



# **THE STIBNITE GOLD PROJECT**

## *IDAHO, USA*

**FREQUENTLY ASKED QUESTIONS & PROJECT GLOSSARY**

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DECEMBER 2022

# A

## ACCESS

### **ARE SITE TOURS AVAILABLE?**

*Perpetua loves offering tours. As of the end of 2021, Perpetua has conducted more than 200 tours and brought over 1,856 people to site. However, because of the pandemic, public tours are currently on hold.*

*You can watch a virtual tour [here](#).*

### **WILL THE PUBLIC BE ABLE TO ACCESS THUNDER MOUNTAIN FROM YELLOW PINE?**

*Yes. Originally, Perpetua Resources did not contemplate public access through the site during operations but around it. After residents from Yellow Pine and recreationists voiced concern, Perpetua worked with them to identify alternative transportation routes that would allow seasonal access for the public through site. That alternative is being reviewed by the U.S. Forest Service (USFS). The company is hopeful the USFS will include a public access option in the final plan. Learn more [here](#).*

### **DOES PERPETUA RESOURCES IDAHO PLAN TO CUT OFF ACCESS TO SUGAR CREEK AND CINNABAR?**

*No. Perpetua Resources has nothing to do with Sugar Creek Road closing. The company understands public access is important and the company has worked very hard to ensure the public can safely access recreation areas around the project location. The closing of Sugar Creek Road was the decision of the U.S. Forest Service. It is not a factor of the project or Perpetua's presence in the area. Learn more [here](#).*

## ANTIMONY

### **WHAT WILL PREVENT ANTIMONY CONCENTRATE DUST FROM BEING RELEASED INTO THE ENVIRONMENT AS IT IS BEING TRANSPORTED?**

*Antimony concentrate will be in enclosed containers (such as super sacks), inside closed transport vehicles, during transport to prevent dust emissions as well as the loss of valuable concentrate.*

### **WHERE WILL THE ANTIMONY BE SHIPPED/SOLD?**

*Today, there are antimony processing opportunities in North America – both in Montana and Mexico and overseas in Belgium and Oman. The Department of Energy is also building out processing capacity in America for these types of critical minerals. It is too early to know where our antimony would be processed as that will be a decision largely related to the buyer's need for end products. Regardless of where a processing facility is located, Perpetua can enter into a mill tolling agreement or treatment charge agreement, whereby Perpetua can maintain control until the final product is delivered to the customer.*

### **CAN PERPETUA RESOURCES GUARANTEE THAT THE ANTIMONY WILL STAY IN THE U.S.?**

*Perpetua is currently evaluating the possible options of what will happen to the antimony concentrate once it is produced at Stibnite. The company is trying our best to do right by the critical mineral needs here in the U.S. In 2021, Perpetua Resources signed an agreement with U.S. Antimony to evaluate if its two North American facilities could process antimony concentrate from the site.*

The company is also exploring other options, including contracting with a facility that would process antimony from Stibnite for a fee and allow us to maintain control of the product. Nothing will be finalized until Perpetua takes the necessary time to explore all of the possibilities.

# B

## BOOM

### ISN'T MINING JUST A "BOOM AND BUST" INDUSTRY?

No. The Stibnite Gold Project has an estimated mine life of 20 years. Perpetua is committed to sustainable economic growth. That is why the company has sequenced its operations in such a way to balance out the peak employment periods. Committing to train employees through job training programs also help provide a long-term base of skilled workers that can transfer skills to other roles throughout Idaho. Hiring locally and supporting local businesses helps promote an uplift in the economy of the region that can spin off additional growth not reliant on the mining project.

# C

## CANADA

### IS PERPETUA RESOURCES A CANADIAN OWNED COMPANY?

No. Perpetua Resources Corp is based in Boise, Idaho. It is a publicly owned company, traded on the Nasdaq and Toronto Stock exchange. The project is owned and staffed by Idaho companies, and regulated by county, state and federal agencies in the U.S. Shareholders of Perpetua Resources are primarily American and Canadian.

