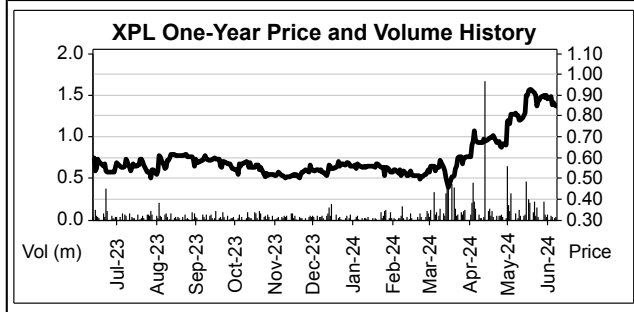


**Resources: Metals & Mining**
**Initiation of Coverage**
**Solitario Resources Corp. | XPL-\$0.86-NYSE | Buy**

Stock Data			
52-Week Low - High	\$0.46-\$0.93		
Shares Out. (mil)	81.29		
Mkt. Cap.(mil)	\$69.42		
3-Mo. Avg. Vol.	162,109		
12-Mo.Price Target	\$2.00		
Cash (mil)	\$0.1		
Tot. Debt (mil)	\$0.0		
Cash does not include \$8.5 million in short-term investments and investments in marketable equity securities			
Rev (\$M)			
Yr Dec	— 2023—	— 2024E—	— 2025E—
		<b>Curr</b>	<b>Curr</b>
<b>1Q</b>	0.0A	0.0A	0.0E
<b>2Q</b>	0.0A	0.0E	0.0E
<b>3Q</b>	0.0A	0.0E	0.0E
<b>4Q</b>	0.0A	0.0E	0.0E
<b>YEAR</b>	0.0A	0.0E	0.0E
EPS \$			
Yr Dec	— 2023—	— 2024E—	— 2025E—
		<b>Curr</b>	<b>Curr</b>
<b>1Q</b>	(0.01)A	(0.01)A	(0.01)E
<b>2Q</b>	(0.02)A	(0.01)E	(0.01)E
<b>3Q</b>	(0.02)A	(0.02)E	(0.02)E
<b>4Q</b>	(0.01)A	(0.02)E	(0.02)E
<b>YEAR</b>	(0.05)A	(0.06)E	(0.07)E



## XPL: Initiating Coverage with Buy Rating, \$2 PT

We believe XPL has the potential to make an industry significant discovery at its 100% owned Golden Crest Project. This includes an initial drill program on targets near the historic Homestake Mine in South Dakota. The risk of discovery is offset by partnerships with major mining companies in two high-grade, advanced development zinc projects. This includes the Florida Canyon Project in Peru in partnership with Nexa Resources, and the Lik Zinc Project in Alaska with Teck Resources Limited.

**Adjacent to a recognized Super Giant Gold Mine.** The Homestake-Wharf mining district has a continuous 150-year history of exploration and gold production of over 52-million ounces (oz). As deposits of this type may cluster, this supports the thesis that the mineralized system may extend to the west and onto XPL's Golden Crest Project.

**Established mining region.** The area has well developed infrastructure and a skilled mining workforce. The Golden Crest Project area is on U.S. Forest Service (USFS) land, half of which is disturbed by logging. Exploration on the project is accessible via a network of access roads. The local USFS office is knowledgeable and supportive of modern exploration and mining processes. XPL has been careful to stake claims outside of potentially sensitive scenic, recreational, or historic areas.

**Early exploration results are promising.** XPL has successfully completed exploration programs over a wide area, including rock sampling and channel sampling by trenching existing access roads. It has discovered large areas of high-grade gold with widespread low-grade gold, demonstrating the prospect for a continuation of the mineralized hydrothermal gold system within the 52 square mile project. XPL is planning to start its first drill program in mid-2024 following permitting.

**Legacy zinc projects underpin fundamental value.** XPL is in partnership with major mining companies in both projects. As financial requirements are minimal, both agreements are favorable to XPL. In addition, its partners are able and have incentive to accelerate the development of both projects.

XPL has a 39% carried-to-production, joint venture partnership interest with Nexa Resources S.S. (NEXA-NC) in the Florida Canyon/Bongará (Florida Canyon) project in Peru. NEXA has placed its Aripuanã project in production and now has the bandwidth to advance Florida Canyon.

XPL owns 50% of the Lik Zinc Project adjacent to Teck Resources Limited's (TECK-NC) Red Dog Mine in Alaska. The long-lived Red Dog Mine is nearing exhaustion and is important to the native-owned NANA Regional Corporation, Inc. (NANA) and the State of Alaska. Recently, NANA withdrew from the world-class Ambler project, increasing the importance of resource development on its lands.

## SUM OF THE PARTS APPROACH SUMMARY

XPL's early exploration success at its Golden Crest Project is the driver for our investment thesis. It has rapidly staked and completed reconnaissance exploration sampling from existing logging roads. It has identified a highly prospective five-mile trend of high-grades of gold along surface surrounded by a low-grade halo. It plans to initiate its maiden 5,000m drill program, at a cost of \$2 to \$3 million, upon receiving permits mid-2024. A discovery evidenced by drill results has the potential to result in a higher stock price.

Our valuation estimate for the Golden Crest Project is based on our conviction that the initial drill program may create the perception of a potential three-million-ounce gold resource. This is primarily in the five-mile Downpour Trend area. This may compare favorably to Dakota Gold Corp.'s (DC-NC) nearby 2.5 Moz gold Richmond Hills project, covering approximately two miles. DC has a market capitalization of ~\$250 million. We believe it is likely that the Golden Crest Project is prospective to host a potential six-million-ounce gold resource like the neighboring 8.2 Moz gold Wharf Mine. Based on \$25 per oz and 81.29 million outstanding shares, a three million oz gold target would imply a value of \$75 million, and \$0.92 per share.

### Zinc projects

XPL has partnerships with major mining companies in two high-grade zinc projects. While partnership interests may be further discounted to asset value, both agreements provide protection from funding requirements that may dilute ownership share or create financial hardship. XPL is the official operator of the Lik Zinc Project, with minimal required annual contributions of up to \$1 million annually, and at Florida Canyon, XPL is carried to production, whereby the partner will even provide construction financing.

We believe these are unusually favorable agreements for a partner that could offset unnecessary discounting by the market. Also, circumstances for both partners increase their incentive to acquire XPL's interest more than may be apparent to the market. In our opinion, while both projects have dated technical reports, these are useful to infer economic viability and for valuation purposes.

### Florida Canyon

In 2017, a preliminary economic assessment (PEA) was completed that outlined a potential mine with initial capital costs of \$213 million. The PEA estimated a production rate of 2,500 tonnes with a life of 12.5 years, and an annual cash flow of approximately \$75 million. Based on \$16.50 per oz silver, \$1.00 per pound lead, and \$1.20 per pound zinc, the PEA estimated an after-tax NPV<sub>8%</sub> of \$197.5 million, an IRR of 24.7%, and a payback in ~2.6 years. While the PEA will need to be updated for current metal prices and costs, resource expansion and conversion of inferred to indicated resources, and the metallurgical testwork to optimize a flowsheet, the study is a useful starting point to conclude value.

In 2019, NEXA acquired the remaining 30% minority participating interest in the Aripuanã project and brought it to production. We believe that due to the seller's participating interest, the project was acquired at a discount to what XPL may expect with its carried-to-production interest. This is supported by an unoptimized PEA. Assuming the Aripuanã is a reasonable comparison, this implies a value of \$69.3 million or ~\$0.85 per share.

### Lik Zinc Project

In 2014, an economic study was completed on the Lik Zinc Project as a standalone project, not as a satellite mine feeding a Red Dog Mine complex. On a stand-alone basis, the project had estimated total capital costs of \$324.7 million. This resulted in a modest economic profile with an after-tax NPV<sub>8%</sub> of \$99.1 million, a 14.4% after-tax IRR, and a payback of 3.6 years. Under a direct shipping ore scenario transporting material to the Red Dog Mine complex for processing, this suggests a reduction of capital costs of ~\$106.6 million, thereby boosting the NPV<sub>8%</sub> to ~\$205.7 million.

The Red Dog Mine is expected to be depleted in 2031. It may take years to develop and permit satellite mines to maintain production. TECK's high grade Aktigirug and Anarraaq projects are likely prospects, but these are lower grade than the Red Dog Mine and are deep underground. While the Lik Zinc Project is lower grade than the Aktigirug and Anarraaq projects, it is near surface and likely to be mined from a low-cost open pit, as was the Red Dog Mine. With XPL's 50% ownership of the Lik Zinc Project, based on 0.35x the adjusted NAV of ~\$100 million, we estimate a current value to XPL of \$35 million, or \$0.43 per share.

## POTENTIAL EXTENSION OF A “SUPER GIANT GOLD PROVINCE”

We believe that XPL's 100%-owned Golden Crest Project, covering ~51.6 square miles, with hundreds of high-grade (1.0 g/t to 171.5 g/t) gold surface samples over a five-mile Downpour Trend, to be a highly prospective greenfield gold exploration target. The project is in the northern area of the Black Hills in western South Dakota. The area has a history of continuous exploration and gold production of over 150 years. It is adjacent to the Homestake-Wharf mining district, a recognized Super Giant Gold Province. Having been eclipsed by the success of the Homestake Mine, the project area was unexplored and undrilled until recently by XPL.

In August 2021, XPL acquired the Golden Crest Project. Since that time, it has expanded the project and collected high-grade gold surface samples over wide areas. The project consists of land leased from the USFS. Approximately 50% of this area has been disturbed by logging, providing the benefit of exploring from an existing network of access roads. Exhibit 1 is a photo of the Golden Crest Project showing both young and mature trees.

**Exhibit 1: Golden Crest Project in South Dakota**



Source: *Plan of Operations for Mining Activities – Golden Crest Project*, dated 4/9/22 ([link](#))

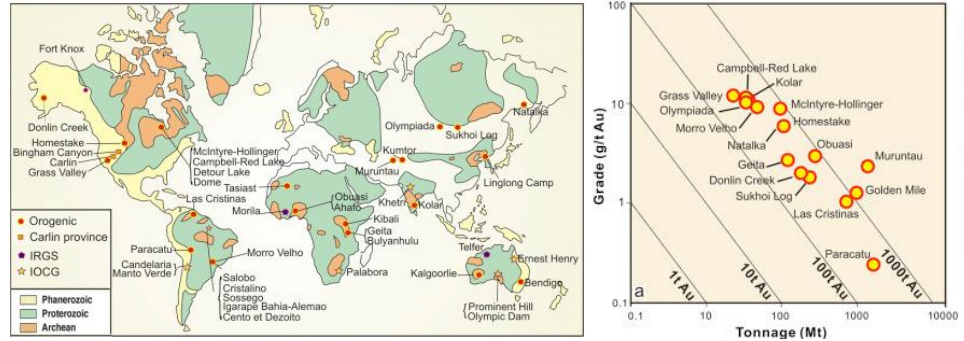
The Golden Crest Project is in an area recognized for its historic local mining culture. The area was the subject and inspiration of the award-winning HBO *Deadwood* television series (2004-2006). The area has good infrastructure, a skilled mining workforce, and a history of high-grade, underground mineable gold deposits.

The Golden Crest Project is favorably located along the western and southwestern extensions of the Homestake-Wharf mining district that includes the historic Homestake Mine with ~43.9 million mined oz of gold, plus an estimated 20 million oz of non-compliant SK-1300 or NI-4301 historic resources. The Homestake Mine is one of the largest individual gold deposits in North America. The mine shut down in 2002 after 124 years of continuous operation and is the longest-lived gold mine in the U.S.

