

000375

CURRAGH RESOURCES INC.
DY DEPOSIT
MINERAL INVENTORY

DECEMBER 1991
#WH9103

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PARTICULARS FOR	R 127	LITHO AREA	EST GRADE	ASSAY Pb	Zn	Ag	T/bcf	T/1 ft	HW T/1 ft	FW T/1 ft	CALC'D FTGE	EST:	PB:	ZN:	AG:	TONNES	TONNES	HW T's	FW T's
											17.3	4.95	2.11	5.74	38	279.6	0.0	0.0	181.7

CURRAGH RESOURCES INC.
HEADING TONNAGE AND GRADE SUMMARY

CONSTANTS	MSSV SX'S	WASTE 2A	ORE 2A	1D,1H 10A,10Q	CUT-OFF DIL %
	0.110	0.083	0.090	0.076	6

TOTALS

PARTICULARS FOR	SA 400	LITHO AREA	EST GRADE	ASSAY Pb	Zn	Ag	T/bcf	T/1 ft	HW T/1 ft	FW T/1 ft	CALC'D FTGE	EST:	PB:	ZN:	AG:	ORE TONNES	WASTE TONNES	HW T's	FW T's
											29.6	5.68	2.88	5.29	47	347.8	205.6	0.0	124.9

CURRAGH RESOURCES INC.
HEADING TONNAGE AND GRADE SUMMARY

CONSTANTS	MSSV SX'S	WASTE 2A	ORE 2A	1D,1H 10A,10Q	CUT-OFF DIL %
	0.110	0.083	0.090	0.076	6

TOTALS

PARTICULARS FOR	SAB XCUT	LITHO AREA	EST GRADE	ASSAY Pb	Zn	Ag	T/bcf	T/1 ft	HW T/1 ft	FW T/1 ft	CALC'D FTGE	EST:	PB:	ZN:	AG:	ORE TONNES	WASTE TONNES	HW T's	FW T's
											43.6	9.32	5.43	7.13	89	754.6	0.0	0.0	202.5

CURRAGH RESOURCES INC.
HEADING TONNAGE AND GRADE SUMMARY

CONSTANTS	MSSV SX'S	WASTE 2A	ORE 2A	1D,1H 10A,10Q	CUT-OFF DIL %
	0.110	0.083	0.090	0.076	6

TOTALS

PARTICULARS FOR	SA 100	LITHO AREA	EST GRADE	ASSAY Pb	Zn	Ag	T/bcf	T/1 ft	HW T/1 ft	FW T/1 ft	CALC'D FTGE	EST:	PB:	ZN:	AG:	ORE TONNES	WASTE TONNES	HW T's	FW T's
											59.5	8.60	5.32	7.13	85	1398.5	0.0	41.7	160.9

CURRAGH RESOURCES INC.
HEADING TONNAGE AND GRADE SUMMARY

CONSTANTS	MSSV SX'S	WASTE 2A	ORE 2A	1D,1H 10A,10Q	CUT-OFF DIL %
	0.110	0.083	0.090	0.076	6

TOTALS

PARTICULARS FOR	SA VRSE	LITHO AREA	EST GRADE	ASSAY Pb	Zn	Ag	T/bcf	T/1 ft	HW T/1 ft	FW T/1 ft	CALC'D FTGE	EST:	PB:	ZN:	AG:	ORE TONNES	WASTE TONNES	HW T's	FW T's
											207.0	7.89	4.25	5.89	67	1727.4	0.0	153.7	140.6

CURRAGH RESOURCES INC.
HEADING TONNAGE AND GRADE SUMMARY

CONSTANTS	MSSV SX'S	WASTE 2A	ORE 2A	1D,1H 10A,10Q	CUT-OFF DIL %
	0.110	0.083	0.090	0.076	6

TOTALS

PARTICULARS FOR	SB 100	LITHO AREA	EST GRADE	ASSAY Pb	Zn	Ag	T/bcf	T/1 ft	HW T/1 ft	FW T/1 ft	CALC'D FTGE	EST:	PB:	ZN:	AG:	ORE TONNES	WASTE TONNES	HW T's	FW T's
											111.5	11.40	5.63	7.68	77	2697.2	0.0	159.6	0.0

List of Appendices

Appendix I	CRI 1991 Polygon Mineral Inventory Calculation - Calculation Tables
Appendix II	CRI 1991 Mineral Inventory Within Pelly River Mines Claim Boundaries - Calculation Tables
Appendix III	CAMC Dy Reserve Calculation, Hall 1981 - Summary only, full report bound separately
Appendix IV	CAMC Dy Reserve Calculation, Rollings 1982 - Summary only, full report bound separately
Appendix V	Kilborn Limited Dy Reserve Calculation, Coltas 1989
Appendix VI	Dy - Additional Potential Mineralization Above and Below the AB Zone
Appendix VII	Dy Deposit - Summary Drill Logs and Drill Core Assays 1976 to 1991
Appendix VIII	CRI 1991 Mineral Inventory Calculation Composites
Appendix IX	Dy Deposit - Mineral Inventory Polygons - Plan View Scale = 1:2000

<u>Drawing #</u>	<u>Title</u>	<u>POCKET</u>
AN-DY-91-100	Mineral Inventory 9% Lead + Zinc Cutoff	1
AN-DY-91-101	Mineral Inventory 8% Lead + Zinc Cutoff	2
AN-DY 91-103	Mineral Inventory 6% Lead + Zinc Cutoff	3

Appendix X	Dy Deposit - AB zone Composites - Vertical Long Sections Scale = 1:1250
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<u>Drawing #</u>	<u>Title</u>	<u>POCKET</u>
AN-DY-91-123	Vertical Long Section 1+50E	4
AN-DY-91-122	Vertical Long Section 2+00E	5
AN-DY-91-104	Vertical Long Section 2+50E	6
AN-DY-91-105	Vertical Long Section 3+00E	7
AN-DY-91-106	Vertical Long Section 3+50E	8
AN-DY-91-107	Vertical Long Section 4+00E	9
AN-DY-91-108	Vertical Long Section 4+50E	10
AN-DY-91-109	Vertical Long Section 5+00E	11
AN-DY-91-110	Vertical Long Section 5+50E	12
AN-DY-91-111	Vertical Long Section 6+00E	13
AN-DY-91-112	Vertical Long Section 6+50E	14
AN-DY-91-113	Vertical Long Section 7+00E	15
AN-DY-91-114	Vertical Long Section 7+50E	16
AN-DY-91-115	Vertical Long Section 8+00E	17
AN-DY-91-116	Vertical Long Section 8+50E	18
AN-DY-91-117	Vertical Long Section 9+00E	19
AN-DY-91-118	Vertical Long Section 9+50E	20
AN-DY-91-119	Vertical Long Section 10+00E	21
AN-DY-91-120	Vertical Long Section 10+50E	22
AN-DY-91-121	Vertical Long Section 11+00E	23

Appendix XI	A discussion of drilling intensity in Anvil District Pb-Zn deposits
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EXECUTIVE SUMMARY

900 The Dy deposit is a lead-zinc-silver-gold bearing stratiform, synsedimentary, pyritic, massive sulphide deposit. The deposit consists of several sulphide horizons interlayered with a variety of phyllites within a stratigraphic interval 200 to 300 metres thick. In this report a subset of these horizons containing the bulk of the ore grade intersections is termed the AB Zone. The AB Zone is 10 to 160 metres thick and dips approximately 25 to 35° southwest. Only a portion of this thickness is mineralized in any given drill hole. The AB Zone is from 480 to 690 metres below the surface. In plan view two sub-zones to the AB Zone are identified; the A Zone in the southwest is dominated by baritic massive sulphides and is relatively lead rich; the B Zone, along the northeast edge of the deposit, is dominated by pyritic ores and disseminated sulphides in quartzite, is relatively zinc rich and overall slightly higher grade than the A Zone.

In 1989 and 1990 Curragh Resources Inc. (CRI) drilled sixteen diamond drill holes to test ground conditions at locations proposed for ramp and shaft access to the deposit. Four of these holes returned high grade intersections. Five additional holes were drilled in 1991. Three holes targeted to test an upper horizon failed to intersect high grade mineralization. Two holes targeted to test the B Zone were successful.

Dy deposit in-situ mineral inventory have been re-estimated utilizing the new geological interpretation and all drill hole data available to date. This report documents that estimate and summarizes all previous tonnage and grade estimates for the deposit.

The new mineral inventory for the AB Zone, its possible extensions and minor mineralization above and below the AB Zone have been calculated at 6%, 8% and 9% lead plus zinc assay cutoffs and are summarized in the table below. All mineralization is classified as probable or possible. There is no proven inventory at Dy. Approximately 60% of the total inventory is considered probable and 40% possible. Earlier published reserve calculations by others are included in the table below for comparison.

Calculation	Cutoff (%Pb+Zn)	Tonnes	% Pb	% Zn	Pb+Zn	Ag (g/mt)	Au (g/mt)
CRI 91	6	41,555,000	4.12	5.72	9.84	61.9	0.58
CRI 91	8	24,947,000	5.21	7.01	12.22	77.4	0.85
CRI 91	9	21,356,000	5.54	7.33	12.87	81.1	0.87
CAMC Hall 81	9	21,334,127	5.68	6.95	12.63	81.6	n/a
CAMC Rollings 82	9	21,059,980	5.54	6.74	12.28	83.77	0.95
Kilborn 89	9	20,114,825	5.47	6.77	12.44	84.5	0.91

There is considerable potential to extend the limits of the deposit as there are few definitive limiting holes. Much additional drilling is required particularly underground definition holes within the known volume of sulphide deposit and stepout holes from surface and the proposed access decline. The results of the 1989-91 drilling confirm that the B Zone is slightly higher grade and more zinc rich than the A Zone thus is the appropriate target area for early advanced exploration and production.

1.0 INTRODUCTION

Z 1

900

One of five known lead-zinc deposits in the Anvil District, the Dy deposit is located 30 kilometres southeast of the Faro concentrator, 480 to 690 metres below the surface. The Dy deposit was discovered in 1976 by Cyprus Anvil Mining Corporation (CAMC). The discovery hole (76X-21) was targeted to intersect favourable stratigraphy interpreted to exist at least 500 m below the surface. The hole was successful in intersecting several thick sulphide horizons over an interval from 513.6 m to 622.8 m. In the five years that followed, CAMC drilled 52 holes in the vicinity of the deposit and produced two versions of a preliminary reserve calculation.

After acquiring the assets of CAMC in 1985, Curragh Resources Inc. (CRI) completed an additional 21 drillholes at Dy. The holes were drilled between 1989 and 1991. The majority of the drillholes were drilled to test geotechnical conditions near proposed underground development. Nine drillholes were targeted to test and delineate parts of the Dy mineralized zone.

This report presents a new structural interpretation for the deposit based partly on the results of that drilling and presents a polygonal calculation of the mineral inventory based on all drilling completed to date. Summaries of the earlier reserve estimates are included for comparison. Detailed calculation sheets, maps, vertical sections and drillhole assays are included in the Appendices at the end of the report.

2.0 LOCATION AND ACCESS

The Dy property is located in the Anvil Range of central Yukon near the town of Faro, approximately 200 km northeast of Whitehorse (figure 1). The Dy property is 6 km southeast of the Grum deposit on the southeast limit of the Vangorda Plateau. Ground elevations on the property range from 800 to 1175 m.

Access to the property can be gained by all weather roads from two directions. A secondary road from Faro southeast along Pelly River and northeast along Blind Creek can be used as can a road extending southeast from the Vangorda deposit. Access to Faro is via all weather highway or daily air service.

3.0 CLAIMS

The Dy Project is on land that is part of a larger block of claims covering favourable geology in the Anvil Range. The claims in the vicinity of the Dy Project are listed on Table I and shown on figure 2.

