

SOLITARIO
ZINC CORP.

Creating a Leading Zinc Explorer & Developer

*Tumazos Conference
February 16th, 2021*

Forward Looking Statements



This presentation includes certain "Forward-Looking Statements" within the meaning of section 21E of the United States Securities Exchange Act of 1934, as amended. All statements, other than statements of historical fact, included herein, including without limitation, statements regarding potential mineralization and reserves, exploration results and future plans and objectives of Solitario, are forward-looking statements that involve various risks and uncertainties. There can be no assurance that such statements will prove to be accurate and actual results and future events could differ materially from those anticipated in such statements. Development of Solitario's properties are subject to the success of exploration, completion and implementation of an economically viable mining plan, obtaining the necessary permits and approvals from various regulatory authorities, compliance with operating parameters established by such authorities and political risks such as higher tax and royalty rates, foreign ownership controls and our ability to finance in countries that may become politically unstable. Important factors that could cause actual results to differ materially from Solitario's expectations are disclosed under the heading "Risks and Uncertainties" as well as the COVID-19 related risks as disclosed in the Quarterly Report on Form 10-Q for the year ended March 31, 2020, filed with the SEC on or about May 1, 2020 and elsewhere in Solitario's documents filed from time to time with Canadian Securities Commissions, the United States Securities and Exchange Commission and other regulatory authorities.

This presentation contains estimates of mineralized material based upon measured, indicated and inferred mineral resource categories that are recognized and required by Canadian regulations, but the SEC does not recognize them and U.S. reporting companies are normally prohibited from including resource estimates in their U.S. filing. U.S. investors are cautioned not to assume that any part, or all, of mineralized material or mineral resources categories will ever be converted into reserves. The economic significance of Proven and Probable Reserves differ substantially from mineralized material and measured and indicated mineral resources. Furthermore, economic viability has yet to be established by a feasibility report for mineralized material and the Company has not yet determined that any part of the mineralized material can be legally mined. This presentation also contains information about adjacent properties on which we have no right to explore or mine. We advise U.S. investors that the SEC's mining guidelines strictly prohibit information of this type in documents filed with the SEC. U.S. investors are cautioned that mineral deposits on adjacent properties are not indicative of mineral deposits on our properties.

This presentation (including drill hole information and mineral reserve and resource numbers) has been reviewed for accuracy by Mr. Walt Hunt, COO for Solitario Zinc Corp., who is a qualified person as defined by National Instrument 43-101.

Solitario Investment Proposition



Successful Roots in Gold Exploration: reentered precious metals space with Gold Coin Option-to-buy

Major joint venture interests in two high-grade zinc development projects, +12% Zn Eq. M&I resource = 2.6 billion lbs., Inferred = 1.6 billion lbs.

Florida Canyon Zinc Project in Peru is a high-grade development asset held jointly with Nexa Resources S.A

Lik Zinc Project is a large-tonnage, high-grade, open-pittable development project in Alaska, partnered with Teck Resources

Well-financed ~US\$7.9 million in cash and marketable securities

Skin in the game Management/Director equity ownership at 9.6%

Disciplined Capital Structure 58.2M shares outstanding, last equity raise was in 2011

Experienced and respected management team Track-record of creating value by moving assets through feasibility and permitting



Reentering Solitario's Successful Roots in Gold Exploration

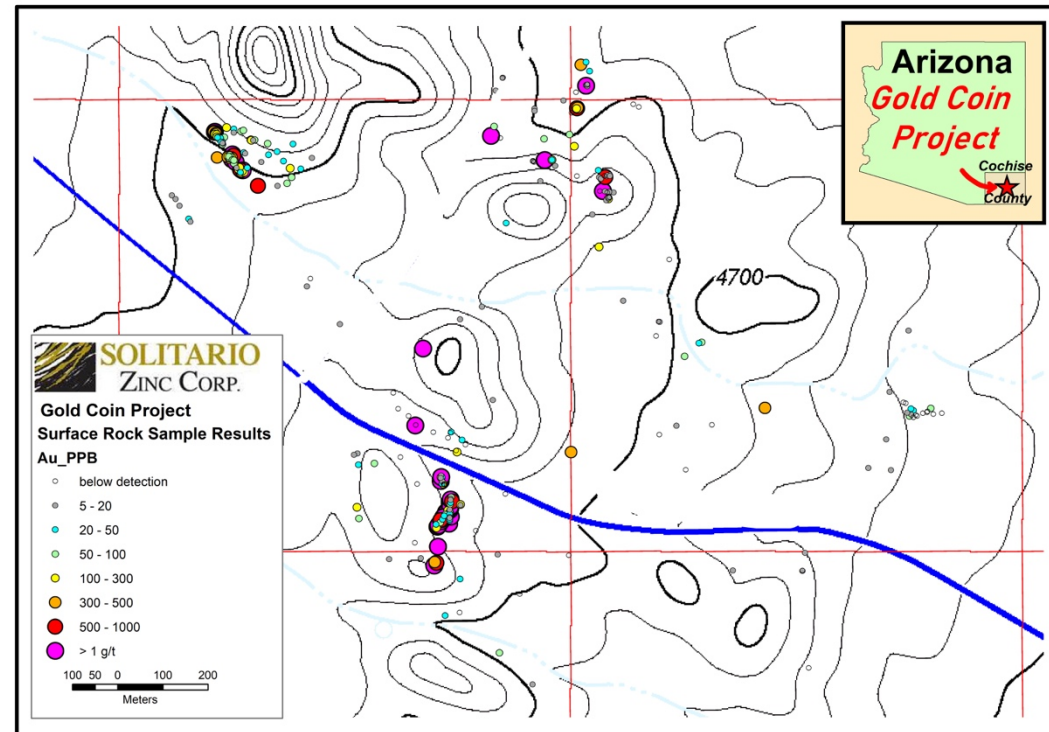


Proven History of Gold Discovery

Solitario's current technical team has discovered in excess of five million ounces of gold in the US.