The Homestake Mine is in a category of Super Giant gold deposits categorized as having over 50 million oz, within a district with potential endowment of over 100 million oz. There are less than forty known gold deposits of this size worldwide. The Homestake-Wharf mining district has produced approximately 52 million oz of gold plus 30 million oz of non-compliant SK-1300 or NI-4301 historical resources.

Super Giant gold deposits are known to cluster with geologically similar deposits within areas of several hundred square kilometers, defining intensely mineralized regions. Examples of Super Giant gold deposits with associated clusters include the Timmins-Abitibi Belt (Canada), Golden Mile-Eastern Goldfields (Australia), Obuasi (West Africa), and Carlin/Gold Strike Trend (Nevada). Exhibit 2 shows the location and geologic style of Super Giant Gold Provinces on the left and the grade and tonnage distribution of Super Giant gold mines on the right.

**Exhibit 2: Super Giant Gold Province Locations (left), Grade and Tonnage Distribution (right)**



Source: *The conjunction of factors that lead to formation of giant gold provinces and deposits in non-arc settings* ([link](#))

We believe that the Golden Crest Project may be part of a large hydrothermal gold system. While undrilled, XPL has conducted multiple surface sampling exploration programs and is increasingly finding widespread distribution of high-grade gold, with samples grading as high as 171.5 g/t gold (~5.5 oz/t), within a broad halo of lower-grade gold. This suggests the potential for both open pit mining and underground mine scenarios.

As the project is adjacent to a recognized Super Giant gold district, and XPL has discovered gold by sampling a wide area, we believe the project to be highly prospective and deserving of a comprehensive drill program. XPL expects to receive permits mid-2024, allowing it to move forward with a drill program at the Golden Crest Project. It is planning a drill program for 2024 of at least 5,000m at cost of \$2 to \$3 million. We anticipate that upon discovery, XPL should accelerate exploration, which could extend for years, and may be funded by issuing equity proportionate with its success.

**GOLDEN CREST PROJECT OVERVIEW**

The Golden Crest Project is located along the western and southwestern extensions of the Homestake-Wharf mining district. On August 3, 2021, XPL announced the acquisition of the Golden Crest Project, consisting of ~18.1 square miles of mineral rights. On November 8, 2021, it announced the expansion of the project to ~33.3 square miles, and on February 14, 2022, a further expansion to ~43.75 square miles. On November 16, 2022, XPL announced that it had significantly expanded its land position with the acquisition of the Ponderosa Property, increasing its land position to the current ~52 square miles with over 1,700 total mining claims. Exhibit 3 is a view of XPL’s land holdings in relation to nearby gold mines.

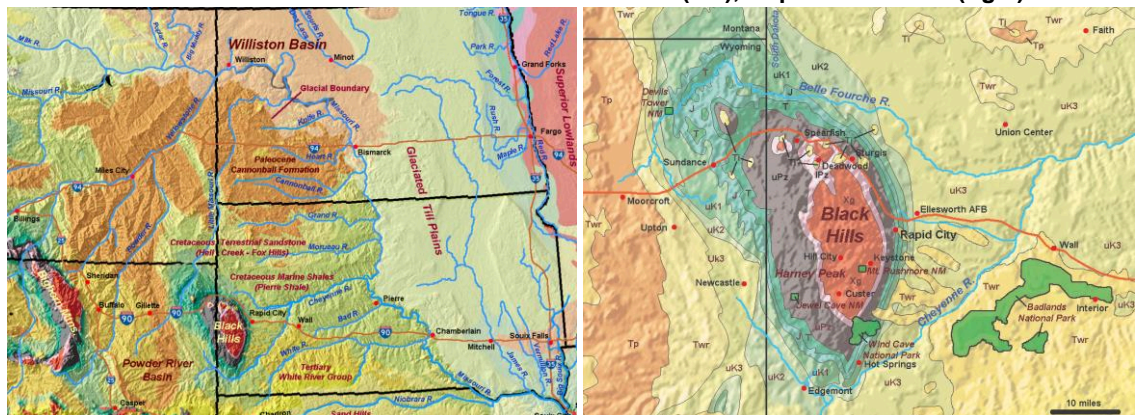
**Exhibit 3: XPL Land Holdings and Nearby Gold Mines**



Source: Solitario Resources Corp., Corporate Presentation ([link](#))

The Golden Crest Project is in the western portion of Lawrence County within the Black Hills of South Dakota. The project area is approximately nine miles by road and southwest of the City of Lead (pop. ~3,013), Deadwood (pop. ~1,738), and Central City (pop. 103). Supplies may be found in nearby Sturgis (pop. ~7,170) and Spearfish (pop. 13,260), or Rapid City (pop. ~78,824), approximately 50 miles by road. Transportation in the Black Hills area includes road, rail, and air. Interstate highway I-90 wraps around the northern margin of the Black Hills near the Golden Crest Project. Rapid City has a major rail station and regional airport. Exhibit 4 shows a map of South Dakota and the Black Hills area on its western border with Wyoming.

**Exhibit 4: Location of Black Hills in South Dakota (left), Map of Black Hills (right)**



Source: Regional Geology of North America ([link](#))

The Black Hills of southwestern South Dakota is an isolated mountain range. It rises from the Great Plains and extends north–northwest into northeast Wyoming. The Black Hills has a north to south oriented oval shape of approximately 90 by 45 miles. The hills are named after the pine-spruce coniferous forest with its dark appearance from a distance. The Golden Crest Project appears to be in a resource-driven area of the Black Hills subject to a century of continuous mining and logging activities. This area is distant from sensitive areas including Mt. Rushmore, Wind Cave National Park, and Badlands National Park to the south of Rapid City.

Black Elk Peak (formerly Harney Peak), south of the Gold Crest Project, rises to 7,244 ft. Black Elk Peak is the range's highest summit and the highest mountain in the United States east of the Rocky Mountains. The Black Hills appear as an island rising 3,000 to 4,000 ft encircled by a sea of flat land. The Thunder Basin National Grassland of Wyoming lies to the west, and the Buffalo Gap National Grassland is to the east. Several small rivers cut through the Black Hills which flow into the Belle Fourche and Cheyenne rivers that wrap around the Black Hills.

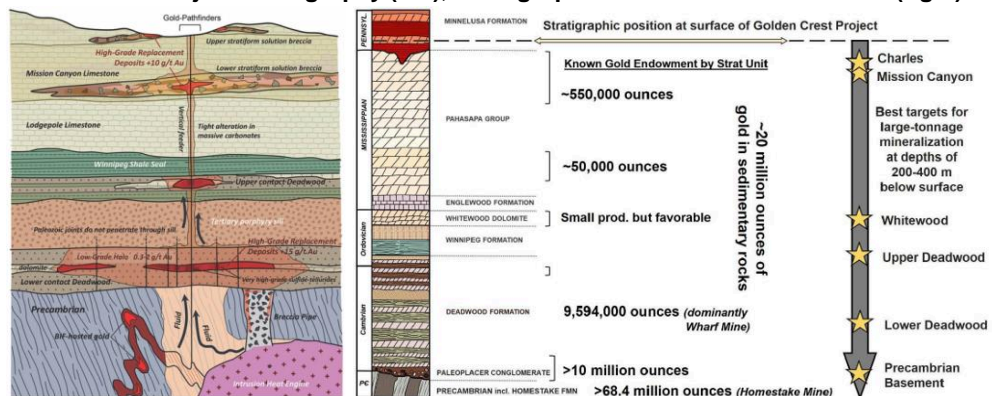
The elevation of Lead, South Dakota, close to the Golden Crest Project, is 5,296 feet (one mile). The climate is semi-arid, consistent with higher elevations resulting in long, cold winters and short, cool summers. Average temperatures in January range from a high of 35°F to a low of 17°F and may drop below zero. Average temperatures in July range from a high of 80°F to a low of 56°F. Throughout the year it may rain or snow five to ten days a month. On average it rains ~30 inches a year and snows 134 inches, with occasional blizzards. However, the area experiences four seasons, and mining is possible year-round.

**BLACK HILLS GEOLOGY DISCUSSION**

The Black Hills is a domal uplift where erosion has exposed a window of Precambrian (4.6 bya to 541 mya) igneous and metamorphic rocks. The dome offsets 6,500 to 7,000 ft deep sequences of Paleozoic (541 to 252 mya) to Mesozoic (251 to 66 mya) age sedimentary rocks dipping off in all directions on the margin of the uplift.

The Golden Crest Project is west of the Lead dome, a subsidiary dome of the Black Hills uplift. A Tertiary (66 to 2.6 mya) intrusive event led to the uplift and the development of gold deposits. Intrusive rocks occur as stocks, sills, dikes, laccoliths, and breccia pipes. The graphic on the left of Exhibit 5 shows project stratigraphy with the variety traps and receptive formations for gold deposition. On the right, the graphic shows the stratigraphic column with estimated historic gold endowment.

**Exhibit 5: Project Stratigraphy (left), Stratigraphic Column with Production (right)**



Source: Solitario Resources Corp., Corporate Presentation ([link](#)), Plan of Operations for Mining Activities – Golden Crest Project, dated 4/9/22 ([link](#))

Most of the gold production in the area was mined from the Homestake Mine, a large Precambrian-age orogenic gold deposit. The Precambrian-age basement rock is overlain by ancient paleoplacers. These are composed of gold eroded by the weathering of the basement rocks. The paleoplacers are under thick sequences of receptive Paleozoic rock formations, intruded by replacement-style disseminated bulk-tonnage gold mineralization, or trapped by shales. This type of mineralization is found in Coeur Mining Inc.'s (CDE-Buy, \$5.60PT) sedimentary hosted Wharf Mine gold mine with total production and resources of 7.4 million oz. Agnico Eagle Mines Limited's (AEM-NC) Gilt Edge Mine is an igneous-hosted deposit with a gold resource of over 3.0 million oz. The broad deposition of gold horizontally and across multiple stratigraphy to depth is a characteristic of Super Gold Provinces.

## AN ESTABLISHED SUPER GIANT GOLD PROVINCE

Gold was discovered in the Black Hills in 1874. Most of the gold deposits were found at surface during the Black Hills Gold Rush from 1876 to 1896. This was primarily in the Whitewood and Deadwood creeks area. In 1876, the Homestake lode was discovered, and the mine operated continuously until 2002. Exhibit 6 shows photos of nearby gold mines to the east of the Golden Crest Project.

**Exhibit 6: Neighboring Gold Mines in the Black Hills**



Source: Solitario Resources Corp., Corporate Presentation, December 2023 ([link](#))

Most exploration in the area was limited to a few square miles around the original discovery near the Homestake Mine. The consolidation and production of the Homestake Mine overrode the need for regional exploration. In the last 20 years of the 20<sup>th</sup> century, Homestake Mining Company (Homestake) identified five drainages outside of historically mined areas in the western part of the district, with anomalous gold and associated pathfinder elements. Homestake followed up on four of these anomalies that were acquired by XPL. In addition, Homestake drilled three deep reconnaissance holes looking for favorable Precambrian-age rocks, two of which intersected prospective Homestake Iron Formation stratigraphy, also in XPL's land holdings. However, no new gold deposits in the area were discovered in the 20<sup>th</sup> Century.

