evaluation For The Swim Deposit, page 5.
06 Kilborn Limited (1986); Cirque Project Development Plan", page 2-13.
07 Reed, C. (January 1989); FB805 3D block computer model in-situ mining reserve calculation, Curragh Resources Inc. in-house report.
08 Jilson, G. & Clark P. I. (1986), GB606 3D computer block model calculation, Curragh Resources Inc. in-house report.
09 Po, A.Y. (1978); sectional calculation in Sirola (1977) Grum Joint Venture Mineral Inventory (revised 1978); Kerr-Addison.
010 Jilson, G. (1984); Estimate of tonnage based on extrapolation of sections to the NW of main deposit; Curragh Resources Inc.
011 Pigage, L. (1988); Vangorda VB803 3D block computer model calculation, in-house report, Curragh Resources Inc.
012 Pigage, L. (1986); Spreadsheet recalculation of Cyprus Anvil unfaulted interpretation, Curragh Resources Inc. in-house report.
*017 Rollings, R.M. (1982); Reserve Summary, Cyprus Anvil Mining Corporation in-house report.

CHANGE IN GEOLOGICAL RESERVES
JAN 1 1988 TO JAN 1 1989

FARO DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
FARO										
# Zone 3	1988	Proven	4.0	18,865,000	7.71	2.99	4.73	37.63	0.10	15
# Zone 3	1989	Proven	4.0	16,339,000	8.27	3.08	5.18	35.20	0.13	7
Change: (1989 - 1988)				(2,526,000)	0.56	0.10	0.46	-2.43	0.03	
% Change: ((1989-1988)/1988)*100				-13.4	7.2	3.2	9.7	-6.5	26.2	
SW Undergnd *	1989	Probable	9.0	2,610,000	12.80	5.04	7.76	67.9	NA	2

* No change in SW underground reserves.
# excluding SW underground

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
FARO									
# Zone 3	1988	Proven	4.0	18,865,000	1,454,000	563,000	891,000	710,000	2,000
# Zone 3	1989	Proven	4.0	16,339,000	1,351,000	504,000	847,000	575,000	2,000
Change: (1989 - 1988)				(2,526,000)	(103,000)	(59,000)	(44,000)	(135,000)	0
% Change: ((1989-1988)/1988)*100				-13.4	-7.1	-10.5	-4.9	-19.0	0.0

* No change in SW underground reserves.
# excluding SW underground

SOURCES

#15 Reed, C. (February 1989); FI model in-situ reserve calculation between December 31 1987 pit surface and model limits excluding SW underground. Curragh Resources Inc. in-house report.

#7 Reed, C. (January 1989); F8805 model in-situ reserve calculation between December 31 1989 pit surface and model limits excluding SW underground. Curragh Resources Inc. in-house report.

#2 Kilborn Limited (February 1987); Faro Underground Mining, page 6-3.

NOTES

- Geological reserves are in-situ and undiluted model totals.
- Change in 1989 geological reserves due to:
  (1) Mining of approximately 4.6 million tonnes in 1988.
  (2) New geological interpretation of the Zone 3 orebody.
  (3) Density reduction of 10% for massive sulphides and 5% for quartzose ore types removed in the F8805 model.
  (4) Geological rather than bench composites used in the new model (F8805) interpolation.
- Mining experience at FARO has indicated that density reduction in the exploration model is not required.

CHANGE IN GEOLOGICAL RESERVES
JAN 1 1988 TO JAN 1 1989

GRUM DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
GRUM										
Main Zone	1988	Proven	4.0	30,649,000	9.01	3.41	5.60	57.3	0.95	8
(61W-87W)	1989	Proven	4.0	32,181,000	9.01	3.41	5.60	57.3	0.95	* 8
Change: (1989 - 1988)				1,532,000	0.0	0.0	0.0	0.0	0.0	
% Change: ((1989-1988)/1988)*100				5.0	0.0	0.0	0.0	0.0	0.0	
Champ Zone (51W-61)		Probable	4.0	1,700,000	7.80	3.50	4.30	46.0	NA	9
NW Extension (87W-100W)		Possible	NA	8,000,000	10.00	NA	NA	NA	NA	10
Total Deposit (51W-100W)	1988	NA	NA	40,349,000	9.15	NA	NA	NA	NA	
	1989	NA	NA	41,881,000	9.15	NA	NA	NA	NA	
Change: (1989 - 1988)				1,532,000	0.0	NA	NA	NA	NA	
% Change: ((1989-1988)/1988)*100				3.8	0.0	NA	NA	NA	NA	

