

# **EXPLORATION AND MINING DIVISION IRELAND**

ZINC • LEAD • COPPER • GOLD • SILVER • BARYTES • GYPSUM • COAL • DOLOMITE •

## **THE NAVAN RESOURCES AIRBORNE MAGNETIC SURVEY (1998) OVER THE TYNAGH AREA**

December 2003



**Department of Communications, Marine  
and Natural Resources**

**Department of Communications, Marine  
and Natural Resources**

**THE NAVAN RESOURCES AIRBORNE MAGNETIC  
SURVEY (1998) OVER THE TYNAGH AREA**

Compiled by  
Orla Dardis

**EXPLORATION AND MINING DIVISION  
MINERALS PUBLICATION MP 16/03**

**DECEMBER 2003**

**© Exploration and Mining Division 2003  
Published by authority of the Minister for Communications, Marine  
and Natural Resources**

## TABLE OF CONTENTS

INTRODUCTION	1
SURVEY EQUIPMENT AND SPECIFICATIONS	2
PROCESSING OVERVIEW AND MAP GENERATION	2
Magnetics Processing Sequence	2
Grid and Map Generation	2
DATA LISTING	3
Geosoft polygon files of survey boundary	3
Databases	3
Processed Survey Data (Geosoft GDB)	3
Grids	3
Maps	4
Supplied by Navan Resources	4
Supplied by EMD on Ordnance Survey base	4
Company reports	4
GEOSOFT DATABASE CHANNEL LISTING	5
Magnetics Database	5
DTM Database	5
SURVEY LOCATION	6
Figure 1. Location of the survey area on a simplified geology map of Ireland.	6
Figure 2. The Tynagh survey area on a 1:250,000 Ordnance Survey base.	7

## INTRODUCTION

In September 1998 Navan Resources Plc. flew a 4500 line km magnetic survey, over the Tynagh Block in Co. Galway, encompassing approximately 836 km<sup>2</sup> (Figure 1).

Block	Line km	Area (sq. km)	Prospecting Licences covered/partially covered by Survey
Tynagh	4500	836	2, 4, 15, 16, 134, 497, 541, 626, 643, 767, 769, 952, 1235, 2092, 2093, 2096, 2100, 2245, 2318, 2533, 2560, 2561, 2567, 2568, 2685, 2686, 2695, 2734, 2760, 3081, 3129, 3273, 3475, 3476, 3477, 3507, 3615, 3670, 3840, 3861, 3862, 3897, 3898

This survey was acquired over four years ago and is available to the general public in fulfillment of the 'Open Skies' policy of the Exploration and Mining Division (EMD). The Division acknowledges the cooperation of Navan Resources Plc.

At this time EMD is primarily concerned with prompt data release and no attempt was made to reprocess or correct survey data. Data is released as submitted and no liability is accepted on the part of the EMD for data quality or accuracy. However, to facilitate ease of use, several grids are provided with an Ordnance Survey base map for ease of geographical reference.

Tesla Exploration Geophysics conducted the survey. Magnetic, radar altimeter and navigation data was acquired during the survey. All processing was carried out by Tesla-10 PTY Ltd, which is now part of Fugro Airborne Surveys.

A listing of all digital and hardcopy data (databases, grids, maps and company reports) lodged with the Exploration and Mining Division is included in this publication and outlined below in the data listings section.

# SURVEY EQUIPMENT AND SPECIFICATIONS

<b>Flight Line Spacing</b>	200m
<b>Flight Line Direction</b>	180°
<b>Tie Line Spacing</b>	1000m
<b>Mean Terrain Clearance</b>	80 m
<b>Nominal Survey Speed</b>	125 knots ( 65 m/s )
<b>Total Survey Area</b>	836 km <sup>2</sup>
<b>Total Line Km</b>	4500 line km
<b>Magnetometer</b>	Geometrics Cesium Vapour Model G822a or Scintrex Cesium Vapour Model CS2
<b>Sensitivity</b>	0.001 nT
<b>Sample Rate</b>	10 samples /sec
<b>Mounting</b>	Tail stinger
<b>Sensor Height above ground</b>	80 m

## PROCESSING OVERVIEW AND MAP GENERATION

The information provided in this section was taken from the channel listing files for the survey (included on CD) and from examination of the data.

### Magnetics Processing Sequence

A system lag correction of 3.8 fiducials, (approx. 25 metres) was applied followed by noise editing (de-spiking). The diurnal field was removed from the data (Base Level 48912 nT). The regional magnetic field (IGRF) was also removed. The data was then leveled, microlevelled and culture edited.