Gold Coin Project, Southeastern AZ

- ✓ Solitario has acquired an option-to-buy 100% interest
- ✓ Five potential target areas for gold discovery
- ✓ Untested and widespread gold system with strong gold values at surface
- ✓ Historic drilling on the project was limited at no more than 60 feet



More Acquisitions Expected!

Why Should You Care About Zinc?

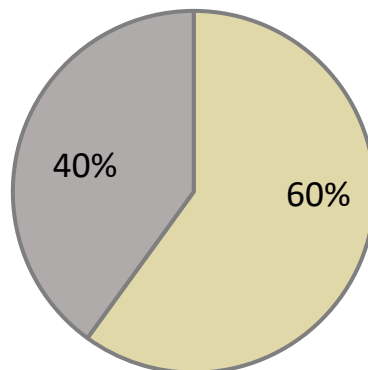


Stimulus Spending Has the Potential to Create \$4 to \$6 Trillion in Infrastructure Spending

- Infrastructure Buildout **=** Increased Demand for Steel
- More Steel **➡** Significant Increase in Demand for Zinc

Other Uses 40%

Utilized in die-casting, production of brass and bronze, and into oxides and chemicals



Galvanization 60%

Utilized for its corrosion resistance (galvanized steel, rebar, autos, structural steel).

Green Energy - Batteries

Zinc is increasingly being investigated for large-scale energy storage batteries for alternative energy systems, such as solar and wind. Potentially a massive new demand for zinc supply.

World Class Partners

Partnering with well funded, leading zinc producers reduces costs, risk and capital requirements

Florida Canyon Zinc Project held jointly with Nexa Resources S.A., 4th largest zinc producer with three underground zinc mines and large zinc smelter in Peru.

Lik Zinc Project in partnership with Teck Resources, 3rd largest zinc producer with worlds largest zinc mine (Red Dog) situated just 14 miles from Solitario's Lik deposit.



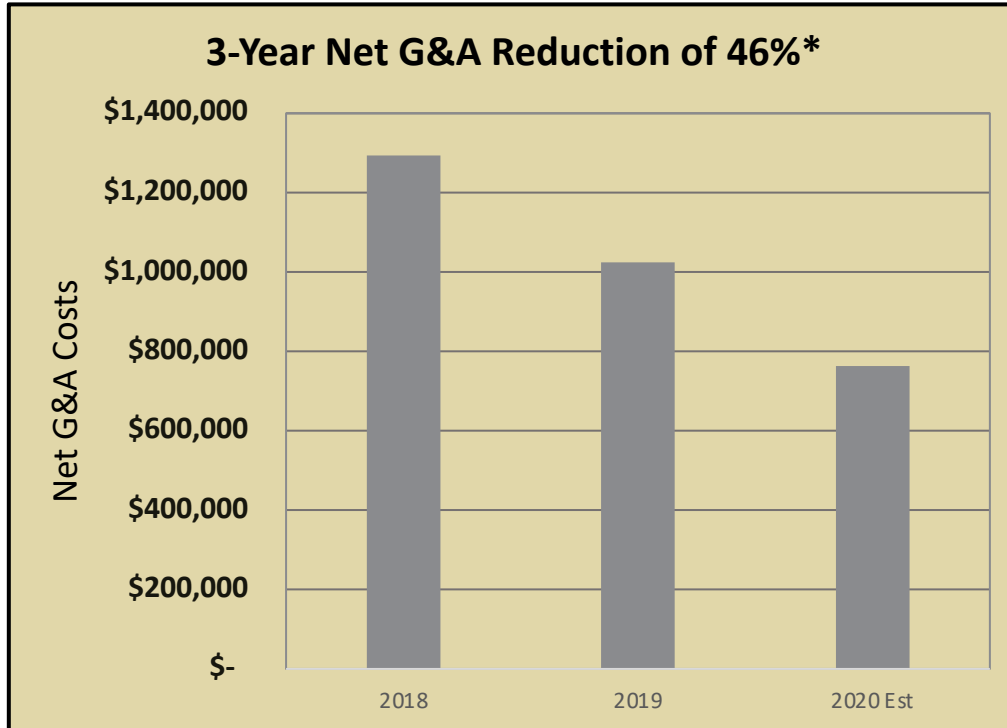
Capital Structure



Current Price	US\$0.92/C\$1.15	Market Cap	~US\$53.5 Mil/C\$67 Mil
Shares Outstanding	58.2 Mil	Avg. Daily Vol. NYSE/TSX (3month)	1.7 Mil/19K
Options	5.4 Mil	Cash and Marketable Securities	\$7.9 Mil
Fully Diluted	63.6 Mil	Annual Burn Rate	(excluding drilling) \$1.3 Mil
52-Week High	US\$1.04/C\$1.30	Analyst	Heiko Ihle, H.C. Wainwright
52-Week Low	US\$0.13/C\$0.22	Top Holders	Mgmt. and Directors: 5.6 Mil Zebra Hldgs. (Lukas Lundin): 3.9 Mil Newmont Mining: 2.7 Mil