In addition to the spotlight on the Homestake Mine, including addition of the Wharf Mine and Gilt Edge Mine, the area west of these mines remained obscured by forestland and was inaccessible. We believe that with logging, the area was opened with service roads to harvest trees. In addition to improving access, the roads often cut into ground cover, exposing underlying rock formations. This presented the opportunity for an aggressive and expansive roadside exploration program. XPL acquired and expanded its position west of these mines and commenced mapping, surface rock sampling, and trenching/channel sampling along access roads.

XPL believes that the deeper Precambrian-age and Deadwood formations may be closer to the surface than previously recognized. The conventional wisdom, as with nearby mines, is that these formations may be over a thousand feet below the surface. XPL is challenging this belief, having detected gold in rock samples and ruts in logging roads over several square miles. It may soon commence drilling, which should increase its understanding of the project's stratigraphy. This should allow it to identify the controls or sources of gold mineralization found at surface, and potentially define resources to build a model for mining scenarios.

In addition to clustering, given the nature of these types of gold deposits stacking within stratigraphic layers, XPL has the increased potential to encounter gold within stacked formations while testing for potentially larger underlying targets. It believes that each drill hole has the potential to test three different stratigraphic target levels.

**EXPLORATION AT GOLDEN CREST HAS ONLY SCRATCHED THE SURFACE**

Having announced the acquisition of the Golden Crest Project only three months earlier, by October 20, 2021, XPL reported the discovery of gold from initial sampling on nine prospect areas. While the results yielded lower or anomalous gold grades, prospects defined a four mile north to south trend by almost one mile across with significant gold values. Exhibit 7 shows tallies of XPL’s initial progress, rapidly discovering gold over a broad area at the Golden Crest Project (1000 ppb = 1 ppm = 1 g/t).

**Exhibit 7: Sampling Progress by October 20, 2021, November 8, 2021, and April 5, 2022**

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

Prospect	No of Samples	Au ppb (max)	Au ppb (avg.)*
Buena Vista	24	3246	215
Yellow Jacket	26	132	33
Shoofly	33	64	14
Treasure Vault	44	3990	516
Matchstick	119	3700	254
Whirlwind	152	7990	382
Citadel	60	30	13
11th Hour Gulch	12	10	7
Maurice	10	349	85
Lockout	6	61	25
Downpour	9	8130	1859
Log Jam	4	524	235
Dustbowl	7	62	62

Prospect	No of Samples	Au ppb (max)* <sup>1</sup>	Au ppb (avg)* <sup>2</sup>	Ag ppm (max)
Buena Vista	24	3,246	215	1
Yellow Jacket	26	132	33	1
Shoofly	33	64	14	<1
Treasure Vault	44	3,990	516	3
Matchstick	183	8,740	276	2
Whirlwind	201	7,990	367	1,040
Citadel	60	30	13	11
11th Hour Gulch	12	10	7	20
Maurice	10	349	85	20
Lockout	6	61	25	11
Downpour	27	126,000	19,051	37
Log Jam	17	807	231	2
Dustbowl	7	62	62	1
Land’s End	41	382	76	1
Sunrise	29	20,100	2,460	23

Source: Solitario Resources Corp., Press Release, October 20<sup>th</sup> ([link](#)) and November 8<sup>th</sup> ([link](#)), 2021, April 5, 2022 ([link](#))

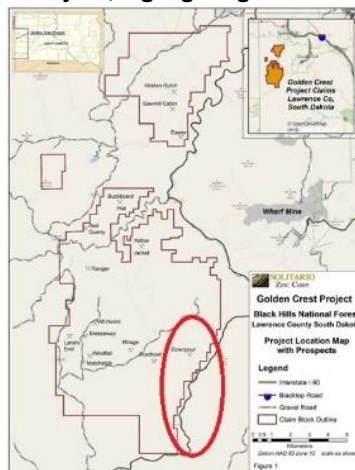
In its 2021 field season at the Golden Crest Project, XPL collected 972 reconnaissance grab samples of rock and 5,575 soil samples. While there are few outcropping rocks, the sub-crop and bedrock is less than one foot below the soil surface. XPL has found that soil samples correlate with underlying gold-bearing rocks.

By February 14, 2022, it had located 14 target zones over ~4.3 by ~3.1 miles. This included the discovery of the 170m by 70m Downpour zone that was announced on November 8, 2021. Nine initial samples at Downpour averaged 1.86 g/t gold, the highest of which yielded 5.90 g/t gold. By February 14, 2022, another eleven samples at Downpour averaged 12.6 g/t gold, which included high grades of 50.2 and 47.7 g/t gold.

**DOWNPOUR ZONE IS A SPRINGBOARD TO EXPANDING EXPLORATION**

The discovery of high grades of gold at the Downpour target increased XPL’s focus on a ~5.0 mile north to south trend in the area. The increased attention in the Downpour area led to the acquisition of the Ponderosa Property announced in November 2022, which completed the current project. Exhibit 8 shows a map of the Plan of Operations (POO) for drill permitting, including areas of historic mining activities. The Ponderosa Property is not included in the approved POO, which is to be modified to expand drilling onto the recently acquired property. The exhibit shows the general location of the Ponderosa Property in the red oval in the lower right area of the graphic.

**Exhibit 8: Golden Crest Project, highlighting the Ponderosa Property (in red)**

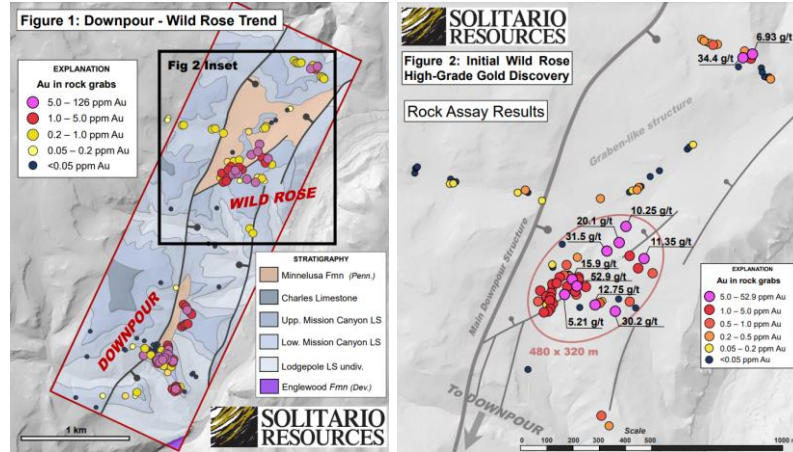


Source: USFS - Final Environmental Assessment, April 29, 2024 ([link](#))



The Wild Rose zone is the most northern target in the Downpour/Ponderosa Property trend area. The zone was found in altered carbonate float rock in the tracks of an existing jeep road. The Wild Rose area extends over one mile north to south and is approximately 1,000 feet across, which is open to expansion. While the zone is nearly three quarters of a mile north of the Downpour zone, these zones may be connected. Of over one hundred surface grab samples at the Wild Rose zone, 34 contained gold grades over 1.0 g/t gold with one grading 52.9 g/t gold. This formed two zones. The southernmost zone is the more extensively sampled zone. Exhibit 9 shows the Wild Rose/Downpour Trend on the left side of the exhibit, and an inset of the Wild Rose zone on the right.

**Exhibit 9: Downpour – Wild Rose/Downpour Trend (left), Wild Rose Inset (right)**

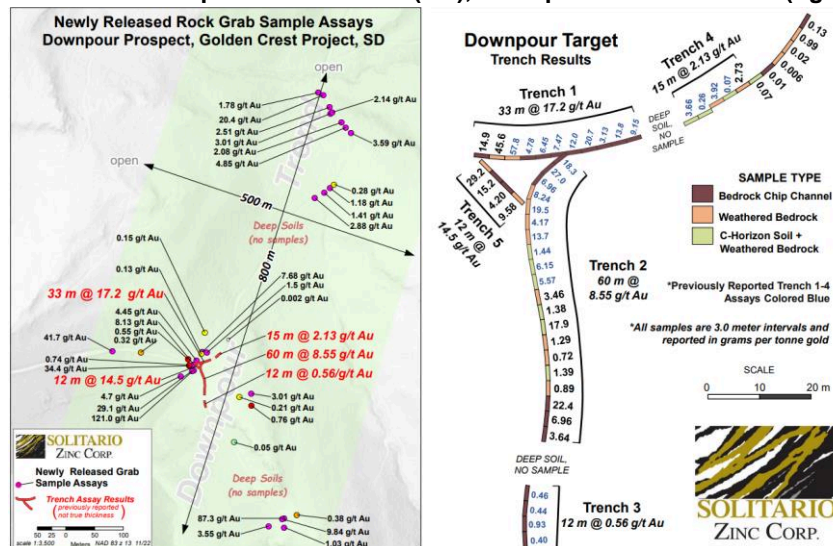


Source: Solitario Resources Corp., February 27, 2024 ([link](#))

The discovery of gold in the Downpour area encouraged XPL to view this area as having the most potential to become a very significant gold deposit. Intermittent mineralization was found in a stratigraphic horizon approximately 16 to 50 ft feet thick. Brecciation, alteration and high grades suggested proximity to a potential feeder. This led XPL to speculate that the Deadwood Formation could be ~820 to ~1,300 ft deeper.

Exhibit 10 shows exploration results at Downpour, with grab sample grades and locations on the left and channel sampling detail on the right. High grade grab samples were found in the north (20.4 g/t gold), southeast (87.3 g/t gold), and to the west (41.7 g/t gold). The highest-grade sample grading 121.0 g/t gold was found to the southwest of Trench 5. On October 4, 2022, XPL announced the results of channel sampling from trenching below Exhibit 10.

**Exhibit 10: Downpour Central Zone (left), Downpour Trench Results (right)**



Source: Solitario Resources Corp., November 3, 2022 ([link](#)), October 4, 2022 ([link](#))

Trench 1: 111.2 ft (~33.0m) grading 17.19 g/t gold.

Trench 2: 202.2 ft (~60.0m) grading 8.55 g/t gold (North to south and perpendicular to Trench 1).

Trench 3: 40.4 ft (~12.0m) grading 0.56 g/t gold.

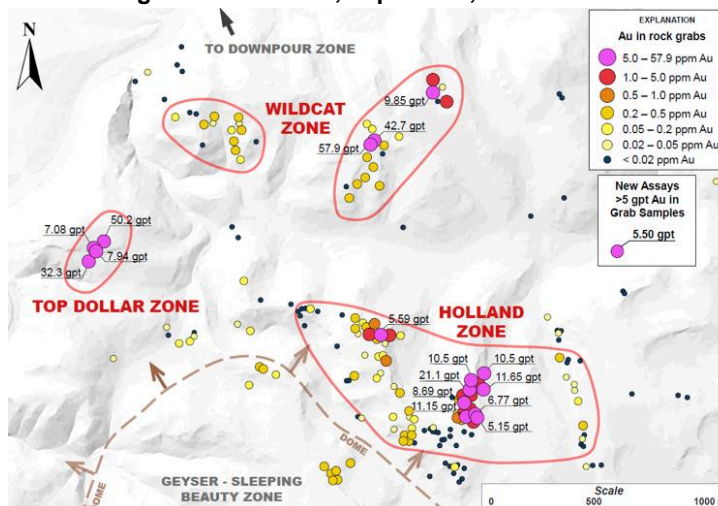
Trench 4: 50.6 ft (~15.0m) grading 2.13 g/t gold.

Trench 5: 40.4 ft (~12.0m) grading 14.54 g/t gold. (Perpendicular to Trenches 1 and 2 confirming the high-grade nature of this area of Downpour.)