CURRAGH RESOURCES INC.
HEADING TONNAGE AND GRADE SUMMARY

CONSTANTS		MSSV	WASTE	ORE			CUT-OFF													TOTALS			
		SX'S	2A	2A	10A,10Q	DIL %														HW T's	FW T's		
		0.121	0.083	0.090	0.076	6											0.0	253.6					
PARTICULARS FOR		SC	VRSE	AREA	LITHO	EST	ASSAY		HW	FW	CALC'D	FTGE	EST:	PB:	ZN:	AG:	ORE	WASTE	TONNES	TONNES	HW T's	FW T's	
						GRADE	Pb	Zn	Ag	T/bcf	T/1 ft	T/1 ft	T/1 ft		155.6	3.12	1.72	3.23	38	329.8	764.9	0.0	253.6

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CURRAGH RESOURCES INC.
HEADING TONNAGE AND GRADE SUMMARY

CONSTANTS		MSSV	WASTE	ORE			CUT-OFF													TOTALS			
		SX'S	2A	2A	10A,10Q	DIL %														HW T's	FW T's		
		0.110	0.083	0.090	0.076	6											0.0	253.6					
PARTICULARS FOR		SC	VRSE	AREA	LITHO	EST	ASSAY		HW	FW	CALC'D	FTGE	EST:	PB:	ZN:	AG:	ORE	WASTE	TONNES	TONNES	HW T's	FW T's	
						GRADE	Pb	Zn	Ag	T/bcf	T/1 ft	T/1 ft	T/1 ft		155.6	7.97	1.67	3.14	37	322.9	760.4	0.0	253.6

CURRAGH RESOURCES INC.
HEADING TONNAGE AND GRADE SUMMARY

CONSTANTS		MSSV	WASTE	ORE			CUT-OFF													TOTALS			
		SX'S	2A	2A	10A,10Q	DIL %														HW T's	FW T's		
		0.110	0.083	0.090	0.076	6											42.0	0.0					
PARTICULARS FOR		SD	RAMP	AREA	LITHO	EST	ASSAY		HW	FW	CALC'D	FTGE	EST:	PB:	ZN:	AG:	ORE	WASTE	TONNES	TONNES	HW T's	FW T's	
						GRADE	Pb	Zn	Ag	T/bcf	T/1 ft	T/1 ft	T/1 ft		119.1	11.55	5.35	8.46	72	2423.7	102.3	42.0	0.0

CURRAGH RESOURCES INC.
HEADING TONNAGE AND GRADE SUMMARY

CONSTANTS		MSSV	WASTE	ORE			CUT-OFF													TOTALS			
		SX'S	2A	2A	10A,10Q	DIL %														HW T's	FW T's		
		0.110	0.083	0.090	0.076	6											204.2	0.0					
PARTICULARS FOR		SE	RAMP	AREA	LITHO	EST	ASSAY		HW	FW	CALC'D	FTGE	EST:	PB:	ZN:	AG:	ORE	WASTE	TONNES	TONNES	HW T's	FW T's	
						GRADE	Pb	Zn	Ag	T/bcf	T/1 ft	T/1 ft	T/1 ft		83.0	8.67	4.08	6.65	61	578.9	804.1	204.2	0.0

TABLE I

DY PROJECT AREA CLAIMS

Total Number of Claims Listed: 57					Total Area (ha.): 840				
LOCATION	TYPE	CLAIM NAME AND NUMBER	GRANT NUMBER	LEASE NO.	RECORDED OWNER	OTHER INTEREST	EXPIRY DATE	AREA (HECTARES)	COMMENTS
AN-VANGORDA DY	LEASE IP	DY 41	85922	3500 *	CRI		01-Mar-2002	12.1	Dy underground;ore
AN-VANGORDA DY	LEASE IP	DY 43	85924	3501 *	CRI		01-Mar-2002	21.1	Dy underground;ore
AN-VANGORDA DY	LEASE IP	DY 45	85926	3502 *	CRI		01-Mar-2002	16.0	Dy underground;ore
AN-VANGORDA DY	LEASE IP	DY 183	93116	3505 *	CRI		01-Mar-2002	19.3	Dy underground;ore
AN-VANGORDA DY	LEASE IP	DY 184	93117	3506 *	CRI		01-Mar-2002	16.7	Dy underground;ore
AN-VANGORDA DY	LEASE IP	DY 185	93118	3507 *	CRI		01-Mar-2002	21.0	Dy underground;ore
AN-VANGORDA DY	LEASE IP	DY 186	93119	3508 *	CRI		01-Mar-2002	5.2	Dy underground;ore
AN-VANGORDA DY	LEASE IP	DY 144	Y4359	3504 *	CRI		01-Mar-2002	18.0	Dy underground;ore
AN-VANGORDA DY	LEASE IP	DY 43A FR	YA24932	3503 *	CRI		01-Mar-96	0.6	Dy underground;ore
AN-VANGORDA DY	LEASE IP	GALE 13	Y67331	3509 *	PRM	28.6% RCV	01-Mar-2005	20.9	Dy underground
AN-VANGORDA DY	CLAIM	GALE 25	Y67343	GAZ	PRM	28.6% RCV	01-Mar-2005	17.4	Dy underground;ore
AN-VANGORDA DY	CLAIM	GALE 26 FR	Y67344		PRM	28.6% RCV	01-Mar-2005	17.4	Dy underground
AN-VANGORDA DY	CLAIM	GALE 27	Y67345	GAZ	PRM	28.6% RCV	01-Mar-2005	18.5	Dy underground;ore
AN-VANGORDA DY	CLAIM	GALE 44	Y67362		PRM	28.6% RCV	01-Mar-2005	20.9	Dy underground
AN-VANGORDA DY	LEASE IP	GALE 46	Y67364	3510 *	PRM	28.6% RCV	01-Mar-2001	20.9	Dy underground;ore
AN-VANGORDA DY	CLAIM	MAC 2	66721		CRI	KA/CNR 5% NPI	01-Mar-2006	20.9	Dy underground
AN-VANGORDA DY	CLAIM	QUE 32 FR	Y10670		CRI		01-Mar-2005	0.1	Dy underground
AN-VANGORDA DY	CLAIM	QUE 33 FR	Y10671		PRM	28.6% RCV	01-Mar-2005	0.5	Dy underground
AN-VANGORDA DY	LEASE IP	QUE 37 FR	Y10675	3511 *	CRI		01-Mar-2001	2.8	Dy underground;ore
AN-VANGORDA DY	CLAIM	QUE 38 FR	Y10676		PRM	28.6% RCV	01-Mar-2005	1.3	Dy underground
AN-VANGORDA DY	LEASE IP	QUE 47 FR	Y10845	3512 *	CRI		01-Mar-2002	0.7	Dy underground;ore
AN-VANGORDA PL	CLAIM	DY 42	85923		CRI		01-Mar-2006	20.9	
AN-VANGORDA PL	CLAIM	DY 44	85925		CRI		01-Mar-2006	20.9	
AN-VANGORDA PL	CLAIM	DY 46	85927		CRI		01-Mar-2006	18.3	
AN-VANGORDA PL	CLAIM	DY 61	85942		CRI		01-Mar-2006	18.3	
AN-VANGORDA PL	CLAIM	DY 62	85943		CRI		01-Mar-2006	20.9	
AN-VANGORDA PL	CLAIM	DY 63	85944		CRI		01-Mar-2006	19.6	
AN-VANGORDA PL	CLAIM	DY 65	85946		CRI		01-Mar-2006	20.9	
AN-VANGORDA PL	CLAIM	DY 173	93106		CRI		01-Mar-2006	7.0	
AN-VANGORDA PL	CLAIM	DY 174	93107		CRI		01-Mar-2006	15.7	
AN-VANGORDA PL	CLAIM	DY 44A FR	YA24933		CRI		01-Mar-96	1.7	
AN-VANGORDA PL	CLAIM	GALE 14	Y67332		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 15	Y67333		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 28	Y67346		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 29	Y67347		PRM	28.6% RCV	01-Mar-2005	20.9	

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LOCATION	TYPE	CLAIM NAME AND NUMBER	GRANT NUMBER	LEASE NO.	RECORDED OWNER	OTHER INTEREST	EXPIRY DATE	AREA (HECTARES)	COMMENTS
AN-VANGORDA PL	CLAIM	GALE 30	Y67348		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 31	Y67349		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 40	Y67358		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 42	Y67360		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 43	Y67361		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 45	Y67363		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 47	Y67365		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 49	Y67367		PRM	28.6% RCV	01-Mar-2005	20.9	
AN-VANGORDA PL	CLAIM	GALE 51	Y67369		PRM	28.6% RCV	01-Mar-2005	10.9	
AN-VANGORDA PL	CLAIM	GALE 53	Y67371		PRM	28.6% RCV	01-Mar-2005	15.7	
AN-VANGORDA PL	CLAIM	GALE 55	Y67373		PRM	28.6% RCV	01-Mar-2005	15.7	
AN-VANGORDA PL	CLAIM	MAC 1	66720		CRI	KA/CNR 5% NPI	01-Mar-2006	20.9	
AN-VANGORDA PL	CLAIM	MAC 1 FR	YA19720		CRI	KA/CNR 5% NPI	01-Mar-2001	2.0	
AN-VANGORDA PL	CLAIM	QUE 25 FR	Y10663		PRM	28.6% RCV	01-Mar-2005	4.2	
AN-VANGORDA PL	CLAIM	QUE 26 FR	Y10664		PRM	28.6% RCV	01-Mar-2005	4.2	
AN-VANGORDA PL	CLAIM	QUE 27 FR	Y10665		PRM	28.6% RCV	01-Mar-2005	12.5	
AN-VANGORDA PL	CLAIM	QUE 28 FR	Y10666		PRM	28.6% RCV	01-Mar-2005	12.5	
AN-VANGORDA PL	CLAIM	QUE 29 FR	Y10667		PRM	28.6% RCV	01-Mar-2005	12.5	
AN-VANGORDA PL	CLAIM	QUE 30 FR	Y10668		PRM	28.6% RCV	01-Mar-2005	12.5	
AN-VANGORDA PL	CLAIM	QUE 31 FR	Y10669		PRM	28.6% RCV	01-Mar-2005	12.5	
AN-VANGORDA PL	CLAIM	QUE 34 FR	Y10672		PRM	28.6% RCV	01-Mar-2005	12.5	
AN-VANGORDA PL	CLAIM	QUE 39 FR	Y10677		PRM	28.6% RCV	01-Mar-2005	4.2	

NOTES:

LEASE IP = mineral lease has been issued and signed by CRI, awaiting copy signed by Crown

GAZ = claim has been surveyed and is being gazetted prior to taking to lease

4b

Claims comprising the Dy property are mostly wholly beneficially owned by Curragh Resources Inc. Part of the property consists of claims beneficially owned by Pelly River Mines (PRM) which is 71.43% owned by Curragh. To the west of the deposit there are claims with a 5% net profits interest divided between Kerr Addison Mines (2%) and Canadian Natural Resources (3%). The distribution of the various ownership positions is indicated in figure 2. Twelve quartz claims covering the core of the deposit have been converted to 21 year renewable mineral leases. Two additional claims have been surveyed and may be converted to leases once the statutory 60 day notice period has passed. The area of the Dy mineral leases is outlined in figure 3.