Financially Responsible

Overhead Disciplined

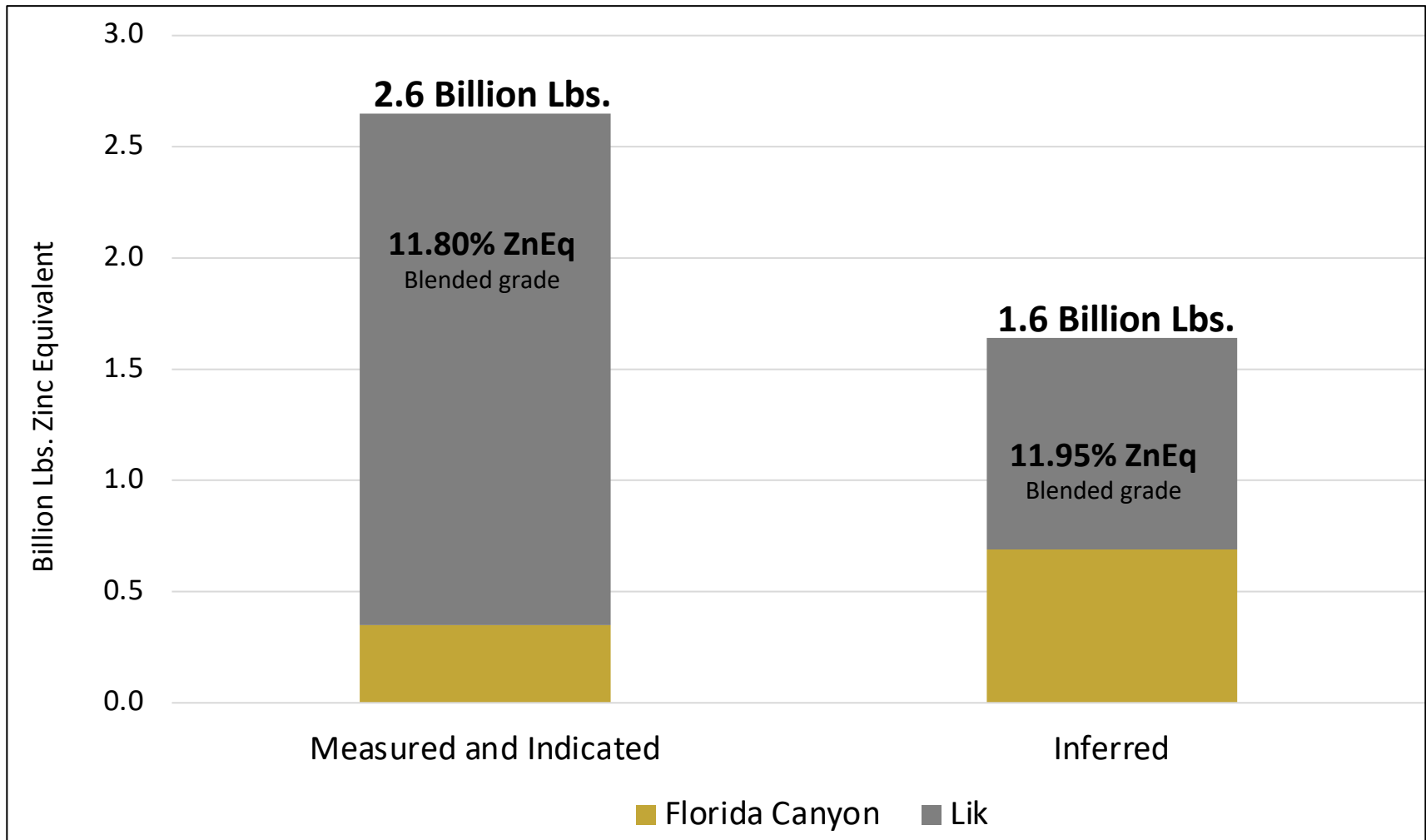


*Excluding non-cash option expense

Equity Dilution Disciplined

**No Equity Financing from
2001 through 2020!**

Consolidated Zinc Resources (Solitario Attributable)



Price assumptions for Zinc-Equivalent grade: Zinc \$1.20/lb; Lead \$1.00/lb; Silver \$16.50/oz.
Solitario attributable interests: Lik-50%; Florida Canyon-39%

Florida Canyon Zinc Project, Peru

Joint ventured with Nexa Resources S.A.

Advanced exploration project with \$70 million in partner investments (526 drill holes; 134,416 meters)

Preliminary Economic Assessment demonstrates robust economics

Funded to Production

17,000-meter drilling program completed in 2019 was the most aggressive annual program to date

New resource estimate nearing completion



Florida Canyon 2019 Drill Highlights



Drill Hole Number	Thickness (meters)	ZnEq (%)		Drill Hole Number	Thickness (meters)	ZnEq (%)
PEBGD-03	1.3	56.9		PEBGD-30	6.7	18.7
PEBGD-04	1.3	40.6		PEBGD-31	7.4	13.1
PEBGD-08	4.4	18.3		PEBGD-32	9.3	26.5
PEBGD-10	48.9	6.2		PEBGD-33	9.9	7.7
Including	17.5	13.7		PEBGD-36	6.1	25.6
PEBGD-15	12.4	15.1		And	1.8	37.1
PEBGD-24	4.1	19.5		PEBGD-38	9.7	23.2
PEBGD-25	6.3	8.2		PEBGD-39	3.3	47.1
And	8.8	6.9				

*ZnEq was calculated using the following price assumptions: Zn=\$1.10/lb., Pb=\$0.91/lb., Ag=\$16.50/oz. Reported intervals are estimated to be at least 80% of the true thickness

Numbers in this table may not add exactly as numbers have been rounded to the nearest decimal

Florida Canyon Resource



100% Basis

M&I	Inferred
0.90 B Lbs. 14.62% ZnEq	2.4 B Lbs. 12.12% ZnEq

Solitario's 39% Share

M&I	Inferred
0.35 B Lbs. 14.62% ZnEq	0.94 B Lbs. 12.12% ZnEq

Price assumptions for Zinc-Equivalent grade: Zinc \$1.20/lb; Lead \$1.00/lb; Silver \$16.50/oz.