### Grid and Map Generation

Maps for the release were generated in EMD as none were lodged by Navan Resources. Navan Resources lodged grids in Geosoft format with a 50 m grid cell spacing. The total magnetic intensity grid (LEVMAG2) was lodged in WGS84 coordinates by Navan Resources and recreated in EMD in Irish National Grid coordinates (ING) from the LEVMAG2 database channel using a minimum curvature interpolation (nr98\_levmag2\_emd). This EMD grid was used to generate the final magnetics map on an Ordnance Survey base. The digital terrain model map was generated using the DTM database channel.

All digital and hardcopy products are in the Irish National Grid (ING) coordinate system:

Datum:	TM65 / Airy Modified 1849
Ellipsoid:	Airy Modified 1849
	Major axis: 6377340.189
	Eccentricity: 0.081673374
	1/f: 299.3249646
Projection	Transverse Mercator
Central Meridian	-8.00.00.000
Latitude of origin	53.30.00.000
False Northing:	250,000 m
False Easting:	200,000 m
Scale factor:	1.000035

## DATA LISTING

### Geosoft polygon files of survey boundary

A Geosoft polygon file (\*.ply) for the survey area is included on the CD. The file is in ASCII format and can be opened in any text editor to view survey boundary coordinates (in ING).

### Databases

The raw and final data was supplied in Geosoft database format. Readme files with channel listings are included on the CD and summarised on page 5.

### Processed Survey Data (Geosoft GDB)

Database	Number of Channels	Approx. Size (Mb)	File Name (.gdb)
Tynagh digital terrain model (DTM)	11	26.3	nr98_tynagh_dtm
Tynagh magnetics	14	30.9	nr98_tynagh_mag

### Grids

Navan Resources lodged grids in Geosoft format with a 50 m grid cell spacing. The total magnetic intensity grid (LEVMAG2) was lodged in WGS84 coordinates by Navan Resources and recreated in EMD in Irish National Grid coordinates (ING) using a minimum curvature interpolation (nr98\_levmag2\_emd).

<b>Grid Name</b>	<b>Grid</b>
DTM_NEW	Digital terrain model
LEV MAG2	Total Magnetic Intensity (WGS84 Datum)
nr98_levmag2_emd	Total Magnetic Intensity (ING)
RESID2	Residual magnetic intensity
SLICE_B	Deepest (low frequency) depth slice
SLICE_C	Intermediate depth slice
SLICE_D	Shallowest (high frequency) depth slice

## **Maps**

No maps were submitted by Navan Resources. Maps produced in EMD, on an Ordnance Survey 1:50,000 base, with permission from Ordnance Survey Ireland, are available on the release CD as uncompressed images in JPEG format, or in hardcopy format on request.

### **Supplied by Navan Resources**

No maps were lodged with EMD for this survey area.

### **Supplied by EMD on Ordnance Survey base**

<b>Map</b>	<b>Filename</b>	<b>Scale</b>
Digital terrain model	nr98_dtm_emd	1:50,000
Final processed magnetics	nr98_mag_emd	1:50,000
Final processed residual magnetics	nr98_magres_emd	1:50,000

These maps are available, on an Ordnance Survey 1:50,000 base, as scanned images (jpeg format) or in hardcopy format (Ordnance Survey Permit DNE 001001).

## **Company reports**

No report was lodged with the survey data.

# GEO\_SOFT DATABASE CHANNEL LISTING

## Magnetics Database

CHANNEL NAME	DESCRIPTION	UNITS
FID	Fiducial	
GPSweek		
X	Easting (ING)	metres
Y	Northing (ING)	metres
LATITUDE	Latitude (WGS84)	
LONGITUDE	Longitude (WGS84)	
UTM_east	Easting (WGS84)	metres
UTM_north	Northing (WGS84)	metres
RADALT	Radar altimeter	metres
GPSALT	GPS elevation	metres
DIURNAL	Diurnal magnetics	nT
RAWMAG	Raw magnetics	nT
LEVMAG	Leveled & microlevelled magnetics	nT
LEVMAG2	Cultured edited LEVMAG	nT