On May 15, 2024, XPL announced the discovery of the Holland, Top Dollar, and Wildcat zones to the south of the Downpour zone. It believes that these zones may merge, like the Geyser zone further to the south, forming a zone over two miles long and a half mile wide. The zones are in Mission Canyon Limestone, believed to be part of the underlying Lodgepole Limestone that rings a structural dome to the south. The combined targets appear to connect with previously discovered gold zones to the south that are located on the recently acquired Ponderosa Property, which is not included in the POO.

XPL assayed 203 samples from these three zones, the highest of which graded 57.9, 50.2, 42.7, 32.3 and 21.1 g/t gold. In addition, 51 of the samples were over 0.2 g/t gold and 27 were over 1.0 g/t gold. Exhibit 11 shows the location of the zones and high-grade samples from this new zone.

**Exhibit 11: New High-Grade Holland, Top Dollar, and Wildcat Discovery Zones**

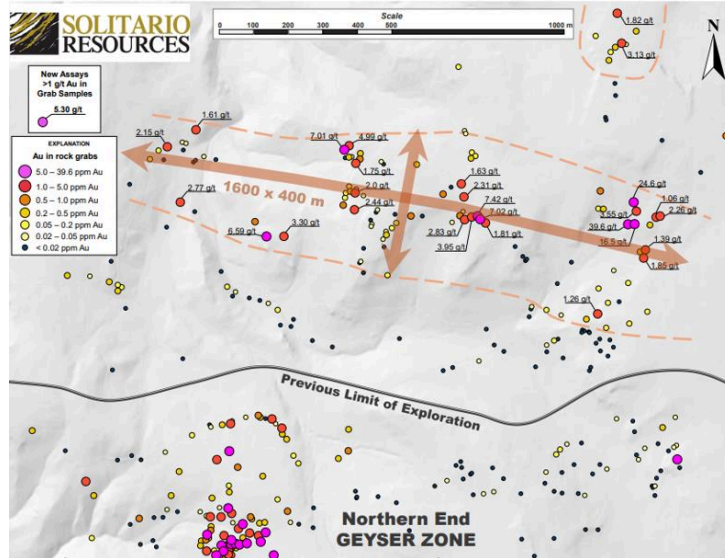


Source: Solitario Resources Corp., May 15, 2024 ([link](#))

On March 28, 2024, XPL announced the discovery of the Sleeping Beauty zone to the south of Holland, Top Dollar, and Wildcat zones. Sleeping Beauty is composed of five discovery areas that extend almost one mile east to west and ~550 to ~850 ft north to south. One subzone of ~557 ft by ~853 ft included a cluster of 14 grab samples with an average of 7.12 g/t gold.

Reconnaissance rock sampling from the 2023 field season included high grade gold values of 39.6, 24.6 and 16.6 g/t. Of a total of ~135 samples, 28 of these assayed grades were over 1.0 g/t gold, and 65 samples were over 0.2 g/t gold. Exhibit 12 shows the location and high grades at the Sleeping Beauty, which is the largest zone of gold sampling at the Golden Crest Project.

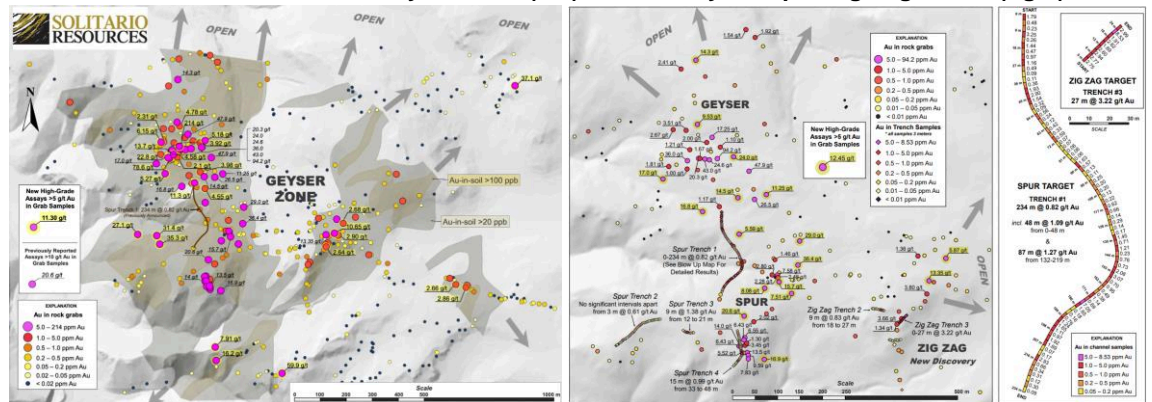
Exhibit 12: New High-Grade Sleeping Beauty Discovery



Source: Solitario Resources Corp., March 28, 2024 ([link](#))

The Geyser zone is in a limestone formation, like the Sleeping Beauty zone, and is approximately a third of a mile to the south of the Sleeping Beauty zone. These zones extend nearly three quarters of a mile north to south and a third of a mile east to west. Exhibit 13 shows the Geyser zone to be the consolidation of the previously discovered and expanding Geyser, Spur and Zig Zag zones. The highest grades from the 2023 field season included gold values as high as 171.5, 108.0, 78.6 and 59.9 g/t gold. The Geyser database from the 2022 and 2023 field season totals 515 grab samples; 99 of these contained assays of over 1.0 g/t gold, with 36 exceeding 10 g/t gold.

Exhibit 13: Consolidated Geyser Zone (left), Earlier Geyser-Spur-Zig Zag Zones (right)

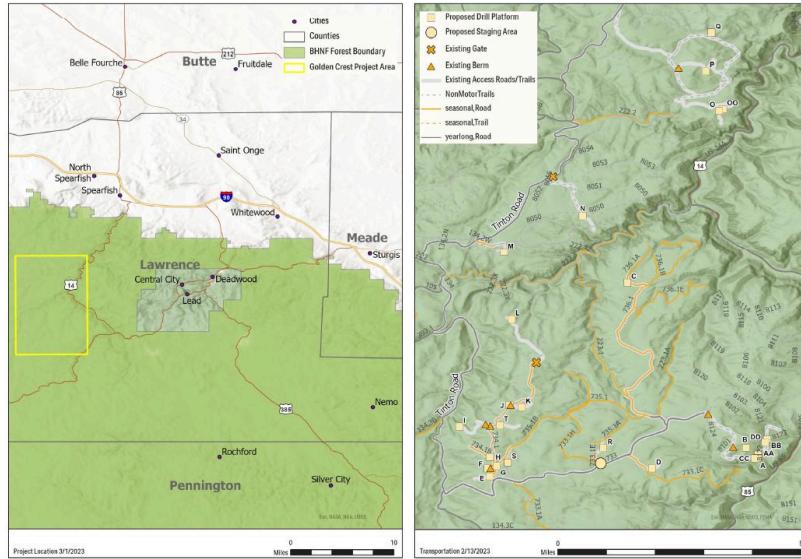


Source: Solitario Resources Corp., March 18, 2024 ([link](#)), February 28, 2023 ([link](#))

**PLANS FOR 2024 EXPLORATION FIELD SEASON AND DRILLING**

We expect that XPL should continue further sampling at the Downpour Trend area from areas included in the initial POO and onto the Ponderosa Property. On April 30, 2024, XPL announced that the USFS issued a Decision Notice and Finding of No Significant Impact (FONSI). This is a major step to commencing drilling on the Golden Crest Project mid-2024. The drill plan includes 25 pad sites for core drilling in fan patterns and to depth, penetrating prospective stratigraphic sequences. Exhibit 14 shows the location of the Golden Crest Project on the left and the proposed drill program on the right. The drill pad locations on the lower right (A, AA, B, BB, CC, and DD) are in the Downpour zone.

**Exhibit 14: Golden Crest Project Location (left), Proposed Drill Platform Locations (right)**

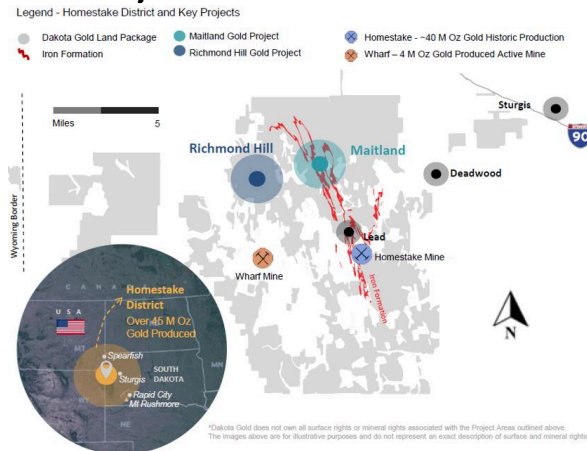


Source: USDA – Decision Notice and Finding of No Significant Impact, April 2024 ([link](#))

The gold mines in the Homestake Mine area appear to be in an east to west orientation. However, we note that the Dakota Gold Corp. (DC-NC) has experienced success at Richmond Hill and Maitland, north of the Wharf and Homestake Mines, in a north to south orientation along known iron formations. In addition, DC plans deeper drilling at Maitland, 3.4 miles north of the Homestake Mine.

The east to west and north to south orientations may be what we would expect of clustering gold deposits and widespread mineralization in a Super Gold Province. Given XPL’s success sampling the Golden Crest Project, particularly in the Downpour Trend, we believe that it is highly prospective for further sampling and an upcoming drill program. Exhibit 15 shows the location of the mines and DC’s gold projects to the east of the Golden Crest Project.

**Exhibit 15: DC Project Locations East of the Golden Crest Project**



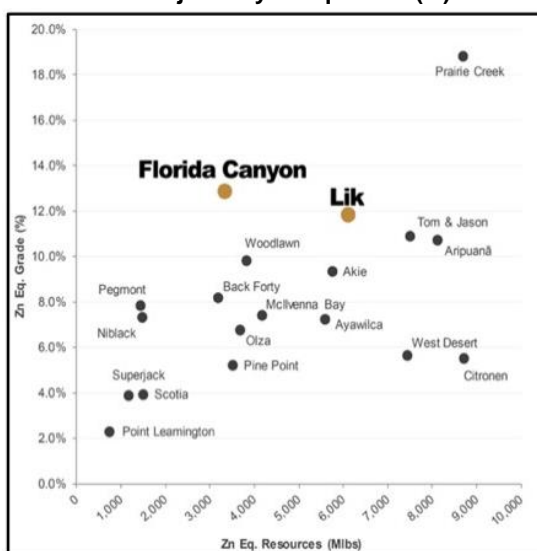
Source: Dakota Gold Corp., Corporate Presentation, dated May 2024

## HIGH-GRADE ZINC PROJECTS MITIGATE EXPLORATION RISK

XPL has a minority interest in two advanced high-grade zinc development projects. This includes the Florida Canyon/Bongará (Florida Canyon) project in Peru and the Lik Zinc Project in Alaska. Florida Canyon is held in a 39%/61% joint venture with NEXA. The Lik project is a 50%/50% joint venture with TECK. Both projects are supported by technical reports, which will need to be updated with current metal prices and cost estimates. In our opinion, previous technical reports show that both projects have advanced to a level for a positive mine decision. Both projects are being optimized for a mine decision by major zinc producers.

These projects will benefit with additional exploration, resource expansion, and metallurgical testwork to maximize recoveries and boost economic returns. We believe that both projects are accretive to each joint venture partner's portfolio, production profile, and business. We believe both projects may be acquired by their joint venture partners. As XPL has two valuable zinc projects, and a prospective gold project in South Dakota, this increases the likelihood of XPL receiving fair value for each. Exhibit 16 shows a distribution of zinc-equivalent (ZnEq) resources by grade and tonnage for junior zinc resource companies.

