

RAINY RIVER PROJECT KENORA MINING DIVISION NORTHWEST ONTARIO

REPORT ON A VTEM® AIRBORNE SURVEY

APPENDIX 2 CONDOR CONSULTING INC. INTERPRETATION REPORT





EM and Magnetic Plate Modeling Zone A and Zone B Anomalies Sky Harbor Project Ontario, Canada

> Soldi Ventures Inc. February 2011

Condor Consulting Lakewood Colorado USA

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Introduction

Preliminary VTEM magnetic and EM data from the Soldi Ventures Inc. Sky Harbor property were modeled and interpreted. The Maxwell modeling software from Electromagnetic Imaging Technologies was used for the EM plate modeling, and the ModelVision Pro software from Encom Technology was used for the magnetic plate modeling. The modeled data are projected using the NAD83 datum in UTM Zone 15 North. The client requested modeling be carried out for two zones, Zones A and B as seen in Figures 1 and 2. A total of 14 EM and 24 magnetic models were produced.



Figure 1. Sky Harbor Project: Zones A and B circled in red.

Geophysical Modeling

The 14 EM plate models are listed in Table 1, and the 24 magnetic models are listed in Table 2. There are seven Zone A and B EM plate models tallying 14 EM plate



Figure 2. Zone A circled top panel, Zone B circled bottom panel.

models total. There are four magnetic plate models in Zone A and 20 magnetic plate models in Zone B. The high number of plate models in Zone B reflect the continuity of the two magnetic horizons identified in the zone that are seen in the right lower panel of Figure 2. Of the two modeled zones, Zone B returns the higher magnetic susceptibility models. Overall, the magnetic susceptibilities returned from all plates in Zones A and B are on the low to moderate side. Plate conductivities are also higher in Zone B, though like the susceptibility they are also low to moderate in value with the highest modeled plate conductance being 906 mS/m.

Zone A- Modeling and Interpretation

The 11 plate models in Zone A, seven EM and four magnetic, are seen in Figure 3. Figure 3 is an overview of the zones magnetic and EM responses with the coincident magnetic and EM signature of interest enclosed by the box. The local Zone A geophysical grain is NW-SE striking, with a secondary EW strike also noted in the center of the magnetic image. The magnetic plate models trace this EW strike, whereas the EM plate models aligned themselves diagonal to the magnetic plates along a NW-SE strike.

							Dip		Depth			
Plate Name	Line	х	у	z	Depth	Dip	Dirctn	Length	Extent	СТ	Cndctvty	Thickness
BlockA-1	L1220	419795	5403864	288	-62	75	78	302	400	91	10	9
BlockA-1	L1230	419700	5403979	328	-23	124	59	275	355	93	10	9
BlockA-1	L1240	419600	5403947	345	-8	129	52	142	245	323	72	5
BlockA-1	L1250	419500	5404006	293	-58	109	41	212	392	162	17	10
BlockA-1	L1260	419405	5404051	247	-105	97	38	215	400	128	9	14
BlockA-1	L1270	419295	5404080	208	-144	95	36	249	400	102	5	19
BlockA-1	L1280	419200	5404090	166	-186	89	323	269	400	108	4	24
BlockB-1	L2060	432234	5418141	341	-47	86	95	84	385	134	Thin Plate	Thin Plate
BlockB-1	L2070	432320	5418190	382	-6	65	100	61	400	477	Thin Plate	Thin Plate
BlockB-1	L2080	432393	5418266	372	-18	90	95	79	378	350	Thin Plate	Thin Plate
BlockB-1	L2090	432475	5418325	328	-63	106	95	62	372	276	Thin Plate	Thin Plate
BlockB-1	L2110	432640	5418440	371	-21	88	99	39	372	118	Thin Plate	Thin Plate
BlockB-1	L2120	432700	5418526	387	0	73	103	28	400	906	Thin Plate	Thin Plate
BlockB-1	L2130	432770	5418598	352	-28	45	134	11	400	360	Thin Plate	Thin Plate

