

18 January 2023

**Ticker:** FCU CN **Cash:** ~C\$33m **Project**: Patterson Lake South (PLS)

Market cap: C\$578mPrice: C\$0.84/shCountry: CanadaREC. (unc): BUYTARGET (unc): C\$1.45/shRISK RATING (unc): HIGH

Given that Fission's PLS project offers world class cash flow (SCPe C\$396m/yr avg over ten years at US\$60/lb), great capital payback (can pay off SCPe C\$700m project debt in SCPe 2 years) and even better considering the setting (adjacent to NexGen's Rook I for synergies + M&A tie-up potential) in Saskatchewan, we were looking for the DFS to confirm scope, margins and hopefully avoid step change capex increases. The DFS delivered on all fronts, with LOM ~91Mlbs produced over a ten-year mine life at sub US\$10/lb cash costs, and most pleasingly, capex flat at C\$1.16bn, an excellent outcome, especially as we respect the detailed study work undertaken by Fission's VP Project Development Gary Haywood (ex McArthur River GM, Sons of Gwalia) and team. Comparing to our prior estimates, lower capex is offset by moderately higher opex (~9% pa per tonne unit cost increase since 2019 PFS) and smaller inventory (to be expected as we modelled additional resource conversion), resulting in SCPe 10% higher IRR but ~8% lower like for like NPV – in our view this is a good outcome for what is confirmed to be a world class project. Updating costs and capex for the DFS, rebasing our modelled LOM inventory on reserves +10Mlbs of assumed conversion (equates to an 18% in lbs contained or ~2-year mine life reduction), project NPV is lower but so are corresponding finance costs, which net out on a fully-diluted fully-funded per share basis. We therefore reiterate our BUY rating and C\$1.45/sh price target based on 1.0xNAV<sub>8%-60/lb</sub>. Fission remains a high conviction top pick for us, which is rapidly ticking off the boxes ahead of commencement of the licensing process. Looking ahead, the next catalyst is EIS submission this year. While Fission enters the phase where permitting and macro become the main day to day drivers, don't overlook Fission's standalone value (C\$350m+ FCF pa at US\$60/lb), the value of being located in Saskatchewan (stable, Western operating jurisdiction), and the strategic value of Fission is a Western Athabasca tie up scenario.

### Feasibility study delivers improved capex, sub US\$10/lb cash costs, billion dollar NPV

Fission released the outcomes of the Feasibility Study on its 130Mlb  $U_3O_8$  PLS project in western Athabasca, Saskatchewan. The DFS, based on UG mining only, defined a 10-year mine life producing 91Mlbs at C\$13/lb cash operating costs for C\$1,155m initial capex, generating a C\$1,204m post-tax NPV8%-65/lb.

#### Reserve conversion / Mine inventory

A total of 114.9Mlbs @ 1.9% indicated resources were used as the basis for the 93.7Mlbs @ 1.4%  $U_3O_8$  probable reserves (81.5% conversion) that resulted in a 90.9Mlbs  $U_3O_8$  LOM production inventory (97% conversion from reserves). Reserves increased by 12Mlbs with the addition of the R840W orebody, lengthening the mine life to 10 years from 7 in PFS. There is additional opportunity to add LOM through upgrading inferred resources (total 635kt @ 1.1%  $U_3O_8$  for 15.4Mlbs) from both R1515W / R1620E along strike, and by increasing conversion of R00E, R840W and R780E. Additionally, R840W and R780E limits have yet to be defined and could provide additional growth opportunities at depth and along plunge to the east.

#### **Mining and Processing**

The mine will be accessed by surface decline, excavated with a tunnel shield method (including a hydrostatic segmental concrete liner) until bedrock where it will then transition to typical UG development methods. A dedicated ventilation system (one fresh air raise and one exhaust air raise) will be used to provide sufficient air quantities for underground mining activities. UG hardrock mining will take place via longitudinal longhole stoping using cemented rock fill with near-contact mining employing artificial ground freezing and drift and fill with cemented hydraulic backfill. Crown pillar extraction will take place with roadheader tunneling.