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
GRUM									
Main Zone	1988	Proven	4.0	30,649,000	2,761,000	1,045,000	1,716,000	1,756,000	29,000
(61W-87W)	1989	Proven	4.0	32,181,000	2,899,000	1,097,000	1,802,000	1,844,000	31,000
Change: (1989 - 1988)				1,532,000	138,000	52,000	86,000	88,000	2,000
% Change: ((1989-1988)/1988)*100				5.0	5.0	5.0	5.0	5.0	6.9
Champ Zone (51W-61)		Probable	4.0	1,700,000	133,000	60,000	73,000	78,000	NA
NW Extension (87W-100W)		Possible	NA	8,000,000	800,000	NA	NA	NA	NA
Total Deposit	1988	NA	NA	40,349,000	3,694,000	NA	NA	NA	NA
Total Deposit	1989	NA	NA	41,881,000	3,832,000	NA	NA	NA	NA
Change: (1989 - 1988)				1,532,000	138,000	NA	NA	NA	NA
% Change: ((1989-1988)/1988)*100				3.8	3.7	NA	NA	NA	NA

SOURCES

#8 Jilson G. and Clark P.I. (1986), G8607 3D computer block model; Curragh Resouces Inc. in-house report.
* Note: G8607 tonnage increased by 5% in 1989 to eliminate 5% downward adjustment of pulp SG's in the original G8607 model.

#9 Po A.Y. (1978) sectional calculation in Sirola (1977)
Grum Joint Venture Mineral Inventory (revised 1978); Kerr - Addison

#10 Jilson G. (1984) Estimate of tonnage potential based on extrapolation of sections to the northwest of main deposit; Curragh Resources Inc.

NOTES

- Model geological reserves calculated between the topographic surface and the lowest model level.
- Change in Main Zone tonnage a result of removing the 5% SG reduction present in the earlier reserve calculation. SG reduction removed because mining experience at Faro indicates that the SG reduction in the exploration model is not justified.
- No reduction of SG's for NW extension and Champ Zone

CHANGE IN GEOLOGICAL RESERVES
JAN 1 1988 TO JAN 1 1989

VANGORDA DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
VANGORDA										
Total Deposit	1988	Proven	4.0	7,457,000	8.70	3.78	4.92	53.5	0.69	16
Total Deposit	1989	Proven	4.0	8,161,000	8.67	3.79	4.88	54.0	0.76	11
Change: (1989 - 1988)				704,000	-0.03	0.01	-0.04	0.52	0.07	
% Change: ((1989-1988)/1988)*100				9.4	-0.3	0.2	-0.7	1.0	10.0	

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
VANGORDA									
Total Deposit	1988	Proven	4.0	7,457,000	649,000	282,000	367,000	399,000	5,000
Total Deposit	1989	Proven	4.0	8,161,000	708,000	309,000	399,000	441,000	6,000
Change: (1989 - 1988)				704,000	59,000	27,000	32,000	42,000	1,000
% Change: ((1989-1988)/1988)*100				9.4	9.1	9.6	8.7	10.5	20.0

SOURCES:

#16 Jilson G. (1986) Vangorda: V8607 3D Block Computer Model, Curragh Resources Inc.

#11 Pigage L. (1988) Vangorda: V8803 3D Block Computer Model, Curragh Resources Inc.

