Search Minerals Announces Results of Magnetic Separation Testing to Produce Rare Earth Concentrates

written by Raj Shah | April 13, 2021

April 12, 2021 (Source) – **Search Minerals Inc. (TSXV: SMY)** ("**Search**" or the "**Company**"), is pleased to announce that SGS Canada Inc. ("**SGS**") has reported on pre-concentration of the rare earth content of **DEEP FOX, FOXTROT and FOX MEADOW** mineral samples using Low Intensity Magnetic Separation (LIMS) and Wet High Intensity Magnetic Separation (WHIMS). This program was initiated following the successful use of LIMS to concentrate magnetite and WHIMS to concentrate rare earth elements prior to zirconia flotation with a channel sample of **SILVER FOX** deposit mineralization (see Search Minerals new release January 12, 2021).

HIGHLIGHTS – RARE EARTH CONCENTRATION

The **DEEP FOX, FOXTROT and FOX MEADOW** results for WHIMS concentration of REE's are shown below.

- A sample of **DEEP FOX** mineralization containing 1.15% TREO/Y was treated sequentially by LIMS and WHIMS. The WHIMS concentrate was enriched to 5.55% TREO/Y containing enriched levels of the key magnet making elements (Nd/Pr/Tb/Dy). The overall recovery of TREO/Y to the WHIMS Concentrate was 78.3%
- A sample of **FOXTROT** mineralization containing 1.13% TREO/Y enriched to 4.81% TREO/Y in the WHIMS concentrate with an overall recovery of 78.3%.

- A sample of **FOX MEADOW** mineralization containing 0.92% TREO/Y enriched to 3.91% TREO/Y in the WHIMS concentrate with an overall recovery of 81.8%.
- Further work at SGS Canada is planned to investigate increases in recovery and grade of the WHIMS rare earth concentrates and to demonstrate REE recovery via the Search Direct Extraction process applied to the concentrates.

DEEP FOX	Nd (g/t)	Pr (g/t)	Tb (g/t)	Dy (g/t)	TREO/Y
Mineral Sample	1633	419	44	266	1.15%
WHIMS Concentrate	8061	2097	204	1183	5.55%
Recovery (%)	80.3	81.0	73.1	71.7	78.3
FOXTROT	Nd (g/t)	Pr (g/t)	Tb (g/t)	Dy (g/t)	TREO/Y
Mineral Sample	1553	418	35	223	1.13%
WHIMS Concentrate	6760	1830	132	824	4.81%
Recovery (%)	80.1	80.9	70.3	69.4	78.3
FOX MEADOW	Nd (g/t)	Pr (g/t)	Tb (g/t)	Dy (g/t)	TREO/Y
Mineral Sample	1480	381	33	184	0.92%
WHIMS Concentrate	6163	1623	115	663	3.91%
Recovery (%)	82.6	85.9	65.9	64.6	81.8

SGS Magnetic Separation Testing was conducted on three samples of mineralization from the **DEEP FOX, FOXTROT** and **FOX MEADOW** deposits within the Port Hope Simpson Critical Materials District. The **DEEP FOX and FOX MEADOW** samples were channel samples from the surface exposure of the deposits and the **FOXTROT** sample was a blend of three large samples of over 40 tonnes of material taken in preparation for pilot plant programs.

The samples were ground to 100% passing 270 mesh particles size

to liberate the rare earth minerals from the host minerals. For each deposit type, a 10 kg sample of ground material was subjected to LIMS testing. The LIMS concentrates bear the strongly magnetic minerals in the samples including magnetite. A 200 g portion of LIMS non-magnetic material was then passed through a WHIMS at 5000, 10,000 and 15,000 Gauss field strength. Three concentrates were recovered per deposit type and these were combined and analyzed. The results are summarized in simplified tabular format below (Table 1).