## CRIME

### WILL THE STIBNITE GOLD PROJECT ATTRACT CRIME INTO THE AREA?

There is no data to suggest crime increases with modern mining projects. What Perpetua does know is that the jobs offered with the project will sustain families and attract high-skill labor. Perpetua Resources employees will have to meet strict standards to work on the project. In addition, employees will have to stay up at site during their two-week shifts and Perpetua will follow best industry practices to keep people safe, which includes no alcohol or drug use at the site. In addition, the company believes about 30% of its workforce will be from the local communities and the balance from the rest of Idaho.

## CYANIDE

### CAN YOU EXPLAIN IN DETAIL HOW THE TANK LEACHING PROCESS WORKS?

At the Stibnite Gold Project, Perpetua will use a weak sodium cyanide solution to extract gold from the ore it mines. Cyanide has a natural tendency to bond with metals, even when they occur in microscopic amounts, such

as gold and silver in ore. This method of gold recovery has been popular for over a century. Advances in technology have allowed companies to use less and less cyanide to achieve similar results. At the project, Perpetua will meet or exceed all of the standards of the International Cyanide Management Code, which was developed and adopted by the industry after incidents at mines in Eastern Europe and South America. Idaho's Department of Environmental Quality will also have to review and approve all of our plans for cyanide use at the site.

To make sure the company is doing things in the safest way possible, all gold ore processing will happen inside an enclosed facility in order to protect the environment. The building will have 110% containment for all solutions being used. Perpetua will use as little cyanide as possible at the site, which will not be difficult since cyanide works so well for gold recovery and is not needed in large amounts or high concentrations. After the ore is mined and crushed, it will be placed in large tanks and mixed with a dilute sodium cyanide solution that contains less than one percent cyanide. This process extracts the gold from the ore and allows us to recover it to make mixed gold-silver doré bars for further processing off-site.

One of the processes that really sets Perpetua's use of cyanide apart from operations of the past is the water, cyanide, ore mixture will be chemically treated using a cyanide destruction process, located within the processing building, before being pumped from the process plant for placement in the fully lined tailings storage facility. This process reduces the levels of cyanide to negligible amounts before it ever leaves the contained building. Neutralizing the cyanide is an imperative step in the process to meet Perpetua's own needs. The company plans to recycle water from its tailings storage facility and reuse it in a part of the gold production process, the flotation circuit, where cyanide is not supposed to be present. If any measurable levels of cyanide remain in the recycled water, it would negatively impact gold recovery in flotation. Learn more [here](#).

## **IS IT SAFE TO USE CYANIDE AT THE STIBNITE GOLD PROJECT?**

At the Stibnite Gold Project, the company will meet or exceed all of the standards of the International Cyanide Management Code and Idaho's Department of Environmental Quality will review and approve all of Perpetua's plans for cyanide use. To make sure the company is doing things in the safest way possible, all gold ore processing at Stibnite will happen inside an enclosed facility in order to protect the environment. The building will have 110% containment for the solutions being used. Perpetua will use as little cyanide as possible at the site, which will not be difficult since cyanide works so well for gold recovery and is not needed in large amounts or high concentrations. After the ore is mined and crushed, it will be placed in large tanks and mixed with a dilute sodium cyanide solution that contains less than 1% cyanide. This process extracts the gold from the ore and allows us to recover it to make mixed gold-silver doré bars for further processing off-site.

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## **IN WHAT FORM WILL CYANIDE (NACN) BE DELIVERED TO THE FACILITY? WHAT AMOUNT WILL BE USED PER WEEK? ARE THERE MEASURES IN PLACE TO PREVENT INCIDENTAL CONTACT WITH WATER (HCN GAS PRODUCTION)?**

There will be approximately two loads of NaCN briquettes delivered to the processing plant per week. The solid briquettes will be delivered in specially designed sealed trailers to eliminate potential for spills, cyanide gas development and contact with workers. Trucks hauling hazardous material will be escorted to the plant by a HAZMAT kit equipped vehicle from Cascade. This proven transportation approach has been successfully used in the U.S. for decades without incident.