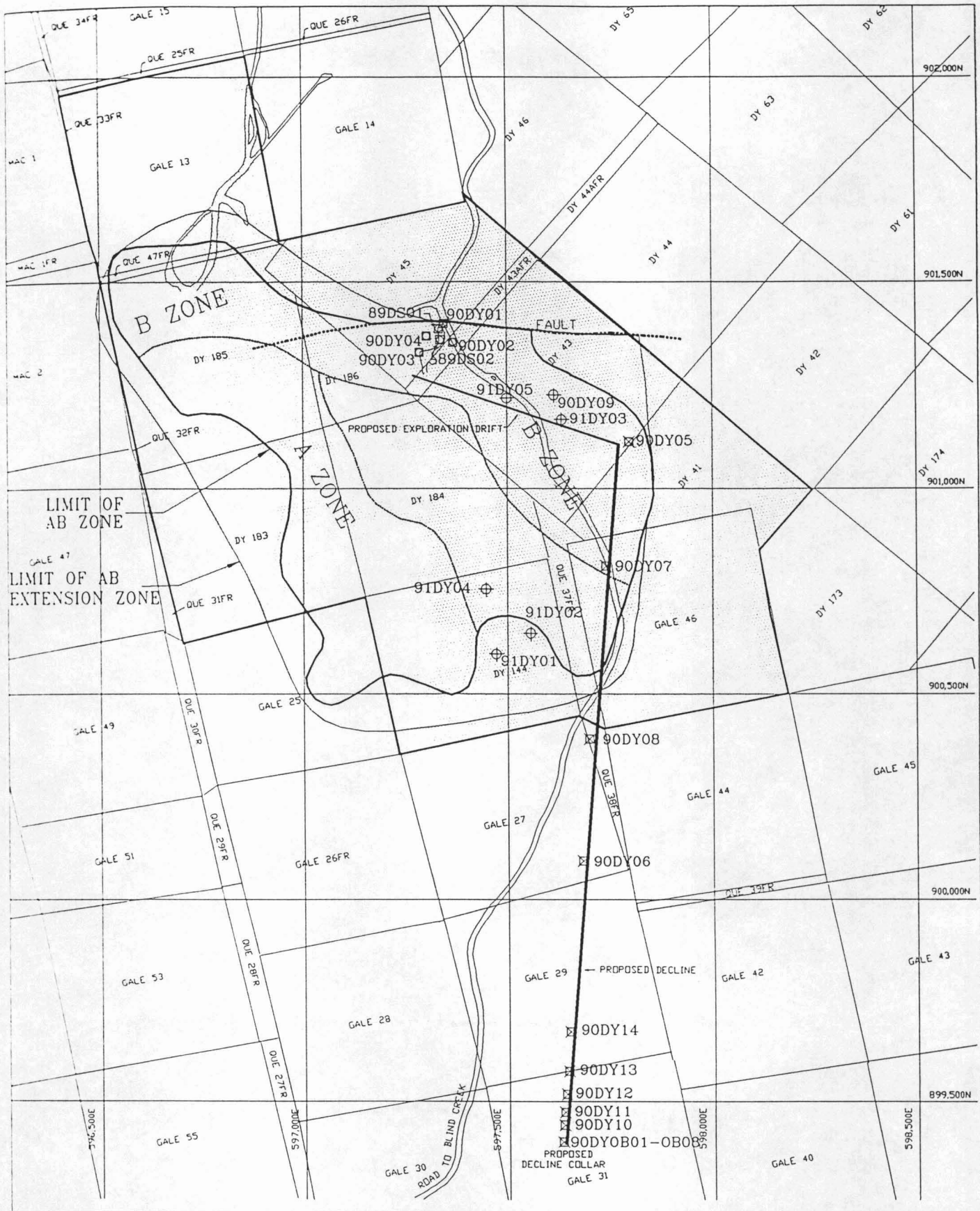
4.0 DEPOSIT GEOLOGY

The Dy deposit is similar to the other Anvil District deposits in that it is a multi-layered, polydeformed, sediment hosted sequence of exhalative, massive and disseminated pyritic sulphides. Sulphide layers are variably mineralized and commonly interbanded with metasedimentary and lesser metavolcanic phyllites. The enclosing rocks are muscovite-chlorite phyllites which are locally altered near the deposit. Metamorphic grade is dominantly greenschist facies. Structurally deeper levels (mainly lower than mineralization) are transitional to amphibolite facies. Numerous late, hornblende diorite and quartz feldspar porphyry dikes cut the deposit and are more concentrated at the east end of the deposit.

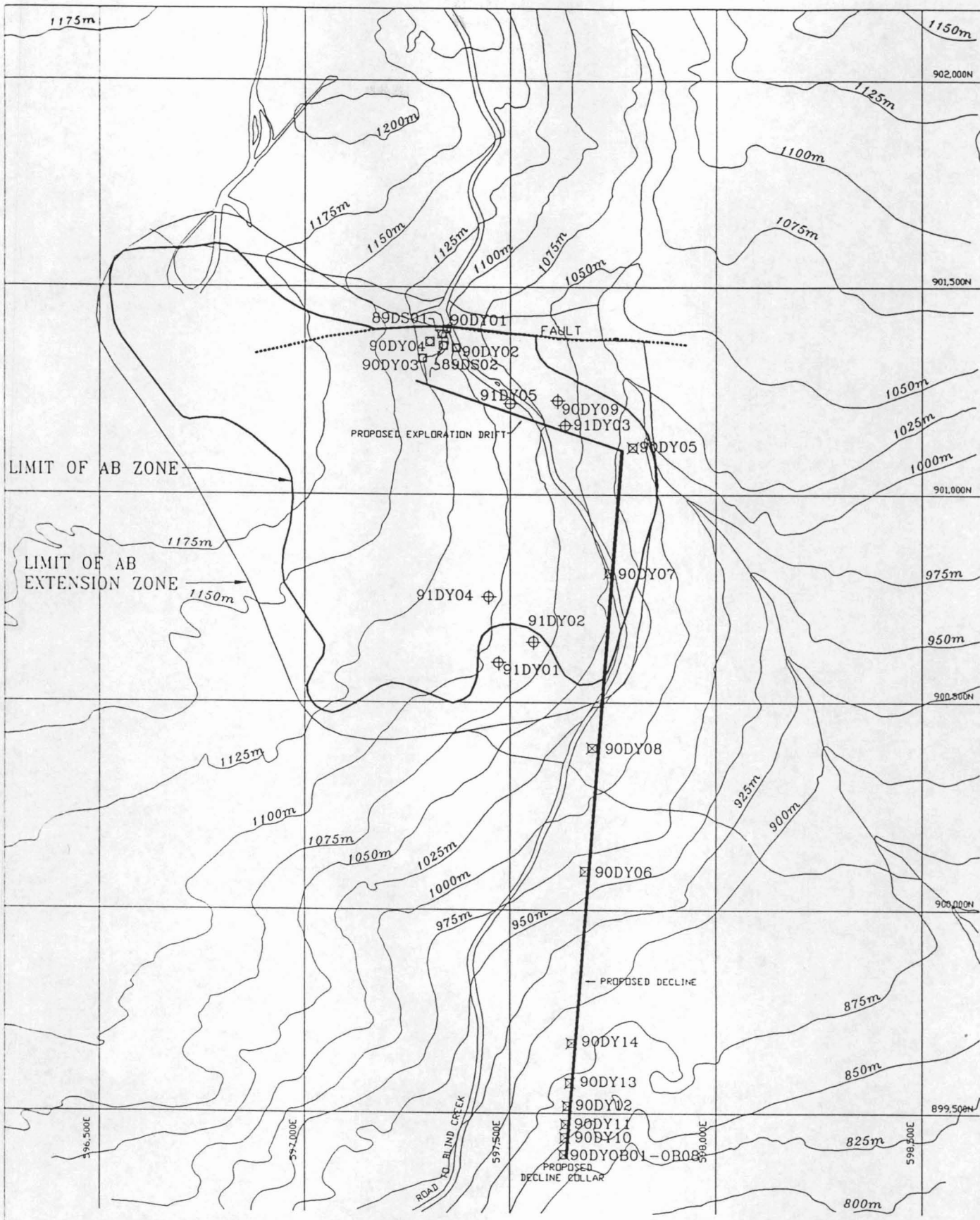
The known mineralized zone ranges up to 200 m thick in aggregate, has a strike length of approximately 2200 m, and a width up to 1800 m. The horizons of the Dy deposit span a poorly defined transition zone from the Mt. Mye formation to the younger, calcareous Vangorda formation. The deposit is amoeboid shaped in plan view and is unusual for the Anvil District in that it has two well defined zones (figure 3) of varying lead zinc ratio, in the southwest, the A which is relatively lead rich and, in the northeast, the B which is relatively zinc rich.

4.1 Structure

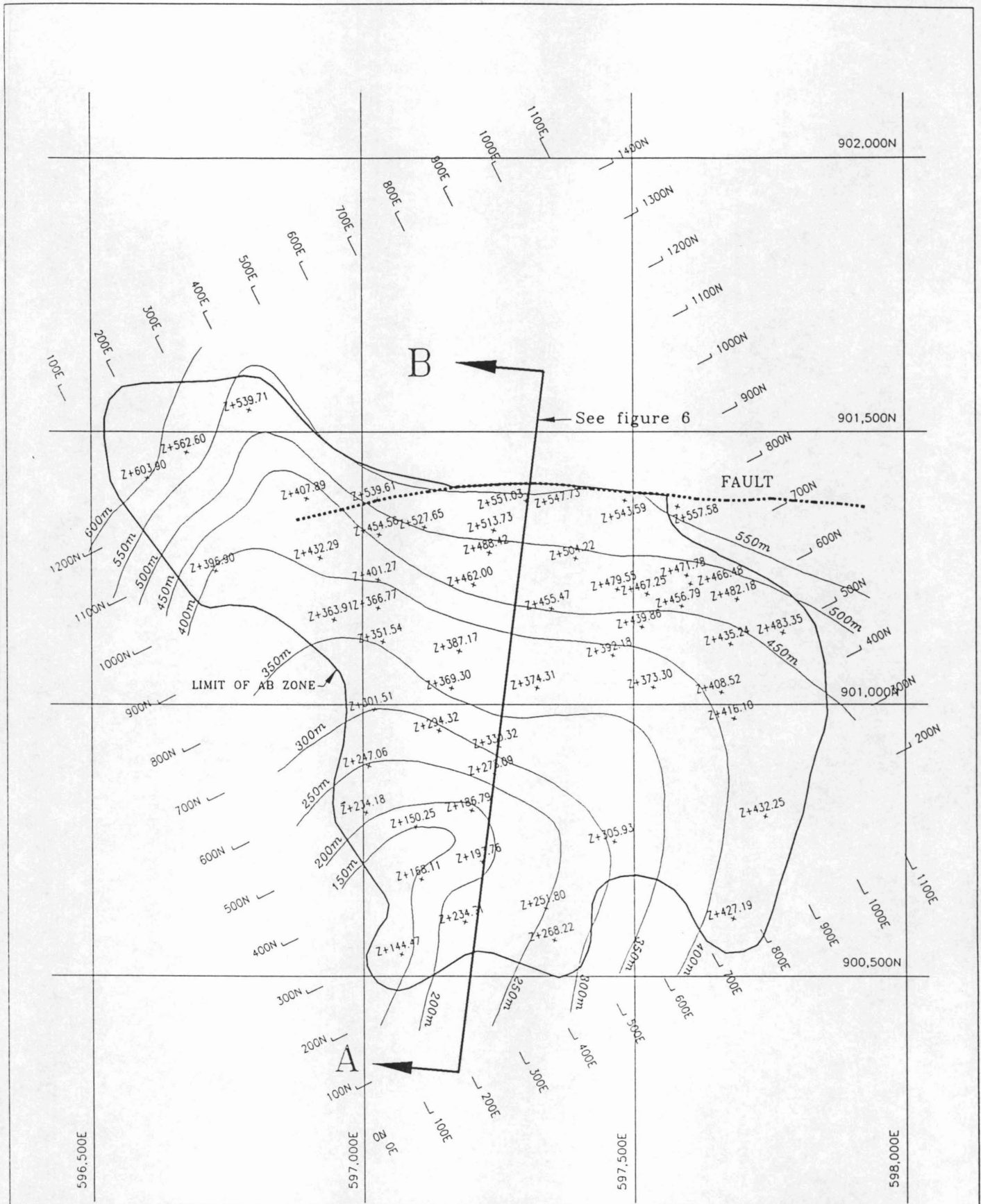
The internal structure of Dy is poorly understood because of lack of data, however, it is reasonable to expect that the structural complexity of the other more densely drilled Vangorda Plateau deposits (Vangorda, Grum) also exists at Dy. There is evidence of at least five phases of deformation in the district. On Vangorda Plateau the first two are generally most significant in that they are penetrative and affect the overall shape and geotechnical characteristics of the mineralized zone and its host rocks. A well developed, moderately southwest dipping (figures 5a, 5b and 6), metamorphic cleavage (S_2) is generally subparallel to the sulphide layering. In the phyllite host rocks, S_2 is a well developed, micaceous cleavage axial planar to second phase folds in layering. S_2 is generally the most important parting or plane of fissility in the rocks. This cleavage is an important geotechnical consideration for underground development, particularly where S_2 is cross cut by faults and joints. Within massive and disseminated sulphide



		Curragh Resources Inc.		LEGEND: ☒ DECLINE DRILLHOLE COLLAR LOCATION ⊕ INFILL DRILLHOLE COLLAR LOCATION □ SHAFT DRILLHOLE COLLAR LOCATION MINING LEASE
	REVISIONS:	DY PROPERTY		
		DY AREA - MINING LEASE		
REPORT No: WH9103		FIG No: 3		
Drawn by: C.V.R.		Date: OCT 21 91		N.T.S. 105x3
Drawing No: FILE: DYMRMAP				



		Curragh Resources Inc.		LEGEND:	
	REVISIONS:	DY PROPERTY		□ DECLINE DRILLHOLE COLLAR LOCATION ⊕ INFILL DRILLHOLE COLLAR LOCATION □ SHAFT DRILLHOLE COLLAR LOCATION	
SURFACE TOPOGRAPHY 1989 - 1991 DIAMOND DRILLHOLE LOCATION PLAN					
REPORT No: WH9103	FIG No: 4				
Drawn by: C.V.R.	Date: OCT 21 91	N.T.S.	105K3		
Drawing No: FILE: NYMRMAP					



0m 150m 300m

REVISIONS

CURRAGH RESOURCES INC.

