UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K/A
Amendment No. 1

(Mark One)

_X_ Annual report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 for the fiscal year ended December 31, 2019

or

___ Transition report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

For the transition period from______to______

Commission file number **001-32978**

SOLITARIO ZINC CORP.

(Exact name of registrant as specified in charter)

Colorado	**84-1285791**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
4251 Kipling St. Suite 390, Wheat Ridge, CO	**80033**
(Address of principal executive offices)	(Zip Code)
Registrant's telephone number, including area code	**(303) 534-1030**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading symbol	Name of exchange on which registered
Common Stock, $0.01 par value	**XPL**	**NYSE American**

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
YES [ ] NO [X]

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
YES [X] NO [ ]

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.
YES [X] NO [ ]

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).
YES [X] NO [ ]

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act:

Large accelerated filer [ ]	Accelerated filer [ ]	Non-accelerated filer [ ]	Smaller reporting company [X]	Emerging growth company [ ]

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.[ ]

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).
YES [ ] NO [X]

The aggregate market value of the voting and non-voting common stock held by non-affiliates of the registrant as of the last business day of the registrant's most recently completed second fiscal quarter, based upon the closing sale price of the registrant's common stock on June 30, 2019 as reported on NYSE American, was approximately $16,840,000.

There were 58,133,066 shares of common stock, $0.01 par value, outstanding on February 28, 2020.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive Proxy Statement for the Registrant's Annual Meeting of Shareholders, which is expected to be filed by April 29, 2020, have been incorporated by reference into Part III of this Annual Report on Form 10-K.

EXPLANATORY NOTE

This Amendment No. 1 on Form 10-K/A (this "Amendment") to the Annual Report on Form 10-K of Solitario Zinc Corp. (the "Company") for the fiscal year ended December 31, 2019, initially filed with the Securities and Exchange Commission (the "SEC") on March 2, 2020 (the "Original Filing"), is being filed to correct an administrative error in the Original Filing. The Original Filing inadvertently failed to print the conformed signature of Plante & Moran, PLLC on the Report of Independent Registered Public Accounting Firm (the "Audit Report"). Solitario had received the manually signed Audit Report from Plante & Moran, PLLC prior to filing the Original Filing.

This Amendment is being filed solely to add "/s/ Plante & Moran, PLLC" to the Audit Report. This Amendment includes Item 8, "Financial Statements and Supplementary Data" in its entirety and without change from the Original Filing other than the addition of the conformed signature of Plante & Moran, PLLC on the Audit Report.

In addition, pursuant to the rules of the SEC, the exhibit list included in Item 15 of Part IV of the Original Filing has been amended to contain currently-dated certifications from the Company's Chief Executive Officer and Chief Financial Officer, as required by Section 302 of the Sarbanes-Oxley Act of 2002. The certifications of the Company's Chief Executive Officer and Chief Financial Officer are filed as exhibits to this Amendment.

Except for the foregoing amended information, this Amendment does not amend or update any other information contained in the Original Filing. Therefore, this Amendment should be read together with other documents that the Company has filed with the SEC subsequent to the filing of the Original Filing. Information in such reports and documents updates and supersedes certain information contained in the Original Filing.

Item 8. Financial Statements and Supplementary Data

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Solitario Zinc Corp.
Wheat Ridge, Colorado

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Solitario Zinc Corp. (the “Company”) as of December 31, 2019 and 2018, the related consolidated statements of operations, shareholders' equity, and cash flows for each of the years in the two-year period ended December 31, 2019, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

The Company's management is responsible for these financial statements. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (“PCAOB”) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Plante & Moran, PLLC

We have served as the Company’s auditor since 2005.
Denver, Colorado
February 28, 2020

SOLITARIO ZINC CORP.
CONSOLIDATED BALANCE SHEETS

(in thousands of U.S. dollars, except share and per share amounts)	December 31, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	$ 574	$ 117
Short-term investments, at fair value	6,829	10,223
Investments in marketable equity securities, at fair value	1,039	1,585
SilverStream note receivable	268	-
Prepaid expenses and other	46	211
Total current assets	8,756	12,136
Mineral properties	15,617	15,657
Other assets	159	110
Total assets	$24,532	$27,903
Liabilities and Shareholders’ Equity		
Current liabilities:		
Accounts payable	$228	$688
Operating lease liability	41	-
Total current liabilities	269	688
Long-term liabilities		
Asset retirement obligation - Lik	125	125
Operating lease liability	7	-
Total long-term liabilities	132	125
Commitments and contingencies (Note 10)		
Shareholders’ equity:		
Preferred stock, $0.01 par value, authorized 10,000,000 shares (none issued and outstanding at December 31, 2019 and 2018)	-	-
Common stock, $0.01 par value, authorized, 100,000,000 shares (58,133,066 and 58,171,466, respectively, shares issued and outstanding at December 31, 2019 and 2018)	581	582
Additional paid-in capital	70,204	69,873
Accumulated deficit	(46,654)	(43,365)
Total shareholders' equity	24,131	27,090
Total liabilities and shareholders' equity	$24,532	$27,903

See Notes to Consolidated Financial Statements.

SOLITARIO ZINC CORP.
CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except share and per share amounts)	For the years ended December 31, 2019	2018
Revenue, net – mineral property sale	$ 408	$ 502
Costs, expenses and other		
Exploration expense	1,807	1,254
Depreciation and amortization	25	25
General and administrative	1,368	1,954
Total costs, expenses and other	3,200	3,233
Other (expense) income		
Interest and dividend income (net)	252	192
Unrealized loss on marketable equity securities	(711)	(1,058)
Loss on derivative instruments	(38)	-
Loss on sale of assets	-	(1)
Total other income (expense)	(497)	(867)
Net loss	$(3,289)	$(3,598)
Loss per common share		
basic and diluted	$(0.06)	$(0.06)
Weighted average shares outstanding		
Basic and diluted	58,143	58,360

See Notes to Consolidated Financial Statements.

SOLITARIO ZINC CORP.
CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

(in thousands, of U.S. Dollars except share amounts)	Common Stock Shares	Common Stock Amount	Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income	Total Shareholders' Equity
Balance at December 31, 2017	**58,434,566**	**$584**	**$69,312**	**$(40,343)**	**$576**	**$30,129**
Cumulative-effect adjustment change in accounting principle	-	-	-	576	(576)	-
Adjusted balance – January 1, 2018	**58,434,566**	**584**	**69,312**	**(39,767)**	**-**	**30,129**
Stock option expense	-	-	660	-	-	660
Repurchase of shares for cancellation	(263,100)	(2)	(99)			(101)
Net loss	-	-	-	(3,598)	-	(3,598)
Balance at December 31, 2018	**58,171,466**	**582**	**69,873**	**(43,365)**	**-**	**27,090**
Stock option expense	-	-	343	-	-	343
Repurchase of shares for cancellation	(38,400)	(1)	(12)			(13)
Net loss	-	-	-	(3,289)	-	(3,289)
Balance at December 31, 2019	**58,133,066**	**$581**	**$70,204**	**$(46,654)**	**$ -**	**$24,131**

See Notes to Consolidated Financial Statements.