Florida Canyon PEA Economic Highlights

(100% Basis)



NPV @ 8%-discount rate (after-tax)	\$198 million
Operating Margin (EBITDA)	\$958 million
Internal Rate of Return (after-tax)	24.7%
Payback	2.6 years
Initial Capital (incl. \$40 million contingency)	\$214 million
Sustaining Capital	\$83 million
Mine Life / Operating Rate	12.5 years / 2,500 tonnes/day
Average Annual Payable Metal Production	Zinc: 111.7 million lbs.
	Lead: 12.6 million lbs.
	Silver: 160 thousand oz.
Direct and Indirect Cash Costs	\$64.15/t or \$0.51/Zn-Eq lb.
All-in-Cost	\$90.64/t or \$0.73/Zn-Eq lb.

(Metal Price Assumptions: Zn=\$1.20/lb; Pb=\$1.00/lb; Ag=\$16.50/oz)

Zinc Price Sensitivity										
Zn Price	\$1.00		\$1.10		\$1.20		\$1.30		\$1.40	
	Pre-tax	After-tax	Pre-tax	After-tax	Pre-tax	After Tax	Pre-tax	After Tax	Pre-tax	After Tax
FCF (\$millions)	408	267	535	352	662	437	788	521	914	605
NPV 8% (\$millions)	187	96	263	147	339	198	414	248	490	298
IRR	24.5%	17.0%	29.7%	21.0%	34.5%	24.7%	38.9%	28.1%	43.0%	31.3%

Pb: \$1.00; Ag: \$16.50

Funded to Production



All future costs - drilling, PEA updates, pre-feasibility costs, community relations, environmental expenses, metallurgical studies, engineering & feasibility - will be funded by Nexa to earn its 70%-interest in the project.

- ✓ Solitario will not pay back any of these costs.

After feasibility, Nexa will fund Solitario's 30% participating interest through a loan to Solitario.

- ✓ Interest rate will be at Nexa's cost of funds – currently about 5%.

Solitario will fund loan repayment to Nexa through 50% of the net cash flow from its 30% participating interest.

- ✓ Allows for significant cash flow to be achieved early.

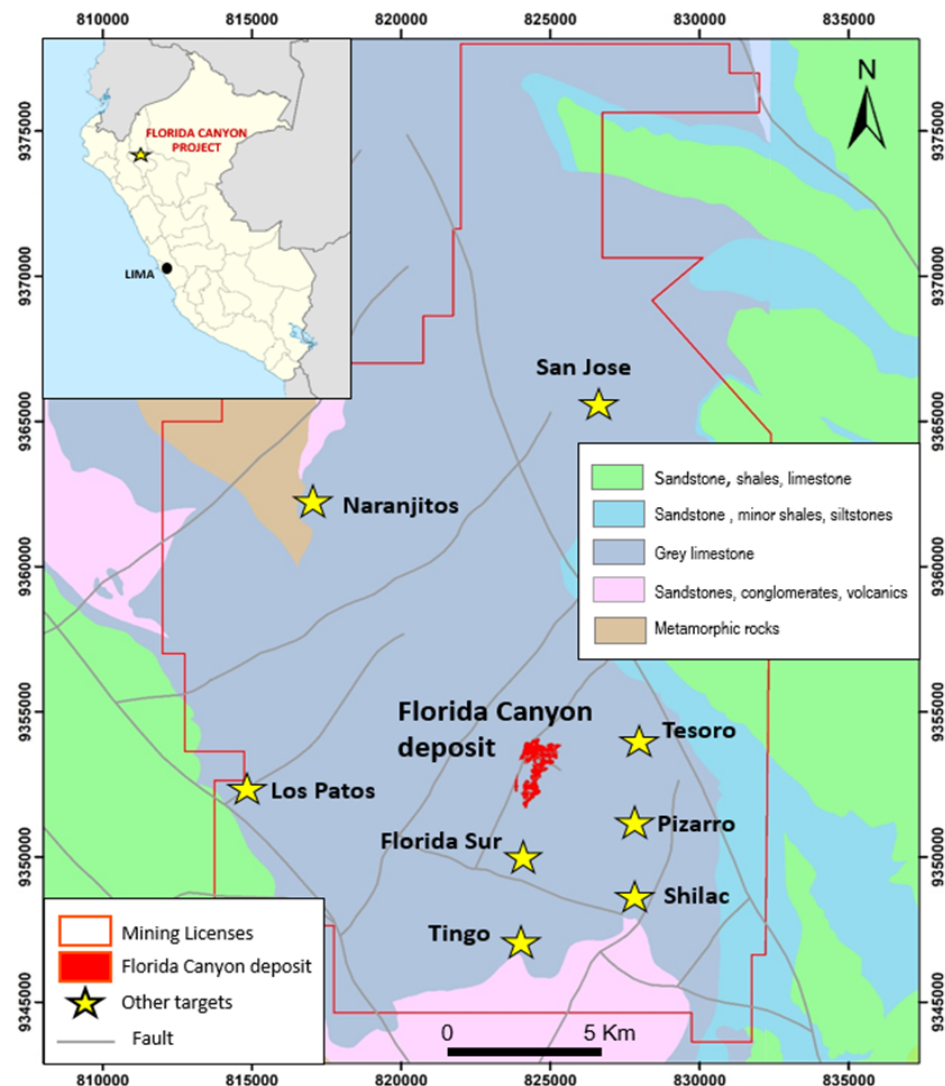
Solitario achieves production without capital risk or equity dilution!



Exploration Potential

Several exploratory targets have been identified immediately south, north, east and west of the Florida Canyon deposit with mineralized outcrops.