## **WILL THE PLANT HAVE A NACN REGENERATION CIRCUIT TO REDUCE NACN CONSUMPTION?**

*A regeneration plant was considered, but due to the characteristics of the Stibnite ore and process flowsheet, it would not result in a significant reduction in NaCN consumption, and therefore was not included. However, NaCN solutions used in the ore processing plant will be neutralized before tailings are discharged from the process plant.*

## **WHAT MEASURES ARE IN PLACE TO PREVENT THE PRODUCTION OF HYDROGEN CYANIDE GAS (HCN)?**

*Hydrogen cyanide gas is created in an acid environment. Perpetua's processing only works in an alkaline environment and therefore the company maintains pH to prevent HCN formation. Slurried lime will be added to the leaching circuit as needed to maintain alkalinity at a pH of approximately 11.*

## **IN THE EVENT OF A TANK OR PIPING FAILURE IN THE NACN LEACHING PHASE, WHAT MEASURES ARE IN PLACE TO PREVENT RELEASE OF THIS TOXIC SOLUTION INTO NEARBY STREAMS OR GROUND WATER? HOW WILL PLANT OPERATIONS NEUTRALIZE NACN SOLUTION/SLURRY THAT HAS BEEN RELEASED?**

*Tanks and pipes that contain CN solutions will be within secondary containment; the capacity of the secondary containment systems will accommodate 110% of the largest vessel within a given circuit. Additionally, applicable emergency response kits will be kept on site to neutralize accidental spills and personnel will be trained to respond to these types of events.*

## **IN THE FUTURE, WILL INDEPENDENT RISK ASSESSMENT STUDIES BE PERFORMED AND THE RESULTS PUBLISHED WHICH CALCULATE THE PROBABILITY AND THE CONSEQUENCES OF NACN SOLUTION BEING RELEASED INTO THE ENVIRONMENT DUE TO A FAILURE?**

*Perpetua Resources currently conducts quarterly risk assessments, which is a requirement of the Corporate Board of Directors, and the company will continue to do so during construction and operations. The risk assessment tool Perpetua uses is audited by an independent third-party and based on a Failure Mode and Effects Analysis (FMEA) methodology. A potential failure mode associated with a CN release can be expected to form part of the company's operational risk assessments. It should be noted that Perpetua is designing and will operate its CN facilities consistent with ICMI and IDEQ requirements, and the likelihood of CN pipe or tank rupture at Stibnite is likely consistent with similar operations in Nevada. Learn more [here](#).*

## **HOW WILL CYANIDE LEACH PADS BE RECOVERED AT THE END OF PRODUCTION?**

*Perpetua Resources does not plan to develop heap leach pads; its cyanidation process will occur in enclosed steel tanks. Once the gold and silver is extracted from the ore, the resulting tailings will be neutralized to reduce weak acid dissociable cyanide (CNWAD) to levels protective of wildlife, then pumped to a fully synthetically lined tailings storage facility (TSF). The TSF will be covered with native soils, rock, and growth media, and Meadow Creek will be reestablished at a horizontal alignment similar to the original alignment.*

## **COMMUNITY AGREEMENT**

### **ISN'T THE COMMUNITY AGREEMENT JUST A BRIBE?**

*No. Such impact-benefit agreements are an industry best practice. The community agreement is a long-term commitment on behalf of the company to promote transparency and collaboration with the community. It is important to know what the community agreement is asking and what it is not asking. Perpetua and the participating communities have agreed to three things:*

1. Participate in a regional conversation
2. Become informed about the Stibnite Gold Project and share their points of view
3. Assist in making decisions about how to distribute foundation funding

Communities participating in the community agreement are not required to support the project and funding is not tied to support. It is good business for Perpetua to work with communities to anticipate and address points of conflict before they arise. While Perpetua Resources fully intends to operate the Stibnite Gold Project, regardless of what happens to anyone who works for Perpetua Resources, the community agreement ensures the company's commitments today remain for the future. Learn more [here](#).