A total of 90.9Mlbs @ 1.4% U<sub>3</sub>O<sub>8</sub> will be processed via a conventional griding/leach circuit at a nominal throughput of 1,000tpd and a 97% LOM recovery. Processing will involve mined ore to be ground via a single stage SAG mill to 150 $\mu$ m followed by leaching with sulphuric acid/hydrogen peroxide at 50°C followed by a decanting circuit, clarification stage, SX circuit to yellowcake precipitate and final calcination at 450°C prior to shipping. The flowsheet is similar to the DFS.

#### Capex / Opex / Economics

Initial capex of C\$1,155m (incl. C\$127m contingency) will support the mine build slated for a 3-year construction period. Sustaining capex of C\$384m will be incurred throughout the mine life for LOM total capex of C\$1,539m. FS forecasted LOM operating costs total C\$1,183m over the LOM (average C\$118m pa, C\$393/t) including on C\$153/t (C\$5.05/lb  $U_3O_8$ ) mining, C\$163/t (C\$5.39/lb  $U_3O_8$ ) processing and C\$78/t (C\$2.59/lbU $_3O_8$ ) G&A unit costs. Per tonne operating costs are estimated at C\$393/t total (C\$328/t in the PFS). At US\$65/lb, LOM cash flows total C\$2,787m, including -C\$2,291m royalties and -C\$902m in taxes for a post-tax NPV8%-65/lb of C\$1,204m, 27.2% IRR and a 2.6year payback period.

### **Next steps**

With FS in hand, Fission will continue to advance PLS through the Environmental Assessment and towards a construction decision.

## **Model Changes**

Figure 1: DFS, PFS and SCPe key inputs and results, old/new comparison

		Prior			New			New Comparision			parision
Category	Unit	2019 PFS	SCPe	SCPe @ \$65	DFS	DFS mirror	SCPe	DFS vs PFS	SCPe old/new		
Inventory	kt	2,286	3,869	>>	3,007	>>	3,329	32%	-14%		
Grade	% U308	1.61%	1.48%	>>	1.41%	>>	1.41%	-12%	-5%		
Recovery	%	96.8%	96.4%	>>	97.0%	>>	>>	0%	1%		
Throughput	tpd	1,000	1,000	>>	>>	>>	>>				
<b>Total production</b>	mlbs	78.7	123.1	>>	90.9	>>	100.4	16%	-18%		
Average annual	mlbs pa	10.7	10.4	>>	9.1	>>	10.0	-15%	-3%		
Cash costs	US\$/Ib	7.18	8.53	>>	9.81	9.80	9.80	37%	15%		
AISC <sup>(1)</sup>	US\$/lb	12.80	14.98	15.60	17.64	18.01	17.31	38%	16%		
Mine life	years	7	12	>>	10	>>	10	43%	-16%		
UG mining cost	C\$/t mined	137.00	152.12	>>	153.00	>>	>>	12%	1%		
Processing cost	C\$/t processed	116.00	127.60	>>	163.00	>>	>>	41%	28%		
G&A	C\$/t processed	75.00	82.50	>>	78.00	>>	>>	4%	-5%		
Total cost per tonne	C\$/t processed	328.00	362.48	>>	393.00	>>	>>	20%	9%		
Pre-build spend	C\$m	-	25	>>			22		-12%		
Initial capex	C\$m	1,177	1,375	>>	1,155	>>	1,155	-2%	-16%		
Sustaining capex total	C\$m	209	328	>>	384	>>	422	84%	29%		
Sustaining capex per year	C\$m	30	36	>>	38	>>	42	29%	16%		
Closure cost	C\$m	74	74	>>	incl in sust	>>			n/a		
Uranium price	US\$/Ib	50	60	65	65	>>	60	30%			
Discount rate	%	8.0%	8.0%	>>	>>	>>	>>				
USD/CAD		0.75	0.75	0.75	0.75	>>	>>				
NPV at build start	C\$m	702	1,255	1,648	1,204	>>	1,157	72%	-8%		
IRR	%	25%	24%	29%	27%	29%	26%	9%	10%		
Operating margin	%	84.5%	69.6%	70.6%	70.4%	69.6%	68.6%	-17%	-1%		
Average annual FCF	C\$m	392.1	394.6	324.2	394.2	396.3	396.1	1%	-29%		
LOM FCF	C\$m	1,567.6	3,299.4	2,465.7	2,787.0	2,807.9	2,806.3	78%	-15%		

