Vangorda Deposit (1)

007146

Block Model Documentation

1.0 INTRODUCTION

Initial diamond drillhole testing of the Vangorda deposit was undertaken by Prospector's Airways in 1953 ~~and~~ to 1955. Since that time additional drillholes have been completed by Kerr Addison Mines, AEX, Canadian Natural Resources, Cyprus Anvil Mining Corporation, and the latest drilling in 1987 and 1988 by Curragh Resources Inc.

~~The Vangorda deposit has~~ The geology of the Vangorda deposit has been interpreted ~~a number~~ several times by the previous owners and again in 1986, 1987 and 1988 by Curragh Resources Inc. Each subsequent interpretation has benefited from additional drillhole data and an evolving understanding of the structural setting of the orebody. The V8911 computer block model is based on the latest interpretation completed in the winter of 1988.

Since 1955 there have been several different mining reserve calculations, each respecting the geology interpretation and the economic conditions at the time. Table 1.1 summarizes the most important reserve calculations in comparison to the V8911 calculation.

It is stressed that this documentation is meant to provide a reference source for all data, methods, and assumptions used in the 1988 Venezuela interpretation and the creation of the V8911 computer block model. It is not a substitute for the ~~documentation~~ manuals available for each of the software systems ~~and which document~~ utilized. ~~the procedures which~~ The manuals provide procedural details for data handling, ~~and~~ modelling methods, ~~and~~ and reserve reporting.

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VANGORDA MODEL ~~8803~~ V8911

2

1.1)

Initial drill testing of the Vangorda deposit was undertaken by Prospectors Airways in 1953-1955. Since that time additional drill holes have been completed by Kerr Addison, AEX, Canadian Natural Resources, Cyprus Anvil Mining Corporation, and Curragh Resources Inc. Collar locations for these drill holes have been reported using several grid systems with different elevation

2.1) ~~1.2)~~

2.2) ~~1.3)~~ V8911 ~~8803~~

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1.4) Geological Cross Sections

In 1979, the northwest end of the deposit (sections 02W to 12E) was drilled using a drill grid spacing of 100 feet (30.48 m) along section and 200 feet (60.96 m) between sections. In the remainder of the deposit (sections 14E to 30E) the bulk of the drilling was completed in 1981 using rotary methods. Rotary drill hole spacing is similar to that used for the 1979 drilling program. More recently Curragh Resources Inc. has infilled this initial drilling grid in areas of high grade mineralization.

Even geological sections in the Vangorda 8803 model have been evenly spaced every 60.96 meters. This interval closely corresponds to the original drill grid spacing. Table 1-1 lists model coordinates for cross and long sections.

1.5) Model Parameters

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h n 4.5 m. Th e x f
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5

lengths igned h t correspon
gı cross-sections. indicates row
f s e Mo s not
egu e o g s.

2.3) GEOLOGICAL CROSS SECTIONS

All geological cross sections are parallel, vertical, and correspond roughly to the structural grain of the deposit. Drill hole spacing in the northeast end of the deposit (sections 4.02W to 12.0E) is 100 feet (30.48 m) along section and 200 feet (60.96 m) between sections. In the remainder of the deposit (sections 14E to 32E) diamond drillhole spacing is 30.48 with rotary drill holes (chip samples) located halfway between the diamond drillholes. The diamond drilling in the shallow southeast part of the orebody was completed by Curragh resources in two separate drilling programs completed in 1987 and 1988. Diamond drilling in this part of the deposit was initiated because of less than satisfactory lithology logs and assay samples provided by the earlier rotary or chip sample drilling program.

Even geological sections in the V8911 model are evenly spaced every 60.96 meters. This interval closely corresponds to the original drill grid spacing.

2.4) MODEL ~~PARAMETERS~~ LIMITS

All model ~~parameters~~ limits remain the same as the Vangorda 8803 model except for the extension of the model by 8 rows (2 sections) ~~to~~ towards model ~~north~~ south (sections 31E and 32E). Table 2.1 lists parameters for the Vangorda V8911 model. The model consists of 90 rows with a row length of 15.24 m and 100 columns with a column width of 4.5 m. The model therefore extends 1371.60 m in the northing direction (rows) and 450 m in the easting direction (columns).

Model north is parallel to the structural grain of the deposit (this direction corresponds to the longer edge of the blocks).

~~Model blocks are 6 m high and~~

(New Paragraph)

✓ Model row lengths are designed so that row centers correspond exactly to the ~~[illegible]~~ ~~interpreted~~ geological cross sections. Table 2.1 indicates model row numbers for the listed cross sections.