- ✓ Targets to the south appear to be extensions to the Florida Canyon mineralized corridor.
- ✓ Drill testing some of these satellite targets is planned as they have the potential to significantly increase the mineral resource at the Florida Canyon Project.



Florida Canyon Upside Considerations

- New resource estimate nearing completion
- Deposit(s) will likely grow significantly, increasing annual throughput and extending mine life.
- Metallurgical testing will likely demonstrate higher recoveries (targeting an increase from 80% to 86%) and concentrate grade (from 50% to 58%).
- Improved access from the south, reduce mine access and concentrate hauling by approximately 50 km.
- Successful exploration drilling in south area would support south access alternative.



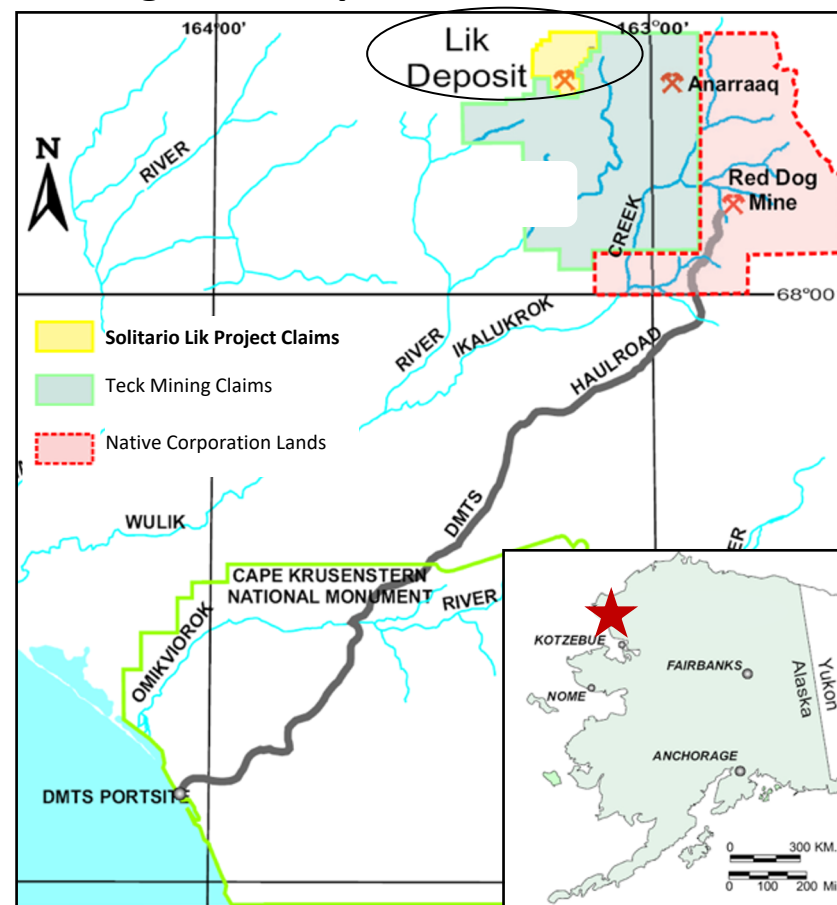
Lik Zinc Project, Alaska



- Mining claims covering 6,075 acres located ~14 miles from Teck's Red Dog Mine
 - 50/50 joint venture with Teck; Solitario is the operator
 - Large tonnage, high-grade, open-pittable resources, with significant underground expansion potential
 - Clean metallurgy
 - Region highly supportive of mining activity
- ✓ **2021 exploration program planned**