SOLITARIO ZINC CORP.
CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2019 AND 2018

(in thousands of U.S. Dollars)	For the year ended December 31, 2019	2018
Operating activities:		
Net loss	$ (3,289)	$ (3,598)
Adjustments to reconcile net loss to net cash used in operating activities:		
Unrealized loss on marketable equity securities	711	1,058
Loss on derivative instruments	38	-
Employee stock option expense	343	660
Depreciation	25	25
Amortization of right of use lease asset	37	-
Loss on sale of assets	-	1
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	216	(50)
Note receivable, net of mineral property sold	(223)	-
Accounts payable and other current liabilities	(497)	547
Net cash (used in) operating activities	(2,639)	(1,357)
Investing activities:		
Sale of short-term investments - net	3,338	1,371
Purchase of Vendetta units	(233)	-
Sale of Kinross calls	9	-
Additions to other assets	(5)	(10)
Net cash provided by investing activities	3,109	1,361
Financing activities:		
Repurchase of Solitario common stock for cancellation	(13)	(101)
Net cash used in financing activities	(13)	(101)
Net (decrease) increase in cash and cash equivalents	457	(97)
Cash and cash equivalents, beginning of year	117	214
Cash and cash equivalents, end of year	$ 574	$ 117

See Notes to Consolidated Financial Statements.

1. Business and Summary of Significant Accounting Policies

Business and company formation

Solitario Zinc Corp. ("Solitario," or the "Company") is an exploration stage company as defined in Industry Guide 7, as issued by the United States Securities and Exchange Commission ("SEC"). Solitario was incorporated in the state of Colorado on November 15, 1984 as a wholly owned subsidiary of Crown Resources Corporation ("Crown"). In July 1994, Solitario became a publicly traded company on the Toronto Stock Exchange (the "TSX") through its initial public offering. Solitario has been actively involved in mineral exploration since 1993. Solitario's primary business is to acquire exploration mineral properties and/or discover economic deposits on its mineral properties and advance these deposits, either on its own or through joint ventures, up to the development stage. At that point, or sometime prior to that point, Solitario would likely attempt to sell its mineral properties, pursue their development either on its own, or through a joint venture with a partner that has expertise in mining operations, or create a royalty with a third party that continues to advance the property. Solitario is primarily focused on the acquisition and exploration of zinc-related exploration mineral properties. In addition to focusing on its mineral exploration properties and the evaluation of mineral properties for acquisition. Solitario also evaluates potential strategic corporate transactions as a means to acquire an interest in new precious and base metal properties and assets with exploration potential as well as other potential corporate transactions and business combinations that Solitario determines to be favorable to Solitario.

Solitario has recorded revenue in the past from the sale of mineral properties, including the sale of certain mineral royalty properties in January 2019, discussed below, and the sale in June 2018 of its interest in the royalty on the Yanacocha property. Revenues and / or proceeds from the sale or joint venture of properties or assets have not been a consistent annual source of cash and would only occur in the future, if at all, on an infrequent basis.

Solitario currently considers its carried interest in the Florida Canyon project and its interest in the Lik project to be its core mineral property assets. Nexa Resources, Ltd. ("Nexa"), Solitario's joint venture partner, is continuing the exploration and furtherance of the Florida Canyon project and Solitario is monitoring progress at Florida Canyon. Solitario is working with its 50% joint venture partner, Teck American Incorporated, a wholly owned subsidiary of Teck Resources Limited (both companies are referred to as "Teck"), in the Lik deposit to further the exploration of the Lik project, and to evaluate potential development plans for the Lik project.

As of December 31, 2019 and 2018, Solitario has significant balances of cash and short-term investments that Solitario anticipates using, in part, to further the development of the Florida Canyon project and the Lik project and to potentially acquire additional mineral property assets. The fluctuations in precious metal and other commodity prices has contributed to a challenging environment for mineral exploration and development, which has created opportunities as well as challenges for the potential acquisition of early-stage and advanced mineral exploration projects or other related assets at potentially attractive terms.

Recent Developments

On January 22, 2019, Solitario completed the sale of its interest in certain royalties to SilverStream SEZC, a private Cayman Island royalty and streaming company ("SilverStream") for Cdn$600,000 (the "Royalty Sale"). The Royalty Sale covered (i) a royalty on the formerly Solitario-owned 125,000-acre polymetallic Pedra Branca palladium, platinum, gold, nickel, cobalt and chrome project in Brazil, (ii) a royalty covering 3,880 acres of non-producing exploration properties in Mexico, and (iii) a purchase option on royalties covering 11 separate non-producing properties covering over 16,500 acres in Montana. At closing of the Royalty Sale, Solitario received Cdn$250,000 in cash and a convertible note from SilverStream in the principal amount of Cdn$350,000 (the "SilverStream Note"). The SilverStream Note was originally due December 31, 2019, accrued 5% per annum simple interest, payable on a quarterly basis, and is convertible into common shares of SilverStream, at the discretion of SilverStream, by providing Solitario a notice of conversion. In December of 2019, Solitario and SilverStream agreed to extend the due date of the SilverStream Note to June 30, 2020, and to increase the interest rate to 8% per annum simple interest. All other terms of the SilverStream Note remained the same. SilverStream may only provide a notice of conversion if SilverStream has completed an initial public offering during the term of the SilverStream Note for minimum proceeds of Cdn$5,000,000, otherwise the SilverStream Note will be payable in cash at the maturity date. Pursuant to the terms of the SilverStream Note, if SilverStream were to complete an initial public offering and the SilverStream Note was converted, Solitario would receive common shares converted at 85% of the weighted average quoted price of a share of SilverStream common stock for the most recent 10-day period prior to the notice of conversion. During 2019, Solitario recorded mineral property revenue of $408,000 for the Royalty Sale, consisting of the fair value of the cash received on the date of the sale of $185,000 and the fair value of the SilverStream Note on the date of the sale of $263,000 less the carrying value of the royalties sold of $40,000. Solitario recorded interest income of $12,000 from the SilverStream Note during 2019. As of December 31, 2019, the SilverStream Note was recorded at $268,000, based upon the current US dollar / Canadian dollar exchange rate, and Solitario recorded a credit to exchange gain of $5,000, included in general and administrative expense during 2019.

Financial reporting

The consolidated financial statements include the accounts of Solitario and its wholly owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. The consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America ("generally accepted accounting principles") and are expressed in US dollars.