The major findings are;

1. Rare earth elements were concentrated by WHIMS at ~80% overall recovery, yielding 3.91-5.5% TREO (including Y) grade. The mass of material reporting to the WHIMS concentrates ranged from 16-19% of the original material. This will dramatically reduce the material to be processed via the Direct Extraction Process.
2. LIMS concentrates containing 92-98% Fe2O3 have been produced. These concentrates may be saleable as a by-product as an iron ore concentrate.
3. The WHIMS non-magnetic product contains ~83-88% of the ZrO2 from the original mineral samples. This result is consistent with the Silver Fox testing reported in a News Release dated January 12, 2021. The deportment of ZrO2 to the WHIMS non-magnetic product allows the further opportunity to recover zirconium and hafnium by mineral separation (eg. flotation) processes.

These results will be the basis for further process optimization and engineering trade off studies. The process optimization work will focus on obtaining increased grade of WHIMS magnetic concentrate and increasing the overall recovery. Engineering trade off studies will compare the cost of whole of ore treatment by the Direct Extraction Process versus pre-

concentration by magnetic separation followed by WHIMS concentrate treatment by the Direct Extraction Process.

Greg Andrews, President/CEO states; “This test work demonstrates the potential to use LIMS and WHIMS to recover magnetite concentrate for potential sale and, most importantly, to recover a REE concentrate for processing to recover a high grade REE product for refining and separation. The treatment of a REE concentrate from any of our deposits would dramatically reduce the size of a Direct Extraction process plant for REE recovery. Similarly, the use of acids and bases and other reagents would be significantly reduced. Search Minerals has now confirmed that magnetic concentration can be applied to **DEEP FOX, FORTROT AND FOX MEADOW** mineralization. Search Minerals thanks ACOA and InnovateNL for their continued support received to undertake this study.”

Corporate Developments:

The Company has put into effect an internal blackout on trading of the Company’s shares with immediate effect. This policy covers the management and board of directors of the Company and InCoR Holdings (the Company’s controlling shareholder).

Table 1. Summary of LIMS and WHI
MS Testing of DEEP FOX, FOX TROT and FOX MEADOW Samples at SGS Canada

DEEP FOX
LIMS + WHIMS Combined Products

Product	Weight	Assays, %, or g/t																					
	%	Ce %	Nd %	La %	Pr %	Sm g/t	Eu g/t	Gd g/t	Tb g/t	Dy g/t	Ho g/t	Er g/t	Tm g/t	Yb g/t	Lu g/t	Y g/t	TREO %	U g/t	Th g/t	ZrO_2 %	SiO_2 %	Al_2O_3 %	Fe_2O_3 %
WHIMS Mags	16.0	1.73	0.81	0.74	0.21	1524	82.0	1244	204	1183	234	639	88.9	526	67.0	5499	**5.55**	58	435	1.9	21.9	4.0	15.5
WHIMS Non-Mags	77.5	0.08	0.04	0.03	0.01	72	5.5	78	15	91	20	62	8.8	63	10.5	486	**0.30**	19.4	24	2.2	38.2	3.5	1.4
LIMS Mags	6.5	0.05	0.05	0.02	0.01	57	2.5	57	11	70	16	44	6.3	40	5.7	387	**0.20**	7.9	13	0.6	6.2	0.5	94.6

Head (calc.)	100	0.34	0.16	0.15	0.04	324	17	267	44	266	54	154	22	141	18.4	1297	**1.15**	25	89	2.8	71.6	6.3	11.4

Product	**Weight**	**Distribution %**																				
	%	**Ce**	**Nd**	**La**	**Pr**	**Sm**	**Eu**	**Gd**	**Tb**	**Dy**	**Ho**	**Er**	**Tm**	**Yb**	**Lu**	**Y**	**TREO**	**U**	**Th**	**ZrO_2**	**SiO_2**	**Al_2O_3**	**Fe_2O_3**
WHIMS Mags	**16.0**	**81.5**	80.3	81.4	81.0	80	74.8	76	73	72	70	67	66.3	62	55.7	68.7	**78.3**	37	78.4	15.5	10.5	19.0	31.8
WHIMS Non-Mags	77.5	17.6	18.9	17.7	18.0	18	24.3	23	25	27	29	31	31.8	36	42.3	29.4	**20.6**	60.7	20.7	83.0	88.9	80.4	14.1
LIMS Mags	6.5	0.9	0.9	0.9	0.9	1.1	0.9	1.4	1.6	1.7	1.9	1.9	1.8	1.8	2.0	1.9	**1.14**	2.0	1.0	1.4	0.6	0.5	54.1