Lik Regional Map



Lik Project Resource



100% Basis

Indicated
4.54 B Lbs. 11.37% ZnEq

Inferred
1.37 B Lbs. 11.66% ZnEq

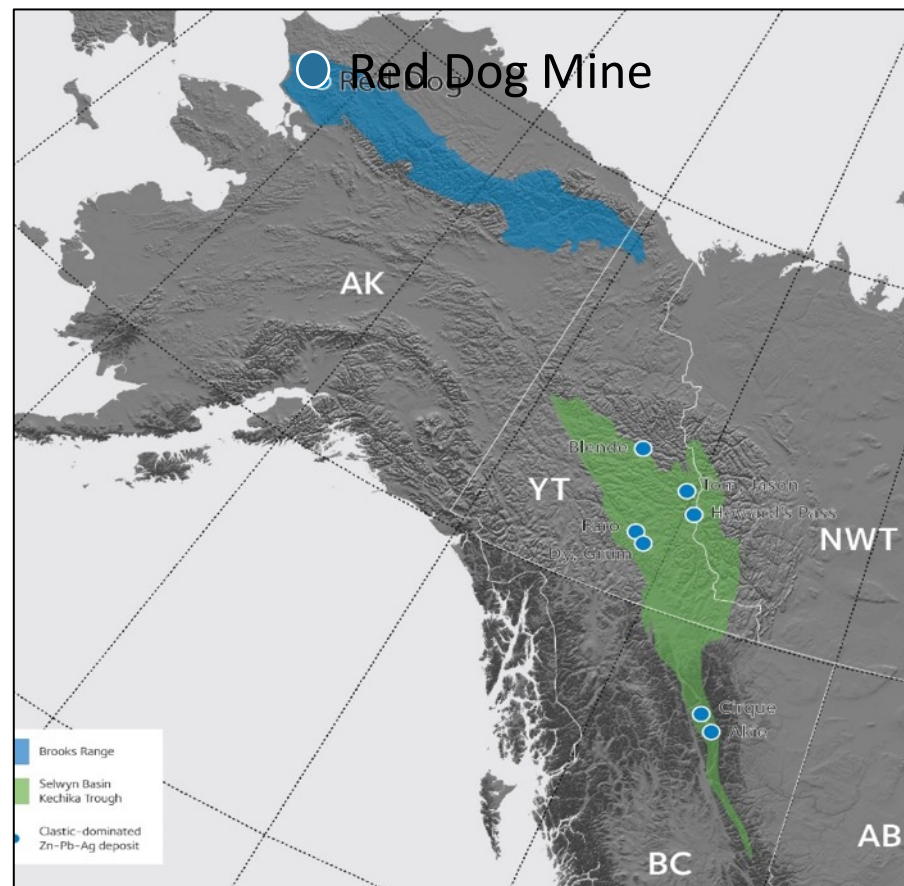
Solitario's 50% Share

Indicated
2.2 B Lbs. 11.37% ZnEq

Inferred
0.69 B Lbs. 11.66% ZnEq

Price assumptions for Zinc-Equivalent grade: Zinc \$1.20/lb; Lead \$1.00/lb; Silver \$16.50/oz.

Lik Project, Alaska (proximity to Red Dog)



Lik PEA Economic Highlights

(100% Basis)



Strongly Leveraged to Zinc Price

Zinc Price Sensitivity	US\$ 1.00/lb.	US\$ 1.10/lb.	US\$ 1.20/lb.	US\$ 1.30/lb.
After Tax IRR	14.4	20	25.2	30
After Tax Payback (yrs)	4.5	3.4	2.8	2.4
After Tax NPV @ 8%	US\$ 99M	US\$ 195M	US\$ 291M	US\$ 386M

PRODUCTION

- 234 million lbs payable zinc/year
- 71.5 million lbs payable lead/year

OPEX

- US\$0.63/lb zinc, net of by-products
- Inclusive of transport to port

MINE LIFE

- 9 years using Lik South only
- Underground potential not considered

CAPEX

- \$352M, including 20% contingency
- 5,500 tpd mill, infrastructure and equipment mining 2,200,000 tpa

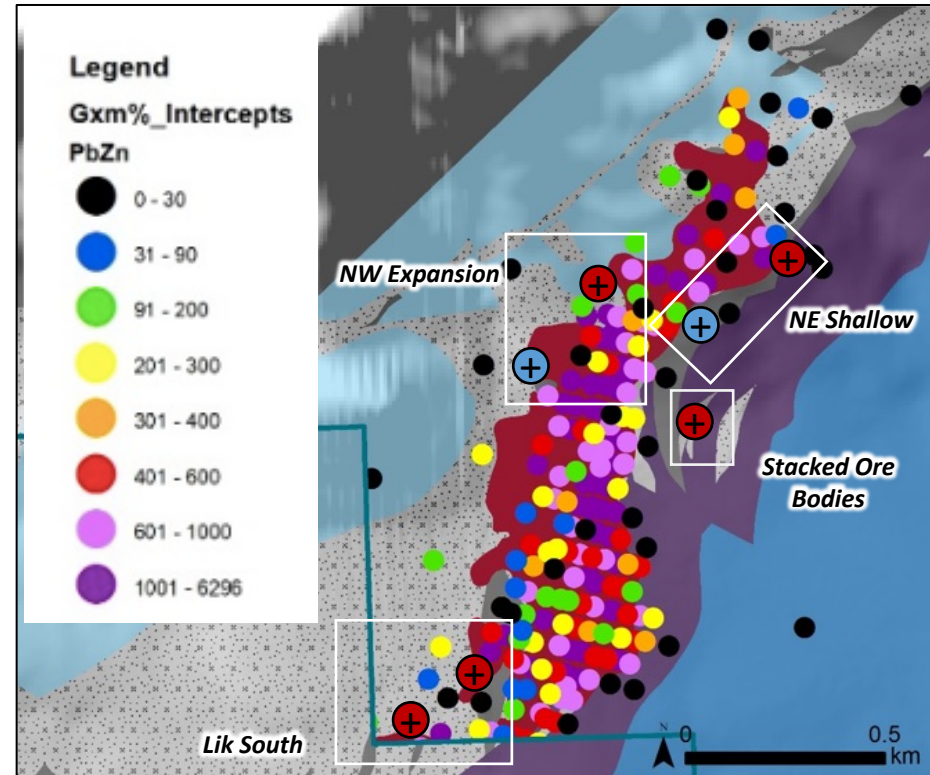
Source: Preliminary Economic Assessment Technical Report – Zazu Metals Corporation, Lik Deposit Alaska, USA Dated April 23, 2014 and effective March 3, 2014, prepared by Robert L. Matter, PE (JDS Energy and Mining, Inc.) Tony Loschiavo, P.Eng. (JDS Energy and Mining, Inc.) , Neil Gow, P.Geo. (Roscoe Postle and Associates, Inc.) and Michael Travis, PE (Travis Peterson Environmental Consulting, Inc.) (herein referred to as the "PEA"). The preliminary economic assessment is preliminary in nature, in that it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized.

Lik Typical Mineralized Intersections

Hole No.	From (m)	To (m)	Length (m)	Zn (%)	Pb (%)	Ag (g/t)
5	54.56	78.79	24.23	19.72	6.27	126.5
16	80.16	94.49	14.33	21.67	7.01	230.4
21	129.54	135.33	5.79	7.07	1.88	8.6
24	40.87	50.14	9.27	11.09	1.44	51.1
38	45.90	63.76	17.86	8.13	1.80	48.0
38	70.53	87.75	17.22	8.92	2.08	28.8
43	35.66	40.69	5.03	17.66	3.62	8.6
43	60.96	80.28	19.32	9.07	2.49	47.7
43	84.73	91.04	6.31	21.07	5.95	111.4
68	32.31	53.43	21.12	13.34	2.85	56.9

