Report on the Orrefjell Uranium Deposit and Leirvassfjell Zn-Cu Deposit, Northern Norway

by

Scandinavian Highlands Holding A/S

Contents

1. Introduction

Western Highlands ApS (WH), a fully owned subsidiary of Scandinavian Highlands Holding A/S (SHH), claimed in early 2007 the entire Orrefjell basement window exposed in the northern Norway Caledonides. Further the nearby Leirvassfjell Zn-Cu mineralisation was claimed in 2012 by Bruvann ApS, which also is a fully owned subsidiary of SHH.

Data from of old company reports in addition to geochemical and geophysical data collected by the Norwegian Geological Survey (NGU) in the area were compiled prior to any SHH activities were initiated. Subsequently a helicopter-borne TEM-H and MAG-H survey (by SkyTEM ApS) was acquired in the summer 2007 covering the entire prospect, totalling 70 km^2.

Historically the Orrefjell uranium deposit has attracted much attention and from the late 1960´ths and to the beginning of the 1980´s a significant amount of geological work has been invested in the area. The work includes regional and detailed mapping, as well as several extensive geophysical and geochemical surveys. The NGU carried out drill campaigns in 1979 and 1981. From 33 drill holes a total of 1739 m core was drilled using lightweight drill setups (Pack-Sack and Hydiafor). Concurrently, extensive geochemical and geophysical reconnaissances were carried out in the area, all focusing on uranium mineralisation.

The Orrefjell and the Leirvassfjell license areas were claimed based on a conceptual approach to the already known mineralisation in the area. The extensive uranium mineralisation system exposed on the property was tested for a possible linkage to a larger Iron-Oxide-Copper-Gold (IOCG) setting.

2. Property Description and Location

The Orrefjell basement window is located approximately 170 km (direct line 90 km) south of the town of Tromsø, Norway, population 69.116 (01.01.2012), 136 km (direct line 55 km) northeast of the town Narvik, Norway, population 18.473 (01.01.2012) (source: www.ssb.no) (Figure 2.1.1).

Leirvassfjell is located 2 km west of the town of Setermoen, and 10 km east of Orrefjell.

Figure 2.1.1. The location of Orrefjell and Leirvassfjell are marked by the red star (Figure 3.1.1). Map source NGU, 2013.

2.1. Land Tenure

WH was initially granted 100 individual exploration licenses each 300,000 m^2 totalling an aggregate area of 30 km^2 (3000 hectares) (issued on 7 May 2007). In 2010 WH modified the license area now totalling 18 km^2 (1800 hectares). In 2011 WH modified the license area now totalling 6.3 km^2 (630 hectares). In 2012 WH added two individual exploration licenses (issued on 15 June 2012) each 10,000 m^2, so the total license area for year 2012 was 8.3 km^2. In 2013 WH downsized the license area further totalling 8 individual 2.4 km^2 (240 hectares). The Orrefjell licenses were all located with-in the Salangen municipality, Nordland, Norway.

In 2012 Bruvann ApS was an issued two individual exploration license (Leirvassfjell 2012-1; 2012-2) each 1.0 km^2 totalling 2.0 km^2 located ca. 7 km east of the Orrefjell license area. The two claims were relinquished again in 2013. The Leirvassfjell licenses were located within the Bardu municipality, Nordland, Norway.

3. Accessibility, Climate, Local Resources, Infrastructure and Physiography

3.1 Accessibility

Orrefjell is located approximately 10 km west of Setermoen (68°51'N, 18°20'E). The area is easy accessible by 4WD from the nearby country road (851) which runs 1.5 km south of the area. Country road 851 joins the main trans-Norwegian road (W6) ca. 12 km to the east. The closest town is Setermoen (3,875 inhabitants, 01.01.2012) 12 km to the east of the licence area. The uranium mineralised areas at Orrefjell can only be accessed by hiking the last part up the mountain.

Leirvassfjell area is likewise only accessible by 4WD on smaller gravel roads. The Zn-Cu showings at Leirvassfjell are only accessible by hiking the last part up the mountain.

The Bardufoss Airport, owned and operated by Avinor in collaboration with Forsvarsbygg and Bardufoss Flystasjon (a military airbase under the Norwegian Armed Forces), is located only 45 km north of the license area. From here, there are daily flights to Oslo (capital of Norway) and other domestic airports.

