Location/Identification

MINFILE Number: 082ESW140
Name(s): **SPOTTED LAKE**

Status: Past Producer
Mining Method Open Pit
Regions: British Columbia
BCGS Map: 082E003
NTS Map: 082E04E
Latitude: 49 04 43 N
Longitude: 119 34 00 W
Elevation: 580 metres
Location Accuracy: Within 500M

Mining Division: Osoyoos
Electoral District: Penticton-Okanagan Valley
Resource District: Okanagan Shuswap Forest District

UTM Zone: 11 (NAD 83)
Northing: 5439368
Easting: 312572

Comments: The approximate centre of Spotted Lake (National Topographic System 82E/4).

Mineral Occurrence

Commodities: Magnesium Sulphate, Sodium Carbonate

Minerals
Significant: Unknown
Significant Comments: Hydrous magnesium, sodium and calcium salts.
Associated: Gypsum
Mineralization Age: Unknown

Deposit
Character: Massive
Classification: Sedimentary, Industrial Min.
Type: F09: Playa and Alkaline Lake Evaporites

Host Rock

Dominant Host Rock: Metasedimentary

Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Upper Paleozoic	Kobau	Undefined Formation	------
Middle Jurassic	------	------	Similkameen Intrusions

Isotopic Age	Dating Method	Material Dated
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Lithology: Schist, Chlorite Schist, Quartzite, Amphibolite, Marble

Comments: The Kobau Group is of Carboniferous to Permian age.

Geological Setting

Tectonic Belt: Omineca
Physiographic Area: Thompson Plateau
Terrane: Okanagan, Plutonic Rocks

Metamorphic Type: Regional
Relationship: Pre-mineralization
Grade: Greenschist

Inventory

Ore Zone: AREA
Year: 1940
Category: Inferred
Report On: Y
Quantity: 11,797 tonnes
NI 43-101: N

Commodity	Grade
Sodium Carbonate	0.5200 per cent

Comments: The grade is an average of 5 sample analyses.
Reference: Bulletin 4 (1940), pages 53,55.

Ore Zone: LAKE
Year: 1938
Category: Inferred
Report On: Y
Quantity: 33,475 tonnes
NI 43-101: N

Commodity	Grade
Magnesium Sulphate	47.2400 per cent

Comments: The grade is the average of 5 sample analyses.
Reference: Bulletin 4 (1940), pages 53,55.

Summary Production

		Metric		Imperial	
Mined:		1,361	tonnes	1,500	tons
Milled:		0	tonnes	0	tons
Recovery	Magnesium Sulphate	707,720	kilograms	1,560,256	pounds

Capsule Geology

The Spotted Lake occurrence occurs in Spotted Lake near Richter Pass, located 9.8 kilometres from Osoyoos, British Columbia.

The showing is underlain by metasediments and metavolcanics of the Carboniferous to Permian Kobau Group. Schist, chlorite schist, quartzite, amphibolite and minor limestone comprise major lithologies of the Kobau Group. To the immediate south, granite and granodiorite of the Similkameen intrusions intrude the Kobau Group.

Spotted Lake covers approximately 8 hectares. When examined in 1938, the lake was covered with 15 to 20 centimetres of brine. The brine crystals form a bowl-like shape covering 50 to 60 per cent of the lake. The bowl-like shapes are 6 to 24 metres diameter, averaging 1.07 metres depth. The encircling mud rings are raised 10 to 46 centimetres above the crystal level, containing gypsum. The mud was determined to contain 70 to 80 per cent calcium sulphate. The following table summarizes analytical results of 5 surface samples from bowls. Sample 6 was analysed from mined surface crystals containing 40.26 per cent water but recalculated to a 100 water free basis (Bulletin 4 (1940), page 53).

	1	2	3	4	5	6
MgSO4	50.02	44.67	47.25	47.04	47.21	57.58
Na2SO4	48.08	53.80	51.16	51.67	46.62	42.38
NaHCO3	0.49	0.57	0.56	0.48	0.50	
Na2CO3				tr		
NaCl	0.17	0.22	0.15	0.14	0.22	
CaSO4	0.70	0.28	0.70	0.41	3.11	
Insol	0.36	0.46	0.18	0.26	2.44	
Alkalinity						nil
Cl						trace

The lake was estimated to contain 45,272 tonnes of hydrous salts of magnesium and sodium with 11,797 tonnes of sodium carbonate salts (Bulletin 4 (1940), page 55).

Records indicate 1361 tonnes of crystal (magnesium sulphite) were shipped by Stewart-Calvert Co. Ltd. from the Spotted Lake showing between 1915 and 1919 and shipped to Oroville, Washington for refining and sale (Bulletin 4 (1940), page 53).

Bibliography

EMPR AR 1915-28,202,446; 1916-260,524; 1917-206,215;
1918-26,203,213; 1919-169
EMPR BULL *4 (1940), pp. 51-53,55
EMPR BC METAL (Industrial Mineral (Magnesite) production fiche)
GSC MAP 341A; 538A; 539A; 541A; 15-1961; 1736A; 2389
GSC MEM 38; 179
GSC OF 481; 637; 1505A; 1565; 1969
GSC P 37-21, pp. 37-40

EMPR PFD 1626, 507180, 507181, 507182, 507473

Date Coded:	1985/07/24	**Coded By:**	BC Geological Survey (BCGS)	**Field Check:**	N
Date Revised:	2012/08/13	**Revised By:**	Larry Jones (LDJ)	**Field Check:**	N