Revenue recognition

Solitario has recorded revenue from the sale of exploration mineral properties and joint venture property payments. Solitario's policy is to recognize revenue from the sale of its exploration mineral properties (those without reserves) on a property by property basis, computed as the cash received and / or collectable receivables less any capitalized cost. Payments received for the sale of exploration property interests that are less than the properties cost are recorded as a reduction of the related property's capitalized cost. In addition, Solitario's policy is to recognize revenue on any receipts of joint venture property payments in excess of its capitalized costs on a property that Solitario may lease to another mining company.

Solitario has recognized revenue during 2019 of $408,000 related to the Royalty Sale, discussed above, and of $502,000 during 2018 from the sale of its former Yanacocha exploration mineral property. Solitario expects any property sales in the future to be on an infrequent basis. Prior to the Yanacocha sale, the last proceeds from joint venture property payments was in 2015 and Solitario does not expect to record joint venture property payments on any of its currently held properties for the foreseeable future. Historically, Solitario's revenues have been infrequent and significant individual transactions and have only been from sales to well known or vetted mining companies. Solitario has never had a return on any of its sales recorded as revenue in its history and does not anticipate it will recognize any estimated returns on its current or future recorded revenues.

Use of estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Some of the more significant estimates included in the preparation of Solitario's financial statements pertain to: (i) the recoverability of mineral properties related to its mineral exploration properties and their future exploration potential; (ii) the fair value of stock option grants to employees; (iii) the ability of Solitario to realize its deferred tax assets; (iv) Solitario's investment in marketable equity securities; and (v) the collectability of the SilverStream Note.

In performing its activities, Solitario has incurred certain costs for mineral properties. The recovery of these costs is ultimately dependent upon the sale of mineral property interests or the development of economically recoverable ore reserves and the ability of Solitario to obtain the necessary permits and financing to successfully place the properties into production, and upon future profitable operations, none of which is assured.

Cash and cash equivalents

Cash equivalents include investments in highly liquid money-market securities with original maturities of three months or less when purchased. At December 31, 2019, approximately $554,000 of Solitario's cash and cash equivalents are held in brokerage accounts and foreign banks, which are not covered under the Federal Deposit Insurance Corporation ("FDIC") rules for the United States.

Short-term investments

At December 31, 2019, Solitario has United States Treasury securities ("USTS") with maturities of 30 days to 17 months recorded at their fair value of $6,829,000. Solitario's short-term investments are recorded at their fair value, based upon quoted market prices. The short-term investments are highly liquid and may be sold in their entirety at any time at their quoted market price and are classified as a current asset.

Mineral properties

Solitario expenses all exploration costs incurred on its mineral properties prior to the establishment of proven and probable reserves through the completion of a feasibility study. Initial acquisition costs of its mineral properties are capitalized. Solitario regularly performs evaluations of its investment in mineral properties to assess the recoverability and/or the residual value of its investments in these assets. All long-lived assets are reviewed for impairment whenever events or circumstances change which indicate the carrying amount of an asset may not be recoverable, utilizing established guidelines based upon undiscounted future net cash flows from the asset or upon the determination that certain exploration properties do not have sufficient potential for economic mineralization.

Derivative instruments

Solitario accounts for its derivative instruments in accordance with ASC 815, "Accounting for Derivative Instruments and Hedging Activities" ("ASC 815"). During 2016, Solitario acquired its initial investment in Vendetta Mining Corp. ("Vendetta") units, including the 2016 Vendetta Warrants (defined below). During 2017, Solitario exercised all of the 2016 Vendetta Warrants. During 2019, Solitario acquired additional Vendetta units, which included 2019 Vendetta Warrants (defined below). Changes in fair value of the 2019 Vendetta Warrants are recognized in the statements of operations in the period of change as gain or loss on derivative instruments. Solitario has entered into covered calls from time to time on its investment in Kinross marketable equity securities. Solitario has not designated its covered calls as hedging instruments and any changes in the fair value of the covered calls and its warrants are recognized in the statements of operations in the period of the change as gain or loss on derivative instruments.

Fair value

Financial Accounting Standards Board ASC 820, "Fair Value Measurements and Disclosures" ("ASC 820") establishes a framework for measuring fair value and requires enhanced disclosures about fair value measurements. ASC 820 clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. For certain of Solitario's financial instruments, including cash and cash equivalents accounts payable and the SilverStream Note, the carrying amounts approximate fair value due to their short-term maturities. Solitario's short-term investments in USTS, its marketable equity securities and any covered call options against those marketable equity securities are carried at their estimated fair value based on quoted market prices. See Note 9, "Fair Value of Financial Instruments," below.

Marketable equity securities

Solitario's investments in marketable equity securities are classified as available-for-sale and are carried at fair value, which is based upon quoted prices of the securities owned. Solitario records investments in marketable equity securities as available-for-sale for investments in publicly traded marketable equity securities for which it does not exercise significant control and where Solitario has no representation on the board of directors of those companies and exercises no control over the management of those companies. The cost of marketable equity securities sold is determined by the specific identification method. Changes in fair value are recorded as unrealized gain or loss in the consolidated statement of operations.

Foreign exchange

The United States dollar is the functional currency for all of Solitario's foreign subsidiaries. Although Solitario's South American exploration activities during 2019 and 2018 were conducted primarily in Peru, a portion of the payments for the land, leasehold and exploration agreements as well as certain exploration activities are denominated in United States dollars. Foreign currency gains and losses are included in the results of operations in the period in which they occur.

Income taxes

Solitario accounts for income taxes in accordance with ASC 740, "Accounting for Income Taxes" ("ASC 740"). Under ASC 740, income taxes are provided for the tax effects of transactions reported in the financial statements and consist of taxes currently due plus deferred taxes related to certain income and expenses recognized in different periods for financial and income tax reporting purposes. Deferred tax assets and liabilities represent the future tax return consequences of those differences, which will either be taxable or deductible when the assets and liabilities are recovered or settled. Deferred taxes are also recognized for operating losses and tax credits that are available to offset future taxable income and income taxes, respectively. A valuation allowance is provided if it is more likely than not that some portion or all of the deferred tax assets will not be realized.

Accounting for uncertainty in income taxes

ASC 740 clarifies the accounting for uncertainty in income taxes recognized in a company's financial statements. ASC 740 prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. ASC 740 also provides guidance on derecognition, classification, interest and penalties, accounting in interim periods, disclosure, and transition. ASC 740 provides that a company's tax position will be considered settled if the taxing authority has completed its examination, the company does not plan to appeal, and it is remote that the taxing authority would reexamine the tax position in the future. These provisions of ASC 740 had no effect on Solitario's financial position or results of operations. See Note 7, “Income Taxes,” below.

Earnings per share

The calculation of basic and diluted earnings (loss) per share is based on the weighted average number of shares of common stock outstanding during the years ended December 31, 2019 and 2018. Potentially dilutive shares, consisting of outstanding common stock options for 4,373,000 and 5,223,160, respectively, Solitario common shares were excluded from the calculation of diluted earnings (loss) per share for the year ended December 31, 2019 and 2018 because the effects were anti-dilutive.