**Exhibit 16: Zinc Projects by ZnEq Grade (%) and Tonnage**



Source: Solitario Resources Corp., Corporate Presentation, December 2023 ([link](#))

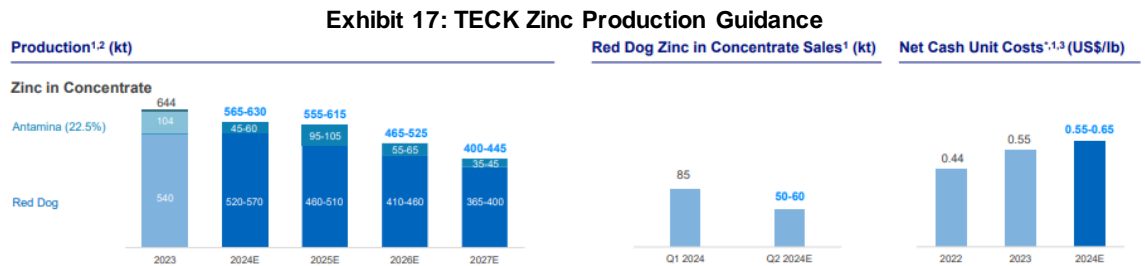
**XPL owns a 39% interest and NEXA owns a 61% indirect interest in Florida Canyon.** NEXA can earn a 70% interest by funding the project to production. After earning 70%, NEXA has agreed to finance XPL's 30% participating interest for construction through a project loan. XPL will repay the loan through 50% of its net cash flow distributions from production.

NEXA is a Luxembourg based metals producer with a \$1.0 billion market cap, with over 60 years' experience operating and developing mining and smelting assets. It is the world's fifth largest zinc miner and smelter, accounting for approximately 4% of the world's zinc production. NEXA operates six mines in South America, three of which are in Peru and three are in Brazil. It has two zinc smelters in Brazil, and South America's largest zinc smelter in Peru.

There are over a dozen copper and zinc projects in NEXA's development pipeline. It appears that Florida Canyon is among its most advanced projects with competitive grades relative to its operating mines. However, the project has significant infrastructure requirements. Even at the advanced level of development, Florida Canyon may benefit from additional metallurgical testwork and exploration to increase sulfide resources. As NEXA has placed its Aripuanã mine in Brazil in production, we believe that Florida Canyon may become a higher priority for development.

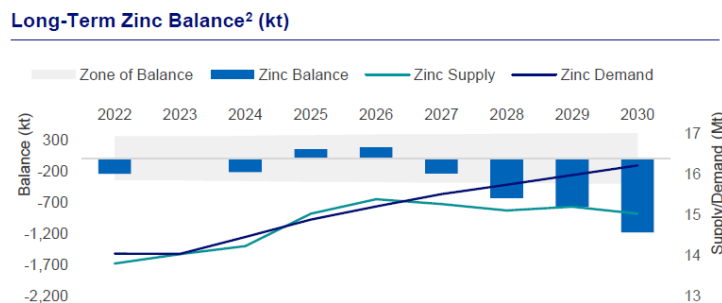
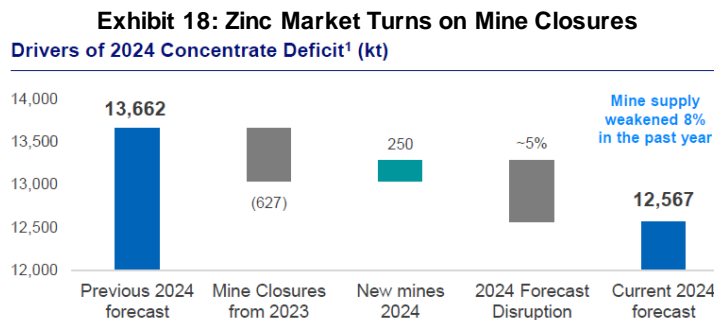
XPL owns a 50% interest and TECK owns 50% of the Lik Zinc Project. While decisions are made jointly, TECK is acting as operator of the Lik Zinc Project. This is appropriate, as TECK is likely to be the eventual owner of the project and will process ore at its Red Dog Mine. The Red Dog mine is located ~14 miles from the Lik resource. We believe that the Red Dog Mine is close to exhausting its resources.

TECK has a \$25.7 billion market cap and is the third largest zinc producer in the world. Its Red Dog Mine is the world's largest zinc mine. As TECK has a significant capital investment in the Red Dog Mine, we expect that it may look to the Lik resource to extend the life of operations. Exhibit 17 shows TECK's production guidance for the Red Dog Mine through 2027 with a notable decline in production, which we may expect to accelerate.



Source: Teck Resources Limited, Corporate Presentation, May 28, 2024 ([link](#))

A contributing factor for the development of the Lik Zinc Project is the economic contribution of the Red Dog Mine to the native owned NANA and the State of Alaska. Recently, NANA withdrew from the world-class Ambler project, which suggests that it would likely be supportive of extended operation of the Red Dog Mine. Exhibit 18 shows TECK's views on the zinc market. TECK anticipates a deficit for zinc production in 2024 and expects the deficit to expand in 2027 going forward.



Source: Teck Resources Limited, Corporate Presentation, May 28, 2024 ([link](#))

The exhibit may suggest that TECK may benefit by the acquisition of the Lik resource to extend operation of existing infrastructure at Red Dog Mine and during a period of stable or increasing zinc prices. We believe that the Lik resource fits into its long-term plans at Red Dog Mine. In our opinion, TECK may need to accelerate development planning and permitting with the looming exhaustion of resources at the Red Dog Mine.

**FLORIDA CANYON PROJECT SUMMARY**

XPL discovered zinc mineralization at the ~48.6 square mile Bongará project in 1994, and subsequently renamed it Florida Canyon. In 1996, XPL formed a joint venture with Cominco Ltd. and drilled 82 core holes. After Cominco Ltd. dropped its interest, XPL entered a joint venture with Votorantim Metais-Cajamarquilla, which became NEXA. Exhibit 19 includes maps showing the location of Florida Canyon in Peru on the left, and its proximity to major mines and smelters in northern Peru on the right.

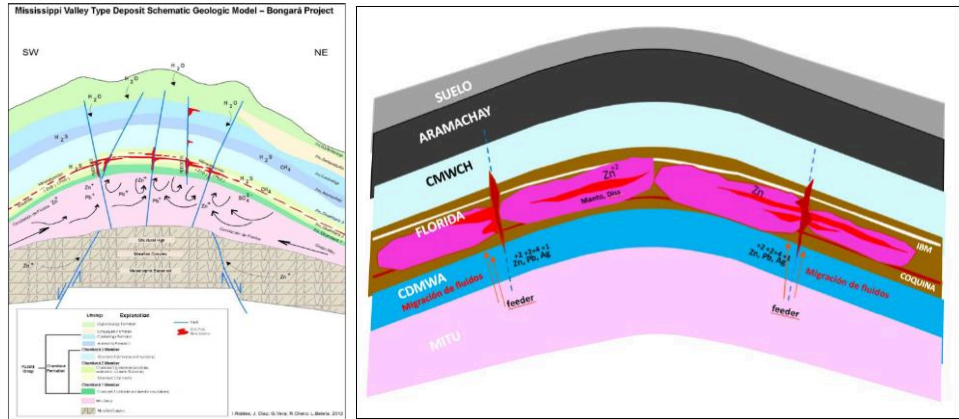
**Exhibit 19: Florida Canyon Project Location**



Source: Solitario Resources Corp., Corporate Presentation ([link](#))

Florida Canyon is in carbonate rock formations typical of the belt extending to the coast. Project mineralization consists of zinc, lead, and silver that occur as sulphides within dolomitized zones. Mineralization is in galena and sphalerite. Exhibit 20 includes a geologic model on the left and local stratigraphy schematic on the right.

**Exhibit 20: Florida Canyon Geologic Model (left), Local Stratigraphy Schematic (right)**



Source: Florida Canyon Zinc Project, Technical Report date April 5, 2021 ([link](#))

Approximately \$80 million has been spent on the project completing ~526 drill holes for a total of ~134,416m. A preliminary economic assessment (PEA) was completed in 2017. Exhibit 21 shows a mineral resource estimate (MRE) for 100% of Florida Canyon effective February 2, 2021.

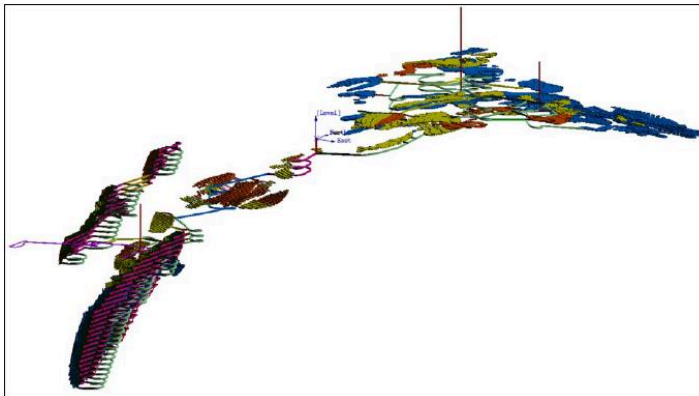
**Exhibit 21: Florida Canyon Mineral Resource Estimate**

Category	Tonnes Millions	Zinc %	Lead %	Silver g/t	ZnEq %	Contained Metal Zinc-Equivalent Billion Lbs.	Contained Silver Million Ozs.
Measured	0.81	11.32	1.40	15.4	12.78	0.29	0.40
Indicated	1.63	10.28	1.31	14.9	11.66	0.42	0.78
M + I	2.44	10.63	1.34	15.05	12.04	0.65	1.18
Inferred	14.86	9.63	1.26	11.3	10.89	3.57	5.39

Source: Solitario Resources Corp. Press Release dated April 7, 2021 ([link](#))

A PEA completed in 2017 outlined a potential mine with a production rate of 2,500 tonnes with a life of 12.5 years. This outlined a production schedule of 2-to-7 years of sulfide ore and 8-to-12 years of oxide and mixed ore, with cash flow of approximately \$75 million. The project had initial capital costs of \$213 million and sustaining capital costs of \$81.9 million. Based on \$16.50 per oz silver, \$1.00 per pound lead, and \$1.20 per pound zinc, the study estimated a payback in ~2.6 years, an after-tax NPV<sub>8%</sub> of \$197.5 million, and an IRR of 24.7%. Exhibit 22 shows an underground mine plan conforming to the mineralization in folded stratigraphy.

**Exhibit 22: Florida Canyon Project Mineralization and Development Layout**



Source: Florida Canyon Zinc Project, Technical Report dated April 5, 2021 ([link](#))

The PEA showed that it would be more profitable to mine and process sulfide resources; however, it appears that exploration and development focused on developing oxide and mixed-oxide resources. In our opinion, the PEA suggests the potential for further exploration and development of sulfide material. This is likely to result in an extension of mine life and improve recoveries, resulting in more robust economic returns. Also, we believe the project has a challenging topography and limited infrastructure. Development of infrastructure could be advanced while the resource is expanded and optimized. Exhibit 23 are photos showing the project area (left) and camp (right).