Source: Fission and SCPe; (1) Including sales royalties but not the provinical profit royalty



We update our modelled scenario for the DFS, matching the DFS's operating cost per tonne and initial capex inputs with similar annual sustaining capex. We re-base our modelled inventory off of the DFS, but add 10Mlbs at reserve 1.41%  $U_3O_8$  grade to our modelled inventory. We previously modelled 20Mlbs at 1.5%  $U_3O_8$  of assumed conversion, thus our modelled inventory reduces by 2-years of mine life or ~18% in lbs contained vs our prior base case scenario. Opex increased by 20% vs the PFS but 9% overall per tonne vs our prior estimates, with cash costs 15% higher but still below US\$10/lb which is excellent by any measure. FS estimated capex decreases by 2% vs the PFS and 16% against our estimates which results in SCPe IRR increasing from 24% to 26% at our base case US\$60/lb modelled scenario. SCPe NPV decreases by 8% due to higher unit costs and shorter mine life.

Overall, we think this is an excellent outcome – higher IRR notably is an impressive feat in this inflationary environment, and NPV, operating margins and annual FCF remain world class. Furthermore, we see many reasons why the realistic development scenario can improve on the DFS, namely potential synergies between Rook I and PLS, potential for Govt infrastructure initiatives given the combined magnitude of the projects, and the attraction for M&A given multiple world class orebodies, and >US\$1bn a year combined camp potential FCF generation with high IRR and short payback periods.

#### Why we like Fission Uranium

- World class size, grade, jurisdiction and setting make this a globally significant asset.
- Trading at less than half of the peer EV/in-situ average
- Has significant exploration holding in the highly prolific Patterson trend to add to 135Mlb resource base
- Significant potential synergies with neighbour NexGen as the two projects are <1km apart</li>

#### Catalysts

- 1H23: Permitting and stakeholder relations baseline studies
- 2023: EIS submission
- 2025/2026: Construction start (SCPe 2H25)
- 2028/2029: First production (SCPe 2028)