3.2. Climate

The Orrefjell basement window is located in relative proximity to the Ofotfjord and the area is characterised by a near-shore climate. The nearest weather station is located in Bardufoss, 76 masl. January temperature average is -5.8° C and July temperature reaches 12.0° C. The annual precipitation in the Bardufoss area in 2011 was 694 mm. Located 260 km north of the Arctic Circle, the sun is below the horizon from late November to mid-January. Midnight sun is from 20 May to 20 July. Field season duration is from mid-May to late October (data from 2012, Norwegian Meteorological Institute).

3.3. Local Resources

The administrative centre of the Salangen Municipality is the village Sjøvegan (729 inhabitants, 01.01.2012) (figure 3.1.1). Secondary support businesses and services, hospital, retail, banking, schools and government organisations are all available within short distances from the Orrefjell license area. Locally, grocery shops are found at Setemoen and Sjøvegan, as well as hotels are found at Setermoen and Sjøvegan. Accommodation in smaller cabins is possible at various different places. There are several small settlements (<100 inhabitants) in the area, but they provide no services. The provincial infrastructural conditions and proximity of airport and towns are depicted in Figure 3.1.1. Highly skilled mining support is found in Kiruna, Sweden. Sjøvegan was the port for iron ore (Salangen Iron Works) shipping for a short period from the beginning of the 19th century to WWI. The region host substantial military and air force facilities.

3.4. Infrastructure

A power line, owned and operated by the Norwegian Water Resources and Energy Directorate (Norges vassdrags- og energidirektorat, NVE), runs through the Orrefjell area in the N-S direction only two (2) km east of the license area.

Nearest harbour facilities is in Sjøvegan, Norway, 12 km (direct line 10 km) west of Orrefjell on paved roads (Figure 3.1.1). The port is ice free year round with cargo pier depth from 4.9 – 6.1 meter and coaster size up to 150 m in length.

The closest rail access, operated by Luossavaara-Kiirunavaara AB (LKAB), is placed in Narvik, 90 km southwest of the licence area. The rail stretch runs from Narvik to Kiruna, Sweden.

Water is plentiful in the area, but permission must be obtained to use it.

3.5. Physiography

3.5.1. Topography

The Orrefjell basement window covers an area of approximately 2 km^2. The morphology of the area is characterised by a N−S trending elongated plan eroded mountain ridge. Orrefjellet (507 masl) is the highest “peak” within the license area. Bedrock exposure is poor below timber line (between 400−500 masl).

The Leirvassfjellet rises to 544 masl. The area is comprised of several smaller peaks with lakes in between.

Figure 3.5.1. Topography photo. The location of the Orrefjell uranium mineralisation is marked with by the red line. Source www.norgei3d.no, 2013.

3.5.2. Vegetation, glaciations and till coverage

The vegetation is dominated by birch, coniferous and bracken covered wooded land. Above the timber line the bedrock exposure may reach 80–90%. Thick undergrowth is common in the topographic

lowest areas. The bedrock at elevation above timberline is generally well exposed (ca 50–70%) and the till coverage is here usually thin (<1 m).

The main glaciations direction is from SE towards NW.

The prospect area is not part of any protected area constraints.

3.5.3. Drainage

The drainage system from the massif is only moderate developed. Small creeks follow the trend of the gullies but runs often into swampy areas. At the western flank of the massif the drainage has developed to a third order system.

4. HISTORY

4.1. License History

An airborne time domain electromagnetic (TEM) and magnetic (Mag) survey by SkyTEM ApS was acquired in 2007 covering the entire Orrefjell basement window and parts of the surrounding Caledonian metasedimentary rocks, totalling 70 km^2.

Leirvassfjell Zn-Cu deposit was not covered by the SkyTEM survey.

Reconnaissance prospecting by SHH geological staff has been carried out in the area with focus on a possible IOCG setting.

4.2. Exploration History

The Orrefjell uranium mineralisation was discovered in the late 1950's and a larger exploration campaign was initiated by the NGU in 1959. The first published geological description of the uranium deposit was made by Sverdrup *et al*. (1967). A larger radiometric reconnaissance survey was carried out in the nearby areas resulting in further evidence for mineralisation in the Salangen valley (Lindahl, 1976). The Norwegian state claimed the area in 1977 and a regional helicopter-borne radiometric- and magnetic survey was initiated. The geophysical survey was linked with an extensive geochemical stream sediment sample campaign covering the eastern part of the basement window (Krog, 1980).

Detailed geological mapping and reconnaissance prospecting was intensified in the late 1970'ths and during 1979–1981 33 diamond drill holes were drilled (totalling 1960 m). The drill hole lengths range from 5–150 m. All holes were subsequently gamma log surveyed (Lundmark *et al*., 1980). The investigations were followed up with a regional geological mapping campaign (Rundberg, 1981) and additional detailed mapping of Orrefjell area (Rindstad, 1981). All core material is presently stored at NGU's core storage facilities in Løkken, Norway.