FOXTROT

LIMS + WHIMS Combined Products

Product	**Weight**	**Assays, %, g/t**																				
	%	**Ce %**	**Nd %**	**La %**	**Pr %**	**Sm g/t**	**Eu g/t**	**Gd g/t**	**Tb g/t**	**Dy g/t**	**Ho g/t**	**Er g/t**	**Tm g/t**	**Yb g/t**	**Lu g/t**	**Y g/t**	**TREO %**	**U g/t**	**Th g/t**	**ZrO_2 %**	**SiO_2 %**	**Al_2O_3 %**	**Fe_2O_3 %**
WHIMS Mags	19.3	1.58	0.68	0.72	0.18	1195	61.6	900	132	824	157	449	59.5	364	49.9	4199	**4.81**	86	560	1.9	46.9	4.4	21.7
WHIMS Non-Mags	73.9	0.09	0.04	0.04	0.01	92	5.5	83	14	89	17	50	7.0	48	8.2	452	**0.33**	24.5	48	1.8	77.7	8.5	2.1
LIMS Mags	6.8	0.05	0.05	0.02	0.01	50	2.5	55	10	67	14	41	5.2	31	5.1	345	**0.19**	16.7	24	0.3	4.6	0.5	97.1
Head (calc.)	100	0.36	0.16	0.16	0.04	283	15	229	35	223	42	123	17	107	15.0	1114	**1.13**	36	145	1.7	67.2	7.2	12.0

Product	**Weight**	**Distribution %**																				
	%	**Ce**	**Nd**	**La**	**Pr**	**Sm**	**Eu**	**Gd**	**Tb**	**Dy**	**Ho**	**Er**	**Tm**	**Yb**	**Lu**	**Y**	**TREO**	**U**	**Th**	**ZrO_2**	**SiO_2**	**Al_2O_3**	**Fe_2O_3**
WHIMS Mags	19.3	81.0	80.1	80.8	80.9	76	73.7	73	70	69	69	69	67.6	65	60.0	69.4	**78.3**	46	74.4	21.5	13.6	12.0	33.0
WHIMS Non-Mags	73.9	18.1	19.0	18.3	18.2	22	25.1	26	28	29	29	29	30.3	33	37.7	28.5	**20.5**	50.5	24.5	77.3	86.0	87.5	12.2
LIMS Mags	6.8	0.9	0.9	0.9	0.9	1.2	1.2	1.6	2.0	2.1	2.3	2.2	2.1	2.0	2.3	2.1	**1.15**	3.2	1.1	1.2	0.5	0.5	54.8

FOX MEADOW

LIMS + WHIMS Combined Products

Product	**Weight**	**Assays, %, g/t**																				
	%	**Ce %**	**Nd %**	**La %**	**Pr %**	**Sm g/t**	**Eu g/t**	**Gd g/t**	**Tb g/t**	**Dy g/t**	**Ho g/t**	**Er g/t**	**Tm g/t**	**Yb g/t**	**Lu g/t**	**Y g/t**	**TREO %**	**U g/t**	**Th g/t**	**ZrO_2 %**	**SiO_2 %**	**Al_2O_3 %**	**Fe_2O_3 %**
WHIMS Mags	18.2	1.34	0.62	0.53	0.16	1034	50.3	738	115	663	129	346	46.3	281	38.7	2633	**3.91**	48	96	0.9	23.4	2.2	16.6
WHIMS Non-Mags	75.6	0.04	0.03	0.01	0.01	82	4.9	80	13	81	17	46	6.8	40	5.9	351	**0.20**	9.9	8	1.8	35.4	6.0	0.7
LIMS Mags	6.2	0.04	0.04	0.02	0.01	72	5.5	78	14	81	15	40	5.7	32	3.4	321	**0.18**	13.8	6	0.3	6.3	0.8	91.9
Head (calc.)	100	0.28	0.15	0.12	0.04	269	14	206	33	184	39	104	14	85	12.0	733	**0.92**	18	25	2.0	66.2	9.3	11.0