Table 1. Maxwell EM plate model parameters

Table 2. Magnetic plate parameters

💑 Body Parameters 📃 🗌											
	Label	Туре	G	Colour	Suscept	Density	Depth	Active	Lock	Vis	
1	L2130_1	tabular			0.3	2.77	-219.0				
2	L2130_2	tabular			0.026	2.77	-372.5				
3	L2120_1	tabular			0.22	2.77	-315.3				
4	L2120_2	tabular			0.04	2.77	-396.4				
5	L2110_1	tabular			0.14	2.77	-339.7				
6	L2110_2	tabular			0.06	2.77	-304.8				
7	L2100_1	tabular			0.20	2.77	-346.3				
8	L2100_2	tabular			0.07	2.77	-295.6				
9	L2090_1	tabular			0.17	2.77	-359.8				
10	L2090_2	tabular			0.19	2.77	-130.3				
11	L2080_1	tabular			0.32	2.77	-305.6				
12	L2080_2	tabular			0.22	2.77	-388.5				
13	L2070_1	tabular			0.25	2.77	-238.3				
14	L2070_2	tabular			0.23	2.77	-388.9				
15	L2060_1	tabular			0.12	2.77	-375.0				
16	L2060_2	tabular			0.11	2.77	-376.9				
17	L2050_1	tabular			0.04	2.77	-394.5				
18	L2050_2	tabular			0.03	2.77	-384.0				
19	L2040_1	tabular			0.12	2.77	-372.4				
20	L2040_2	tabular			0.21	2.77	-383.4				
21	L1230	tabular			0.025	2.77	-336.2				
22	L1240	tabular			0.03	2.77	-350.6				
23	L1250	tabular			0.024	2.77	-308.5				
24	L1260	tabular			0.014	2.77	-290.5				



Figure 3. Zone A magnetic tilt angle left panel, Ch20 EM response right panel. The modeled coincident EM-magnetic anomaly is pointed out covered by the 7 EM and 4 magnetic plates.

This is better illustrated in Figure 4, a zoom-in on the plan responses and plates, where the diagonal nature of the two geophysical strikes are pointed out by the two arrows on the west of the left panel. The white-colored magnetic plates are aligned along the tilt angle response, and the black EM plates strike to the NW away from the magnetic plates. The blue dotted circle encloses a central area of coincident EM and magnetic plate models that could be drill targeted.



Figure 4. Zoom in on the Zone A coincident EM and magnetic anomalies.

The two EM plates on the eastern and western ends of the EM plate strings have discordant strikes possibly mapping the endpoint of any conductive body.

Figure 5 is a 3D perspective view of the plates. The diagonal geometry of the EM and magnetic plates is again evident. The central target zone of coincident EM and magnetic plates is again circled in blue. The magnetic plate with a flatter dip to the north may represent a lithologic edge contact as it is roughly parallel to the endpoint EM plate.



Figure 5. Three dimensional view of the one A plate models. EM plates are red, magnetic plates are grey.

It may also reflect line level noise or be effected by a 2nd more-magnetic body to the north. The easternmost Zone A plates abut an elevated power line monitor peak, it is unknown what if any culture is located at the PLM peak, and how, if at all, the PLM response effects the larger Zone A response. The central plate subzone circled in blue is, solely based on the preliminary geophysical plate models, the recommended target for any boreholes if there is a desire to drill anything here.

Zone B- Modeling and Interpretation

The 27 Zone B seven EM and 20 magnetic, are seen in Figure 6, which is an overview magnetic and EM responses with the anomalous magnetic and EM signatures enclosed by the box. The geophysical grain, particularly the magnetic grain, is NE-SW striking. A prominent NE-SW trending power line response is pointed out on both Figure 6 panels.



Figure 6. Zone B magnetic tilt angle left panel, CH20 EM response right panel. The coincident anomalous EM and magnetic signatures are enclosed by the box with the plate models.

Figure 7 is a zoom-in on the Figure 6 left panel. The more complex and coherent nature of the magnetic response in the target zone is evident when compared to the random geophysical "blob" signature noted in Zone A. The magnetic tilt angle response maps two coherent sub-parallel magnetic horizons that verge on the east of the anomalous area. The magnetic plate models, colored white in Figure 7, track the two horizons closely. The southern horizon plates model as steeply dipping, near-vertical, and have a gradual plunge, deepening to the east. The southern horizon is disrupted by what appears be a fault starting on line L2060, as the horizon is right- lateral offset of 50-100 m NS across the disruption.



Figure 7. Zoom-in on the Zone B magnetic tilt angle grid with white colored magnetic and black colored EM plate models.

The magnetic plate models at the inferred fault have a disrupted geometry when compared with the adjacent plates to the SW and NE along the horizon, being deeper and with different dip angles. The inferred fault-affected plated are on the three lines L2060-L2080. The disrupted plate on L2070 returns a flatter southward dip angle that is sub-parallel to the inferred fault trace. To the east, the southern magnetic horizon merges into the northern horizon and continues eastward as one magnetic horizon. At the convergence, the southern horizon magnetic horizon.