Leirvassfjell Zn-Cu deposit was “discovered” in 1978 based on stream sediment sampling, but has been known by locals prior to 1978. Prospecting on the target include geophysical surveys (e.g. VLF, IP, SP, CP & groundmagnetics). Small scale pack-sac drilling was carried out in 1978 totalling 100 m on seven holes. The detailed mapping exercise carried out on the Orrefjell uranium mineralisation included the Zn-Cu mineralised area at Leirvassfjell. For references see Rindstad (1981).

5. Exploration Results

The main goal of the exploration was to evaluate the potential of Paleoproterozoic basement window to host an IOCG-style deposit.

SHH geologist visited key outcrops in the area and observed no signs of larger alteration system. Beside the already identified uranium mineralisation (both primary and secondary uranium mineralisation) some uranium mineralised pegmatites showed colour staining due to weathering of Fe-oxides and Fe-sulphides. The Leirvassfjell Zn-Cu showings were confirmed.

Mineralised core intervals from the Orrefjell area was selected for reanalysis by SHH. Based on NGU geochemical data a total of 18 m drill core from diamond drill hole no.: BH 02/80 and BH 08/81 was reanalysed by ALS Chemex, Piteä, Sweden. Table 5.1 below list the results.

The SkyTEM survey missed to identify any larger anomalies considered prospective. The survey did identified conductive areas, which can be directly correlated to Caledonian graphitic schists. The SkyTEM survey results is given in Appendix 1.

Table 5.1. Assay results from Orrefjell DDH BH 02/80 and BH 08/81.

Sample No	Hole Id	Depth From	Depth To	Length		Ag	Al	As	Au	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe
					Units	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%
					LOR	0,02	0,01	0,2	0,001	10	0,05	0,01	0,01	0,02	0,01	0,1	1	0,05	0,2	0,01
346517	BH 02/80	20,00	22,00	2,00		0,05	5,58	0,8	0,001	540	1,72	0,12	4,79	0,12	75,1	9,2	119	4,64	14,7	2,9
346518	BH 02/80	22,00	24,00	2,00		0,01	8,8	17,3	0,005	980	1,83	0,12	0,47	0,04	75,2	19,8	223	7,68	24,3	6,89
346519	BH 02/80	24,00	26,00	2,00		0,15	6,76	2,5	0,005	420	1,34	0,26	1,4	0,07	60,7	33,3	251	6,55	231	8,16
346520	BH 02/80	26,00	28,00	2,00		0,04	6,63	21,2	-0,001	300	1,29	0,07	3,36	0,09	47	25,3	151	8,32	20,1	7,29
346521	BH 02/80	28,00	30,00	2,00		0,03	6,9	3,8	0,002	280	1,4	0,06	2,3	0,1	19,7	13,8	135	6,12	24,5	5,77
346522	BH 08/81	36,00	38,00	2,00		0,14	4,89	2	0,001	170	1,2	0,06	0,97	1,31	>500	11,4	192	2,93	108,5	4,33
346523	BH 08/81	38,00	40,00	2,00		0,04	4,91	2,2	0,001	130	1,49	0,11	2,32	0,12	64,2	21,1	170	2,82	129,5	5,01
346524	BH 08/81	40,00	42,00	2,00		0,01	6,42	2,2	0,001	150	2,83	0,08	2,39	0,1	314	17	249	4,26	44,2	5,21
346525	BH 08/81	42,00	44,00	2,00		0,03	7,22	1,5	-0,001	240	2	0,04	1,19	0,11	222	2,4	115	1,11	24,1	1,21

Sample No	Hole Id	Depth From	Depth To	Length		Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P
					Units	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm
					LOR	0,05	0,05	0,1	0,01	0,005	0,01	0,5	0,2	0,01	5	0,05	0,01	0,1	0,2	10
346517	BH 02/80	20,00	22,00	2,00		15,25	0,27	3,9	-0,01	0,044	3,41	36,8	51,2	3,5	508	0,98	0,39	10,5	17,8	640
346518	BH 02/80	22,00	24,00	2,00		30,1	0,34	3,6	-0,01	0,079	5,29	37,5	74,4	3,19	469	30	0,68	17,1	71,9	760
346519	BH 02/80	24,00	26,00	2,00		21,9	0,34	5,9	-0,01	0,051	3,33	29,2	54,4	2,31	456	111	1,38	14,8	160,5	530
346520	BH 02/80	26,00	28,00	2,00		21,5	0,32	2	0,01	0,064	3,89	20,4	68,5	2,72	918	67,4	1,22	17,1	52	760
346521	BH 02/80	28,00	30,00	2,00		23,4	0,25	1,4	-0,01	0,041	3,48	7	65,3	2,63	659	194	2,22	15,8	52,9	1250
346522	BH 08/81	36,00	38,00	2,00		22,4	0,89	13	-0,01	0,042	2,02	288	31,9	1,26	399	241	1,17	23,7	54,4	1730