Employee stock compensation and incentive plans

Solitario classifies all of its stock options as equity options in accordance with the provisions of ASC 718, “Compensation – Stock Compensation.” See Note 11, “Employee Stock Compensation Plans,” below.

Recently adopted accounting pronouncements

On January 1, 2019, Solitario adopted Accounting Standards Update No. 2016-02 *Leases* (“ASU 2016-02”) which requires the application of ASC 842 and the recognition of right-of-use assets and related liabilities associated with all leases that are not short-term in nature. As a result of the adoption of ASU 2016-02, Solitario recorded both an operating lease asset for its Wheat Ridge, Colorado office of $82,000 and an operating lease liability of $82,000 related to the same lease. The adoption of ASU 2016-02 did not require the recording of any other assets or liabilities on our condensed consolidated balance sheets and had an immaterial effect on Solitario’s consolidated statement of operations for 2019 and its consolidated statement of cash flows for 2019. Solitario has elected the practical expedient option to use January 1, 2019, the effective date of adoption, as the initial date of transition and not to restate comparative prior periods and to carry forward historical lease classification. See Note 4, “Operating Leases” for more information and disclosures regarding Solitario’s leases.

Recently issued accounting pronouncements

In 2018, the SEC adopted amendments to the disclosure requirements for mining registrants. Under these new rules, SEC Industry Guide 7 will be rescinded and replaced with the disclosure standards under new Regulation S-K Subpart 1300. SEC Industry Guide 7 remains in effect, subject to a transition period. Solitario will be required to comply with the new rules for fiscal years 2021 and after. Accordingly, future adjustment to estimates of mineralized material will occur due to the differing standards under the new requirements including, but not limited to, the replacement of any estimate of mineralized material with an estimate of “mineral resources.”

The FASB issued ASU No. 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurements of Credit Losses on Financial Statements* (“ASU No. 2016-13”). Among other things, these amendments require the measurement of all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. Financial institutions and other organizations will now use forward-looking information to better inform their credit loss estimates. ASU No. 2016-13 is effective for Solitario for fiscal year, and interim periods within those fiscal years, beginning after December 15, 2019. Solitario does not expect the adoption of ASU No. 2016-13 to have a material impact on its consolidated financial position or results of operations.

2. Mineral Properties:

The following table details Solitario's capitalized investment in exploration mineral property:

(in thousands)	December 31, 2019	December 31, 2018
Exploration		
Lik project (Alaska – US)	$15,611	$15,611
La Promesa (Peru)	6	6
Montana Royalty property (US)	-	40
Total exploration mineral property	$15,617	$15,657

Exploration property

Solitario's exploration mineral properties at December 31, 2019 and 2018 consist of use rights related to its exploration properties, and the value of such assets is primarily driven by the nature and amount of economic mineral ore believed to be contained, or potentially contained, in such properties. The amounts capitalized as mineral properties include concession and lease or option acquisition costs. Capitalized costs related to a mineral property represent its fair value at the time it was acquired. At December 31, 2019, none of Solitario's exploration properties have production (are operating) or contain proven or probable reserves. Solitario's exploration mineral properties represent interests in properties that Solitario believes have exploration and development potential. Solitario's mineral use rights generally are enforceable regardless of whether proven and probable reserves have been established.

In addition to its capitalized exploration properties, Solitario has an interest in its Florida Canyon exploration concessions, which are currently subject to a joint venture agreement where joint venture partners made stand-by joint venture payments to Solitario prior to January 1, 2015. Solitario recorded joint venture property payment revenue received in excess of capitalized costs. Per the joint venture agreement, as of December 31, 2019, no further standby joint-venture payments are due to Solitario on the Florida Canyon project. At December 31, 2019 and 2018, Solitario has no remaining capitalized costs related to its Florida Canyon joint venture.

On January 22, 2019, Solitario completed the Royalty Sale, discussed above under "Recent Developments" to SilverStream for Cdn$600,000. At closing of the Royalty Sale, Solitario received Cdn$250,000 in cash and the SilverStream Note with a principal amount of Cdn$350,000, and a maturity date of December 31, 2019, which was subsequently extended to June 30, 2020. During the nine months ended September 30, 2019, Solitario recorded mineral property revenue of $408,000 from the Royalty Sale, consisting of the fair value of the cash received on the date of the sale of $185,000 and the fair value of the SilverStream Note on the date of the sale of $263,000, less the carrying value of the royalties sold of $40,000.

On April 26, 2018, Solitario sold the Yanacocha Royalty to Newmont for $502,000 in cash. Newmont owns the underlying mineral concessions covered by the Yanacocha Royalty. None of the concessions covered by the Yanacocha Royalty have any reported reserves or resources. Solitario had no mineral property capitalized cost in the Yanacocha Royalty and recorded Mineral Property Revenue of $502,000 during 2018.

Discontinued projects

Solitario did not abandon or impair any of its properties during 2019 or 2018 and did not record any mineral property write-downs during the years ended December 31, 2019 or 2018.

Exploration Expense

The following items comprised exploration expense:

(in thousands)	For the year ended December 31, 2019	For the year ended December 31, 2018
Geologic and field expenses	$1,726	$1,165
Administrative	81	89
Total exploration expense	$1,807	$1,254

Asset Retirement Obligation

In connection with the acquisition of Zazu, Solitario recorded an asset retirement obligation of $125,000 for Solitario's estimated reclamation cost of the existing disturbance at the Lik project. This disturbance consists of an exploration camp including certain drill sites and access roads at the camp. The estimate was based upon estimated cash costs for reclamation as determined by the permitting bond required by the State of Alaska, for which Solitario has retained a reclamation bond insurance policy in the event Solitario or its 50% partner, Teck, do not complete required reclamation.

Solitario has not applied a discount rate to the recorded asset retirement obligation as the estimated time frame for reclamation is not currently known, as reclamation is not expected to occur until the end of the Lik project life, which would follow future development and operations, the start of which cannot be estimated or assured at this time. Additionally, no depreciation will be recorded on the related asset for the asset retirement obligation until the Lik project goes into operation, which cannot be assured.

3. Marketable Equity Securities

On May 2, 2016, Solitario purchased 7,240,000 units of Vendetta for aggregate consideration of $289,000. Each unit included one common share of Vendetta and one warrant which allow the holder to purchase one share of Vendetta common stock at a price of Cdn$0.10 per share for a period of two years (the "2016 Vendetta Warrants"). The purchase price of the units of $289,000 was allocated between the Vendetta common shares and the 2016 Vendetta Warrants based upon total fair values on the date of purchase. The Vendetta common stock was allocated a purchase cost of $186,000 and the 2016 Vendetta Warrants were allocated a purchase cost of $103,000. During 2017 Solitario exercised all of its 2016 Vendetta Warrants and sold 3,480,000 shares of Vendetta common stock.