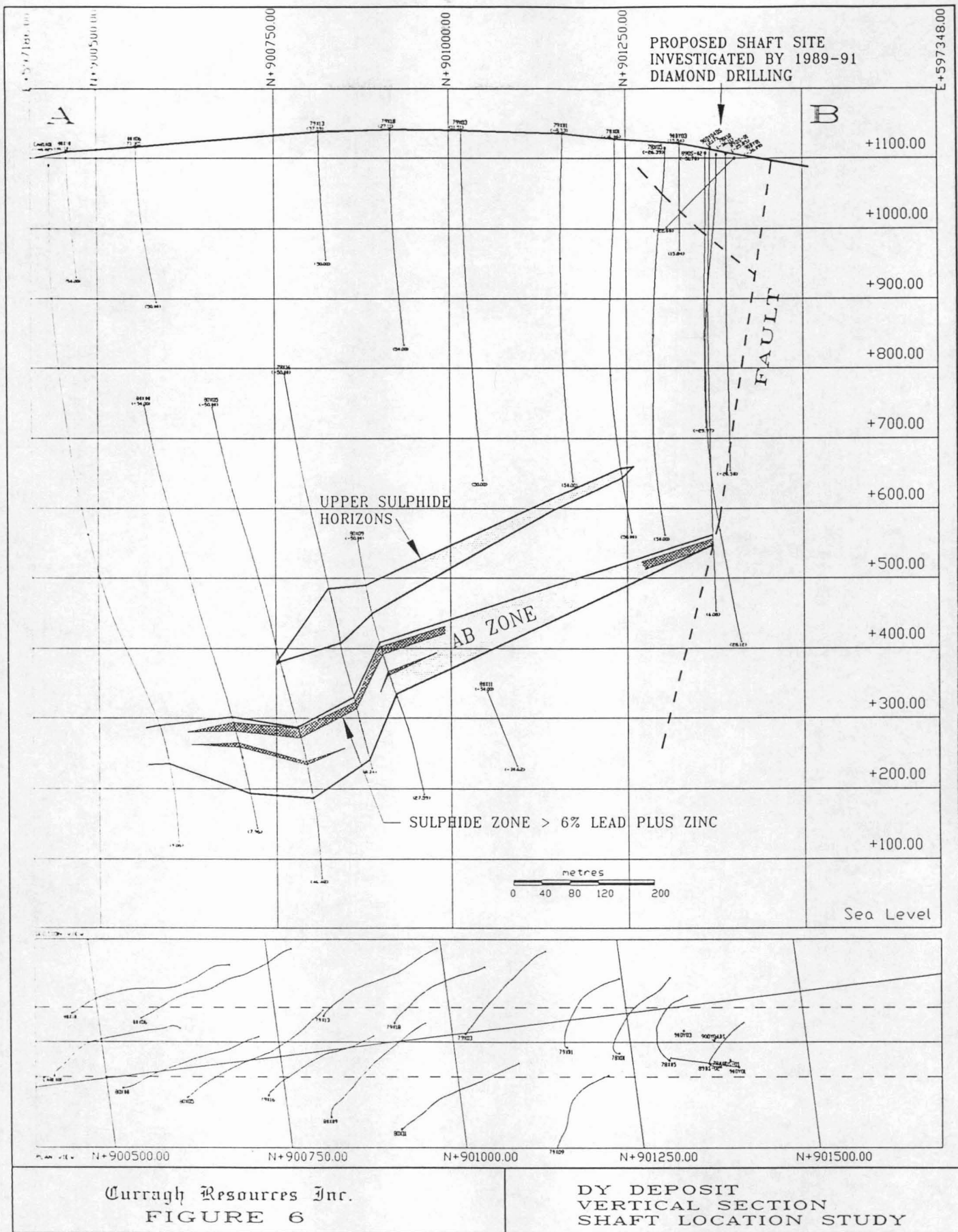
DY PROPERTY

AB ZONE FOOTWALL CONTOUR

REPORT No.	WH9103	FIG No.	5a
Drawn by	CVR	Date	OCT 21, 91
Drawn by	ABCONTOUR: WG	NSL	105KJ

LEGEND:

Contour interval = 50m
Contours are metres above sea level



horizons, S₂ is present as thin compositional bands. The sulphide rock types are generally competent and S₂ does not represent a significant geotechnical concern. A possible exception to this generalization is due to local, carbonaceous partings along S₂ imparting a fissility to some lower grade disseminated sulphide bearing quartzites. This material is more prevalent at the footwall of the high grade zone.

4.2 Faults

There are numerous steep faults which cut the deposit and there are important, shallowly dipping faults present immediately beneath the deposit. Many of these faults, especially the steeply dipping ones, contain significant clay/mud gouge and are water bearing. The current drilling density precludes the possibility of resolving frequency of occurrence or orientation and displacement on most of these faults. Two important faults were detected in the shaft pilot hole. The upper one trends northeast-southwest and dips moderately northwest. The lower fault is perhaps more significant in that it may truncate the ore zone along its northeast boundary (the straight portion of the outline northeast of DDH 90DY04 in figure 4). It is suspected to trend east-northeast/west-southwest and dip steeply south (figure 6). The shallowly dipping faults are generally marked by intact fault rock and may not pose a significant geotechnical concern.

4.3 Sulphide Lithofacies

There are several sulphide lithofacies which comprise all of the Anvil District deposits. Two principal subdivisions exist; massive and disseminated pyritic sulphides. The proportion of each type varies from deposit to deposit. The distribution and proportion of each is not well known at Dy. Drilling to date indicates that the bulk of the higher grade material is massive sulphide.

4.3.1 Massive Sulphides

The dominant rock type in the massive sulphide lithofacies is massive pyritic sulphide (4E) which is gradational into barite bearing massive sulphide (4G). Massive pyritic sulphide consists of homogeneous to finely banded, usually weakly foliated, fine grained massive pyrite with lesser sphalerite and galena. Total sulphide content is at least 60%, generally greater than 80%, and commonly near 100%. Gangue consists of quartz ± barite (less than 10%) ± carbonates (calcite, dolomite, ankerite, siderite). Accessory minerals include pyrrhotite, magnetite, chalcopyrite, arsenopyrite and marcasite.

The baritic massive sulphides (4G) are a well banded rock consisting of alternating barite poor and barite rich bands on a scale of a few millimetres. Barite content is at least 10% and generally near 30%, rarely is there more than 50% barite by volume in this rock type. The baritic massive sulphides are

usually always high grade. They tend to be slightly more lead and silver rich than other rock types. The barite lithofacies commonly contains fine magnetite and less commonly is carbonate bearing.

Other less important massive sulphide lithofacies at Dy contain up to 70% pyrrhotite (4H), or up to 50% carbonate (4K).

4.3.2 Disseminated Sulphides in Quartzite

The dominant rock type in the quartzose, disseminated sulphide lithofacies is ribbon banded graphitic quartzite (4A). This unit is dark grey to black, moderately hard to very hard, well banded, fine grained, sulphide bearing, carbonaceous, locally micaceous quartzite. Compositional bands usually range from 1 mm to 2 cm thick. The bands are alternating dark grey to black, very fine grained, locally micaceous quartzite interbanded with light grey to locally red-brown, fine grained, quartz-sulphide bands. Pyrite is usually the dominant sulphide species with lesser sphalerite and galena. Locally, lead-zinc sulphides, particularly light red-brown sphalerite, are dominant. Locally, pyrrhotite is present rather than pyrite but is only a minor constituent overall. Carbon content is normally within the $\frac{1}{4}$ to $\frac{1}{2}$ % range and generally occurs in thin coatings concentrated on cleavage surfaces.

Chalcopyrite occurs locally in traces as small blebs and infills of hairline fractures. Total sulphide content varies from 15% to 30% and may locally range up to 60%.

An important variant of the disseminated sulphides (4D where $> 4\%$ Pb+Zn, 4C where $< 4\%$ Pb+Zn) is deficient in carbon, less well banded and more sulphide (particularly pyrite) rich than the ribbon banded quartzites. Major sulphide minerals are pyrite, galena and sphalerite. Total sulphide content is generally in the range 30 to 60%. Gangue is quartz with lesser carbonate. Accessory minerals are magnetite, chalcopyrite and/or pyrrhotite. 4A is completely gradational to 4D/4C and some pyritic quartzites appear to be related to 4A by alteration involving decarbonation adjacent to metabasites.

5.0 PREVIOUS RESERVE CALCULATIONS

Three reserve calculations have been completed for the Dy deposit over the years. They are:

- 1) B.V. Hall, CAMC 1981
- 2) Rollings, CAMC 1982
- 3) P.C. Coltas, Kilborn Limited, consultant, 1989

Each calculation utilized a polygonal method using various assumptions and parameters and was based on all of CAMC's drillhole data.

5.1 B.V. Hall Calculation CAMC 1981

In 1981, a CAMC sectional interpretation resolved four shallow dipping mineralized horizons (Horizon 2, Horizon 3, Horizon 4, Horizon 5) at a cutoff grade of 9% and 12% combined lead plus zinc over a minimum width of 3.5 metres (Table II). Plans were drawn indicating the intersections for each horizon and polygonal areas of influence set up on each plan. Employing a polygonal calculation method, the following drill indicated and drill inferred reserves were determined on the basis of 42 drill holes, each of which intersected one or more of the mineralized horizons (see Appendix III for calculation details).

TABLE II: Dy Reserve Estimate, CAMC (Hall, 1981)

<u>9% (Pb+Zn) Cutoff</u>					
	<u>Tonnes</u>	<u>Pb(%)</u>	<u>Zn(%)</u>	<u>Pb+Zn(%)</u>	<u>Ag (g/t)</u>
Drill Indicated	17,388,056	5.82	6.84	12.66	83.1
Drill Inferred	3,946,071	5.03	7.45	12.48	75.3
TOTAL	21,334,127	5.68	6.95	12.63	81.6

<u>12% (Pb+Zn) Cutoff</u>					
	<u>Tonnes</u>	<u>Pb(%)</u>	<u>Zn(%)</u>	<u>Pb+Zn(%)</u>	<u>Ag (g/t)</u>
Drill Indicated	9,982,856	6.88	7.95	14.83	102.1
Drill Inferred	1,647,200	5.91	8.32	14.23	90.3
TOTAL	11,630,056	6.74	8.00	14.74	100.4

5.2 CAMC (Rollings) Calculation, 1982

In 1982 a second reserve calculation was conducted by CAMC (Rollings, 1982). Utilizing the same data and a similar polygonal calculation method and apparently even the same polygons (descriptive text not available) as Hall (1981). Rollings calculated a reserve in three horizons (A2, 3A, B2). The estimated reserves are listed in Table III (see Appendix IV for calculation details).

TABLE III: Dy Reserve Estimate, CAMC (Rollings, 1982)

	<u>Tonnes</u>	<u>Pb(%)</u>	<u>Zn(%)</u>	<u>Pb+Zn(%)</u>	<u>Ag (g/t)</u>	<u>Au (g/t)</u>
Possible	21,059,980	5.54	6.74	12.28	83.77	0.95

5.3 Kilborn Limited Calculation, 1989

In 1989 Kilborn Limited, as part of their review of Curragh's 11 year plan for the Faro Division, engaged P.C. Coltas to "review the previous estimates and to reclassify the mineral inventory". Coltas eliminated the 3A horizon reserve of Rollings, reduced the A2 and increased the B2 horizon. His classified estimate is listed in Table IV (see Appendix V for calculation details).

TABLE IV: Dy Reserve Estimate, Kilborn Ltd. (Coltas, 1989)

<u>9% (Pb+Zn) Cutoff</u>						
	<u>Tonnes</u>	<u>Pb(%)</u>	<u>Zn(%)</u>	<u>Pb+Zn(%)</u>	<u>Ag (g/t)</u>	<u>Au (g/t)</u>
Probable	14,920,525	5.45	7.02	12.47	85.7	0.93
Possible	<u>5,194,300</u>	<u>5.57</u>	<u>6.07</u>	<u>11.64</u>	<u>81.0</u>	<u>0.87</u>
TOTAL	20,114,825	5.47	6.77	12.44	84.5	0.91

6.0 MINERAL INVENTORY CALCULATION

6.1 Drillhole Database

The current mineral inventory calculation uses all previous drillhole information some of which was corrected prior to quantification.

In 1989 and 1990, Curragh Resources Inc. (CRI) drilled sixteen holes to test ground conditions at locations proposed for shaft and ramp access to the deposit. Four of these holes intersected the Dy deposit and returned high grade intersections from the B2 horizon.

Five additional delineation holes were drilled in 1991. Hole locations are given in figure 4. Three holes, located to test the southeastern part of the 3A horizon failed to intersect high grade mineralization (i.e. 9% lead + zinc over 3.5 m) although the holes were not continued to test deeper horizons. Two holes targeted to intersect the B2 horizon were successful.