#### Research

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Ticker: FCU CN Author: J Chan	Price / mk Rec / PT:	t cap:	C\$0.84/sh BUY / C\$1			Market P/NAV: 1xNAV <sub>2Q20</sub> FD:	0.57x A\$1.47/sh	1	Assets: Country:	PLS Canada (S	ask)
Group-level SOTP valuation	4022	1Q23				Share data					
·		C\$m	O/ship	NAVx	C\$/sh	Basic shares (m): 687.7	FD + o	otions (m):	767.5	FD + FF	979.
PLS NPV 1Q23		1,030.5	100%	1.0x	1.34	Commodity price	CY25E	CY26E	CY27E	CY28E	CY29
Central SG&A & fin costs 1Q23		(100.8)		1.0x	(0.13)	Uranium price (US\$/Ib)	60.0	60.0	60.0	60.0	60.0
_bs outside mine plan (US\$3/lb U3	1001	107.3		1.0x	0.14	Ratio analysis	CY25E	CY26E	CY27E	CY28E	CY29
•	100)										
Otherassets		4.7		1.0x	0.01	FD shares out (m)	831.6	963.8	979.3	979.3	979.
Cash and restr. cash 4Q22		32.8		1.0x	0.04	EPS (C\$/sh)	(0.005)	0.001	(0.021)	(0.066)	0.28
Debt 4Q22				1.0x		CFPS before w/c (C\$/sh)	(0.01)	0.00	0.00	(0.00)	0.5
TM options		52.1		1.0x	0.07	FCFPS pre growth (C\$/sh)	(0.01)	0.00	(0.02)	(0.07)	0.42
IxNAV8% US\$60/Ib		1,127			1.47	FCF/sh (C\$/sh)	(0.01)	(0.12)	(0.53)	(0.61)	0.42
Assumed build equity issuance		300.0			0.31	FCF yield - pre growth (%)	neg	0.2%	neg	neg	67.3
IxNAV fully funded8% US\$60/lb		1,427			1.46	FCF yield (%)	neg	neg	neg	neg	67.3
P/NAV - fully diluted for build (x)					0.58x	EBITDA margin (%)					69.6
arget multiples		Multiple			C\$/sh	FCF margin (%)				46.5%	50.2
arget P/NAV Multiple		1.00x			1.45	ROA (%)	(0.5%)	0.1%	(1.6%)	(4.0%)	16.3
arget price					1.45	ROE (%)	(0.7%)	0.2%	(3.1%)	(10.5%)	30.9
ources			Uses			ROIC (%)	(8.8%)	(2.9%)	(0.7%)	(0.4%)	37.4
DFS cape:	C\$1155m	3Q	22 cash + l	TM options	C\$78m	EV (C\$m)	(97)	82	612	1,215	91
SCPe contingence	/ C\$123m	Mir	ne debt @ 6	50% gearing	C\$700m	PER (x)	(114.7x)	509.7x	(29.7x)	(9.6x)	2.2
SCPe G&A + fin. cost to first Au	ı C\$31m		E	Build Equity	C\$300m	P/CF (x)	(115.3x)	498.7x	2381.2x	(427.0x)	1.2
SCPe working capital	C\$69m			Offtake	C\$300m	P/Book value (x)	0.8x	0.9x	0.9x	1.0x	0.7
Total uses	c\$1378m		Tota	al proceeds	C\$1378m	EV/EBITDA (x)	19.5x	(16.3x)	(122.4x)	(243.0x)	1.5
xNAV sensitivity to gold price ar	d discount /	NAV mult	tiple			Income statement	CY25E	CY26E	CY27E	CY28E	CY2
1xNAV PLS (C\$m)	\$40/lb	\$50/lb	\$60/lb	\$70/lb	\$80/lb	Revenue (C\$m)					89
10% discount	206	502	798	1,094	1,390	COGS (C\$m)					(26
9% discount	262	584	907	1,230	1,553	Gross profit (C\$m)					62
8% discount	325	678	1,030	1,383	1,736	Expenses (C\$m)	(6)	(9)	(5)	(5)	(5
7% discount	398	783	1,169	1,555	1,941	Impairment & other (C\$m)					
6% discount	480	903	1,326	1,749	2,172	Net finance costs (C\$m)	0	6	(16)	(59)	(47
5% discount	574	1,038	1,503	1,967	2,431	Tax (C\$m)					(12
Valuation (C\$/sh)	\$40/lb	\$50/lb	\$60/lb	\$70/lb	\$80/lb	Minority interest (C\$m)					
0.8xNAV	0.35	0.75	1.15	1.55	1.95	Net income attr. (C\$m)	(6)	(3)	(21)	(64)	45
0.9xNAV	0.40	0.85	1.30	1.75	2.20	EBITDA	(5)	1	(21)	(64)	27
1.00xNAV	0.45	0.95	1.45	1.95	2.45	Cash flow	CY25E	CY26E	CY27E	CY28E	CY2
1.10xNAV	0.50	1.05	1.60	2.15	2.70	Profit/(loss) after tax (C\$m	(5)	1	(21)	(64)	27
1.0xNAV	0.45	0.95	1.45	1.95	2.45	Add non-cash items (C\$m)		0	21	63	22
aluation over time	1Q20A	1Q21A	1Q22E	1Q23E	1Q24E	Less wkg cap / other (C\$m				(1)	(69
lines NPV (US\$m)	794	861	941	1,027	1,111	Cash flow ops (C\$m)	(5)	1	0	(3)	43
intrl G&A & fin costs (US\$m)	-96	-96	-99	-101	-104	PP&E (C\$m)	(2)	(118)	(500)	(537)	(38
let cash at 1Q (US\$m)	23	46	37	30	45	Other (C\$m)					,5,
Other Assets + Options	57	57	57	57	57	Cash flow inv. (C\$m)	(2)	(118)	(500)	(537)	(38
xNAV (US\$m)	778	868	935	1,013	1,109	Debt draw (repayment) (C\$			350	350	(20
P/NAV (x):	0.54	0.61	0.62	0.57	0.53	Equity issuance (C\$m)	283	21			
xNAV share px FD (C\$/sh)	1.56	1.38	1.36	1.47	1.58	Other (C\$m)	300	(0)	(21)	(63)	(9
ROI to equity holder (% pa)	86%	64%	27%	21%	1.38	Cash flow fin. (C\$m)	583	21	329	287	(29
.2xNAV share px FD (C\$/sh)	1.88	1.65	1.63	1.76	1.90	Net change post forex (C\$		(96)	(170)	(253)	10
OI to equity holder (% pa)	123%	97%	39%	28%	23%	FCF (C\$m)	(7)	(117)	(520)	(602)	41
Resource / Reserve		Mlbs		EV/oz U308		Balance sheet	CY25E			CY28E	CY2
Measured, ind. & inf Triple R	Mt							CY26E	CY27E	105	
•	3,437	130.3		3.52	3.52	Cash (C\$m)	624	528	358		20
CPe Mine inventory - Triple R	3,329	103.5	CV24E	4.44 CV22E	4.44 CV22E	Accounts receivable (C\$m)		0	0		3
roduction (100%)	CY29E	CY30E	CY31E	CY32E	CY33E	Inventories (C\$m)		 1.76		1 512	1 2
riple R (000lb U308)	11.2	11.5	11.5	10.9	9.1 ¢10.51	PPE & exploration (C\$m)	358	476 1	976	1,513	1,3
riple R cash cost (US\$/lb)	\$17.93	\$17.70	\$17.70	\$18.08	\$19.51	Other (C\$m)	1	1	1	1 540	1
riple R AISC (US\$/Ib)	\$20.84	\$20.52	\$20.52	\$21.07	\$23.08	Total assets (C\$m)	983	1,005	1,334	1,618	1,6
1 = opex (excl. G&A) + royalties; AIS					opment	Debt (C\$m)			350	700	50
20mlbs Series	I		→ Series5		US\$30/lb	Other liabilities (C\$m)	304	304	304	303	29
15mlbs					US\$25/lb	Shareholders equity (C\$m)	837	858	858	858	85
			<b>,</b>	<b>→</b>		Retained earnings (C\$m)	(158)	(157)	(178)	(242)	3
10mlbs					US\$20/lb	Minority int. & other (C\$m)					
5mlbs					US\$15/lb	Liabilities+equity (C\$m)	983	1,005	1,334	1,618	1,6
					US\$10/lb	Net cash (C\$m)	622	526	6	(598)	(29
0mlbs	1				03910/10						