On July 31, 2019, Solitario purchased 3,450,000 Vendetta units for aggregate consideration of $233,000. Each unit consisted of one share of Vendetta common stock and one warrant which allows the holder to purchase one additional share of Vendetta common stock at a purchase price of Cdn$0.13 per share for a period of three years (the "2019 Vendetta Warrants"). The purchase of the units on July 31, 2019 increased Solitario's holdings of Vendetta common shares to 14,450,000 shares. On the purchase date Solitario recorded marketable equity securities of $165,000 for the Vendetta shares acquired and $68,000 for the 2019 Vendetta Warrants based upon an allocation of the purchase price of the Vendetta units, based upon (i) the fair value of the Vendetta common shares received, based upon the quoted market price for Vendetta common shares and (ii) the fair value of 2019 Vendetta Warrants based upon a Black Scholes model, using the stock price of Cdn$0.09, volatility of 79%, a term of three years and a discount rate of 1.5%. During 2019, Solitario charged loss on derivative instruments $47,000 for the change in the value of the 2019 Vendetta Warrants.

As of December 31, 2019, Solitario owned 14,500,000 shares of Vendetta common stock which are carried at their fair value based upon the quoted market price of Vendetta, whose common shares are listed on the TSX venture exchange, and included in marketable equity securities.

The following tables summarize Solitario's marketable equity securities and adjustments to fair value:

(in thousands)	Year ended December 31, 2019	Year ended December 31, 2018
Marketable equity securities at cost	$1,879	$1,714
Cumulative unrealized (loss) gain on marketable equity securities	(840)	(129)
Marketable equity securities at fair value	$1,039	$1,585

During 2019 Solitario added 3,450,000 shares of Vendetta through the purchase of the Vendetta units, discussed above, and recorded an increase in marketable equity securities of $165,000. Solitario did not acquire any marketable equity securities during 2018. Solitairo did not sell any marketable equity securities during 2019 or 2018. Solitario recorded a loss on marketable equity securities of $711,000 and $1,058,000, respectively, during 2019 and 2018 for the change in the fair value of its marketable equity securities.

4. Operating Lease

Solitario adopted ASU 2016-02 effective January 1, 2019 and accounts for its leases in accordance with ASC 842. Solitario leases one facility, its Wheat Ridge, Colorado administrative office (the "WR Lease"), that has a term of more than one year. Solitario has no other material operating lease costs. The WR Lease is classified as an operating lease and has a term of 14 months at December 31, 2019, with no renewal option. At December 31, 2019, the right-of-use office lease asset for the WR Lease is classified as other assets and the related liability separated between current and non-current office lease liabilities in the consolidated balance sheet. Lease expense is recognized on a straight-line basis over the lease term, with variable lease payments recognized in the period those payments are incurred. During 2019, Solitario recognized $40,000 of non-cash lease expense for the WR Lease included in general and administrative expense. Cash lease payments of $37,000 were made on the WR Lease during 2019 and this amount, less $3,000 of imputed interest during 2019, reduced the related liability on the WR Lease. The discount rate within the WR Lease is not determinable and Solitario applied a discount rate of 5% based upon Solitario's estimate of its cost of capital in recording the WR Lease.

The maturities of Solitario's lease liability for its WR Lease are as follows at December 31, 2019:

(in thousands)	
Lease payments per year	
2020	$ 42
2021	7
Total lease payments	49
Less amount of payments representing interest	(1)
Present value of lease payments	$ 48

The following is supplemental cash flow information related to our operating lease for 2019:

(in thousands)	Year ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities	
Operating cash outflows from WR Lease payments	$37
Non-cash amounts related to the WR lease	
Right of use assets recorded in exchange for new operating lease liabilities	$82

5. Other Assets

The following items comprised other assets:

(in thousands)	December 31, 2019	2018
Furniture and fixtures, net of accumulated depreciation	$ 39	$ 36
Lik project equipment, net of accumulated depreciation	50	70
Office lease asset	45	-
Vendetta warrants	21	-
Exploration bonds and other assets	4	4
Total other assets	$159	$110

During 2017, Solitario acquired $100,000 of exploration-related equipment at the Lik project as part of the acquisition of the Lik project. The equipment is being depreciated over a five-year life on a straight-line basis and Solitario recorded depreciation expense of $20,000 during 2019 and 2018 related to this equipment.

On July 31, 2019, Solitario acquired the 2019 Vendetta Warrants and recorded $68,000 for the fair value of the 2019 Vendetta Warrants, discussed above, and recorded a loss on derivative instruments related to the 2019 Vendetta Warrants of $47,000, see Note 8, "Derivative Instruments," below.

6. Revenue mineral property sale

On January 22, 2019, Solitario completed the sale of its interest in certain royalties to SilverStream, discussed above and recorded mineral property revenue of $408,000 for the Royalty Sale, consisting of the fair value of the cash received on the date of the sale of $185,000 and the fair value of the SilverStream Note on the date of the sale of $263,000 less the carrying value of the royalties sold of $40,000.

At closing of the Royalty Sale, Solitario received Cdn$250,000 in cash and the SilverStream Note in the principal amount of Cdn$350,000. As of December 31, 2019, the SilverStream Note is due June 30, 2020 and accrues interest at 8% per annum simple interest. Solitario recorded interest income of $12,000 from the SilverStream Note during 2019. As of December 31, 2019, the SilverStream Note was recorded at $268,000, based upon the current US dollar / Canadian dollar exchange rate, and Solitario recorded a credit to exchange gain of $5,000 related to the SilverStream Note, included in general and administrative expense during 2019.

On April 26, 2018, Solitario sold its royalty interest in the non-producing Yanacocha property to a wholly owned subsidiary of Newmont for approximately $502,000 in cash. The Yanacocha Royalty covered 43 concessions totaling 36,052 hectares. Newmont owns the underlying mineral concessions covered by the Yanacocha Royalty. None of the concessions covered by the Yanacocha Royalty had any reported reserves or resources. Solitario had no mineral property capitalized cost in the Yanacocha Royalty and recorded Mineral Property Revenue of $502,000 during 2018.

7. Income Taxes:

Consolidated loss before income taxes includes losses from foreign operations of $1,261,000 and $260,000 in 2019 and 2018, respectively.