Preliminary 2021 Exploration Program*

- 1,000+ meter drilling program testing extension of open pit resource and stacked ore bodies.
 - ✓ Stacked ore bodies could provide huge upside potential
- Geophysics (IP) and soil geochemistry over north prospect area



- Primary Holes – 2,700 ft
- Secondary Priority – 600 ft

*May be impacted by COVID-19

Lik Joint Venture Considerations

- Teck Resources is the third largest zinc producer in the world and operates the largest and most profitable zinc mine in the world - Red Dog. Red Dog is a core asset of Teck. Red Dog is a relatively easy 14-mile ore haul from Lik.
- Red Dog production is subject to costly (35% NPI) and increasing (to 50% in 2032) to NANA Native Corporation. Lik is not subject to a NANA Royalty.
- Joint Venture relationship is excellent.
- During the past three years, Teck has become increasingly more engaged and enthusiastic concerning Lik. Teck wants to become majority owner and manager of the JV.



Lik Upside Considerations

- Lik open pit resource has potential to grow by several million tons.
- Potential for significant additional mineralization through deeper Lik mineralization exploited by underground mining methods, stacked mineralized horizons below Lik, and the north prospect area.
- Project economics will be significantly enhanced by utilizing Red Dog infrastructure; much lower capital costs, modestly higher operating costs.



Summary

- ✓ **Successful Roots in gold exploration:** reentered precious metals space with Gold Coin Option-to-buy
- ✓ **Major joint venture interests** in two high-grade zinc development projects, +12% Zn Eq. M&I resource = 2.6 billion lbs., Inferred = 1.6 billion lbs.
- ✓ **Florida Canyon Zinc Project** in Peru is a high-grade development asset held jointly with Nexa Resources S.A
- ✓ **Lik Zinc Project** is a large-tonnage, high-grade, open-pittable development project in Alaska, partnered with Teck Resources
- ✓ **Well-financed** ~US\$7.9 million in cash and marketable securities
- ✓ **Skin in the game:** Management/Director equity ownership at 9.6%
- ✓ **Disciplined Capital Structure:** 58.2M shares outstanding, last equity raise was in 2011
- ✓ **Experienced and respected management team:** Track-record of creating value by moving assets through feasibility and permitting



SOLITARIO
ZINC CORP.

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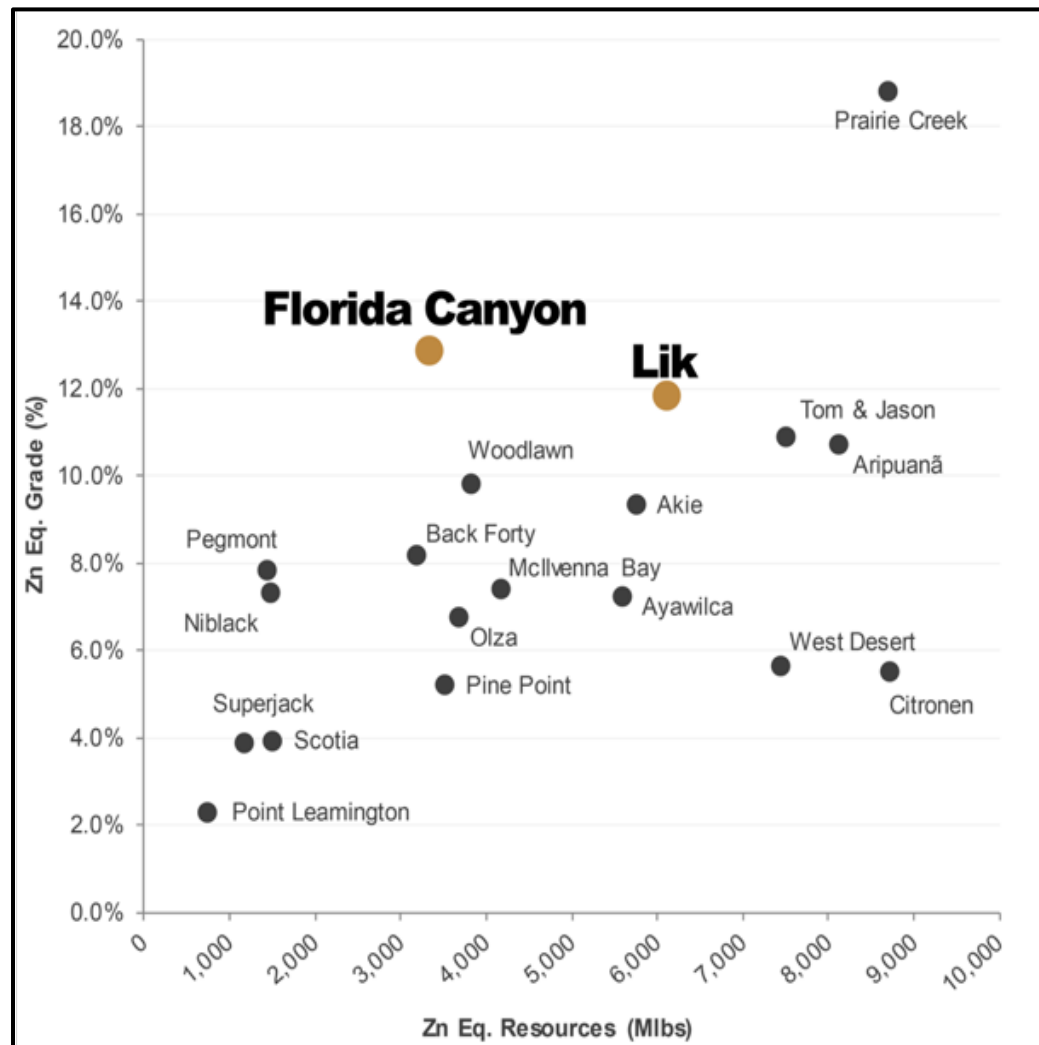
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Lik Zinc Project, Alaska



Florida Canyon Zinc Project, Peru

Appendices

Christopher Herald, *President, CEO & Director*



Mr. Herald has served as Chief Executive Officer since June 1999, President since 1993, and a director of Solitario since 1992. Prior to its acquisition by Kinross Gold Corp., Mr. Herald also served in various capacities for Crown Resources from 1987-2006, including, Chief Executive Officer, President and director. Prior to joining Crown, Mr. Herald was a Senior Geologist with Echo Bay Mines and Anaconda Minerals. Mr. Herald serves as non-executive Chairman of Viva Gold Corp. Mr. Herald received a M.S. in Geology from the Colorado School of Mines and a B.S. in Geology from the University of Notre Dame.