The new mineral inventory incorporates the 1990-1991 drill results.

All drillhole data in the vicinity of the Dy deposit was entered into a computer database using Gemcom PCXPLOR database software. All data was visually verified and corrected as necessary including field and office checks on selected surveyed collar locations. Appendix VII provides a listing of assay data for all drillholes at Dy.

6.2 Calculation Method

Using the above database, vertical cross and longitudinal section drawings were plotted at 50 metre intervals at 1:1250 scale. Cross and long section grids are at azimuth 63° and azimuth 153° respectively (figures 5a & 5b). The orientation of the cross sections was chosen to be at right angles to the long dimension of the A Zone portion of deposit. The orientation of the section grid differs greatly from the earlier CAMC exploration grid which was more closely perpendicular to the strike of the deposit. The new section orientation reduces drillhole offset and as a result the deposit appears to have better continuity.

The bulk of high grade mineralization was observed to occur largely in one thick layer herein named the AB Zone. The AB Zone includes both the A2 and B2 horizons identified by Rollings (1982). The inventory calculated in this study are focused on the AB Zone. The AB Zone is not fully delineated by diamond drilling; an attempt has been made to quantify possible lateral extensions to the AB Zone (see section 6.2.2). Mineralization intersected above and below the AB zone possibly represents fold repeats, fault dislocations or lateral extensions of the layer or additional separate layers. This material is considered as additional potential and is also separately quantified (see section 6.2.3).

6.2.1 The AB Zone

The AB Zone is a broad zone consisting of mineralized (sulphide lithofacies) and/or altered rock, which collectively may be exhalite and/or chemical sediments. Lesser amounts of unmineralized, unaltered wall rock and intrusive are locally included. One or more sulphide horizons variably enriched in lead and zinc are usually present. Contours of the AB Zone footwall and hanging wall elevation are given in figures 5a and 5b. In general the zone dips southwest from 20 to 35°. The zone is up to 160 metres thick but is mostly 40 to 75 metres or less thick. The inventory in the AB Zone was calculated at Pb+Zn cutoffs of 6%, 8% and 9% over a minimum core length of 3.5 metres. Due to the angle of intersections between the drill holes and the mineralized horizons the core length closely approximates the true thickness of the mineralization.

Assay composites were calculated over a minimum core length of 3.5 metres. If a drillhole intersected more than one qualifying intersection separated by a waste zone greater than 3.5 metres thick, the waste zone was excluded from the composite. If thin internal waste intervals were present (generally less than 3.5 metres in length) they were included in the composite. Low grade or waste was included in some composites to establish a minimum 3.5 metre core length provided that the composited grade for the 3.5 metres was still greater than the cutoff. Composites were calculated by weighting each individual assay interval by its length. There was no consideration given for lost core recovery however core recovery is generally good. Due to software limitations there is only one composite allowed per drillhole. A number of drillhole had more than one qualifying intersection, these were summed for the drillhole to make up one composite. A summary of the characteristics of the summed and individual composites is provided in Table V where it can be seen that a 9% Pb+Zn cutoff composites average 7.9m long ranging from the minimum 3.5m (29% of them) to a maximum of 25.6m long. Fifteen individual composites at a 9% cutoff are over 10m long (29% of the total). Composite details are provided in Appendix VIII.

TABLE V: Summary Statistics for Assay Composites

<u>For Total Composite Intervals</u>	<u>9% Cutoff</u>	<u>8% Cutoff</u>	<u>6% Cutoff</u>
Number of holes with qualifying intervals	39 (100%)	42 (100%)	48 (100%)
Maximum length of total interval	33.8m	33.8m	39.9m
Holes with only minimum thickness interval or intervals (3.5m)	9 (23%)	9 (21%)	7 (15%)
Holes with multiple intervals	12 (31%)	17 (40%)	23 (48%)
Holes with 2 intervals	10 (26%)	13 (31%)	12 (25%)
Holes with 3 intervals	2 (5%)	3 (7%)	9 (19%)
Holes with 4 intervals	0 (0%)	1 (2%)	1 (2%)
Holes with 5 intervals	0 (0%)	0 (0%)	1 (2%)
 <u>For Individual Intervals</u>			
Number of individual intervals	52 (100%)	64 (100%)	85 (100%)
Average length of intervals	7.9m	7.4m	8.3m
Maximum length of intervals	25.6m	25.6m	35.2m
Minimum length of intervals	3.5m	3.5m	3.5m
Number of individual intervals at minimum length of 3.5m	15 (29%)	19 (30%)	23 (27%)
Number of individuals 10m or more long	15 (29%)	16 (25%)	21 (25%)
Number of individuals 20m or more long	2 (4%)	2 (3%)	7 (8%)

Note: 17 (40%) means "number of holes" ("percent of total")

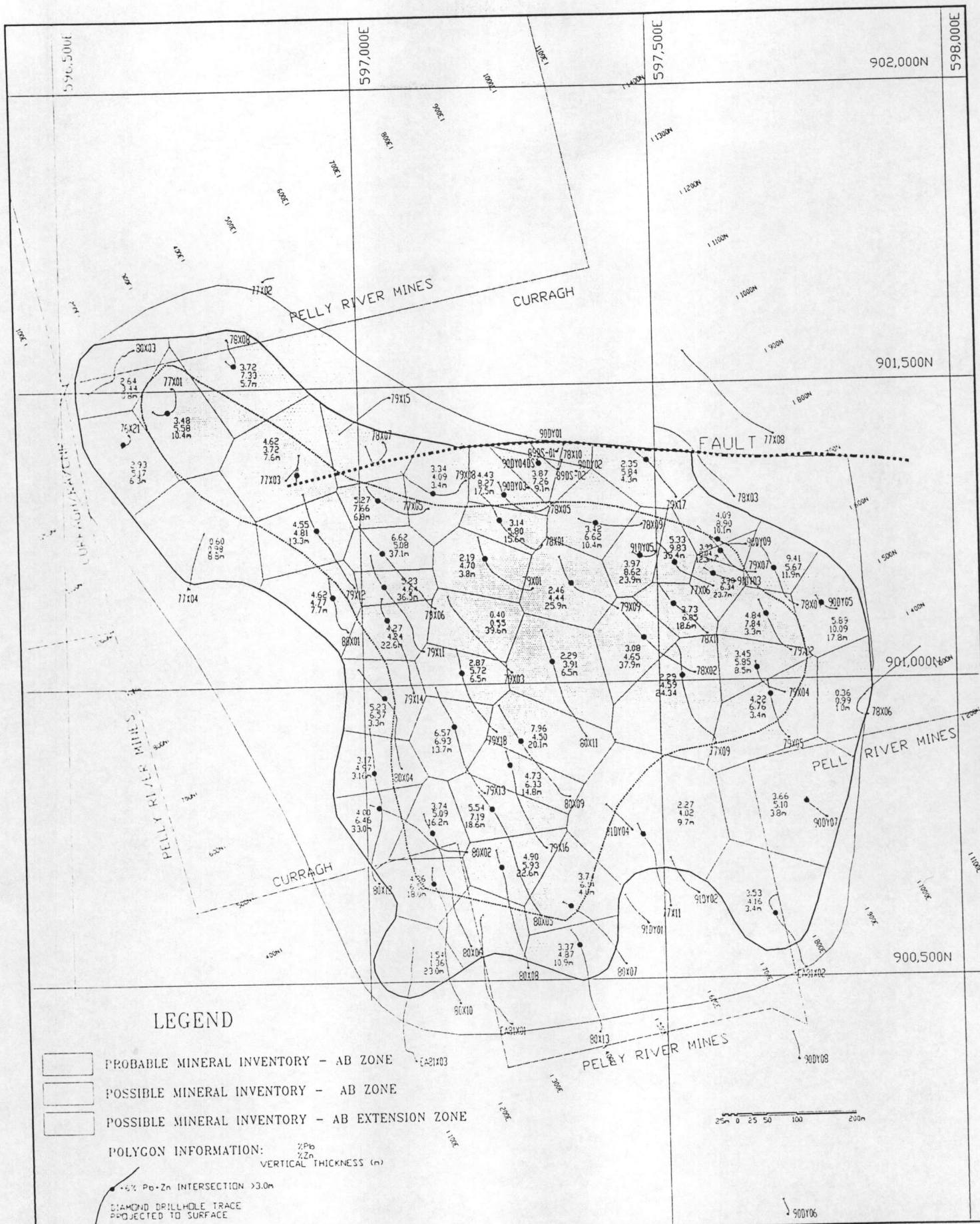
The composite location plotted on figures 7, 8 and 9 on the plans in Appendix IX is the vertical projection of the centre of the total interval. This location will be slightly different for a given drillhole depending on what cutoff grade is used. The location of drillholes which did not intersect the mineralized zone were also plotted on each plan.

In plan, the area of influence of a drillhole intersection is considered to be halfway (maximum of 150 metres) to the adjoining drillhole where the deposit is reasonably defined by drilling. At the edges of the ore zone the area of influence was arbitrarily defined as 60m beyond the most outboard drillhole. Extensions of the AB Zone beyond the arbitrary 60m limit are likely, especially along the west and south edges of the drilling area, and an effort to quantify this material is made below. The outline of the AB Zone thus interpreted is shown on figures 7, 8 and 9.

Polygon limits (figures 7, 8 and 9 and plans in Appendix IX) are defined by the perpendicular bisectors of lines drawn to nearby drillholes. Polygon limits were clipped against the interpreted outline of the AB Zone as defined above. Polygon areas are calculated in the horizontal plane. Polygon limits and areas were calculated and plotted using Gemcom's GEOMODEL software. Since composite locations vary slightly for each drillhole it will be noted that polygon areas also are slightly different (Appendix I) for each drillhole depending on the cutoff grade.

Polygon volumes were calculated by multiplying the vertical thickness of the composites by the polygon area. The vertical thickness for each composite is derived (by GEOMODEL) by correcting for the deviation of each drillhole from vertical at the location of each composite centre (essentially GEOMODEL subtracts the elevation of the lower end of the composite from the elevation of the higher end). As can be seen in Appendix VIII, vertical thickness is always less than the composite length. Vertical thickness is generally slightly greater than true thickness in gently dipping orebodies. The exaggerated thickness is compensated for by measuring areas in the horizontal plane where they are slightly smaller than they would be if measured in the plane of the orebody. This results in the volume calculated being a close approximation of the volume of the dipping ore layer. In the case of the Dy deposit these methods lead to a conservative volume since most drillholes, due to their great length, tend to deviate until they are close to perpendicular to S_2 and consequently also the ore layers; the composite lengths are thus relatively close to true thicknesses and the conversion to vertical thickness by the software reduces them rather than enlarging them.

Polygon volumes are converted to tonnage using a density of 3.92 tonnes/cubic metre for all ore types. This density is arrived at through



LEGEND

- PROBABLE MINERAL INVENTORY - AB ZONE
- POSSIBLE MINERAL INVENTORY - AB ZONE
- POSSIBLE MINERAL INVENTORY - AB EXTENSION ZONE