The net deferred tax assets/liabilities in the December 31, 2019 and 2018 consolidated balance sheets include the following components:

(in thousands)	2019	2018
Deferred tax assets:		
Loss carryovers	$13,284	$12,432
Investment in Mineral Property	1,669	1,669
Capitalized Exploration Costs	652	877
Stock option compensation expense	228	150
Unrealized loss on derivative securities	237	60
Other	135	135
Valuation allowance	(15,999)	(15,099)
Total deferred tax assets	206	224
Deferred tax liabilities:		
Unrealized gains on marketable equity securities	198	209
Other	8	15
Total deferred tax liabilities	206	224
Net deferred tax liabilities	$ -	$ -

A reconciliation of expected federal income taxes on income (loss) from continuing operations at statutory rates, with the expense for income taxes is as follows:

(in thousands)	2019	2018
Expected income tax benefit	$(691)	$(756)
Equity based compensation	7	-
Foreign tax rate differences	(116)	(27)
State income tax	(84)	(143)
Expiration of Capital Loss Carryovers	66	-
Adjustment to Deferred Taxes	(101)	2,058
Change in Tax Rate	-	53
Change in valuation allowance	900	(1,164)

Permanent differences and other	19	(21)
Income tax (benefit) expense	$ -	$ -

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the "Tax Act") was signed into law making significant changes to the Internal Revenue Code. Changes include, but are not limited to, a federal corporate tax rate decrease from 35% to 21% for tax years beginning after December 31, 2017, the transition of U.S international taxation from a worldwide tax system to a territorial system, and a one-time transition tax on the mandatory deemed repatriation of foreign earnings.

While the Tax Act provides for a territorial tax system, beginning in 2018, it includes two new U.S. tax base erosion provisions, the global intangible low-taxed income ("GILTI") provisions and the base-erosion and anti-abuse tax ("BEAT") provisions. The GILTI provisions require the Company to include in its U.S. income tax return foreign subsidiary earnings in excess of an allowable return on the foreign subsidiary's tangible assets. The Company currently has no profitable foreign subsidiaries. Therefore, this provision currently has no impact on the Company.

The BEAT provisions in the Tax Act eliminates the deduction of certain base-erosion payments made to related foreign corporations and impose a minimum tax if greater than regular tax. The Company does not expect it will be subject to this tax and therefore has not included any tax impacts of BEAT in its consolidated financial statements for the years ended December 31, 2019 and 2018.

As a result of the ownership change resulting from Solitario's acquisition of Zazu Metals (Alaska) Corp, utilization of its United States Federal and State of Alaska net operating losses will be limited due to the annual limitation provided by Section 382 of the Internal Revenue Code.

During 2019, the valuation allowance increased primarily due to the addition of deferred tax assets related to current year net operating losses. During 2018, the valuation allowance decreased primarily due to the adjustments to deferred taxes that were part of the Zazu acquisition and the disposition of royalties that were part of the Yanacocha sale.

At December 31, 2019, Solitario has unused US Federal Net Operating Loss carryovers of $17,576,000 and unused US State Net Operating Loss carryovers of $18,174,000 which begin expiring in 2027. As a result of the ownership change of Zazu Metals (Alaska) Corp, utilization of some of these federal and state losses will be limited due to the annual limitation provided by Section 382 of the Internal Revenue Code. Solitario has unused Capital Loss carryovers of $10,416,000 for US Federal and US State purposes which begin expiring in 2020. Solitario has Canadian loss carryforwards of $9,611,000 which begin expiring in 2027. Other foreign loss carryforwards for which Solitario has provided a full valuation allowance related to Solitario's exploration activities in Peru. The Peru losses do not expire.

Solitario adopted ASC 740, which prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. ASC 740 requires that Solitario recognize in its consolidated financial statements, only those tax positions that are "more-likely-than-not" of being sustained as of the adoption date, based on the technical merits of the position. As a result of the implementation of ASC 740, Solitario performed a comprehensive review of its material tax positions in accordance with recognition and measurement standards established by ASC 740. The provisions of ASC 740 had no effect on Solitario's financial position, cash flows or results of operations at December 31, 2019 or December 31, 2018, or for the years then ended as Solitario had no unrecognized tax benefits.

Solitario and its subsidiaries are subject to the following material taxing jurisdictions: United States Federal, State of Colorado, State of Alaska, Canada and Peru. Solitario's United States federal, Canada and State of Alaska returns for years 2017 and forward and Solitario's Peru and State of Colorado returns for tax years 2015 and forward are subject to examination. Solitario's policy is to recognize interest and penalties related to uncertain tax benefits in income tax expense. Solitario has no accrued interest or penalties related to uncertain tax positions as of December 31, 2019, or December 31, 2018 or for the years then ended.

8. Derivative Instruments:

Covered call options

From time to time Solitario has sold covered call options against its holdings of Kinross. The business purpose of selling covered calls is to provide additional income on a limited portion of shares of Kinross that Solitario may sell in the near term, which is generally defined as less than one year and any changes in the fair value of its covered calls are recognized in the statement of operations in the period of the change. During 2019 Solitario sold covered calls against its holdings of Kinross for $9,000 in cash, all of which expired unexercised during 2019. As of December 31, 2019, there were no remaining liabilities related to call options.

Vendetta Warrants

At December 31, 2019 Solitario held 2019 Vendetta Warrants which give Solitario the right to purchase 3,450,000 Vendetta common shares for Cdn$0.13 per share through July 31, 2022. At December 31, 2019, Solitario recorded 2019 Vendetta Warrants at their fair value of $21,000 based upon a Black Scholes model with a stock price of Cdn$0.05, a term of 2.6 years, a volatility of 65%, and an interest rate of 1.6%. Solitario recorded a loss on derivative instruments related to the 2019 Vendetta Warrants of $47,000 during 2019.

The following items comprise gain (loss) on derivative instruments:

(in thousands)	Year ended December 31, 2019	2018
Gain on Kinross calls – realized	$ 9	$ -
Loss on Vendetta Warrants – unrealized	(47)	-
	$(38)	$ -

9. Fair Value of Financial Instruments:

For certain of Solitario's financial instruments, including cash and cash equivalents, the SilverStream Note, payables and short-term debt, the carrying amounts approximate fair value due to their short maturities. Solitario's marketable equity securities, including its investment in shares of Kinross common stock, Vendetta common stock and TNR Gold Corp ("TNR") common stock, are carried at their estimated fair value based on publicly available quoted market prices.

Solitario applies ASC 820 that establishes a framework for measuring fair value and requires enhanced disclosures about fair value measurements. ASC 820 clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. ASC 820 also requires disclosure about how fair value is determined for assets and liabilities and establishes a hierarchy for which these assets and liabilities must be grouped, based on significant levels of inputs as follows:

Level 1: Quoted prices in active markets for identical assets or liabilities;
Level 2: Quoted prices in active markets for similar assets and liabilities and inputs that are observable for the asset or liability; or
Level 3: Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

The determination of where assets and liabilities fall within this hierarchy is based upon the lowest level of input that is significant to the fair value measurement. During the years ended December 31, 2019 and 2018, there were no reclassifications in financial assets or liabilities between Level 1, 2 or 3 categories.

