



Solitario Discovers Multiple Areas with Significant Gold Mineralization on its Golden Crest Project; Expands Land Position

DENVER, CO – October 20, 2021 - Solitario Zinc Corp. (“Solitario”) (NYSE American: XPL; TSX: SLR) is pleased to announce that it has discovered multiple areas displaying significant gold mineralization at surface on its Golden Crest project. Based on these results, and its ongoing exploration program, Solitario has expanded its land position from approximately 11,600 acres to 18,500 acres of mineral rights located in western South Dakota.

Initial sampling has been conducted on nine prospect areas. Three of the prospect areas returned assays containing multi-gram per tonne gold, another three prospects returned assays containing between 0.1 and one-gram gold and the last three sampled areas contained assays with detectable gold between 10 and 100 ppb. The most thoroughly sampled areas to date are the Whirlwind, Matchstick and Treasure Vault prospects that define a 6.5-kilometer north-south arcuate trend at least 1.5-kilometers across with significant gold values. [See Sample Location Map here](#)). A summary table of gold in rock samples by prospect area is provided below:

Prospect	No of Samples*	Au ppb (max)	Au ppb (avg)**
Buena Vista	9	106	30
Yellow Jacket	15	132	30
Shoofly	33	64	14
Treasure Vault	44	3,990	516
Matchstick	111	3,700	260
Whirlwind	139	7,990	402
Citadel	60	30	13
11th Hour Gulch	12	10	7
Maurice	10	349	85

* See Sampling Methodology and Quality Control section

** Average of samples with detectable gold

“These assay results exceeded our expectations and further support our belief that significant gold deposits similar to Wharf District deposits are possible, if not likely, within the underlying Paleozoic-aged limestones on our property holdings. Additionally, Precambrian gold deposits similar to those of the Super Giant Homestake deposit are also possible,” said Solitario President and CEO Chris Herald.

“It is remarkable that within the 6.5-kilometer long Whirlwind-Matchstick-Treasure Vault trend that contains widespread multi-gram rock samples, not one historic prospect pit has been identified, much less more recognizable indications of earlier exploration, such as drilling. The altered and geochemically enriched surface rocks are not obviously mineralized and covered by vegetation and soil, which may explain the lack of past prospecting. The pathfinder trace elements arsenic, molybdenum, antimony and thallium are highly enriched, suggesting links to a major magmatic-hydrothermal system at depth. This is truly a new district-scale gold anomaly in the shadow of a Super Giant gold district.

“Adding the Golden Crest gold project to our two high-grade zinc assets, creates a company with a compelling value proposition in zinc and an exciting green fields gold exploration property situated in an exceptional emerging gold belt that is virtually unexplored,” he added.

These mineral claims comprise a strategic land holding which Solitario believes represents a western extension of the mineralization at the Homestake-Wharf mining complex that has produced in excess of 50 million ounces of gold with another estimated 20-30 million ounces in historical resources (non-NI-43-101 compliant). The project area is in a historically mining-friendly jurisdiction with highly developed infrastructure, an unbroken 145-year record of continuous gold mining, a skilled mining workforce and a history of high-grade, underground mineable gold deposits.

Zinc Property Update

Regarding the zinc segment of our business, we note that zinc prices are recording multi-year high prices – in excess of \$1.60 per pound. Over the next several weeks, we will be meeting with our two joint venture partners, Teck Resources (Lik high-grade zinc deposit) and Nexa Resources (Florida Canyon high-grade zinc deposit) to develop exploration plans for 2022.

Sampling Methodology, Chain of Custody, Quality Control and Assurance

All surface rock samples were collected or supervised by project geologists, including chain of custody. Samples were select grab samples that display alteration, usually silicification and hydrothermal brecciation. These samples were derived mainly from in-place residually weathered rock fragments, sub-crop, and less common, outcrop. The significance of these samples is limited to determining whether or not gold or trace elements usually associated with gold, were present within rocks affected by hydrothermal alteration fluids and does not verify economically mineable mineralization at depth.