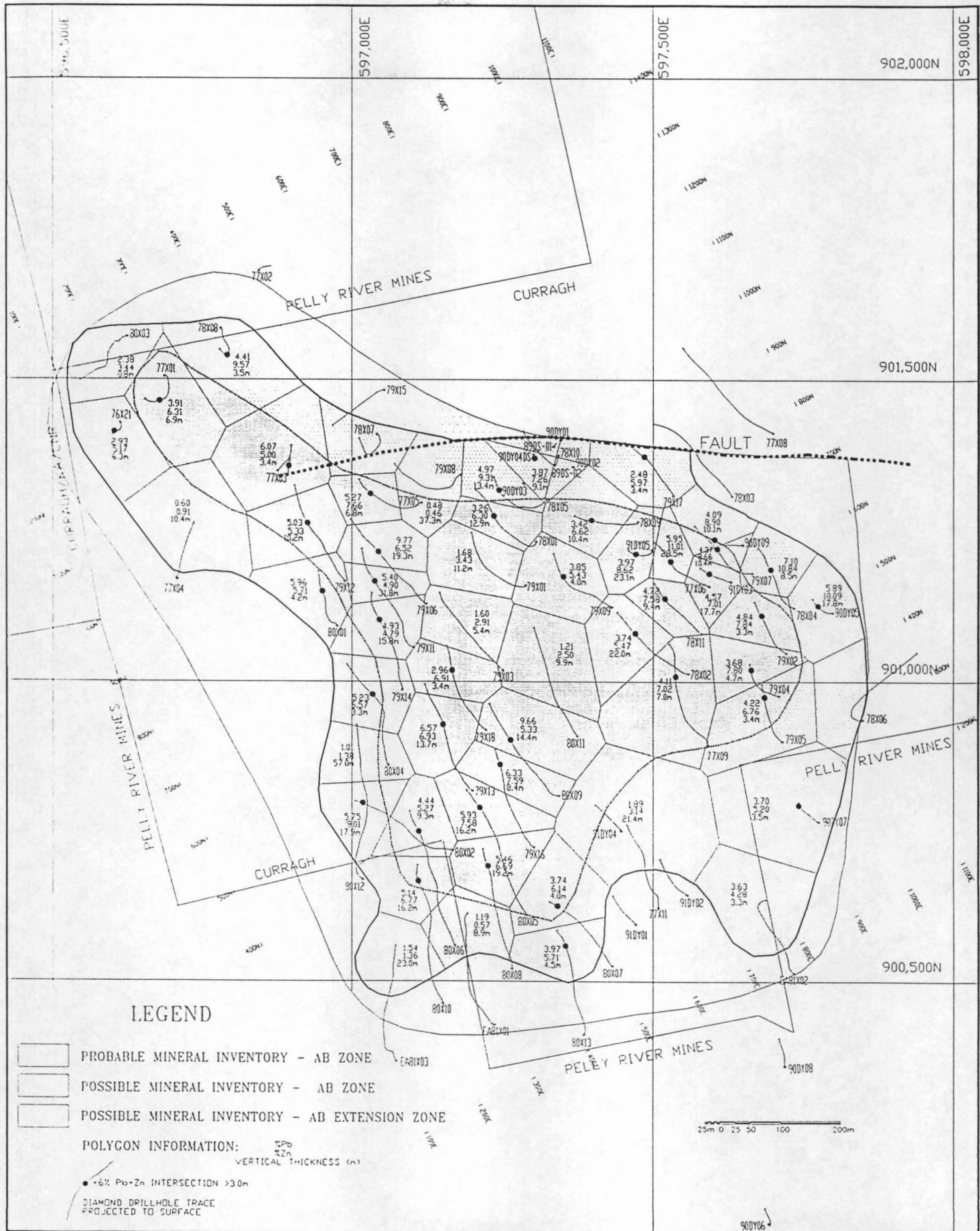
POLYGON INFORMATION:
 $\frac{1}{2}Pb$
 $\frac{1}{2}Zn$
 VERTICAL THICKNESS (m)

\swarrow 6% Pb-Zn INTERSECTION >3.0m
 DIAMOND DRILLHOLE TRACE
 PROJECTED TO SURFACE

Curragh Resources Inc.

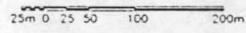
FIGURE 7

DY DEPOSIT - MINERAL INVENTORY
 POLYGONAL ESTIMATE
 6% LEAD + ZINC CUTOFF



LEGEND

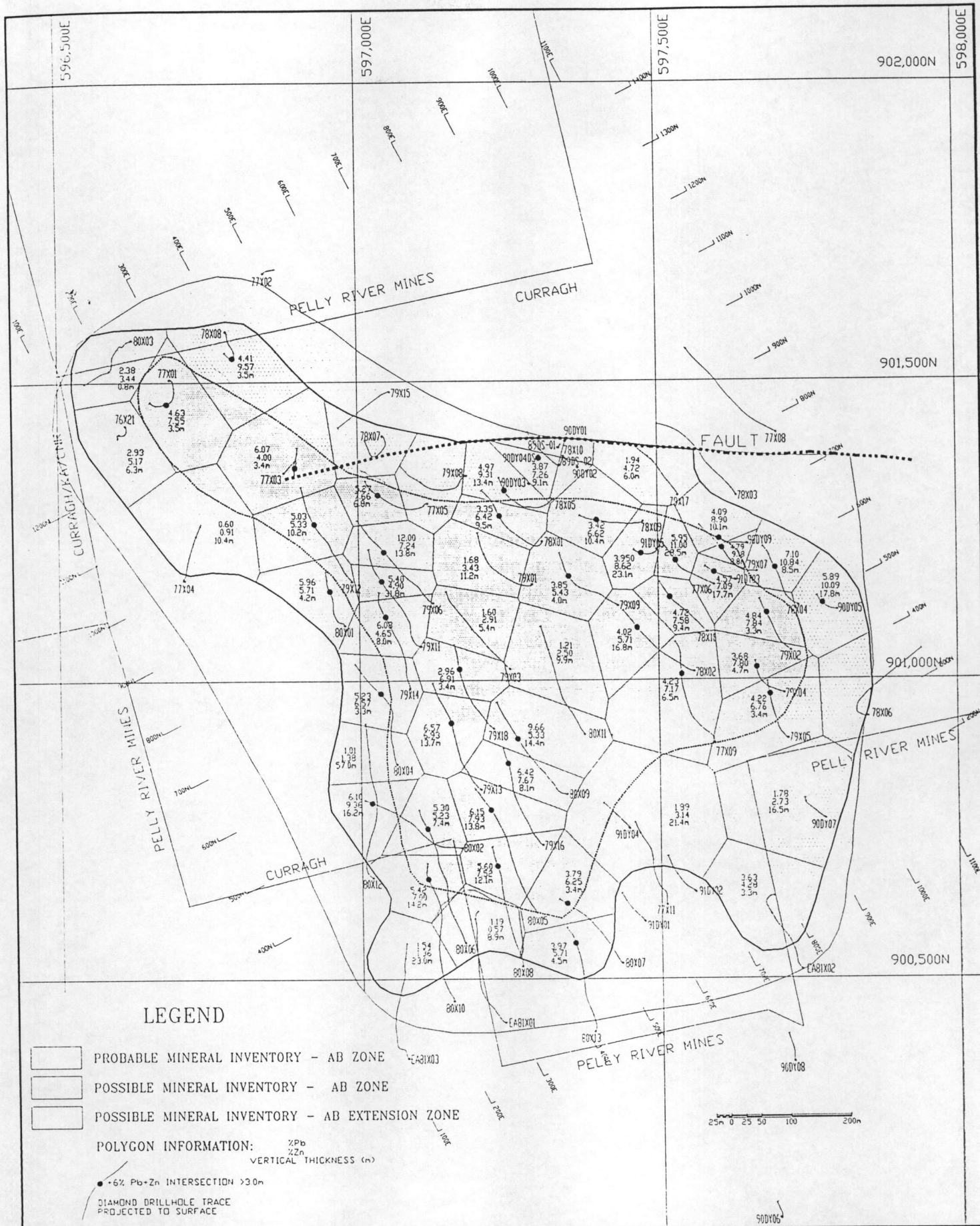
- PROBABLE MINERAL INVENTORY - AB ZONE
- POSSIBLE MINERAL INVENTORY - AB ZONE
- POSSIBLE MINERAL INVENTORY - AB EXTENSION ZONE
- POLYGON INFORMATION:
 - $\frac{Pb}{Zn}$ VERTICAL THICKNESS (m)
 - 6% Pb-Zn INTERSECTION >30m
 - DIAMOND DRILLHOLE TRACE PROJECTED TO SURFACE



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FIGURE 8

DY DEPOSIT - MINERAL INVENTORY
 POLYGONAL ESTIMATE
 8% LEAD + ZINC CUTOFF



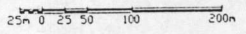
LEGEND

- PROBABLE MINERAL INVENTORY - AB ZONE
- POSSIBLE MINERAL INVENTORY - AB ZONE
- POSSIBLE MINERAL INVENTORY - AB EXTENSION ZONE

POLYGON INFORMATION: $\frac{1}{2}$ Pb $\frac{1}{2}$ Zn
VERTICAL THICKNESS (m)

● -6% Pb+Zn INTERSECTION >3.0m

— DIAMOND DRILLHOLE TRACE
PROJECTED TO SURFACE



Curragh Resources Inc.

FIGURE 9

DY DEPOSIT - MINERAL INVENTORY
POLYGONAL ESTIMATE
9% LEAD + ZINC CUTOFF

examination of averages of pulp specific gravity data for composites at a 6, 8 and 9% Pb+Zn cutoff. To account for porosity of the insitu rock the pulp specific gravity average was reduced by 2%. This reduction is based on experience at Faro with similar ores and is an empirical factor which gives a good fit between calculated ore tonnage and pit production tonnage as delineated by blastholes.

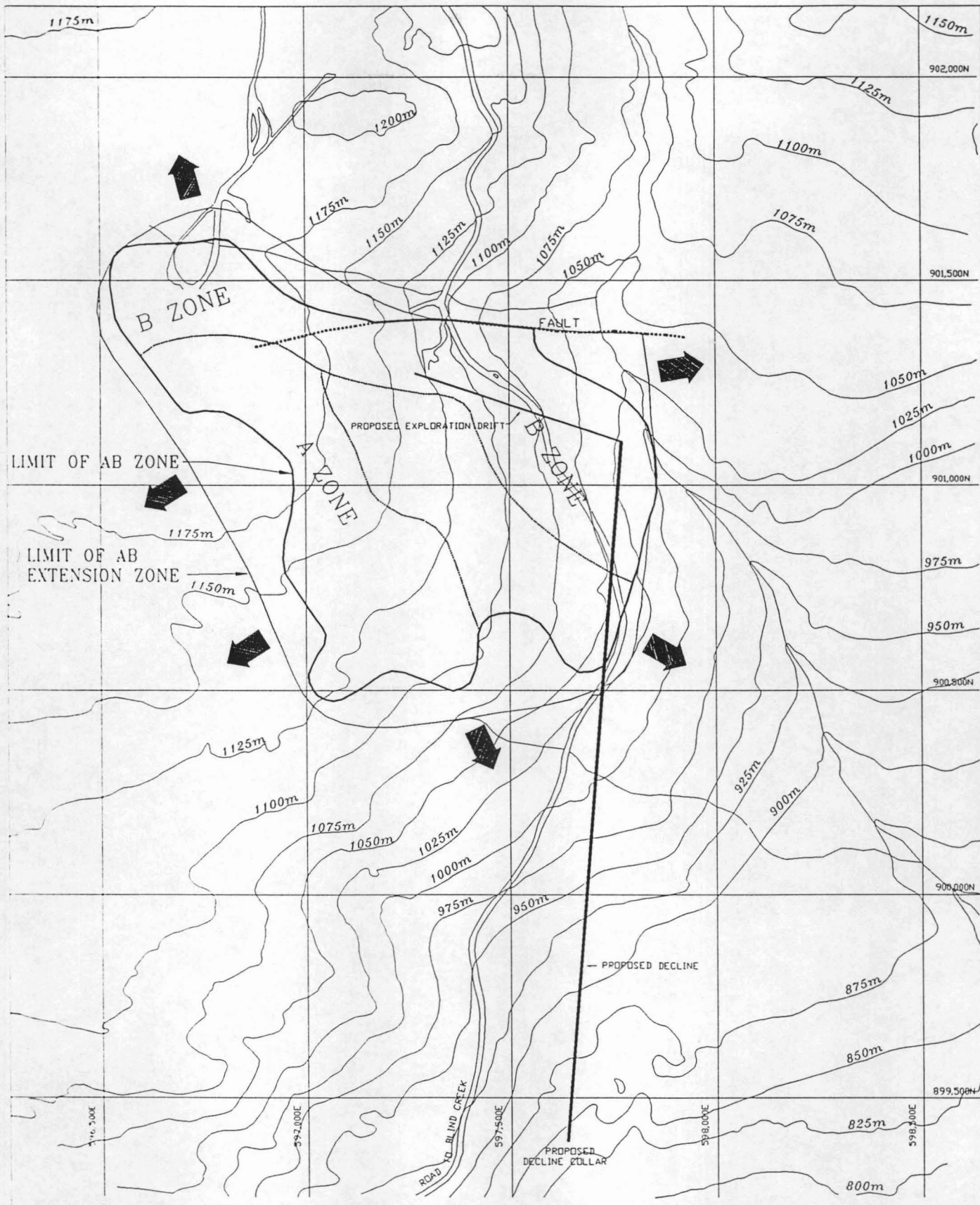
The details of data used for the AB Zone mineral inventory calculation on a polygon by polygon basis can be found in the tables of Appendix I. The details of the composites are provided in the tables of Appendix VIII. Tonnage and grade of mineralization on claims owned by Curragh and PRM was calculated by superimposing the claim boundary as an additional limiting polygon. The calculation follows similar procedures as outlined above and the details are provided in Appendix II.