Source: SCP estimates



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2	The analyst or any associate of the analyst responsible for the report or recommendation or any individual directly involved in the preparation of the report holds or is short any of the issuer's securities directly or through derivatives	NO		
3	An SCP partner, director, officer or analyst involved in the preparation of a report on the issuer, has during the preceding 12 months provided services to the issuer for remuneration other than normal course investment advisory or trading execution services	NO		
4	SCP has provided investment banking services for the issuer during the 12 months preceding the date of issuance of the research report or recommendation	YES		
5	Name of any director, officer, employee or agent of SCP who is an officer, director or employee of the issuer, or who serves in an advisory capacity to the issuer	NO		
6	SCP is making a market in an equity or equity related security of the issuer	NO		
7	The analyst preparing this report received compensation based upon SCP's investment banking revenue for the issuer	NO		
8	The analyst has conducted a site visit and has viewed a major facility or operation of the issuer	YES		
9	The analyst has been reimbursed for travel expenses for a site visit by the issuer	NO		

### **Sprott Capital Partners Equity Research Ratings:**

Summary of Recommendations as of January 2	2023
BUY:	52
HOLD:	1
SELL:	0
UNDER REVIEW:	1
TENDER:	0
NOT RATED:	0
TOTAL	54

<sup>&</sup>lt;sup>1</sup> As at the end of the month immediately preceding the date of issuance of the research report or the end of the second most recent month if the issue date is less than 10 calendar days after the end of the most recent month



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