**Exhibit 23: Florida Canyon Project Area (left) Roso Field Camp at Project Site (right)**



Source: Florida Canyon Zinc Project, Technical Report dated April 5, 2021 ([link](#))

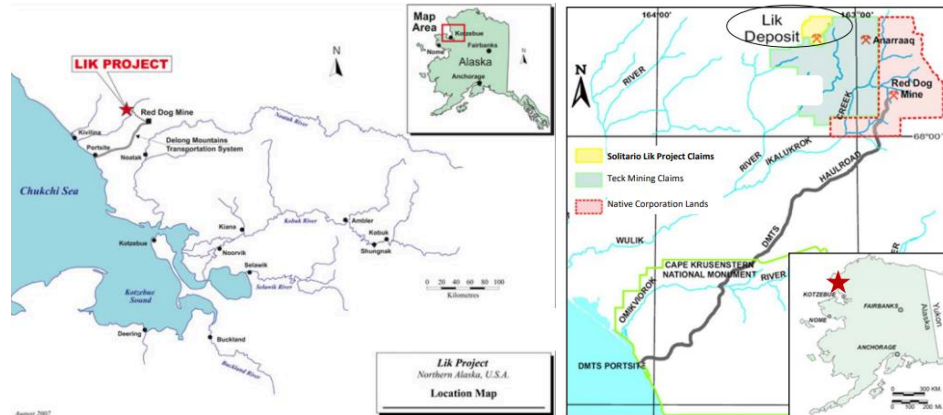
We see that there are multiple opportunities for NEXA to improve or expand upon the MRE. Plans for 2024 include mapping and surface development work. It recently completed an access road to the project and permitting for approximately 80 drill sites. It has an opportunity to upgrade the MRE through infill drilling and expand the resource over two kilometers of undrilled prospective targets. In addition, NEXA is conducting ongoing metallurgical testwork in anticipation of producing a pre-feasibility study.



**LIK ZINC PROJECT SUMMARY**

XPL owns 50% of the Lik Zinc Project in a joint venture with TECK, which owns the other 50%. The Lik property is in northwestern Alaska, approximately ~90 miles north of the port of Kotzebue and ~14 miles northwest of TECK’s Red Dog Mine. Exhibit 24 shows the location of the Lik Zinc Project and the Red Dog Mine in northwest Alaska.

**Exhibit 24: Lik Zinc Project Location Map (left), Proximity to the Red Dog Mine (right)**

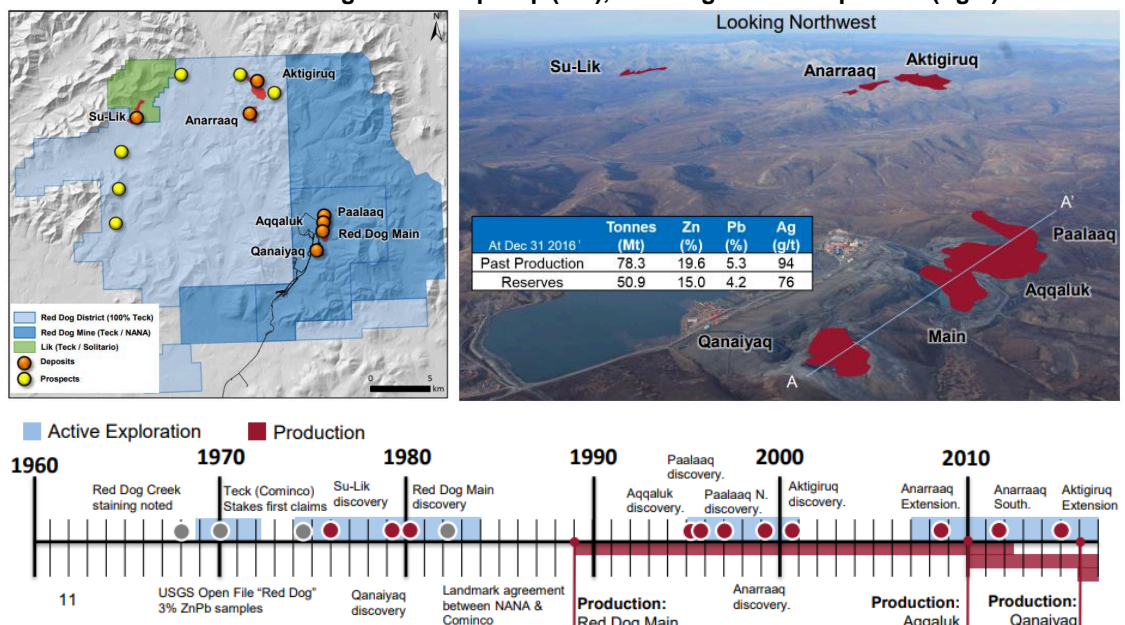


Source: Solitario Resources Corp. ([link](#)), Solitario Resources Corp., Corporate Presentation, December 2023 ([link](#))

The Red Dog Mine is an open pit mine with exceptional grades. Consequently, it is among the largest producing and lowest cost primary zinc producing mines in the world. The Red Dog Mine is nearing the end of its mine life (Exhibit 17), which as previously reported by TECK may occur in 2031.

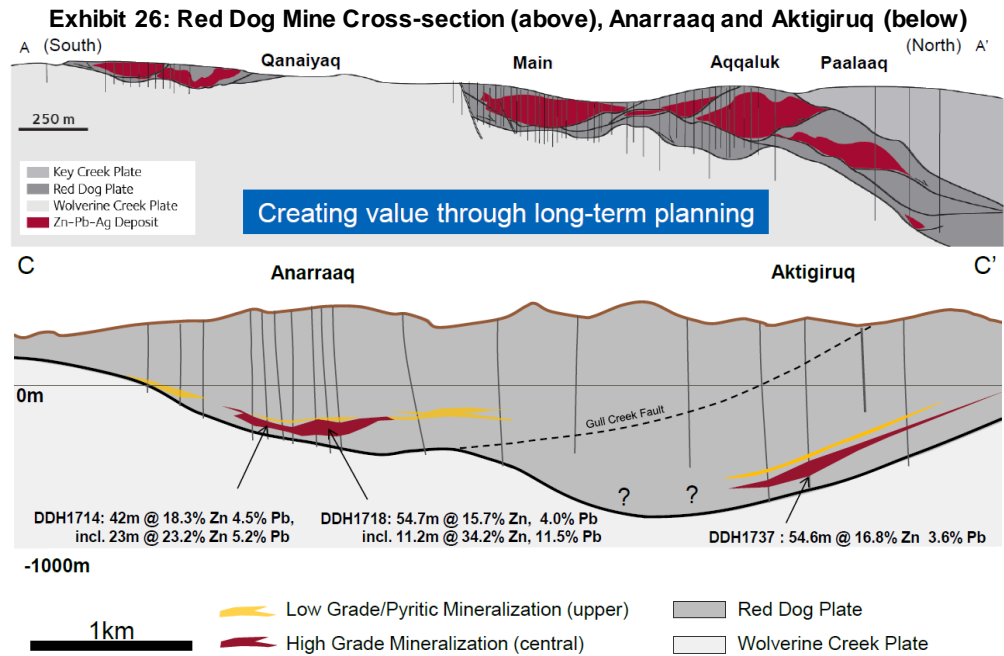
The Red Dog Mine is on land owned by NANA. The mine is of economic importance to NANA, other Regional Alaska Native Corporations, and the State of Alaska. TECK pays a royalty on net proceeds of production to NANA. This increased from 35% to 40% in October 2022. The royalty increases by 5% every fifth year to a maximum of 50%, with the next adjustment to 45% anticipated to occur in October 2027. The NANA royalty expense in 2023 was \$195 million compared with \$353 million in 2022. NANA shares approximately 60% of the royalty with other Regional Alaska Native Corporations, according to the Alaska Native Claims Settlement Act. Exhibit 25 shows high grade zinc/lead projects/prospects in the Red Dog Mine.

**Exhibit 25: Red Dog Mine Camp Map (left), Red Dog Mine Camp Aerial (right)**



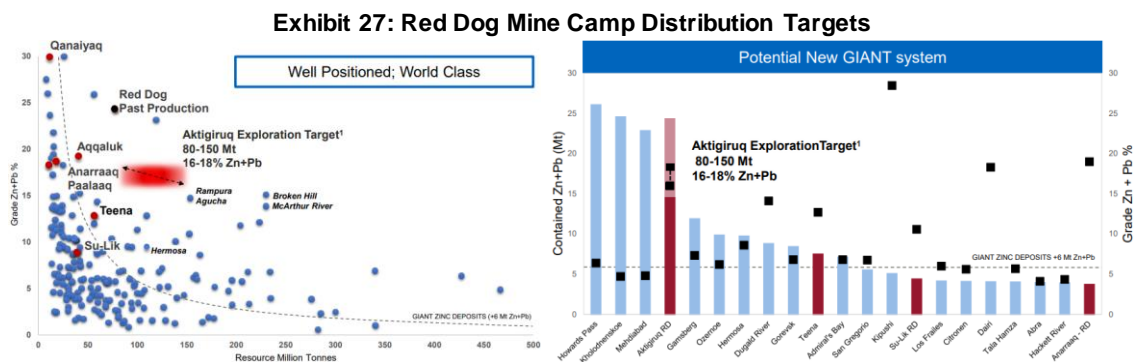
Source: TECK, Red Dog Exploration, Dated September 19, 2017 ([link](#)), ([link](#))

As presented above in Exhibit 17, TECK is providing guidance showing that the depletion of the Red Dog Mine resource is accelerating. TECK has two high-grade zinc exploration/development projects on its land, outside NANA land not encumbered by its royalty. This includes the Aktigiruaq and Anarraaq projects. Both projects are deep targets which may be mined from underground, with higher capital and operating costs. It appears that Aktigiruaq is the higher grade and larger of the two. Also, Aktigiruaq is at the scoping stage. Exhibit 26 shows a cross-section of the Red Dog Mine’s low-cost, near-surface mineralization (above) and relatively higher-cost deeper mineralization at its two most advanced Aktigiruaq and Anarraaq projects (below).



Source: TECK, Red Dog Exploration Part 1, Dated September 19, 2017 ([link](#))

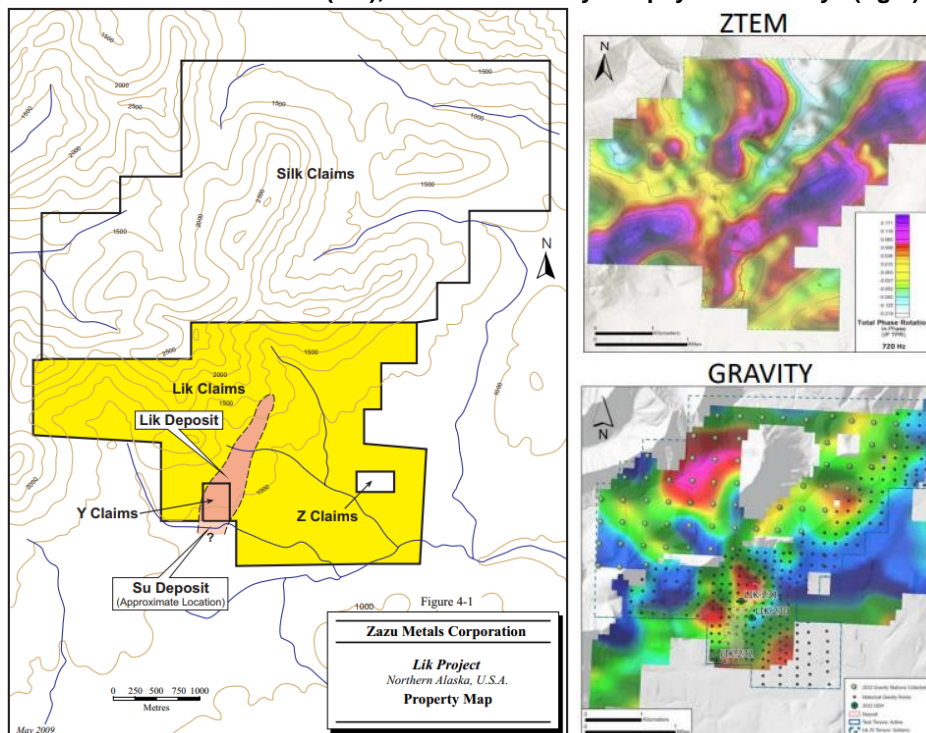
The Lik Zinc Project, though lower grade than the Aktigiruaq and Anarraaq projects, is likely to be mined from an open pit. This increases its appeal for development due to lower costs. In addition, as the Red Dog Mine is an open pit mine, mining the Aktigiruaq and Anarraaq projects from underground will require TECK to reorient operations to a different style of mining. Exhibit 27 shows the high grades and tonnage distribution of zinc/lead projects in the Red Dog Mine camp relative to other known zinc deposits.