6.2.2 AB Zone Extension

The outline of the AB Zone as defined above by the arbitrary 60m limit has an embayed appearance in the west and south due to a few more outboard holes. The vertical projection of deposit limits in the better known deposits of the district, such as Faro, tends to be smoother. An additional, more generous, deposit outline which extends projection of peripheral holes about 30% and smooths out irregularities in the AB Zone outline has been added to figures 2, 3, 4, 7, 8, 9 and 10 where it is indicated to be the limit of the AB extension zone. This additional, possible or potential, peripheral mineralization is highly subjective, it has been made somewhat more generous where bounding holes are too short or contain some sulphides and indications of fault complications (as in the north) or less generous in areas thought to have difficulties with dykes interfering with the ore zones (as in the east). The estimate of tonnage and grade for this area is made following the above procedures and using the composites described above but enlarging the area of influence for each drillhole to a radius large enough to reach the limit of the extension zone. The estimate is thus provided by the grade and thickness of the peripheral holes with composites above cutoff grade. Since the zone is expected to thin gradually in this area the tonnage has been reduced by half. The details of this calculation are provided in Appendix I also. No quantification of the AB extension was provided for various land holdings in the area.

6.2.3 Above and Below the AB Zone

As can be seen by comparing Appendices VII and VIII and examination of figure 6, there is additional mineralization above and below that assigned to the AB Zone. Some of this mineralization exceeds the grade/cutoff criteria however continuity of horizons could not be established as the intersections are singular or widely spaced. To reflect the potential that these intersections



		Curragh Resources Inc. DY PROPERTY EXPLORATION POTENTIAL		LEGEND: ARROW INDICATES EXPLORATION POTENTIAL				
	REVISIONS:	<table border="1"> <tr> <td>REPORT No: WH9103</td> <td>FIG. No: 10</td> </tr> <tr> <td>Drawn by: C.V.R.</td> <td>Date: OCT 21, 91</td> </tr> <tr> <td>Drawing No: FILE: DYMRMAP</td> <td>N.T.S. 105K3</td> </tr> </table>			REPORT No: WH9103	FIG. No: 10	Drawn by: C.V.R.	Date: OCT 21, 91
REPORT No: WH9103	FIG. No: 10							
Drawn by: C.V.R.	Date: OCT 21, 91							
Drawing No: FILE: DYMRMAP	N.T.S. 105K3							

represent a calculation was made on the basis of a radius of influence of 50m and a thickness equal to the composite length. Composites were calculated as described in section 6.2.1. A specific gravity of 3.92 was used for all cutoffs. The details for this calculation are provided in Appendix VI.

6.3 Classification of Mineral Inventory

Drillhole spacing at Dy is not adequate to consider a substantial portion of the deposit to be proven. The inventory was categorized as probable or possible based on the following criteria which are influenced greatly by experience with other Anvil District mineral deposits. In these deposits the mineralization in the interiors of the deposit is reasonably continuous on a broad scale although highly unpredictable in detail. Extrapolations of general thickness and tenor along the deposit grain of 60 to 150m are not unreasonable however extrapolations across the grain show more limited success and approximately 30m is reasonable.

Extensive experience in the Faro and Vangorda deposits shows that, in an open pit context, an average drillhole spacing of at least 30.5m (ideally on a 15 to 23m by 30 to 43m grid basis) is required to confidently and accurately define deposit structure, tonnage and grade.

Experience with Faro, Vangorda and Grum shows that drillhole spacings as broad as 60m by 120m are adequate to broadly outline global deposit tonnage and grade although much refinement is required for local confidence.

The edges of deposits are more difficult to estimate.

Using the observations the following classifications and the radii of influence in the preceding section were derived.

6.3.1 Classification of Probable Mineralization

Probable mineralization is that in a sulphide horizon which can be correlated with reasonable confidence and is delineated both up and down dip and along strike by diamond drilling or limited by well known structural or topographic discontinuity. The range of extrapolation within the zone can be justified by comparison to other deposits of similar nature in the same region.

In plan view this criteria results in restricting the probable material to that within a limit inside of the last peripheral hole in the drill array. That limit is shown on figures 7, 8 and 9.

6.3.2 Classification of Possible Mineralization

Possible mineralization is the result of a quantitative estimate based on widely spaced drillholes and largely on broad knowledge of the geological character of the deposit and similar nearby deposits. The continuity of mineralization is not necessarily confirmed up or down dip or along strike by drillholes or other sample points.

As applied to the Dy deposit this criteria results in all mineralization beyond the probable inventory limit described in the previous section and all mineralization above or below the AB Zone being classified as possible.

6.4 Results

The results of the mineral inventory estimation for the individual zones of the Dy deposit and the total deposit are provided in Tables VI through X. Results in all cases are presented for 6, 8 and 9% Pb+Zn sample cutoffs. In all cases the figures quoted are for undiluted, insitu material. Since the material cannot necessarily be extracted as delineated it is not considered a reserve.

6.4.1 AB Zone

Table VI gives the result of the estimate for probable and possible material within the limit of the AB Zone defined by the arbitrary 60m extrapolation limit on figures 7, 8 and 9 (i.e. within the inner two more densely stippled areas on those figures). Detailed backup can be found in Appendix I: sheets 1-3 for the 6% cutoff, sheets 8-10 for the 8% cutoff and sheets 15-17 for the 9% cutoff.

**TABLE VI: Mineral Inventory for AB Zone, Dy Deposit
in situ - undiluted**

	<u>Tonnes</u>	<u>%Pb+Zn</u>	<u>%Pb</u>	<u>%Zn</u>	<u>Ag (g/mt)</u>	<u>Au (g/mt)</u>
6% Pb+Zn Cutoff						
Probable	24,949,000	9.70	4.21	5.49	63.0	0.67
Possible	<u>10,348,000</u>	<u>10.43</u>	<u>4.01</u>	<u>6.42</u>	<u>61.3</u>	<u>0.62</u>
Total	35,297,000	9.91	4.15	5.76	62.5	0.60
8% Pb+Zn Cutoff						
Probable	14,895,000	12.06	5.43	6.63	80.0	0.87
Possible	<u>6,720,000</u>	<u>12.59</u>	<u>4.84</u>	<u>7.75</u>	<u>73.4</u>	<u>0.80</u>
Total	21,705,000	12.23	5.25	6.98	78.0	0.84
9% Pb+Zn Cutoff						
Probable	13,133,000	12.58	5.71	6.87	83.1	0.86
Possible	<u>5,389,000</u>	<u>13.62</u>	<u>5.26</u>	<u>8.36</u>	<u>78.2</u>	<u>0.85</u>
Total	18,522,000	12.88	5.58	7.30	81.7	0.85

6.4.2 Minority Interests in AB Zone

A group of claims in the vicinity of the Dy deposit is owned by PRM (see figures 2, 7, 8, 9 and Table 1). The deposit underlies these claims in part. Table VII summarizes the AB Zone mineral inventory contained within the claim boundaries of PRM and Curragh. Claims to the west of the Dy deposit carry a total 5% net profits interest distributed to Kerr Addison Mines (2%) and Canadian Natural Resources (3%) however the known deposit does not extend onto those claims. Appendix II (sheets 5-7 for 6% cutoff; sheets 12-14 for a 8% cutoff and sheets 19-21 for a 9% cutoff) contains the details of the assumptions used to calculate the tonnage and grade of each portion of the deposit. The claim boundary used is shown on figures 7,8 and 9 (and on the plans in Appendix IX); it is based on legal survey plots converted as accurately as possible to UTM coordinates by G. Aucoin and Associates in 1991.

TABLE VII: Dy Deposit, AB Zone Mineral Inventory by Claim Holder
insitu undiluted

6% Cutoff	<u>Tonnes</u>	<u>%Pb+Zn</u>	<u>%Pb</u>	<u>%Zn</u>	<u>Ag (g/mt)</u>	<u>Au (g/mt)</u>
Probable on PRM	417,000	10.90	4.65	6.25	78.3	1.15
Possible on PRM	<u>1,204,000</u>	<u>10.12</u>	<u>4.22</u>	<u>5.89</u>	<u>69.5</u>	<u>0.90</u>
Total on PRM	1,621,000	10.37	4.36	6.01	72.1	0.97
Probable on CRI	24,532,000	9.68	4.20	5.48	62.8	0.66
Possible on CRI	<u>9,144,000</u>	<u>10.48</u>	<u>3.99</u>	<u>6.49</u>	<u>60.2</u>	<u>0.58</u>
Total on CRI	33,676,000	9.89	4.14	5.75	62.0	0.64
8% Cutoff						
Probable on PRM	349,000	11.64	5.06	6.58	85.6	1.41
Possible on PRM	<u>948,000</u>	<u>10.92</u>	<u>4.55</u>	<u>6.37</u>	<u>74.3</u>	<u>1.04</u>
Total on PRM	1,297,000	11.12	4.69	6.43	77.4	1.14
Probable on CRI	14,636,000	12.07	5.44	6.63	79.9	0.85
Possible on CRI	<u>5,772,000</u>	<u>12.86</u>	<u>4.89</u>	<u>7.97</u>	<u>73.2</u>	<u>0.76</u>
Total on CRI	20,408,000	12.20	5.28	7.01	78.0	0.83
9% Cutoff						
Probable on PRM	303,000	12.19	5.40	6.79	87.6	1.37
Possible on PRM	<u>526,000</u>	<u>12.62</u>	<u>5.30</u>	<u>7.32</u>	<u>88.0</u>	<u>1.39</u>
Total on PRM	828,000	12.47	5.34	7.13	87.8	1.39
Probable on CRI	12,830,000	12.58	5.71	6.87	83.0	0.84
Possible on CRI	<u>4,863,000</u>	<u>13.72</u>	<u>5.25</u>	<u>8.47</u>	<u>77.1</u>	<u>0.80</u>
Total on CRI	17,694,000	12.90	5.59	7.31	81.4	0.83

6.4.3 AB Extension Zone

Table VIII provides the result for the quantification of peripheral mineralization around the AB Zone. Specifically this includes the material in the outermost, most sparsely stippled area, on figures 7, 8 and 9. All this mineralization is considered possible and is considered less firmly defined than the possible mineralization noted within the AB Zone in the previous section. Detailed backup can be found in Appendix I: sheet 4 for a 6% cutoff, sheet 11 for an 8% cutoff and sheet 18 for a 9% cutoff.

**TABLE VIII: Mineral Inventory for the AB Extension Zone, Dy Deposit
insitu, undiluted, possible mineralization**

	<u>Tonnes</u>	<u>%Pb+Zn</u>	<u>%Pb</u>	<u>%Zn</u>	<u>Ag (g/mt)</u>	<u>Au (g/mt)</u>
6% Pb+Zn Cutoff	3,746,000	10.30	4.07	6.23	61.9	0.63
8% Pb+Zn Cutoff	2,094,000	13.39	5.28	8.11	79.4	0.94
9% Pb+Zn Cutoff	1,904,000	13.92	5.52	8.40	82.0	0.98

6.4.4 Above and Below the AB Zone

Quantities of mineralization above and below the AB Zone are tabulated on Table IX. The above AB Zone mineralization is based on scattered intersections that tend to occur just east or northeast of the A Zone. The below AB Zone mineralization occurs in scattered intersections just southwest of the B Zone. All this mineralization is classified as possible and is comparable in certainty to the AB extension zone. Further underground drilling may elevate this material to proven and probable ore locally.

Details of intersections included in this estimate are provided in Appendix VI.

**TABLE IX: Mineral Inventory Above and Below the AB Zone, Dy Deposit
insitu, undiluted possible mineralization**

	<u>Tonnes</u>	<u>%Pb+Zn</u>	<u>%Pb</u>	<u>%Zn</u>	<u>Ag (g/mt)</u>	<u>Au (g/mt)</u>
6% Cutoff						
Above	1,828,800	7.77	3.81	3.96	50.6	0.36
Below	<u>683,500</u>	<u>9.05</u>	<u>3.60</u>	<u>5.45</u>	<u>58.9</u>	<u>0.56</u>
Total	2,512,300	8.12	3.75	4.37	52.9	0.41
8% Cutoff						
Above	606,500	10.27	4.96	5.31	65.2	0.74
Below	<u>541,900</u>	<u>9.78</u>	<u>3.91</u>	<u>5.88</u>	<u>62.9</u>	<u>0.63</u>
Total	1,148,400	10.04	4.46	5.58	64.1	0.69
9% Cutoff						
Above	606,500	10.27	4.96	5.31	65.2	0.74
Below	<u>323,300</u>	<u>10.78</u>	<u>4.50</u>	<u>6.29</u>	<u>74.9</u>	<u>0.89</u>
Total	929,800	10.45	4.80	5.65	68.6	0.79

6.4.5 Total Deposit Summary

A summary of all zones for the total deposit is provided in Table X.