The following is a listing of Solitario's financial assets and liabilities required to be measured at fair value on a recurring basis and where they are classified within the hierarchy as of December 31, 2019:

(in thousands)	Level 1	Level 2	Level 3	Total
Assets				
Short-term investments	$6,829	$ -	$ -	$6,829
Marketable equity securities	$1,039	$ -	$ -	$1,039
2019 Vendetta Warrants	$ -	$ 21	$ -	$ 21

The following is a listing of Solitario's financial assets and liabilities required to be measured at fair value on a recurring basis and where they are classified within the hierarchy as of December 31, 2018:

(in thousands)	Level 1	Level 2	Level 3	Total
Assets				

Short-term investments	$10,223	$ -	$ -	$10,223
Marketable equity securities	$ 1,585	$ -	$ -	$ 1,585

Items measured at fair value on a recurring basis:

Short-term investments: At December 31, 2019 and 2018, Solitario's holdings of short-term investments consist of USTS recorded at their fair value based upon quoted market prices.
Marketable equity securities*:* At December 31, 2019 and 2018, the fair value of Solitario's holdings in shares of Vendetta, Kinross, and TNR marketable equity securities are based upon quoted market prices.

2019 Vendetta Warrants: At December 31, 2019 the fair value of Solitario's 2019 Vendetta Warrants is based upon a Black Scholes model, using market inputs.

During the year ended December 31, 2019, Solitario did not change any of the valuation techniques used to measure its financial assets and liabilities at fair value.

10. Commitments and Contingencies:

In acquiring its interests in mineral claims and leases, Solitario has entered into lease agreements, which may be canceled at its option without penalty. Solitario is required to make minimum rental and option payments in order to maintain its interests in certain claims and leases. See Note 2, "Mineral Properties," above. Solitario estimates its 2020 property rentals and option payments for properties Solitario owns, has under joint venture or Solitario operates to be approximately $859,000. Assuming that Solitario's joint ventures continue in their current status and that Solitario does not appreciably change its property positions on existing properties, approximately $816,000 of these annual payments are paid or are reimbursable to us by Solitario's joint venture partners. Solitario may be required to make further payments in the future if it acquires new properties or enters into new agreements.

Solitario has recorded an asset retirement obligation of $125,000 related to its Lik project in Alaska. See Note 2, "Mineral Properties," above.

Solitario leases office space under a non-cancelable operating lease for the Wheat Ridge, Colorado office which provides for total minimum annual rent payments of $43,000 through March of 2021.

11. Employee Stock Compensation Plans:

On June 18, 2013, Solitario's shareholders approved the Solitario Resources Corporation Omnibus Stock Incentive Plan (the "2013 Plan"). Under the terms of the 2013 Plan, as amended, a total of 5,750,000 shares of Solitario common stock are reserved for awards to directors, officers, employees and consultants. Awards granted under the 2013 Plan may take the form of stock options, stock appreciation rights, restricted stock, and restricted stock units. The terms and conditions of the awards are pursuant to the 2013 Plan and are granted by the Board of Directors or a committee appointed by the Board of Directors.

a.) 2013 Plan stock option grants

The following table shows the grant date fair value of Solitario's awards during 2019 pursuant to the 2013 Plan:

Grant Date	1/24/19 (1)
Option – grant date price	$0.28
Options granted	150,000
Expected life years	5.0
Expected volatility	64%
Risk free interest rate	2.4%
Weighted average fair value	$0.16
Grant date fair value	$23,000

(1) Option grants have a five-year term, and vest 25% on date of grant and 25% on each of the next three anniversary dates.

The following table shows the grant date fair value of Solitario's awards during 2018 pursuant to the 2013 Plan:

Grant Date	1/02/18 (1)	11/01/18 (2)
Option – grant date price	$0.62	$0.31
Options granted	100,000	1,623,000
Expected life years	0.80	5.00
Expected volatility	66%	64%
Risk free interest rate	1.0%	3.0%
Weighted average fair value	$0.12	$0.17
Grant date fair value	$12,000	$282,000

(2) Option granted to a consultant had an expected life of 0.8 years on grant date and was fully vested during 2018. Option remains vested for a maximum of five years from date of grant or termination of the consulting contract.

(3) Option grants have a five-year term, and vest 25% on date of grant and 25% on each of the next three anniversary dates.

b.) Stock option activity

During 2019 and 2018 no options granted from the 2013 Plan were exercised. The following table summarizes the activity for stock options outstanding under the 2013 Plan for the years ended December 31, 2019 and 2018:

	2019			2018		
	RSUs/ Options	Weighted Average Exercise Price	Aggregate Intrinsic Value (1)	RSUs/ Options	Weighted Average Exercise Price	Aggregate Intrinsic Value (2)
Outstanding, beginning of year	5,223,160	$0.76		1,982,428	$1.29	
Granted (3)	150,000	$0.28		4,023,000	$0.58	
Exercised	-	-		-	-	
Expired	(1,000,160)	$1.47		(782,268)	$2.09	
Forfeited	-	-		-	-	
Outstanding, end of year	4,373,000	$0.58	$ 3,000	5,223,160	$0.76	$ -
Exercisable, end of year	2,774,000	$0.63	$ 840	2,770,910	$0.95	$ -

(1) Intrinsic value based upon December 31, 2019 price of a share of Solitario common stock as quoted on the NYSE American exchange of $0.30 per share.

(2) Intrinsic value based upon December 31, 2018 price of a share of Solitario common stock as quoted on the NYSE American exchange of $0.23 per share.

(3) Options granted during 2018, include 2,300,000 Conditional Options (defined below), approved by Solitario shareholders on June 19, 2018.

During the years ended December 31, 2019 and 2018, Solitario recorded $343,000 and $660,000, respectively, of stock option expense under the 2013 Plan for the amortization of the grant date fair value of each of its outstanding options with a credit to additional paid-in-capital. At December 31, 2019, the total unrecognized stock option compensation cost related to non-vested options is $317,000 and is expected to be recognized over a weighted average period of 14 months.

On September 1, 2017, the Board of Directors granted, subject to shareholder approval at the next meeting of shareholders, 2,300,000 stock options under the 2013 Plan to officers and members of the Board of Directors (the "Conditional Options"). The Conditional Options were approved by Solitario's shareholders at Solitario's annual meeting on June 19, 2018. The Conditional Options vest on the schedule of 25% on date of approval of the grant (June 19, 2018) and 25% on each of the next three anniversary dates of the date of grant (September 1, 2018, 2019 and 2020).

12. Shareholders' equity and accumulated other comprehensive income

We adopted ASU 2016-01, "Financial Instruments – Overall (subtopic 825-10) Recognition and Measurement of Financial Assets and Liabilities," ("ASU 2016-01"). ASU 2016-01 revises the classification and measurement of investment in certain equity investments and the presentation of certain fair value changes for certain financial liabilities measured at fair value. ASU 2016-01 requires the change in fair value of many equity investments to be recognized in net income. Solitario adopted ASU 2016-01 in the first quarter of 2018. Solitario recorded a cumulative-effect adjustment for the change in accounting principle from other comprehensive income in the equity section of the consolidated balance sheet to accumulated deficit of $576,000 related to the adoption of ASU 2016-01.