NOTES:

- 1988 and 1989 reserves calculated from surface topography to lowest model level

- Reserve differences are due to:
  (1) A re-interpretation of the Vangorda deposit geology which includes 1987 DDH data
  (2) A new block model (V8803) was constructed with the new geological interpretation
  (3) The 5% reduction of ore SG's present in the V8607 model was eliminated in the V8803 model

CHANGE IN GEOLOGICAL RESERVES
JAN 1 1988 TO JAN 1 1989

BY DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
BY										
Total Deposit	1988	Possible	9.0	21,060,000	12.20	5.54	6.74	83.8	0.95	17
Total Deposit	1989	Probable	9.0	21,060,000	12.20	5.54	6.74	83.8	0.95	17

SOURCES:

#17 Rollings, R.W. (Jan 1 1982) BY Reserve Summary; Cyprus Anvil Mining Corporation in-house report.

NOTES:

- No change in geological reserves for 1988 & 1989.
- Geological reserves upgraded from possible to probable to correspond to OSC definitions.

CHANGE IN GEOLOGICAL RESERVES
JAN 1 1988 TO JAN 1 1989

SWIM DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
SWIM										
Total Deposit	1988	Possible	6?*	4,309,000	8.50	3.80	4.70	51.0	NA	18
Total Deposit	1989	Probable	4.0	5,130,000	7.90	3.50	4.40	47.0	NA	5
Change: (1989 - 1988)				821,000	-0.6	-0.3	-0.3	-4.0	NA	
% Change: ((1989-1988)/1988)*100				19.1	-7.1	-7.9	-6.4	-7.8	NA	

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tons	Silver kg	Gold kg
SWIM									
Total Deposit	1988	Proven	4.0	4,309,000	367,000	164,000	203,000	220,000	NA
Total Deposit	1989	Proven	4.0	5,130,000	406,000	180,000	226,000	241,000	NA
Change: (1989 - 1988)				821,000	39,000	16,000	23,000	21,000	NA
% Change: ((1989-1988)/1988)*100				19.1	10.6	9.8	11.3	9.5	NA

SOURCES:

#18 Kavanaugh, P.M. (1966) Ore Reserves Calculations, Swim Lakes "A" Group, Yukon; Kerr - Addison in-house report. (converted to metric units)

#5 Vintila I. (March 1988) Preliminary Open Pit Reserve Evaluation For The Swim Deposit, page 9. (Consultant report)

NOTES:

* 1988 - A cutoff grade not explicitly stated; because assays are organized into 6%, 6-8% and +8% catagories it is assumed that a 6% cutoff was used.

- 1989 geological reserves calculated by the polygonal method with no dilution and no reduction of pulp SG's.
- Reserve differences due to lowering cut-off grade to 4% and a new reserve calculation
- Geological reserves upgraded from possible to probable to correspond to OSC definitions.

CHANGE IN GEOLOGICAL RESERVES
JAN 1 1988 TO JAN 1 1989

CIRQUE DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
CIRQUE										
Main Cirque	1988	Possible	0.0	32,171,000	10.03	2.15	7.88	48.0	NA	19
Main Cirque	1989	Probable	0.0	34,549,000	9.97	2.15	7.82	47.0	NA	12
Change: (1989 - 1988)				2,378,000	-0.06	0.00	-0.06	-1.00	NA	
% Change: ((1989-1988)/1988)*100				7.4	-0.6	-0.1	-0.8	-2.1	NA	
South Cirque		Possible	0.0	15,453,000	8.26	1.40	6.87	31.3	NA	6
Total deposit	1988	NA	0.0	47,624,000	9.46	1.91	7.55	42.6	NA	
Total deposit	1989	NA	0.0	50,002,000	9.44	1.92	7.53	42.1	NA	
Change: (1989 - 1988)				2,378,000	-0.02	0.01	-0.03	-0.43	NA	
% Change: ((1989-1988)/1988)*100				5.0	-0.17	0.50	-0.34	-1.02	NA	