Samples were sent to Skyline Assayers & Laboratories in Tucson, AZ. The samples were crushed, pulverized and sample pulps were analyzed using industry standard fire assay methods. A blank or certified reference material was inserted approximately every 20th sample. Data verification of the analytical results included a statistical analysis of the standards and blanks that must pass certain parameters for acceptance to ensure accurate and verifiable results.

Walter Hunt, COO of Solitario, is a qualified person as defined by NI 43-101, Standards of Disclosure for Mineral Projects, responsible for approving the scientific and technical information contained in this news release.

About Solitario

Solitario is an emerging zinc and gold exploration and development company traded on the NYSE American (“XPL”) and on the Toronto Stock Exchange (“SLR”). In addition to its newly acquired Golden Crest properties, Solitario holds 50% joint venture interest (Teck Resources 50%) in the high-grade, open-pit table Lik zinc deposit in Alaska and a 39% joint venture interest (Nexa Resources holds the remaining 61% interest) on the high-grade Florida Canyon zinc project in Peru. Solitario’s Management and Directors hold approximately 9.3% (excluding options) of the Company’s 58.6 million shares outstanding. Solitario’s cash balance and marketable securities stand at approximately US\$5.5 million. Additional information about Solitario is available online at www.solitariozinc.com.

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Cautionary Statement Regarding Forward Looking Information

This press release contains forward-looking statements within the meaning of the U.S. Securities Act of 1933 and the U.S. Securities Exchange Act of 1934, and as defined in the United States Private Securities Litigation Reform Act of 1995 (and the equivalent under Canadian securities laws), that are intended to be covered by the safe harbor created by such sections. Forward-looking statements are statements that are not historical fact. They are based on the beliefs, estimates and opinions of the Company's management on the date the statements are made and address activities, events or developments that Solitario expects or anticipates will or may occur in the future, and are based on current expectations and assumptions. Forward-looking statements involve a number of risks and uncertainties. Consequently, there can be no assurances that such statements will prove to be accurate and actual results and future events could differ materially from those anticipated in such statements. Solitario's Golden Crest land position does not cover any of the areas of historical gold production or historical unmined resources, but are thought to be on trend with these known areas of mineralization. The presence of nearby mineralization or formerly operated mines do not signify that economic deposits are present on the Company's mining claims. Certain historical information concerning exploration and gold production in the Black Hills region has been obtained through both public and private sources and are believed to be substantially factual, but Solitario can give no assurances of the accuracy of such information. Such forward-looking statements include, without limitation, statements regarding the Company's expectation of the projected timing and outcome of engineering studies; expectations regarding the receipt of all necessary permits and approvals to implement a mining plan, if any, at Lik or Florida Canyon; the potential for confirming, upgrading and expanding zinc, lead and silver mineralized material; future operating and capital cost estimates may indicate that the stated resources may not be economic; estimates of zinc, lead and silver grades of resources provided are predicted and actual mining grade could be substantially lower; estimates of recovery rates for could be lower than estimated for establishing the cutoff grade; and other statements that are not historical facts could vary significantly from assumptions made in the PEA. Although Solitario management believes that its expectations are based on reasonable assumptions, it can give no assurance that these expectations will prove correct. Important factors that could cause actual results to differ materially from those in the forward-looking statements include, among others, risks relating to risks that

Solitario's and its joint venture partners' exploration and property advancement efforts will not be successful; risks relating to fluctuations in the price of zinc, lead and silver; the inherently hazardous nature of mining-related activities; uncertainties concerning reserve and resource estimates; availability of outside contractors, and other activities; uncertainties relating to obtaining approvals and permits from governmental regulatory authorities; the possibility that environmental laws and regulations will change over time and become even more restrictive; and availability and timing of capital for financing the Company's exploration and development activities, including uncertainty of being able to raise capital on favorable terms or at all; as well as those factors discussed in Solitario's filings with the U.S. Securities and Exchange Commission (the "SEC") including Solitario's latest Annual Report on Form 10-K and its other SEC filings (and Canadian filings) including, without limitation, its latest Quarterly Report on Form 10-Q. The Company does not intend to publicly update any forward-looking statements, whether as a result of new information, future events, or otherwise, except as may be required under applicable securities laws.