346523	BH 08/81	38,00	40,00	2,00		16,25	0,26	21,3	-0,01	0,043	1,69	30,8	37,3	1,6	678	36,3	1,19	15,9	60,9	250
346524	BH 08/81	40,00	42,00	2,00		26,1	0,56	8,7	-0,01	0,081	2,34	146	51,8	1,84	859	27,5	1,81	31,2	57,6	1300
346525	BH 08/81	42,00	44,00	2,00		24,4	0,42	3,9	-0,01	0,022	3,2	107,5	18,9	0,34	179	5,32	3,08	10,1	3,8	1370

Sample No	Hole Id	Depth From	Depth To	Length	Units	Pb ppm	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm	Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm
					LOR	0,5	0,1	0,002	0,01	0,05	0,1	1	0,2	0,2	0,05	0,05	0,2	0,005	0,02	0,1
346517	BH 02/80	20,00	22,00	2,00		10,7	149,5	-0,02	0,14	0,26	10,5	2	1,7	201	0,79	0,07	9,9	0,306	1,04	2,5
346518	BH 02/80	22,00	24,00	2,00		12,9	244	0,024	0,23	0,16	31,3	3	2,2	81,6	2,07	0,08	18,2	0,706	2	28,8
346519	BH 02/80	24,00	26,00	2,00		39,2	179,5	0,016	1,98	0,29	28,9	7	1,2	151	1,2	0,14	90,3	0,69	1,74	278
346520	BH 02/80	26,00	28,00	2,00		34,8	231	0,003	0,13	0,19	32,5	4	1,4	179,5	0,85	-0,05	40,9	0,959	1,97	171,5
346521	BH 02/80	28,00	30,00	2,00		46,2	159	0,006	0,12	0,2	24,1	3	1,1	171,5	0,79	0,05	27,6	0,623	1,84	252
346522	BH 08/81	36,00	38,00	2,00		770	116	0,017	0,79	0,31	19,9	9	0,7	106	1,38	0,11	328	0,542	1,04	2500
346523	BH 08/81	38,00	40,00	2,00		191	123	0,009	0,45	0,09	21,2	4	0,9	105,5	1,15	0,13	57,1	0,463	0,98	690
346524	BH 08/81	40,00	42,00	2,00		211	197	0,004	0,07	0,11	25,3	5	1,8	186,5	1,79	0,06	158,5	0,612	1,56	1060
346525	BH 08/81	42,00	44,00	2,00		271	123,5	0,003	0,05	0,09	5,1	4	0,5	122,5	0,47	0,06	115,5	0,163	0,82	870

Sample No	Hole Id	Depth From	Depth To	Length	Units	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
					LOR	1	0,1	0,1	2	0,5
346517	BH 02/80	20,00	22,00	2,00		52	0,9	19,6	88	130,5
346518	BH 02/80	22,00	24,00	2,00		302	1,7	30,5	149	118,5
346519	BH 02/80	24,00	26,00	2,00		275	1,2	41,6	109	167,5
346520	BH 02/80	26,00	28,00	2,00		269	0,8	41,2	141	56,3
346521	BH 02/80	28,00	30,00	2,00		193	0,8	36,1	132	39,1
346522	BH 08/81	36,00	38,00	2,00		149	1,6	127,5	251	421
346523	BH 08/81	38,00	40,00	2,00		130	0,7	35,2	114	>500
346524	BH 08/81	40,00	42,00	2,00		133	0,9	76,8	139	243
346525	BH 08/81	42,00	44,00	2,00		14	0,7	60,1	44	114,5

6. Conclusion

The Orrefjell Uranium Deposit and Leirvassfjell Zn-Cu Deposit were claimed on a conceptual approach to the U and base metal mineralisation. The entire area was tested for the potential of a IOCG style mineralisation based on evaluation of available geochemical and geophysical data. In addition to this a SkyTEM Survey was acquired, but the survey did not add further potential to the prospect.

Based on the field reconnaissance work, DDH assay results and careful reanalysis of old data, SHH consider the IOCG potential in the area to be low. As for now SHH plan no further exploration activities on the Orrefjell Uranium mineralisation.

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