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
CIRQUE									
Main Cirque	1988	Possible	0.0	32,171,000	3,227,716	692,642	2,535,075	1,544,208	NA
Main Cirque	1989	Probable	0.0	34,549,000	3,444,535	742,804	2,701,732	1,623,803	NA
Change: (1989 - 1988)				2,378,000	216,819	50,162	166,657	79,595	NA
% Change: ((1989-1988)/1988)*100				7.4	6.7	7.2	6.6	5.2	NA
South Cirque		Possible	0.0	15,453,000	1,276,881	215,569	1,061,312	482,906	NA
Total deposit	1988	NA	0.0	47,624,000	4504597.82	908,211	3,596,387	2,027,114	NA
Total deposit	1989	NA	0.0	50,002,000	4721416.69	958,373	3,763,044	2,106,709	NA
Change: (1989 - 1988)				2,378,000	216,819	50,162	166,657	79,595	NA
% Change: ((1989-1988)/1988)*100				5.0	4.8	5.5	4.6	3.9	

SOURCES:

#19 Cyprus Anvil Mining Corporation, (March 1983); Cirque Reserve Summary Unfaulted Interpretation. (Sectional Method).

#6 Kilborn Limited, (1986); Cirque Project Development Plan, page 7-13 (sectional method)

#12 Pigage L. (1986) Spreadsheet recalculation of Cyprus Anvil unfaulted interpretation. Curragh Resources Inc. in-house report. (Sectional Method).

NOTES:

- Main Cirque geological reserves upgraded from possible to probable to correspond to OSC definitions.
- Difference in geological reserves due to:
  (1) 1988 reserve calculation includes reserves between sections 296+40N to 304+00N.
  1989 reserve calculation includes reserves between sections 295+50N to 304+00N.
  Reserves calculated from section 295+50N were not included in the previous reserve statements.
  (2) Correction of minor arithmetic errors in original calculation.

CHANGE IN GEOLOGICAL RESERVES
JAN 1 1988 TO JAN 1 1989

TOTAL COMPANY

YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn
ALL CLASSIFICATIONS								
Total Company 1988	NA	NA	142,274,000	9.54	NA	NA	NA	NA
Total Company 1989	NA	NA	145,183,000	9.59	NA	NA	NA	NA
Change: (1989 - 1988)			2,909,000	0.05	NA	NA	NA	NA
% Change: ((1989-1988)/1988)*100			2.0	0.6	NA	NA	NA	NA
PROVEN								
Total Company 1988 Proven		NA	56,971,000	8.54	3.32	5.22	50.3	0.64
Total Company 1989 Proven		NA	56,681,000	8.75	3.37	5.38	50.5	0.69
Change: (1989 - 1988)			(290,000)	0.21	0.05	0.16	0.2	0.05
% Change: ((1989-1988)/1988)*100			-0.5	2.4	1.6	3.0	0.3	8.0
PROBABLE								
Total Company 1988 Probable		NA	4,310,000	10.83	4.43	6.40	59.3	NA
Total Company 1989 Probable		NA	65,049,000	10.61	3.51	7.11	59.7	NA
Change: (1989 - 1988)			60,739,000	-0.22	-0.93	0.71	0.5	NA
% Change: ((1989-1988)/1988)*100			1409.3	-2.0	-20.9	11.1	0.8	NA
POSSIBLE								
Total Company 1988 Possible		NA	80,993,000	10.17	NA	NA	NA	NA
Total Company 1989 Possible		NA	23,453,000	8.86	NA	NA	NA	NA
Change: (1989 - 1988)			(57,540,000)	-1.32	NA	NA	NA	NA
% Change: ((1989-1988)/1988)*100			-71.0	-13.0	NA	NA	NA	NA