**TABLE X: Dy Deposit Summary of Mineral Inventory for Entire Deposit
insitu, undiluted**

	<u>Category</u>	<u>Tonnes</u>	<u>%Pb+Zn</u>	<u>%Pb</u>	<u>%Zn</u>	<u>Ag (g/mt)</u>	<u>Au (g/mt)</u>
6% Cutoff							
AB Zone	Probable	24,949,000	9.70	4.21	5.49	63.0	0.67
AB Zone	Possible	10,348,000	10.43	4.01	6.42	61.3	0.62
AB Extension	Possible	3,746,000	10.30	4.07	6.23	61.9	0.63
Above & below AB	Possible	<u>2,512,000</u>	<u>8.12</u>	<u>3.75</u>	<u>4.37</u>	<u>52.9</u>	<u>0.41</u>
Subtotal	Probable	24,949,000	9.70	4.21	5.49	63.0	0.67
Subtotal	Possible	<u>16,606,000</u>	<u>10.05</u>	<u>3.98</u>	<u>6.07</u>	<u>60.2</u>	<u>0.59</u>
Grand Total	Probable+Possible	41,555,000	9.84	4.12	5.72	61.9	0.65
8% Cutoff							
AB Zone	Probable	14,985,000	12.06	5.43	6.63	80.0	0.87
AB Zone	Possible	6,720,000	12.59	4.84	7.75	73.4	0.80
AB Extension	Possible	2,094,000	13.39	5.28	8.11	79.4	0.94
Above & below AB	Possible	<u>1,148,000</u>	<u>10.04</u>	<u>4.46</u>	<u>5.58</u>	<u>64.1</u>	<u>0.69</u>
Subtotal	Probable	14,985,000	12.06	5.43	6.63	80.0	0.87
Subtotal	Possible	<u>9,962,000</u>	<u>12.47</u>	<u>4.89</u>	<u>7.58</u>	<u>73.6</u>	<u>0.82</u>
Grand Total	Probable+Possible	24,947,000	12.22	5.21	7.01	77.4	0.85
9% Cutoff							
AB Zone	Probable	13,133,000	12.58	5.71	6.87	83.1	0.86
AB Zone	Possible	5,389,000	13.62	5.26	8.36	78.2	0.85
AB Extension	Possible	1,904,000	13.92	5.52	8.40	82.0	0.98
Above & below AB	Possible	<u>929,800</u>	<u>10.45</u>	<u>4.80</u>	<u>5.65</u>	<u>68.6</u>	<u>0.79</u>
Subtotal	Probable	13,133,000	12.58	5.71	6.87	83.1	0.86
Subtotal	Possible	<u>8,223,000</u>	<u>13.33</u>	<u>5.27</u>	<u>8.06</u>	<u>78.0</u>	<u>0.87</u>
Grand Total	Probable+Possible	21,356,000	12.87	5.54	7.33	81.1	0.87

6.5 Discussion

6.5.1 Discussion of Inventory

Polygonal calculations are widely recognized to have significant shortcomings in estimating tonnage and grade of sparsely drilled deposits. This is due to what is essentially a force fitting of the grade distribution for large ore blocks so that it is the same as that of the assay composites. The assay composite population will contain more extreme values than the ore block population which will tend to result in a higher average value above a given cutoff grade from the polygonal calculation than will occur in nature. The degree of overestimation has been variously estimated at $\pm 10\%$ but of course depends on actual grade distributions. The phenomena is known to occur in Anvil District deposits but has not been quantified.

Intuitively it can be appreciated that the polygonal calculation cannot be realistic since it is inherent in the assumptions that the grade of an assay composite can be extrapolated over great distances. A proper range of influence for a drillhole assay composite in any of the Anvil District deposits has not yet been satisfactorily worked out however preliminary information suggests it may be 30m or less across the deposit grain and twice that along the grain. Experimental semi-variograms at Faro and Vangorda suggest the range may be even smaller than this for drillcore assays. This raises the essential question: "given that it is reasonable to extrapolate ore zones from hole to hole over distances as great as 200m, is it then logical to attempt to weight the grade of ore 100m from a drillhole with the value of that drillholes assays if everything indicates the likely range of that hole is well under 30m?". The answer to this question would seem to be no.

An alternative is to assume that the drillholes all have equal weight and to arrive at an average grade for the deposit as the arithmetic average of the grades of all the drillholes in the deposit. This has been done for the AB Zone total and probable areas at an 8% Pb+Zn cutoff. The tonnage is the plan area times the average thickness of ore times a density of 3.92 tonnes/cu.m. Grade has been calculated in two different ways:

- 1) by arithmetic average of all composites;
- 2) by length weighted average of all composites.

The results of this comparison in Table XI show that this approach yields comparable tonnage and grade but the total contained metal is even higher than the polygonal calculated quantity.

**TABLE XI: Alternative Calculation of AB Zone
by Averaging rather than Polygonal Weighting**

	<u>Tonnes</u>	<u>%Pb+Zn</u>	<u>%Pb</u>	<u>%Zn</u>	<u>Ag (g/mt)</u>	<u>Au (g/mt)</u>	<u>Total Metal (tonnes x 10⁶)</u>
Probable Mineralization							
By polygons	14,985,000	12.06	5.43	6.63	80.0	0.87	1.807
By arithmetic avg.	15,224,000	12.15	5.05	7.11	76.8	0.85	1.850
By length wtd. avg.	15,224,000	12.31	5.29	7.18	80.0	0.86	1.874
Total Mineralization							
By polygons	24,947,000	12.22	5.21	7.01	77.4	0.85	3.050
By arithmetic avg.	24,891,000	11.92	4.90	7.03	54.5	0.81	2.967
By length wtd. avg.	24,891,000	12.47	5.24	7.23	79.0	0.83	3.104

It would appear that the method of global averaging does nothing to refute the applicability of the polygonal calculation. There, of course, remains a possibility that the polygonal calculation will overestimate the inventory however this may be balanced by the conservatism inherent in the treatment of vertical thickness.

6.5.2 Discussion of Inventory Classification

The classification of the Dy inventory can most readily be appreciated by comparing the current situation at Dy to other deposits in the district at various stages in their development.

The density of drilling at Dy was originally intended by CAMC to be 75m spaced holes on 150m spaced cross sections. Due to large drillhole deviations and some fill-in drilling the pattern now approximates a 50 to 100m by 120 to 150m irregular grid with wider spacings in the core of the deposit and at its peripheries.

As noted above at Vangorda and Faro experience shows that a drill spacing of 15 to 23m by 30 to 43m gives sufficient drill control that there is little possible variance in structure or mineral inventory. Clearly very few parts of Dy approximate this density of drilling.

In 1975 prior to the decision to start underground exploration of the Grum deposit it had been drilled from surface on a grid that approximated 60m holes on 120m lines. From this information Kerr Addison estimated that the deposit

contained 12.2 million tonnes averaging 13.87% combined Pb+Zn at a 8% Pb+Zn cutoff. After two years of intense fill-in drilling from surface and underground the deposit was estimated to contain 13.5 million tonnes averaging 14.53% Pb+Zn, an increase of 10% in tonnage and 11% in grade. The increases in the case of Grum were largely due to the recognition of second phase fold hinges which increased tonnage over the previous interpretation of gently southwest dipping overlapping stacked ore lenses in a broad zone over 200m thick. It is worthy of note that this original Grum interpretation is remarkably similar to the current Dy interpretation!

In retrospect it would have been reasonable to consider Grum mostly probable material before the underground work commenced. Since Dy is somewhat less densely drilled than Grum was at that stage it is reasonable that Dy be considered partly probable, in its interior, and partly possible elsewhere.

Appendix XI introduces and calibrates another measure of drilling intensity, the number of tonnes above a given cutoff grade inferred from a metre of drilling in mineralized rock. It is proposed that for Anvil District deposits there are three thresholds of drilling intensity:

- 1) 1,500 to 2,000 tonnes above a 4% cutoff inferred from a metre of drilling in sulphide. Very confident tonnage and grade on both a global and local perspective. Adequate for production planning in an open pit. Essentially proven to very firmly probable mineralization or reserves when in a mineable configuration.
- 2) 4,000 to 5,000 tonnes above a 4% cutoff inferred from a metre of drilling in sulphides. Good understanding of deposit structure and reliable global inventory. This has proved to be adequate drilling for major financial decisions and should be considered a firm probable reserve given a mining configuration.
- 3) 15,000 tonnes above a 4% cutoff inferred from a metre of drilling in sulphides provides a basic understanding of deposit structure and allows global tonnage and grade to be estimated with moderate confidence. This is the level at which deposits are normally committed to significant advanced exploration work and can be considered a probable to weak probable material.

Dy has not been estimated at a 4% cutoff but extrapolating from the 6% figure suggests that this measure would be at 17,000 to 19,000 tonnes per metre. This indicates that the Dy inventory would be on the weak side of probable overall or probable mixed with possible as presented above.

7.0 EXPLORATION POTENTIAL

There is considerable potential to extend the deposit by additional stepout drilling. The deposit is closed off by drilling only locally (figure 10) and it is likely that additional material will be found.

Exploration should proceed to the east of the deposit at least as far as the fault paralleling Blind Creek (not indicated on maps) since some of the peripheral intersections in that area are quite good and drilling in that direction was terminated by CAMC because of concern over shallowly dipping dykes or sills interfering with the ore horizons.

Additional stepout drilling will be required to the west and south of the deposit however these areas are deep and larger drills than used to date will be required. This area is of lower priority as this part of the deposit could only be brought into production late in the likely mine life.

There has been considerable speculation over a second deposit approximately one or two km to the north of the Dy beneath the thick sequence of mafic igneous rich Vangorda formation preserved there. These concepts should be evaluated by deep drilling in that area.

Within the area already drilled much additional drilling will be needed to upgrade confidence in the mineral inventory and further define structure.

Consideration should be given to use of deep penetrating Telluric EM to evaluate its possible use as a guide to locating stepout holes in the future. Borehole geophysics may be worth trying however in light of the highly graphitic environment to the south and southwest of the deposit it may not be helpful there.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The polygonal mineral inventory calculation outlined in this report should be adopted as the new inventory for the Dy deposit since it is consistent with previous results and incorporates all new drilling in the deposit. The official reserve will have to remain that calculated by CMD as part of the alpha 2 mine plan and published in the Curragh Resources Inc. Initial Public Offering Prospectus of July 1989.

Considerable additional fill-in drilling is required from planned underground openings to more reliably define the deposit. A detailed plan for this underground drilling should be laid out as soon as possible.

Preliminary hydrogeological work indicates that most of the rock mass will not make water however some fault zones can be expected to be significant aquifers which could discharge large quantities of water into the underground workings until pressure is relieved. Scheduling

for underground advance should take cognizance of the likely wet conditions and appropriate dewatering facilities should be in place.

Hydrogeological information has proved to be of great use for environmental purposes and further data should be collected on groundwater flows as the deposit is developed.

The role of S_2 in geotechnical stability should be carefully considered. In light of the weakness of S_2 large horizontal spans may be less desirable than higher openings. It appears that S_2 will be dipping into and across the decline face from right to left.

Potentially acid generating rocks may be encountered approximately half way down the decline. At that point close liaison will be needed between the underground contractor and the environmental staff for solid waste management on surface.

This study benefited greatly from a brief re-interpretation of the geology of the Dy deposit. Further work is warranted particularly to address questions of dyke and fault orientation. Once a better structural interpretation is available then a more sophisticated calculation may be in order.

Study of drill logs makes it clear that Dy lags behind other deposit in quality and consistency of logging. The available drill core should be relogged and brought to a common standard compared to the other deposits. Ideally this should precede any major structural reinterpretation.

Core storage for Dy is full and more storage space is required at a location not in conflict with surface mining operations on the Vangorda Plateau. At least one new 40,000 foot core rack is required.

Nothing discovered in the course of this study suggests that plans for immediate underground access should be changed. It is still evident that early exploration should concentrate on the B Zone as it is slightly higher grade and more zinc rich than the A Zone. The proposed shaft site along the northside of the deposit (tested by DDH 90DY04) was found to be unsuitable due to a major gouge filled fault at the site of the proposed shaft bottom station. Any location selected along the north edge of the deposit will have to contend with this fault zone either in the shaft or in a drift from the shaft bottom (see figure 6).

Once underground exploration commences, geological data collection should begin immediately. The workings should be mapped in detail to help clarify fault patterns. If a shaft location in the centre of the deposit is seriously considered then the underground workings in the B Zone should be extended under that area in a generous way and it should be drilled and mapped in great detail to locate all important faults.