13. Share Repurchase Program

On October 28, 2015, Solitario's Board of Directors approved a share repurchase program that authorized Solitario to purchase up to two million shares of its outstanding common stock. During 2019 Solitario's Board of Directors extended the expiration date of the share repurchase program through December 31, 2020. During the years ended December 31, 2019 and 2018, Solitario purchased 38,400 and 263,100 shares of Solitario common stock, respectively, for an aggregate purchase price of $13,000 and $101,000, respectively. As of December 31, 2019, Solitario has purchased a total of 969,300 shares for an aggregate purchase price of $462,000 under the share repurchase program since its inception.

13. Subsequent events

Solitario has evaluated events subsequent to December 31, 2019 to assess the need for potential recognition or disclosure in this report. Such events were evaluated through the date these financial statements were available to be issued. Based upon this evaluation, it was determined that no subsequent events occurred that require recognition or disclosure in the financial statements.

Item 15. Exhibits, Financial Statement Schedules

The following documents are filed as a part of this Annual Report on Form 10-K:

1. Financial Statements

The following financial statements contained in Part II, Item 8 are filed as part of this Annual Report on Form 10-K:

Consolidated Financial Statements
Report of Independent Registered Public Accounting Firm
Consolidated Balance Sheets as of December 31, 2019 and 2018
Consolidated Statements of Operations for the years ended December 31, 2019 and 2018
Consolidated Statements of Shareholders' Equity for the years ended December 31, 2019 and 2018
Consolidated Statements of Cash Flows for the years ended December 31, 2019 and 2019
Notes to Consolidated Financial Statements

2. Financial Statement Schedules

Financial statement schedules are omitted because they are not required or are not applicable, or the required information is provided in the consolidated financial statements or notes thereto described in Item 15(1) above.

3. Exhibits

The Exhibits listed in the Index to Exhibits, which appears immediately following the signature page and is incorporated herein by reference, are filed as part of this Annual Report on Form 10-K.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

SOLITARIO ZINC CORP.

By: /s/ James R. Maronick
Chief Financial Officer

Date: March 12, 2020

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Christopher E. Herald, Chief Executive Officer	Principal Executive Officer and Director	March 12, 2020
/s/ James R. Maronick, Chief Financial Officer	Principal Financial and Accounting Officer	March 12, 2020
/s/ John Labate /s/ Brian Labadie /s/ James Hesketh /s/ Gil Atzmon /s/ Joshua D. Crumb	A majority of the Board of Directors	March 12, 2020

By: /s/
James R. Maronick,
Attorney-in-fact pursuant to power of attorney granted in the Original filing

INDEX TO EXHIBITS

Description

3.1	Amended and Restated Articles of Incorporation of Solitario Exploration & Royalty Corp., as Amended (incorporated by reference to Exhibit 3.1 to Solitario's Form 10-Q filed on August 10, 2010)
3.1.1	Articles of Amendment to Restated Articles of Incorporation of Solitario Zinc Corp. (incorporated by reference to Exhibit 3.1 to Solitario's Current Report on Form 8-K filed on July 14, 2017)
3.2	Amended and Restated By-laws of Solitario Exploration & Royalty Corp. (incorporated by reference to Exhibit 99.1 to Solitario's Form 8-K filed on March 22, 2013)
4.1	Form of Common Stock Certificate of Solitario Zinc (incorporated by reference to Exhibit 4.1 to Solitario's Form 10-Q filed on November 8, 2017)
4.2**	Description of Common Stock
10.1#	2013 Solitario Exploration & Royalty Corp. Omnibus Stock and Incentive Plan (incorporated by reference to Exhibit 10.2 to Solitario's Form 8-K filed on June 20, 2013)
10.2	Alliance Agreement, dated January 18, 2005, between Solitario Resources Corporation and Newmont Overseas Exploration Limited (incorporated by reference to Exhibit 99.1 to Solitario's Form 8-K filed on January 20, 2005)
10.3#	Change in Control Severance Benefits Agreement between Solitario Resources Corporation and Christopher E. Herald, dated as of March 14, 2007 (incorporated by reference to Exhibit 99.1 to Solitario's Form 8-K filed on March 14, 2007)
10.4#	Change in Control Severance Benefits Agreement between Solitario Resources Corporation and James R. Maronick, dated as of March 14, 2007 (incorporated by reference to Exhibit 99.2 to Solitario's Form 8-K filed on March 14, 2007)
10.5#	Change in Control Severance Benefits Agreement between Solitario Resources Corporation and Walter W. Hunt, dated as of March 14, 2007 (incorporated by reference to Exhibit 99.3 to Solitario's Form 8-K filed on March 14, 2007)
10.6	Framework Agreement for the Exploration and Development of Potential Mining Properties, related to Solitario's 100% owned Florida Canyon project in Peru between Minera Florida Canyon S.A., Minera Solitario Peru S.A.C., Solitario Resources Corporation, and Votorantim Metais – Cajamarquilla S.A., dated March 24, 2007 (incorporated by reference to Exhibit 10.2 to Solitario's Form 8-K filed on October 4, 2007)
10.7**	Performance Agreement for Funding of Drilling Program between Compañía Minera Milpo, S.A.A. and Minera Solitario Peru S.A.C, related to the Framework Agreement for the Development of Mining Properties dated August 1, 2019
10.8#	First Amendment to the 2013 Solitario Exploration & Royalty Corp. Omnibus Stock and Incentive Plan (incorporated by reference to Exhibit 10.1 to Solitario's Form 8-K filed on June 29, 2017)
14.1	Code of Ethics for the Chief Executive Officer and Senior Financial Officer (incorporated by reference to Exhibit 99.1 to Solitario's Form 8-K filed on July 18, 2006)
21.1**	Subsidiaries of Solitario Zinc Corp.
23.1**	Consent of Plante & Moran, PLLC
24.1**	Power of Attorney

31.1*	Certification of Chief Executive Officer pursuant to SEC Rule 13a-14(a)/15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2*	Certification of Chief Financial Officer pursuant to SEC Rule 13a-14(a)/15d-14(a) as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C Section 1350 as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101**	The following financial statements, formatted in XBRL: (i) Consolidated Balance Sheets as of December 31, 2019 and 2018; (ii) Consolidated Statements of Operations for the years ended December 31, 2019 and 2018; (iii) Consolidated Statements of Shareholders' Equity for the years ended December 31, 2019 and 2018; (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2019 and 2018; and (v) Notes to the Consolidated Financial Statements.

* Filed herewith
** Filed with the Original Filing on March 3, 2020
\# Designates a management contract, or a compensatory plan or arrangement.