Model blocks are 6m high and correspond with the actual planned height and position of the mining benches. The model extends from a lower elevation of 990 m to an upper elevation of 1230 m. Each block occupies a volume of 411.48m^3. This corresponds to 1111 tonnes waste phyllite (SG = 2.7) ~~[illegible]~~ or approximately 1600 tonnes ore (SG near 4.0)

Table 2.2 details the correlation between the model coordinate system and the UTM coordinate system for the four corners of the model.

2.5) MODEL SCALE FACTORS

Table 2.3 lists the model scale factors used for data storage within the V8911 block model files. If model reserves are run without ~~[illegible] [illegible] of the scale~~

initializing these scale factors in PCMINE, major discrepancies for grade and tonnage will result.

Table 2.3 Vangorda V8411 Scale Factors

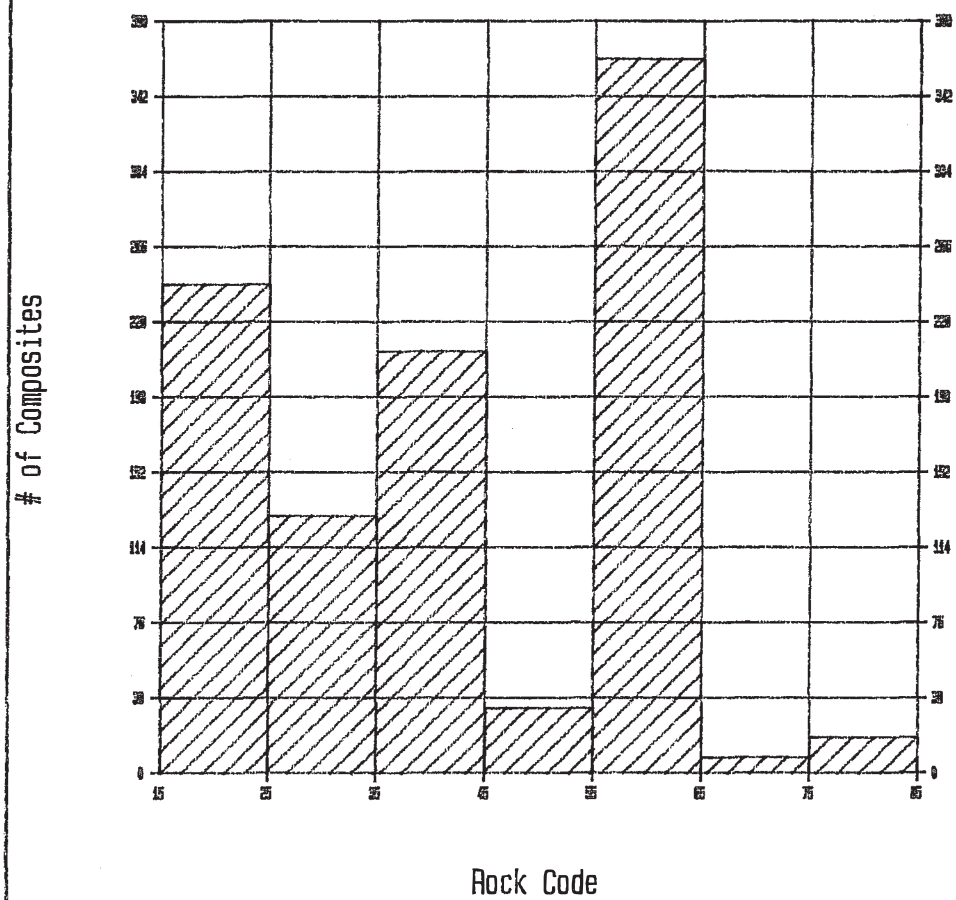
Model	Scale Factor
Grade Model 1	1000
Grade Model 2	1000
Grade Model 3	1000
Grade Model 4	100
Grade Model 5	1000
Density Model	1000
Economic Model	10
Variance Model	1000
Surface Grid Model	10
Volumetric Factor	99. (not required).