Tonnes Metal

YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
ALL CLASSIFICATIONS								
Total Company 1988	NA	NA	142,274,000	13,570,000	NA	NA	NA	NA
Total Company 1989	NA	NA	145,183,000	13,923,000	NA	NA	NA	NA
Change: (1989 - 1988)			2,909,000	353,000	NA	NA	NA	NA
% Change: ((1989-1988)/1988)*100			2.0	2.6	NA	NA	NA	NA
PROVEN								
Total Company 1988 Proven	NA		56,971,000	4,865,000	1,890,000	2,975,000	2,865,000	36,000
Total Company 1989 Proven	NA		56,681,000	4,958,000	1,910,000	3,048,000	2,860,000	39,000
Change: (1989 - 1988)			(290,000)	93,000	20,000	73,000	(5,000)	3,000
% Change: ((1989-1988)/1988)*100			-0.5	1.9	1.1	2.5	-0.2	8.3
PROBABLE								
Total Company 1988 Probable	NA		4,310,000	467,000	191,000	276,000	255,000	NA
Total Company 1989 Probable	NA		65,049,000	6,903,000	2,280,000	4,623,000	3,885,000	NA
Change: (1989 - 1988)			60,739,000	6,436,000	2,089,000	4,347,000	3,630,000	NA
% Change: ((1989-1988)/1988)*100			1409.3	1378.2	1093.7	1575.0	1423.5	NA
POSSIBLE								
Total Company 1988 Possible	NA		80,993,000	8,240,000	NA	NA	NA	NA
Total Company 1989 Possible	NA		23,453,000	2,077,000	NA	NA	NA	NA
Change: (1989 - 1988)			(57,540,000)	(6,163,000)	NA	NA	NA	NA
% Change: ((1989-1988)/1988)*100			-71.0	-74.8	NA	NA	NA	NA

NOTES:

- DY, Swim, and Cirque main zone reserves upgraded from possible to probable to correspond with Ontario Security Commission definitions.
- Gain in proven company total geological reserves have offset mining depletion of Faro in 1988.
- Gain is due to:
  (1) New geology interpretation of Faro and Vangorda deposits.
  (2) Pulp SG reductions present in earlier Faro, Vangorda and Grum models have been removed.

CURRAGH RESOURCES INC. : MINING RESERVES : JANUARY 1, 1989

C. Reed
February 2/89

DISTRICT/DEPOSIT	CLASS	CUT-OFF GRADE %Pb+Zn	TONNES ORE tns*1000	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	TONNES PHYLL WASTE tns*1000	TONNES SULPH WASTE tns*1000	TONNES OVERBD WASTE tns*1000	STRIP RATIO tn/tn	Method	Model Name	Model Date	Source #	% Mining Dilution	Grade of Dilutant	% Mining Recovery	SG Reduction	Top Pit Surface	Bottom Pit Surface
ANVIL DISTRICT																						
FARO																						
Zone 3 Pit *	Proven	4.00	14,051	7.75	2.96	4.79	33.3	0.112	18,437	6,606	0	1.78	MAXIPLAN	FB805	May/88	1	10 %	0 %	95 %	NO	Dec 31/88 Pit	Cloutier's revised pit
SW Underground	Probable	9.00	2,014	11.59	4.59	7.00	61.3	NA	NA	NA	NA	NA	Polygonal	NA	March/87	2	10 %	0 %	75 %	NO	NA	N.A.
Total deposit	NA	NA	16,065	8.23	3.16	5.07	36.8	NA														
GRUM																						
Main Zone Pit @ (61N-87W)	Proven	4.00	25,161	7.97	2.96	5.01	50.4	0.810	143,423	4,219	27,438	6.96	MAXIPLAN	GB705	May/87	3	15 %	0 %	95 %	NO	1979 Topo	Vintila Jan/88
VANGORDA PIT																						
Total Deposit	Proven	4.00	6,935	8.00	3.49	4.51	49.7	0.654	5,457	2,576	7,401	2.23	MAXIPLAN	VB803	March/88	3	15 %	0 %	95 %	NO	1979 Topo	Vintila Dec/88
BY UNDERGROUND																						
Total Deposit	Probable	9.00	11,404	13.94	6.47	7.47	95.1	1.020	NA	NA	NA	NA	Polygonal	NA	May/88	4	NA	NA	88 %	NO	NA	NA
SWIM PIT																						
Total Deposit	Probable	4.00	3,910	7.13	3.22	3.91	42.0	N.A.	19,865	0.00	4,400	6.21	Polygonal	NA	March/88	5	15 %	0 %	95 %	NO	NA	NA
AKIE DISTRICT																						
CIRQUE																						
Main Cirque Zone	Probable	8.00	18,925	11.99	2.74	9.25	57.0	NA	NA	NA	NA	NA	Polygonal	NA	1986	6	0 %	0 %	86 %	NO	NA	NA