## **ARE THE FUNDS IN THE STIBNITE GOLD FOUNDATION INTENDED TO MITIGATE PROJECT IMPACTS?**

No. The foundation will be a charitable organization focused on helping the communities of the West Central Mountains, Council and Riggins. Project impacts, like road improvements or environmental mitigation, will be paid for by Perpetua Resources as a part of the permitting process. Learn more [here](#).

# **E**

## **ENVIRONMENT**

### **WILL MINING DESTROY THE LAND AND RIVER?**

No. Past mining left behind impacts that still remain today because the area was never fully restored. Today, with modern mining, Perpetua can go back to these impacted areas and rewrite Stibnite's legacy. Perpetua's project design, and the regulatory environment today, prioritize protecting the land and river for generations to come. Learn more [here](#).

### **WHAT IF MORE CONTAMINANTS ARE RELEASED INTO THE ENVIRONMENT, VIA UNEXPECTED ACCIDENTS OR LEACHING?**

In order to permit the Stibnite Gold Project, Perpetua must identify potential environmental and safety risks and either identify how to eliminate those risks or take necessary mitigation steps to reduce the probability of the event occurring. Perpetua must also take every conceivable step to be ready and prepared to deal with any incident. This is why Perpetua Resources has proposed accessing the site via Burntlog Road. This road would keep traffic away from rivers and major waterways, substantially reducing the potential of any contaminants being spilled in the river. The company also identified using pilot vehicles to reduce the potential of an accident and to be ready with spill cleanup response equipment in the escort vehicles in the case that an accident did occur. Another example is that within the ore processing facilities on site, all vessels have secondary containment sufficient to hold up to 110% of the volume of the vessel in case of a rupture. While Perpetua's first job is to eliminate and greatly reduce risks, the company also has to develop action plans to ensure it has clear response plans in place if something unplanned were to occur.

### **IF YOU WANT TO RESTORE THE ENVIRONMENT, WHY IS ONLY 51% OF THE FOOTPRINT ON DISTURBED AREAS?**

Ninety percent of the mineral resources Perpetua will mine are on privately held land, most of which has been heavily disturbed by past mining activities. However, not all of the project footprint is on previously disturbed land. The lined, tailings storage facility and the housing development are the largest impacts to public land. The team evaluated many places to locate the tailings storage facility. After reviewing the information, it was clear its proposed placement on the site was best because it allows 90% of the facility to be surrounded by granite mountains – dramatically increasing the facility's factor of safety. Learn more [here](#).

## **U.S. MINING HAS A TRACK RECORD OF POLLUTING WATER. ONE STATISTIC SAYS MINE SITES IN THE U.S. DUMP 50 MILLION GALLONS OF FOULED WASTE WATER DAILY. HOW DO YOU RESPOND?**

*Today, regulations and permitting dictate water quality standards and discharge. Any water discharged must meet set standards or be treated so that it meets standards before discharge. The Stibnite Gold Project will not directly discharge process water, and any discharges will meet the regulatory standards after treatment.*

*Prior mining created the problems facing the East Fork of the South Fork of the Salmon River (EFSFSR) and, no matter how counterintuitive it may seem, the company believes mining should fix it. Today, the company has 11 state and federal agencies reviewing all aspects of its plan as well as input from the public and interested stakeholders. After a complete review and changes to make its plan better, these agencies are expected to approve the final plan for restoration, operations and mitigation. Perpetua will be required to follow the plan they accept, which will include strict requirements around how it restore the site. Unlike mining that occurred decades ago, Perpetua Resources cannot walk away from its project site. Before any work can begin, it must set aside all funds needed to restore the site. This ensures that the EFSFSR will finally get the attention it needs.*

## **WILL THERE NEED TO BE A PERPETUAL WATER TREATMENT ON SITE AFTER CLOSURE?**

*Following the release of the Draft Environmental Impact Statement, the Perpetua team made some significant improvements to the Stibnite Gold Project. Permanent water treatment will no longer be required. The updated plan improves water quality and eliminates features that caused the need for permanent water treatment. Water treatment is required at site during operations and for approximately eight years following active mine operations. All work at site, including water treatment, will require monitoring and be backed by financial assurance.*