■ **Walter H. Hunt, *Chief Operating Officer***



Prior to his appointment as COO in June of 2008, Mr. Hunt was Vice President - Operations and President - South American Operations of Solitario since June 1999. He also served as Vice President - Peru Operations from 1994 until 1999. Mr. Hunt was Vice President Operations of Crown Resources from 1994 to 2006. Mr. Hunt has over 30 years of exploration, development and operational experience with Anaconda Minerals, Noranda and Echo Bay Mines where he served as Superintendent, Technical Services and Chief Geologist at Echo Bay's Kettle River Operations. Mr. Hunt received his M.S. degree in Geology from the Colorado School of Mines and a B.S. degree from Furman University.

■ **James R. Maronick, *Chief Financial Officer***



Mr. Maronick has served as Chief Financial Officer and Secretary/Treasurer of Solitario since 1999. He also served as Chief Financial Officer of Crown Resources from 1999 to 2006. Prior to that, Mr. Maronick served as Vice President - Finance and Secretary/Treasurer of Consolidated Nevada Gold Fields Corporation from November 1994 to September 1997. Mr. Maronick graduated with honors from the University of Notre Dame in 1977 with a BA in accounting and received his Masters degree in Finance with highest honors from the University of Denver in 1986.

Board of Directors



Brian Labadie, Chairman of the Board - Mr. Labadie has been a director of Solitario since June 2006 and Chairman since March of 2009. Mr. Labadie has in over forty years-experience in the mining industry including formal training and experience as a mining engineer including developing and operating mines, both as a mine manager and as a senior executive at Miramar Mining Corporation and Echo Bay Mines. Currently, he is an independent mining industry consultant. He was a former director of Crown Resources Corporation and Battle Mountain Gold Corporation. Mr. Labadie holds a Bachelor of Science degree in geological engineering from the University of Toronto.

Gil Atzmon, Director - Gil was the founder, Chairman, Chief Executive Officer and a Director of Zazu Metals before its acquisition by Solitario in June 2017. Mr. Atzmon has over 20 years' experience in the mineral resources sector including positions as a mining executive, investment banker, mining fund manager and geologist. Previously, Mr. Atzmon acted as VP, Corporate Development of Ivanhoe Mines Ltd., a global energy and mining specialist for BNP Paribas and Portfolio Manager for US Global Investors, Inc. Mr. Atzmon holds a Bachelor's degree in Geology and Geography from Columbia University and a Master Degree in Energy and Mineral Resources from the University of Texas.

Joshua Crumb, Director - Mr. Crumb is a founder, Director and Chief Financial Officer of Goldmoney Inc., a financial service and technology company, serving in this role since 2014. Mr. Crumb was previously an Executive Director at Goldman Sachs and also held positions within the Lundin group of companies. Mr. Crumb served as a founder and Director of Loma Vista Capital, and an independent Director of Silver Bull Resources Inc., Astur Gold Corp and Zazu Metals. Mr. Crumb holds a Master's of Science degree in Mineral Economics, a Graduate Certificate in International Political Economy, and a BS degree in Engineering from the Colorado School of Mines.

Jim Hesketh, Director - Mr. Hesketh has over 35 years' experience in the mining industry and is presently serving as President, CEO and Director of Viva Gold Corp. Previously, Mr. Hesketh served as President, CEO and Director of Atna Resource, Ltd, and its' predecessor Canyon Resources Corporation. He was also a principal mining engineer and VP of NM Rothschild & Sons. Mr. Hesketh holds a BS in Mining engineering and an MS in Mineral economics, both from the Colorado School of Mines.

Christopher Herald, Director - See management bio on slide #31.

John Labate, Director - Mr. Labate is a seasoned executive with over thirty years of financial management and accounting experience. Currently he serves as CFO of Gold Resource Corporation. He has previously served as CFO of Golden Star Resources, Ltd., Constellation Cooper Corporation, Crown Resources Corporation and Applied Optical Technologies. Mr. Labate received a bachelor's degree in Accounting from San Diego State University.

Majors Acquire Undervalued Junior Zinc Assets



Buenaventura Mining Invests in Tinka Resources – December 2019

- Buenaventura Mining made an equity investment of C\$16 million in Tinka Resources to acquire a 19.9% interest in Tinka (Ayawilca Zinc Project, Peru); Buenaventura paid an 83% premium to Tinka's 3-month VWAP

Nexa Resources Acquires Karmin

- August 27th, 2019 - Nexa Resources acquires remaining 30% interest in Aripuana Zinc project, acquiring all shares of Karmin Exploration TSX:V- KAR. Karmin shareholders will receive approximately US\$0.77 per share or US\$70 million, representing a 30% premium to the previous days closing share price

South32 Acquires Arizona Mining

- June 18th, 2018 - South 32 Acquires Arizona Mining for US\$1.3 billion or US\$4.70 per share in an all cash offer, representing a 50% premium to the previous days closing