* Reserves diluted 10% at 0 Pb+Zn grade. Mining loss is 5 %.
Uninterpolated ore blocks and 5% mining loss included in sulphide waste tonnage.
Total remaining uninterpolated ore rock type tonnage within ultimate pit limits is 666,900 tonnes of which 30% - 40% is likely of ore grade.

@ 795,000 tonnes overburden mined in 1988 has been subtracted from starting overburden tonnage.

SOURCES

01 Salovich, A. (January 1989); Memo dated Feb. 03, 1989; Curragh Resources In-house MAXIPLAN calculation of 1989 starting reserves, Faro pit.
02 Kilborn Limited (February 1987); Faro Underground Mining, page 6-3
03 Atherton, A. (January 1989); Memo dated Feb 02, 1989; Curragh Resources Inc. in-house Alpha mine plan reserves.
04 Canadian Mine Development (May 1988); DY Deposit Exploration and Mining Cost Estimate, page 9
05 Vintila, I. (March 1988); Preliminary Open Pit Reserve Evaluation For The Swim Deposit, page 5
06 Kilborn Limited (1986); Cirque Project Development Plan , page 2-13

CHANGE IN MINING RESERVES
JAN 1 1988 TO JAN 1 1989

FARO DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
FARO										
Zone 3 Pit	1988	Proven	4.0	18,487,095	7.09	2.76	4.33	34.7	0.09	13
Zone 3 Pit	1989	Proven	4.0	14,051,000	7.75	2.96	4.79	33.3	0.11	1
Change: (1989 - 1988)				(4,436,095)	0.66	0.20	0.46	-1.39	0.02	
% Change: ((1989-1988)/1988)*100				-24.0	9.3	7.1	10.7	-4.0	22.6	
SW Underground	1989	Probable	9.0	2,014,000	11.59	4.59	7.00	61.3	NA	2

* No change in SW underground reserves.

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
FARO									
Zone 3 Pit	1988	Proven	4.0	18,487,095	1,311,000	511,000	800,000	641,000	2,000
Zone 3 Pit	1989	Proven	4.0	14,051,000	1,089,000	416,000	673,000	468,000	2,000
Change: (1989 - 1988)				(4,436,095)	(222,000)	(95,000)	(127,000)	(173,000)	0
% Change: ((1989-1988)/1988)*100				-24.0	-16.9	-18.6	-15.9	-27.0	0.0

* No change in SW underground reserves.

SOURCES

#13 FI model calculation (Remaining FI model reserves, May 31 1988 added to FI model mined reserves Dec. 31 to May 31 1988), Curragh Resouces Inc.

#1 Galovich, K. (January 1989); Memo dated Feb. 1989; Curragh Resources Inc. in-house MAXIPLAN calculation of 1989 starting reserves, Faro pit..

#2 Kilborn Limited, (Feb 1987) Faro Underground Mining, page 6-3.