The northern magnetic horizon appears to be more disrupted by the inferred fault. On the west, the horizon models as a coherent amphitheater-shaped sequence of five plates on L2040-L2080 that dip southward toward the southern magnetic horizon. On L2090 the magnetic plate sequence is disrupted, and a series of deeper blockier plate models fit the TMI response east of the break. The blocks appear to be downthrown across the inferred fault, with the L2090 plate being the deepest. The plates on the lines to the east of L2090 sequentially rebound upward to shallower depths. On the far east of the horizon, at the convergence, the downthrown blocks are back to a depth level similar to the southern horizon plates. The northern horizon's southeastern-most plate on L2130 marks the convergence point with the southern horizon. The deeper blockier plates to the east of the L2090 disruption show less geometric coherence than the plates that define the southern magnetic horizon or the northern horizon segment west of L2090. It is unknown if magnetic alteration also affects the magnetic response east of L2090.

In summary the magnetic plates model two NESW striking sub-parallel magnetic tilt angle horizons that merge on L2130. It is not know if they are totally discrete horizons, or fold limbs that converge into a fold nose on L2130.

There were only seven EM plate models returned from the Zone B anomalous zone (Figure 8), the seven EM plates are colored in black. The EM plates are more random in their geometry and location when compared with the structurally controlled magnetic plates, but a couple noticeable patterns do emerge for the EM plates. The four plates enclosed by the westernmost black circle in Figure 8 trace of the inferred fault here, and are aligned with the disrupted magnetic plate models' trajectory. This string of four EM plates starts to the southwest in the southern magnetic horizon, and strikes NE with the inferred fault into the central zone halfway between the north and south magnetic horizons.

The three easternmost EM plate models, particularly their top surfaces, are strung together on a trajectory parallel to the southern magnetic horizon. The conductive plate string tracks the axial trace of the two-horizon magnetic structure, if it were a fold. The most conductive EM plate model on line 2120 is nestled in what would be the hinge zone of a fold, if the two verging magnetic horizons defined a fold nose. Generally, the seven EM plates model as blobby ribbons of limited extent and lower to moderate conductivity whose locations may be controlled by the magnetic structures.

Figure 9 is a 3D view of Zone B's magnetic and EM models. It is seen that the magnetic plates form a well-defined structure that is disrupted across the inferred fault. The blue-colored outline on the west encloses the four plates that appear to trace the inferred fault into the center of the magnetic structure. The eastern blue outline encloses the three plates and their trajectory located between the north and south magnetic horizons and paralleling the southern magnetic horizon. The northwestern magnetic plate "amphitheater" is identified, as are the disrupted magnetic plates on the fault, and the possibly downthrown blocky plates to the east of the fault on the northern magnetic horizon. The inferred southern magnetic horizon plunge is pointed out by the long black arrow, and the magnetic horizon verge plate is seen on the far east of the zone, on L2130.



Figure 8. Zoom-in on the Zone B Ch20 grid with white magnetic and black EM plate models.



Figure 9. Southeast perspective 3D view of the Zone B plate models.

Conclusions

Magnetic and EM plate modeling in Zones A and B returned 14 EM and 24 magnetic plate models.

The Zone A anomaly is a discrete coincident EM and magnetic "blob" that shows little apparent structural control, though the plate sets are locally continuous. The tilt angle signature and magnetic plates strike EW, while the EM plates have a diagonal NW-SE strike. The coincident central EM and magnetic plates are the highest priority for any drill targeting.

The Zone B magnetic plates appear structurally controlled by two NE-SW striking sub-parallel magnetic tilt angle signatures that verge on the east of the zone. It is unknown if the two magnetic horizons are discrete, or the fold limbs of one horizon with a fold closure on the east where the two horizons merge.

The seven EM plate models may also be structurally controlled. The westernmost set of four EM plates appears to be related to a magnetically inferred fault that disrupts both the north and south magnetic tilt angle horizons. The double peak responses are modeled by a single thin-plate string comprised of the 4 plates.

The easternmost set of three EM plates is enclosed by the converging northern and southern magnetic horizons. If the verging horizons are fold limbs, the 3 conductive plates are aligned along what would be the axial trace of the fold.

The east and west EM plate sets define two separate and discrete EM conductive subzones that are separated by an EM response drop-out on line L2100. The one similarity between the two discrete subzones is that two easternmost plates in the western subzone are centered between the two magnetic horizons, like the three eastern subzone plates. As the Zone B best-fitting plate models are "blobby", i.e. seven plates of limited strike length, two single continuous longer strike length plate models could be attempted that define a conductive fault plate on the west, and a magnetic horizon convergence hinge zone plate on the east.

Respectfully Submitted,

Ed Cunion February 2, 2011

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