3.0 DRILL HOLES

3.1 Introduction

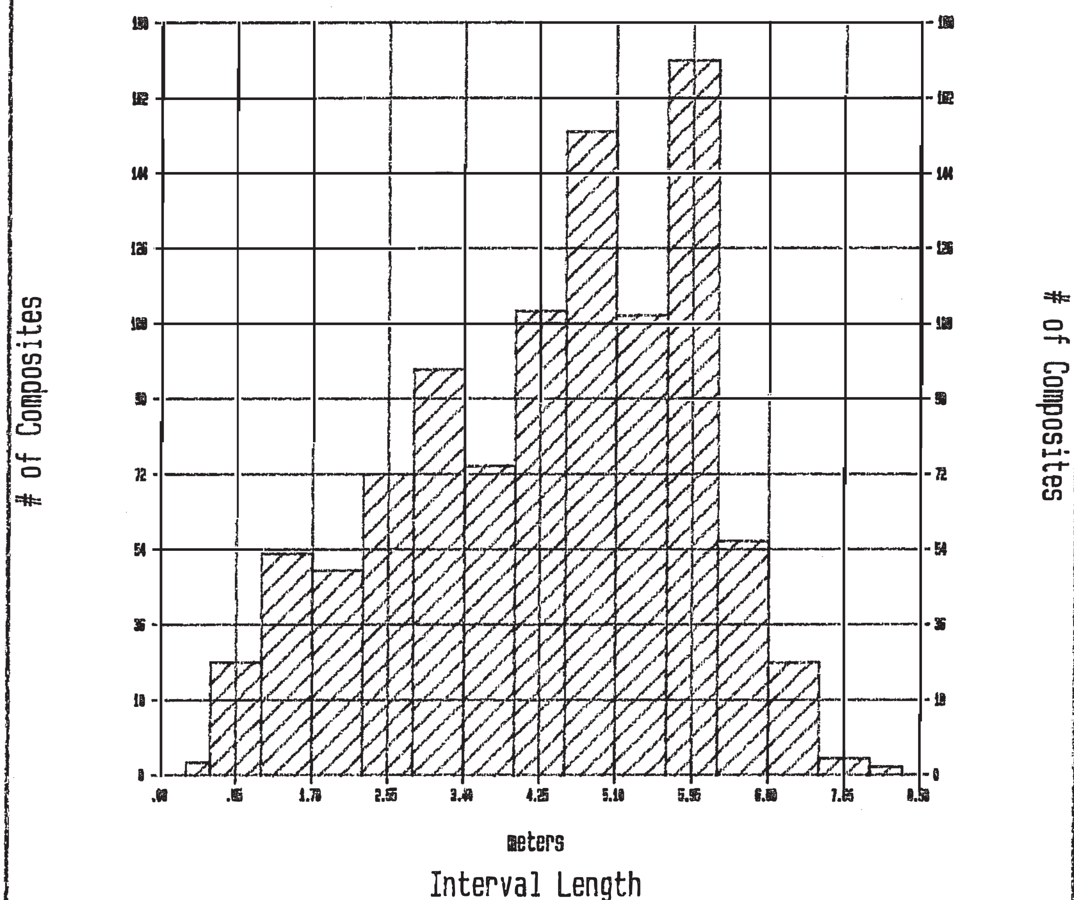
In 1987 it was decided to transfer all geological data ~~existing~~ residing on the HP3000 computer at the Faro minesite into PC+PLOR personal computer databases. The procedures and programs used to download the data are available in the V8803 model documentation. A summary description of the collar locations for the pre 1987 drillholes is contained in The Cyprus Anvil in-house report; Vangorda Database - I Data, by Lee Pigage, November 1984. Detailed descriptions of all coordinate grids and ~~transformat~~ ~~tions~~ transformations are included in this ~~report~~ report. 1987 and 1988 drillhole data was "hand" entered from the original field logs.

In addition, ~~several~~ all Prospector's Airways (P.A.) drillholes within the vicinity of the Vangorda deposit were added to the ~~database~~ collar



Vangorda 1989 Interpretation
# of Geology Comp. by Rock Type

QUICK-PLOT GEMCOM Services Inc.	DATE = 12-12-89 TIME = 11:34:56	CURRAGH RESOURCES INC. Whitehorse Office	
HORIZONTAL SCALE = 1 : 50		VERTICAL SCALE = 1 : 50	



Vangorda 1989 Interpretation
# of Geol. Composites by Length

QUICK-PLOT GEMCOM Services Inc.	DATE - 12-12-89 TIME - 11:57:31	CURRAGH RESOURCES INC. Whitehorse Office	
HORIZONTAL SCALE - 1 : 50		VERTICAL SCALE - 1 : 50	

survey database. Lithology and assay data was entered for P.A. holes which improved geology resolution and provided additional assay samples in the less ~~densly~~ densly drilled portion of the deposit.