NOTES

- Mining reserves calculated between surveyed pit status data and the current ultimate pit design. Pit surfaces generated using GEMCOM PCMINE and MINESURVEY software.
- Reserves are diluted 10 % by weight at 0% Pb + Zn.
- 1988 pit design by T. Cloutier,(Five Dollar Ultimate Pit) Curragh Resources Inc.
- 1989 pit design by T. Cloutier with B2 phase modification.
- Pit mining reserve differences due to:
  - (1) Mining of approximately 4.6 million tonnes in 1988
  - (2) New geological interpretation of Zone 3 orebody and construction of new mine model (F8805)
  - (3) Density reduction of 10% for massive sulphide ore types and 5% for quartzose ore types removed in the F8805 model.
  - (4) Assay composite lengths in F8805 selected on the basis of lithologic boundaries rather than bench intervals - FI model composited between 20 ft. bench intervals.
- Experience at FARO has indicated that SG reduction in the exploration model is not justified
- No change in SW underground mining reserves

CHANGE IN MINING RESERVES
JAN 1 1988 TO JAN 1 1989

GRUM DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
GRUM										
Main Zone	1988	Proven	4.0	24,993,000	7.95	2.95	5.00	50.4	0.81	14
(61W-87W)	1989	Proven	4.0	25,161,000	7.97	2.96	5.01	50.4	0.81	3
Change: (1989 - 1988)				168,000	0.02	0.01	0.01	0.00	0.00	
% Change: ((1989-1988)/1988)*100				0.7	0.3	0.3	0.2	0.0	0.0	

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
GRUM									
Main Zone	1988	Proven	4.0	24,993,000	1,987,000	737,000	1,250,000	1,260,000	20,000
(61W-87W)	1989	Proven	4.0	25,161,000	2,006,000	745,000	1,261,000	1,268,000	20,000
Change: (1989 - 1988)				168,000	19,000	8,000	11,000	8,000	0
% Change: ((1989-1988)/1988)*100				0.7	1.0	1.1	0.9	0.6	0.0

SOURCES

#14 Atherton K. (1986), VP 1-1 mine plan; Curragh Resources Inc.

3 Atherton K. (January 1989); Memo dated Feb. 02, 1989, Curragh Resources Inc. in-house Alpha mine plan reserves.

NOTES

- 1988 pit design by K. Atherton, Curragh Resources Inc.
- 1989 pit design by I. Vintila, Independant Consultant.
- Mining reserves for 1988 and 1989 calculated using GB606 computer block model and MAXIPLAN (in - house) mine planning software.
- SG in GB607 increased by 5% to eliminate 5% SG reduction present in earlier model
- Experience at FARO has indicated that SG reduction in the exploration model is not required.

CHANGE IN MINING RESERVES
JAN 1 1988 TO JAN 1 1989

VANGORDA DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
VANGORDA										
Total Deposit	1988	Proven	4.0	6,459,000	8.05	3.50	4.55	50.3	0.59	15
Total Deposit	1989	Proven	4.0	6,935,000	8.00	3.49	4.51	49.7	0.65	3
Change: (1989 - 1988)				476,000	-0.05	-0.01	-0.04	-0.57	0.06	
% Change: ((1989-1988)/1988)*100				7.4	-0.6	-0.3	-0.9	-1.1	10.8	

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
VANGORDA									
Total Deposit	1988	Proven	4.0	6,459,000	520,000	226,000	294,000	325,000	4,000
Total Deposit	1989	Proven	4.0	6,935,000	555,000	242,000	313,000	345,000	5,000
Change: (1989 - 1988)				476,000	35,000	16,000	19,000	20,000	1,000
% Change: ((1989-1988)/1988)*100				7.4	6.7	7.1	6.5	6.2	25.0

SOURCES:

#14 Atherton K. (1986) VP 1-1 Preliminary Mine Plan; Curragh Resources Inc.

3 Atherton K. (January 1989); Memo dated Feb. 02, 1989, Curragh Resources Inc. in-house Alpha mine plan rese
Curragh Resources Inc.

NOTES:

-1988 Pit designed by K. Atherton, Curragh Resources Inc.
-1989 Pit designed by I. Vintila, Independant Consultant.
- Difference in mining reserves due to:
  (1) Redesign of Vangorda pit
  (2) 1989 mining reserves generated using new V8803 model.
  (3) 5% SG reduction present in earlier model was removed
- Mining experience at FARO has indicated that the 5% pulp SG reduction in the exploration model is not justified

CHANGE IN MINING RESERVES
JAN 1 1988 TO JAN 1 1989

DY DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
DY										
Total Deposit	1988	**********	No relevent mine plan in 1987	**********						
Total Deposit	1989	Probable	9.0	11,404,000	13.94	6.47	7.47	95.1	1.02	4

SOURCES:

#4 Canadian Mine Development (May 1988); DY Deposit Exploration and Mining Cost Estimate, page 9.