## DTM Database

CHANNEL NAME	DESCRIPTION	UNITS
FID	Fiducial	
GPSweek		
X	Easting (ING)	metres
Y	Northing (ING)	metres
LATITUDE	Latitude (WGS84)	
LONGITUDE	Longitude (WGS84)	
UTM_east	Easting (WGS84)	metres
UTM_north	Northing (WGS84)	metres
RADALT	Radar altimeter	metres
GPSALT	GPS elevation	metres
DTM	Digital terrain model	metres



# SURVEY LOCATION

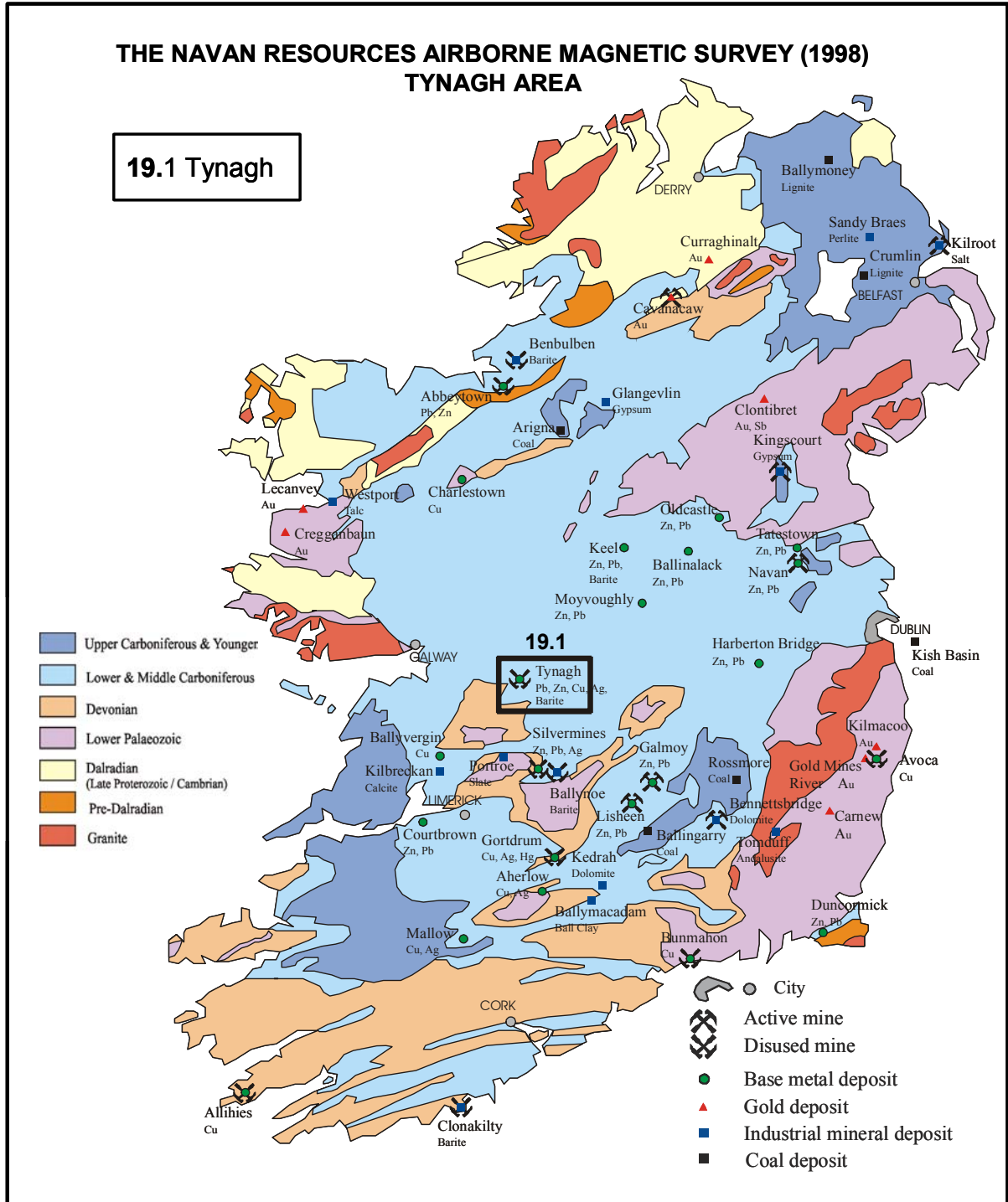


Figure 1. Location of the survey area on a simplified geology map of Ireland.



**Figure 2. The Tynagh survey area on a 1:250,000 Ordnance Survey base.**  
 (Ordnance Survey Permit DNE 001001).