3.2) Vangorda PCXPLOR Database Structure

Vangorda drill hole information is stored in 2 PCXPLOR databases. Database A contains the primary field log information including collar location, downhole surveys, lithologies, structures, fault features, and assays. Under no circumstances (other than correction of data entry errors) should data in ~~this~~ "A" database be deleted, or adulterated ~~or manipulated~~ so as to not ~~presume~~ reflect represent the original field log ~~or~~ or assay certificate ~~data~~ data. → Background averages ~~values~~ assays should not be entered into this database. Database "B" is ~~designed~~ designed for calculating and storing drill hole ~~composites~~ composites. Data manipulation such as assay clipping ~~and~~ or entering of background data values may be performed in the ~~this~~ "B" database. There are ~~several~~ four separate ~~compositing~~ compositing Tables within the "B" database which may ~~be~~ store assay composites using different interval and weighting schemes.

Table 3.1 shows the structure of database "A" (field data). It consists of 8 seperate tables. Table names and variables are generally self explanatory.

Table 3.2 shows the structure of database "B". Database table 1 is a subset of table 1 from database A. Table 2 is identical to table 2 in database A. Table 3 contains the from-to downhole intervals used for geology restricted composites. Table 4 is identical to table 4 in the database "A" except a column for record number and simplified rock codes has been added. Tables 5 to 8 are identically structured composite tables which allow for several different composite scenarios derived from the same primary assay data.

3.3 Nanguarda PCXPLOR Data Entry.

Collar locations, downhole surveys, lithologies, assays, and structures for the 154 drill holes in the DDHDB were downloaded from the HP3000 to the PCXPLOR Nanguarda database "A". Collar locations, ~~after 89~~ and downhole surveys for 89 additional Prospector's Airways drillholes, 29 1987 drillholes, and 68 1988 drillholes were entered directly into the database. Lithology and structure, ~~RQD~~ data for the 1987 and 1988 drill programs were also entered directly into ~~the~~ database "A". Assay and RQD data for ~~the~~ the 87 and 88 ~~these~~ drill programs were imported from a Symphony database.

New paragraph None of a s

for DDHDB ~~Rock codes for the different assays were entered by hand using the new cross-section interpretation.~~

→ Cont'd on next page

→ ~~Rock codes in database A for each ~~pre 1988 drillhole~~, were entered by hand using the ~~1988~~ 1987 ~~were~~ cross section interpretation. Rock codes for 1988 drillholes are not~~

UTM

1-4

2

4
5

		15	
		19	30
		23	36
		27	42
		31	48
		35	54
		39	60
		43	66
		47	72
		51	78
		55	84
		59	90
22E	9695.20	63	96
			102
32E	9390.40	83	
34E	9329.44	87	

Section E S

~~36E~~ ~~9268.48~~

~~38E~~ ~~9207.52~~

9

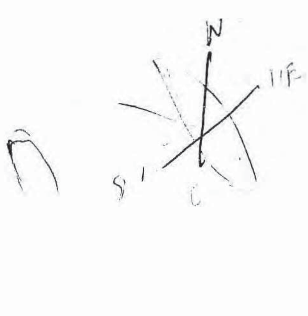
~~9146.56~~	~~40E~~
9085.6	42E
9024.64	44E
8963.68	46E
8902.72	48E

B/L

910

1205

60.96 m



ϕ

2

15.24

15.24

sequential record number for each interval. ~~were~~ The file ~~stored~~ ~~the~~ ~~ASCII file~~ was subsequently ~~and~~ imported into table 4 database B. ~~A detailed description of rock codes~~ ~~Table 3.1 details the simplified and default rock code scheme~~ A detailed description ~~on~~ of rock codes and average pulp specific gravities ~~porosity~~ is included in section 5.0.

Table 5-8 ~~5-6 7 5-8~~ were created ~~by~~ using the compositing utilities of PCXPLOR.

~~4.6~~

4.0 ROCK TYPE MODEL.

Rock codes in database A, table 4 were assigned based on the interval ~~geology~~ rock type. All ~~waste~~ non-assayed intervals were assigned a rock code of 0. Horizon codes were not included in this database.

Database B, table 1 is a subset of Database A, table 1 which includes all drill holes used in the V8911 geology interpretation and grade interpolation. (Refer to ~~volume~~ V8911 Volume 1 VANGORDA DATABASE for data ~~sheets~~ printouts)

~~Table~~ 3 ~~includes~~ ~~&~~ Geology composite intervals ~~and~~ with corresponding rock types and horizon codes ~~and~~ ~~as~~ were imported into table 3 from a Symphony database. Table 4 ~~is a subset of table 4 in database "A" Table 4 includes all assay data~~ ~~data~~ was imported from ~~table 4 database A~~ ~~from~~ an ASCII database which was outputed from table 4 of database A. ~~Default values were entered directly entered for all missing S.G.~~ This ASCII file was modified to include ~~Default mean~~ average ~~SG~~ values for missing SG assays, simplified rock codes, and a ~~record number~~