Source: TECK, Red Dog Exploration, Dated September 19, 2017 ([link](#))

The Lik zinc deposit abuts the southern boundary of the joint venture’s claim area. The Su Deposit to the south is on land 100% controlled by TECK but is of lower grade. XPL completed ZTEM and Gravity surveys on the Lik Zinc Project claim areas that identify prospective targets to the northwest and west. Exhibit 28 shows the location of the Lik zinc deposit and geophysical surveys, potentially identifying additional drill targets.

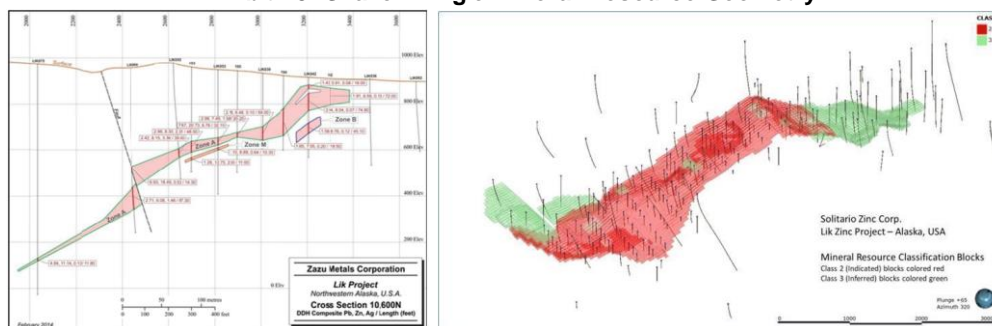
Exhibit 28: Lik Claim Area (left), ZTEM and Gravity Geophysical Surveys (right)



Source: Lik Technical Report, Dated May 13, 2009. ([link](#)), Solitario Resources Corp., December 2023 ([link](#))

The high grade Lik zinc deposit is near the surface with a shallow angle geometry attractive for open pit mining. This may suggest the potential for a lower cost operating mine plan. Exhibit 29 shows a cross-section and 3-D view showing relatively dense grid drill hole spacing with near-surface mineralization for potential mining from an open pit.

Exhibit 29: Shallow Angle Mineral Resource Geometry



Source: Solitario Zinc Corp., S-K 1300 Technical Report Summary, Dated March 11, 2022 ([link](#))

Exhibit 30 is a table showing the most recent MRE for the Lik zinc project. While these grades are lower than the Red Dog Mine, or Aktigiruaq and Anarraaq, the Lik zinc deposit appears competitive due to its likely lower operating costs mined from an open pit.

Exhibit 30: Lik Zinc Project Mineral Resource Estimate

Location	Indicated Resources				Inferred Resources			
	Mt	% Zn	% Pb	g/t Ag	Mt	% Zn	% Pb	g/t Ag
Lik South	17.1	8.04	2.69	50.0	0.71	7.78	1.97	14.3
Lik North	0.51	8.95	2.46	52.9	2.09	8.93	2.98	47.2
Total	17.6	8.07	2.68	50.1	2.80	8.64	2.73	38.9

Source: Lik Project – S-K 1300 Technical Report Summary, Dated March 11, 2022 ([link](#))

An economic study was completed in 2014 that estimated an after-tax NPV<sub>8%</sub> of \$99.1 million, with a 14.4% after-tax IRR, and a payback of 3.6 years. This was completed on a stand-alone basis with total capital costs of \$324.7 million. However, with the depletion of the Red Dog Mine, we expect this to increase the opportunity to transport ore to TECK's operations for processing. This would logically reduce the Lik Zinc Project capital budget by ~\$106.6 million, thereby boosting the NPV<sub>8%</sub> to ~\$205.7 million. In our opinion, this should improve its competitiveness for development relative to the Aktigirug and Anarraaq projects as a satellite mine.

While XPL is technically the operator of the Lik Zinc Project, it is allowing TECK to manage the exploration and development of the project given its knowledge of the Red Dog Mine camp. Exploration exceeding one million dollars on an annual basis requires mutual agreement of XPL and TECK. In our opinion, TECK has limited options to replace ore from the Red Dog Mine. Given the long lead time for permitting and development, TECK may need to accelerate development activities to fill excess capacity at its Red Dog Mine.

## SITE VISIT

The Golden Crest Project, Florida Canyon and the Lik Zinc Project have been described in technical reports. These reports provide a high level of information that mitigates the risk of not having visited the project prior to initiation of research coverage. In addition, both the Florida Canyon and the Lik Zinc Project are in joint venture with major mining companies, which provides additional third-party information. The Golden Crest Project's exploration potential is attractive for exploration but is speculative. Also, as the Golden Crest Project has potentially the most immediate impact on market price and volatility, and because this is central to our investment thesis, we plan to visit the Golden Crest Project and project area in 2024. Exhibit 31 is a photograph of the Golden Crest Project included in the USFS Final Environmental Assessment.

**Exhibit 31: Golden Crest Project Exploration Drill Area**



Source: USFS, Final Environmental Assessment, December 2023 ([link](#))

## FUNDING ANALYSIS

As of March 31, 2024, the end of its first fiscal quarter, XPL reported cash and cash equivalents, short-term investments, and investment in marketable equity securities of ~\$8.7 million. It reported ~\$8.7 million in positive working capital with total liabilities of \$412,000.

XPL expects to receive permits mid-2024, allowing it to move forward with a drill program at the Golden Crest Project. It is funded to complete a drill program for 2024 of at least 5,000m at cost of \$2 to \$3 million. We anticipate that upon discovery, XPL should accelerate exploration, which could extend for years and may be funded from issuing equity proportionate with its success.

XPL has limited funding requirements for its joint venture partnerships. At Florida Canyon, it is fully carried to production, including NEXA providing financing for XPL's share of construction. At the Lik Zinc Project, the partners are required to fund up to \$1 million annually, and over this amount, mutual agreement is required for additional expenditures. This allows XPL to benefit from carried development at Florida Canyon and increasing urgency at the Red Dog Mine to replace mine depletion.

### Newmont Corporation

Newmont Corporation (NEM-NC) has been a shareholder of XPL for over 20 years. NEM's initial investment of approximately four million shares was related to a strategic acquisition of land adjacent to its Yanacocha mine in Peru. Despite subsequently divesting investments in junior resource companies, NEM continued to hold these shares.

On August 2, 2023, prior to acquiring Newcrest Mining Limited in November 2023, NEM increased its ownership share in XPL to 9.95% by acquiring 4,166,667 shares of its common stock, at a price of \$0.60 per share, for total proceeds of \$2.5 million. Following the investment by NEM, on October 16, 2023, XPL completed a private placement of 8,631,818 shares of common stock at a price of \$0.55 per share for net proceeds of ~\$4.7 million.

In our opinion, in addition to NEM's practice of not investing in junior exploration companies, this demonstrates conviction in both XPL's management and the Golden Crest Project.

## MANAGEMENT

The XPL executive management team has worked together for over two decades. We view the duration over which team members work together to be an important indicator of their quality, productivity, and ability to increase value. In addition, during this tenure the team has demonstrated an ability to partner with major mining companies in the Americas which included the sale of a company. In our opinion, the team is qualified to manage XPL's interest in its Florida Canyon and Lik Zinc Project's assets. In addition, the team has a high level of exploration and operating experience to manage an aggressive exploration team to advance the Golden Crest Project. Excluding options, XPL's management and directors hold approximately 9.3% (excluding options) of XPL's outstanding shares.

**Christopher E. Herald (CEO, Director):** Chris Herald has been XPL's CEO since June 1999, and a director since August 1992. He also served as CEO of Crown Resources Corporation prior to its acquisition in 2006. Previously, Mr. Herald was a Senior Geologist with Echo Bay Mines and Anaconda Minerals. He currently serves as non-executive Chairman of Viva Gold Corp. (TSX.V: VAU). 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 (COO):** Walter H. Hunt has been XPL's COO since June 2008. Prior to this he was an executive officer managing XPL's projects in South America. Prior to XPL, Mr. Hunt was Vice President Operations of Crown Resources Corporation 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 (CFO):** James R. Maronick has been XPL's CFO since June 1999. He also served as CFO of Crown Resources Corporation from 1999 to 2006, and Vice President-Finance and Secretary/Treasurer from 1997 to 2006. From 1994 to 1997, Mr. Maronick served as Vice President-Finance and Secretary/Treasurer of Consolidated Nevada Gold Fields Corporation. Mr. Maronick graduated with honors from the University of Notre Dame in 1977 with a BA in accounting and received his master's degree in finance with highest honors from the University of Denver in 1986.

## VALUATION DISCUSSION

Our valuation assessment of XPL is based on the sum-of-the-parts approach. We believe that the potential for discovery at the Golden Crest Project, as defined by drill results, has the greatest potential to impact stock price during a period of record gold prices. In addition, we believe that both high-grade, advanced Florida Canyon and the Lik Zinc Project constitute value and mitigate the risk and time of a thorough exploration program. Based on TECK's assessment of a supply imbalance in 2024 and 2027 and beyond (Exhibit 18), we are optimistic for stable or increasing mid- to long-term zinc prices. In our opinion, both the value for potential discovery at the Golden Crest Project, and underlying value of the zinc projects, may not be fully reflected in XPL's current stock price.

**Our assessment of the value of the Golden Crest Project based on its exploration potential is speculative.** However, we have made the case based on reconnaissance exploration over a broad area that may be part of the Homestake-Wharf mining district. Without the close association with the Homestake-Wharf mining district to the east, we speculate, based on surface exploration, that XPL could outline a several million oz gold target withing the five-mile Downpour Trend. By comparison, DC's land position consists of 75 square miles encompassing the nearby historic Homestake Mine with a market capitalization of ~\$250 million.

On April 30, 2024, DC announced a maiden resource for the Richmond Hill Gold Project. This included an indicated resource of 51.8 million tonnes at 0.80 g/t gold for 1.33 million oz and inferred resource of 58.1 million tonnes at 0.61 g/t gold for 1.13 million oz. At the current market capitalization, this is ~\$102 per gold oz. With DC's current market capitalization, the market is factoring in the potential for additional discoveries, which we believe is reasonable.