NOTES:

- Includes primary stoping and pillar tonnage
- Mining reserve is 85% of geological reserve
- Mining reserve calculated by the polygonal method

CHANGE IN MINING RESERVES
JAN 1 1988 TO JAN 1 1989

SWIM DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
SWIM										
	1988	********** No relevent mine plan for SWIM in 1987 **********								
Ultimate Pit	1989	Probable	4.0	3,910,000	7.13	3.22	3.91	42.0	NA	5

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
SWIM									
Ultimate Pit	1989	Probable	4.0	3,910,000	279,000	126,000	153,000	164,000	NA

SOURCES:

#5 Vintila I. (March 1988) Preliminary Open Pit Reserve Evaluation For The Swim Deposit, page 5. (Independant consultant report)

NOTES:

- 1989 Pit designed by I. Vintila, Independant Consultant.
- Mining reserves are in-situ reserves with no dilution

CHANGE IN MINING RESERVES
JAN 1 1988 TO JAN 1 1989

CIRQUE DEPOSIT

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn	Source #
CIRQUE										
Main Cirque	1989	Probable	8.0	18,925,000	11.99	2.74	9.25	57.0	NA	#6
South Cirque	********** No relevent mine plan for South Cirque **********									

No Change of Mining Reserves for 1989

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
CIRQUE									
Main Cirque	1989	Probable	8.0	18,925,000	2,269,108	518,545	1,750,563	1,078,725	NA
South Cirque	********** No relevent mine plan for South Cirque **********								

SOURCES:

#6 Kilborn Limited (1986); Cirque Project Development Plan, page 2-13.

NOTES:

- Mining reserves are first stage mining totals without pillar recovery.
- Mining reserves represent a 64% recovery of the high grade core of the deposit.
- Mining reserves calculated by the polygonal method.
- Mining reserves upgraded from possible to probable.

CHANGE IN MINING RESERVES
JAN 1 1988 TO JAN 1 1989

TOTAL COMPANY

	YEAR	CLASS	CUT-OFF %Pb+Zn	TONNES ORE	Pb+Zn %	Pb %	Zn %	Ag g/tn	Au g/tn
Total Company	1988	NA	NA	70,878,095	8.92	2.94	5.98	48.37	NA
Total Company	1989	NA	NA	82,400,000	9.73	3.49	6.24	55.00	NA
Change: (1989 - 1988)				11,521,905	0.82	0.55	0.27	6.63	NA
% Change: ((1989-1988)/1988)*100				16.3	9.1	18.7	4.4	13.7	NA

Tonnes Metal

	YEAR	CLASS	CUT-OFF Pb+Zn	TONNES ORE	Pb+Zn tnns	Lead tnns	Zinc tnns	Silver kg	Gold kg
Total Company	1988	NA	NA	70,878,095	6,320,000	2,085,000	4,235,000	3,428,000	NA
Total Company	1989	NA	NA	82,400,000	8,020,000	2,877,000	5,143,000	4,532,000	NA
Change: (1989 - 1988)				11,521,905	1,700,000	792,000	908,000	1,104,000	NA
% Change: ((1989-1988)/1988)*100				16.3	26.9	38.0	21.4	32.2	NA

NOTES:

- Change in total company mining reserves due to:
  (1) Preliminary mine designs proposed for DY and SWIM deposits in 1988.
  (2) Mining of approximately 4.6 million tonnes at FARO.
  (3) New geology models for Faro and Vangorda.
  (4) New pit design for Vangorda.
  (5) SG reduction eliminated at VANGORDA, GRUM main zone, and FARO.