Product	**Weight**	**Distribution %**																				
	%	**Ce**	**Nd**	**La**	**Pr**	**Sm**	**Eu**	**Gd**	**Tb**	**Dy**	**Ho**	**Er**	**Tm**	**Yb**	**Lu**	**Y**	**TREO**	**U**	**Th**	**ZrO_2**	**SiO_2**	**Al_2O_3**	**Fe_2O_3**
WHIMS Mags	**18.2**	**88.1**	82.6	89.9	85.9	74	69.5	68	66	65	63	63	60.6	61	60.2	62.6	**81.8**	51	73.5	10.6	13.7	8.0	41.4

WHIMS Non-Mags	75.6	11.0	16.6	9.3	13.2	24	28.1	30	31	33	35	35	36.9	36	38.1	34.6	**16.9**	44.1	25.0	88.6	85.7	91.4	6.7
LIMS Mags	6.2	0.9	0.9	0.8	0.9	1.7	2.4	2.3	2.6	2.7	2.4	2.4	2.5	2.3	1.7	2.7	**1.25**	4.8	1.5	0.8	0.6	0.5	51.9

Qualified Person:

Dr. David Dreisinger, Ph.D., P.Eng, is the Company's Vice President, Metallurgy, and Qualified Person (as defined by National Instrument 43-101) who has supervised the preparation of and approved the technical information reported herein. The company will endeavour to meet high standards of integrity, transparency, and consistency in reporting technical content, including geological and assay (e.g., REE) data.

About Search Minerals Inc.

Led by a proven management team and board of directors, Search is focused on finding and developing Critical Rare Earths Elements (CREE), Zirconium (Zr) and Hafnium (Hf) resources within the emerging Port Hope Simpson – St. Lewis CREE District of South East Labrador. The Company controls a belt 63 km long and 2 km wide and is road accessible, on tidewater, and located within 3 local communities. Search has completed a preliminary economic assessment report for **FOXTROT**, and a resource estimate for **DEEP FOX**. Search is also working on three exploration prospects along the belt which include: **FOX MEADOW, SILVER FOX** and **AWESOME FOX**.

Search has continued to optimize our patented Direct Extraction Process technology with the generous support from the Department of Tourism, Culture, Industry and Innovation, Government of Newfoundland and Labrador, and from the Atlantic Canada Opportunity Agency. We have completed two pilot plant operations and produced highly purified mixed rare earth carbonate concentrate and mixed REO concentrate for separation and refining.

For further information, please contact:

Greg Andrews
President and CEO
Tel: 604-998-3432
E-mail: info@searchminerals.ca

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Except for the statements of historical fact, this news release contains "forward-looking information" within the meaning of the applicable Canadian securities legislation that is based on expectations, estimates and projections as at the date of this news release. "Forward-looking information" in this news release includes information about the Company's anticipated use of proceeds of the Private Placement, and other forward-looking information. Factors that could cause actual results to differ materially from those described in such forward-looking information include, but are not limited to, the inability to obtain the necessary Exchange approvals to complete the Private Placement or to apply the proceeds of the Private Placement as anticipated by management.

The forward-looking information in this news release reflects the current expectations, assumptions and/or beliefs of the Company based on information currently available to the Company. In connection with the forward-looking information contained in this news release, the Company has made assumptions about the Company's financial condition and development plans do not change as a result of unforeseen events, and that the Company will receive all required regulatory approvals, including Exchange approval, for the Private Placement.

Although the Company believes that the assumptions inherent in the forward-looking information are reasonable, forward-looking information is not a guarantee of future performance and accordingly undue reliance should not be put on such information due to the inherent uncertainty therein. The Company does not assume any obligation to update the forward-looking statements, or to update the reasons why actual results could differ from those reflected in the forward-looking statements, unless and until required by applicable securities laws. Additional information identifying risks and uncertainties is contained in the Company's filings with the Canadian securities regulators, which filings are available at www.sedar.com.