A direct comparison of DC implies a price target of \$2.00 per share for XPL. However, DC's maiden resource was based on a historical database containing 69,401 gold assays from over 900 holes, which include 57 holes drilled by DC. In addition, DC is primarily located on private land already disturbed by past mining activities. The Golden Crest Project has no materially important drilling and is situated on USFS land subject to a potentially lengthier permitting process. However, DC's maiden resource is approximately 2.5 million oz with an average grade of 0.61 g/t to 0.80 g/t gold. We speculate that there is the potential for a three to six million oz gold surface target for the Golden Crest Project. **Based on \$25 per oz and 81.29 million outstanding shares, a three million oz target would imply a value of \$75 million, and \$0.92 per share.**

**We believe that both of XPL's high-grade zinc projects may be eventually acquired by their joint venture partners.** However, both projects have unique circumstances that may either accelerate or delay a sale. Florida Canyon is one of NEXA's most advanced development projects and XPL is fully carried through production. The Lik Zinc Project is within trucking distance to TECK's Red Dog Mine, whose resource may soon be exhausted. We believe that the structure of XPL in each joint venture provides an opportunity for receiving full value.

In 2019, NEXA acquired Karmin Minerals (Karmin) 30% interest in the Aripuanã project in Brazil for \$69.3 million. Karmin was a single-asset company. The transaction was at a ~28% premium of the prior closing price and 36% above the 20-day VWAP. The Aripuanã project was acquired in an advanced stage of development and is currently a producing mine. The Aripuanã project has estimated average annual production of 70 kt of zinc, 24 kt of lead, 4 kt of copper, 1.8 Moz of silver, and 14.5 koz of gold over a life-of-mine of 11 years. Exhibit 32 details NEXA's reserve and resource estimates for its Aripuanã project.

**Exhibit 32: NEXA's Aripuanã project Mineral Resource Estimate**

Interest <sup>(1)</sup>	Ownership (%)	Class	(Mt)	(%)	(%)	(g/t)	(%)	(g/t)	(kt)	(kt)	(koz)	(kt)	(koz)
			Tonnage	Zinc	Copper	Silver	Lead	Gold	Zinc	Copper	Silver	Lead	Gold
			(Mt)	(%)	(%)	(g/t)	(%)	(g/t)	(kt)	(kt)	(koz)	(kt)	(koz)
		Proven	8.97	3.80	0.28	35.7	1.43	0.26	340.7	25.4	10,279	128.1	75.2
Aripuanã Project <sup>(5)</sup>	100%	Probable	12.82	3.47	0.19	32.1	1.31	0.32	445.0	24.6	13,216	167.4	132.8
		<b>Subtotal</b>	<b>21.79</b>	<b>3.61</b>	<b>0.23</b>	<b>33.5</b>	<b>1.36</b>	<b>0.30</b>	<b>785.6</b>	<b>50.0</b>	<b>23,496</b>	<b>295.5</b>	<b>208.0</b>
		Measured	0.44	1.79	0.34	17.5	0.59	0.35	7.9	1.5	248	2.6	5.0
Aripuanã Project <sup>(8)</sup>	100%	Indicated	2.80	2.18	0.30	19.9	0.74	0.48	61.0	8.4	1,791	20.7	43.2
		<b>Subtotal</b>	<b>3.24</b>	<b>2.13</b>	<b>0.31</b>	<b>19.6</b>	<b>0.72</b>	<b>0.46</b>	<b>68.9</b>	<b>9.9</b>	<b>2,039</b>	<b>23.3</b>	<b>48.2</b>
		Inferred	38.48	3.51	0.33	35.5	1.29	0.55	1,350.6	127.0	43,919	496.4	680.4

Source: Nexa Resources S.A.'s website ([link](#))

XPL's Florida Canyon project, at a 30% carried ownership interest, is reasonable in comparison to Kamin Mineral's Aripuanã project. We believe that Karmin Mineral's interest was at a significant discount due to it being a single asset company, resulting in an unfavorable negotiating position. Also, the Aripuanã project has roughly three times the resource as Florida Canyon (Exhibit 21), albeit with lower zinc and silver grades. In addition, the Aripuanã project was close to production at the time of acquisition. Conversely, while Florida Canyon may be years from NEXA making a mine decision, the resource is open to expansion and optimization, XPL is fully carried to production, and is not subject to partner equity calls as was Karmin. Even with time to production, we believe that NEXA acquired Karmin at a significant discount. **Assuming the Aripuanã project is a reasonable comparison, this implies a contribution of \$69.3 million or ~\$0.85 per share.**

XPL owns 50% of the Lik Zinc Project in a joint venture with TECK that owns the other 50%. As noted above, project expenditures exceeding \$1 million dollars on an annual basis require mutual agreement of XPL and TECK. TECK's Annaraq project is at a scoping level. Exhibit 33 shows the Annaraq project MRE. We believe this compares favorably to the Lik Zinc Project, although the Annaraq project is at a higher grade than the Lik Zinc Project (Exhibit 30). The Annaraq project resource starts at a depth of ~1,300 ft (400m), which will be mined from underground at higher capital and operating costs than the Lik Zinc Project from an open pit.

**Exhibit 33: TECK's Annaraq Project Mineral Resource Estimate**

Resource Category	Tonnes (Mt)	Zn (%)	Pb (%)	Ag (g/t)
Inferred	19.4	14.4	4.2	73

Source: TECK, Red Dog Exploration, Dated September 19, 2017 ([link](#))

We assume that with increasing permitting and development programs, TECK may risk its timing of bringing on its Annaraq/Aktigirug projects or the Lik Zinc Project prior to exhaustion of the Red Dog Mine. As a satellite mine to the Red Dog Mine complex, an adjusted value for the 2014 economic study implies an NPV<sub>8%</sub> of ~\$205.7 million. **Based on XPL's 50% ownership of the Lik Zinc Project, at 0.35x our adjusted NAV of ~\$100 million, we estimate a current value to XPL of \$35 million, or \$0.43 per share.**

Our valuation estimates are speculative. However, all three of XPL's projects are open to expansion during a period of stable to increasing metal prices. In addition, each of XPL's assets have the potential for appreciation from exploration success or acquisition by major mining companies. The sum of our estimates for XPL's three projects is \$2.20 per share. **We are rounding the total down and initiating research coverage with a price target of \$2.00 per share.**

## VALUATION

Our valuation assessment of XPL is based on the sum-of-the-parts approach. We speculate that there is the potential for a three to six million oz gold target for the Golden Crest Project. Based on \$25 per oz and 81.29 million outstanding shares, a three million oz target would imply a value of \$75 million, and \$0.92 per share. Given XPL's interest carried to production, we conclude NEXA's acquisition of the Aripuanã project to be a reasonable comparison, implying a contribution of \$69.3 million or ~\$0.85 per share. Based on XPL's 50% ownership of the Lik Zinc Project, based on 0.35x or adjusted NAV of ~\$100 million, we estimate a current value to XPL of \$35 million, or \$0.43 per share. Though the sum of our estimates for XPL's three projects total \$2.20 per share, we round down and initiate research coverage with a price target of \$2.00 per share.

Factors that could impede XPL from achieving our price target include but are not limited to the inability to define additional resources, declining gold and silver prices, inability to access additional capital and exploration risk, the risk of permitting and litigation on land leased from the U.S. Forest Service, and timing of joint venture partner decisions outside of XPL's control.

## RISKS

**Political risk.** Natural resource companies are subject to significant political risk. Although most mining jurisdictions have known laws, potential exists for these laws to change.

**Commodity price risk.** All natural resource companies have some form of commodity price risk. This risk is not only related to final products but can also be in regard to input costs and substitute goods.

**Operational and technical risk.** Natural resources companies have significant operational and technical risks. Despite completing NI 43-101 compliant (or similar) resource estimates, deposits can still vary significantly compared to expectations. Additionally, numerous unforeseeable issues can occur with operations and exploration activities.

**Pre-revenue risk.** Pre-revenue natural resource companies are dependent on available cash, marketable assets and the ability to borrow or sell equity into capital markets to fund development including exploration and construction. There is no guarantee that the company will become cash flow positive.

**Market risk.** Although most natural resource companies are more closely tied to individual commodity price performance, large business cycle forces or economic crises can impact a company's valuation significantly.

Cautionary Note to US Investors: Estimates of Measured, Indicated and Inferred Resources

"Measured Mineral Resources" and "Indicated Mineral Resources." U.S. investors are advised that although these terms are required by Canadian regulations, the U.S. Securities and Exchange Commission (SEC) does not recognize them and describes the equivalent as "Mineralized Material." U.S. investors are cautioned not to assume that these terms are any form of guarantee.

"Inferred Mineral Resources." U.S. Investors are advised that while this term is required by Canadian regulations, the SEC does not recognize it. "Inferred Mineral Resources" are not delineated with a great deal of certainty and should not be considered likely to be brought into production in whole or in part.

## COMPANY DESCRIPTION

XPL is a natural resource exploration company focused on high-quality gold and zinc exploration projects. Its Golden Crest Project in South Dakota covers 52 square miles and is located adjacent to the Homestake/Wharf mining district. XPL holds a 50% joint venture interest (TECK 50%) in the high-grade Lik Zinc Project in Alaska and a 39% joint venture interest (NEXA 61%) in the high-grade Florida Canyon zinc project in Peru. At Florida Canyon, XPL is carried to production by NEXA through its joint venture agreement.



XPL Income Statement															
Amounts in \$ million	1Q23A	2Q23A	3Q23A	4Q23A	2023A	1Q24A	2Q24E	3Q24E	4Q24E	2024E	1Q25E	2Q25E	3Q25E	4Q25E	2025E
Revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operating Expenses	0.8	0.9	1.2	1.3	4.1	0.8	0.8	1.5	2.0	5.1	1.1	1.1	2.0	2.0	6.1
Operating Income	(0.8)	(0.9)	(1.2)	(1.3)	(4.1)	(0.8)	(0.8)	(1.5)	(2.0)	(5.1)	(1.1)	(1.1)	(2.0)	(2.0)	(6.1)
Other Expenses	0.4	(0.2)	(0.1)	0.2	0.4	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.4
Pretax Income	(0.4)	(1.0)	(1.3)	(1.0)	(3.8)	(0.7)	(0.7)	(1.4)	(1.9)	(4.7)	(1.0)	(1.0)	(1.9)	(1.9)	(5.7)
Taxes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Income	(0.4)	(1.0)	(1.3)	(1.0)	(3.8)	(0.7)	(0.7)	(1.4)	(1.9)	(4.7)	(1.0)	(1.0)	(1.9)	(1.9)	(5.7)
Basic EPS	(\$0.01)	(\$0.02)	(\$0.02)	(\$0.01)	(\$0.05)	(\$0.01)	(\$0.01)	(\$0.02)	(\$0.02)	(\$0.06)	(\$0.01)	(\$0.01)	(\$0.02)	(\$0.02)	(\$0.07)
FD EPS	(\$0.01)	(\$0.02)	(\$0.02)	(\$0.01)	(\$0.05)	(\$0.01)	(\$0.01)	(\$0.02)	(\$0.02)	(\$0.06)	(\$0.01)	(\$0.01)	(\$0.02)	(\$0.02)	(\$0.07)

Source: XPL SEC filings, press releases and ROTH Capital Partners estimates

Note: XPL reports under GAAP

Quarterly EPS may not sum to annual EPS due to rounding

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### Distribution of IB Services Firmwide

Rating	Count	Percent	IB Serv./Past 12 Mos. as of 06/09/2024	
			Count	Percent
Buy [ B ]	344	71.97	86	25.00
Neutral [ N ]	79	16.53	4	5.06
Sell [ S ]	2	0.42	0	0
Under Review [ UR ]	53	11.09	1	1.89

Our rating system attempts to incorporate industry, company and/or overall market risk and volatility. Consequently, at any given point in time, our investment rating on a stock and its implied price movement may not correspond to the stated 12-month price target.

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