## **WILL PERPETUA USE CHEMICAL FERTILIZERS?**

*Yes, soil testing will be performed and appropriate chemical fertilizers may be used to compensate for deficiencies in soil nutrients. Compost may also be adequate to compensate soil nutrient deficiencies.*

## **ECONOMY**

### **WHAT TYPES OF JOBS WILL BE AVAILABLE ON THE STIBNITE GOLD PROJECT?**

*Opportunities will be available for professionals in an array of fields from craft and trade jobs to highly specialized roles, as well as administration, HR and accounting. Perpetua is committed to looking to Idaho first for employment and vendors. For now, its team includes a talented group of people committed to the idea that modern mining can leave a lasting positive impact on the environment, economy and people of Idaho. Learn more [here](#). To stay up to date on future employment opportunities, please fill out the employee intake form [here](#).*

## **F**

## **FINANCIAL ASSURANCE**

### **WHAT PREVENTS PERPETUA RESOURCES FROM "WALKING AWAY" FROM THE SITE?**

Before Perpetua Resources is allowed to begin construction or mining operations at Stibnite, the company will be required by law to set aside all the funds necessary to fully reclaim and restore any disturbance made to the site. This ensures the environment will be protected. Learn more [here](#).

## WHY DIDN'T FINANCIAL ASSURANCE ALWAYS WORK IN THE PAST?

Today's environmental regulatory environment and advanced mining technology create a safer environment for mines to operate. Historically, financial assurance numbers did not always align with the real costs of reclamation. Models like Standardized Reclamation Cost Estimator (SRCE) base financial assurance calculations on detailed, site-specific factors and assume government-contracting rates. The resulting figure is far more accurate than the flat-fee structures of the past and allows financial assurance to work as it was intended. Learn more [here](#).

## WHEN WILL WE KNOW THE BOND AMOUNT FOR THE STIBNITE GOLD PROJECT?

Because Perpetua has elected to use an actual-cost based model, the company will need to see the final approved plan before it can use SRCE to provide a calculation. However, in the meantime, Perpetua is in the process of developing an estimate of what it would take to bond for the Stibnite Gold Project. Learn more [here](#).

## FOOTPRINT OF PROJECT

### HOW BIG IS THE PROJECT?

The Stibnite Gold Project is located on a combination of private and public land just outside of Yellow Pine. Perpetua Resources' claim package includes 29,827 acres of private and public land but the onsite project footprint is only 1,740 acres – just 5.8% of the total package. Perpetua worked hard to contain as much of the project as possible within areas previously disturbed by mining or mining-related activity, as a result, 51% of the project footprint is on land that has already been disturbed. The tailings facility and worker housing facility are the largest impacts to undisturbed public lands. By locating facilities on previously disturbed ground to the maximum extent possible, using existing roads and avoiding riparian areas, the other 94.2% of land held by Perpetua Resources will not be affected by the proposed project. Additionally, 90% of the mineral reserves Perpetua Resources plans on mining are on Perpetua Resource's private land. As the company moves forward with its project, it will continue to look for practical ways to minimize the footprint of its project. In December of 2020, Perpetua provided refinements to the U.S. Forest Service that reduced the total volume of mined material by 10% and further reduced the footprint by 180-acres. It is incredibly important to Perpetua's team that, as much as possible, it focuses its efforts on areas that have already been heavily mined and keep its work out of areas that are untouched. Learn more [here](#).



## GOLD

### WHAT HAPPENS IF THE PRICE OF GOLD DROPS?

Perpetua's 2020 Feasibility Study showed the Stibnite Gold Project has robust economics. The low operating cost means the project should weather a weaker gold price. Part of the mine financing package may also involve pre-selling gold at a fixed price to ensure those robust returns, further reducing the risks to the project.



# H

## HOUSING

### HOW WILL THE PROJECT IMPACT LOCAL HOUSING?

Perpetua commissioned a detailed economic study of the area to get a sense of the potential impacts its project might have on the community. In the Plan of Restoration and Operations (PRO), Perpetua designed its shifts to be two weeks on, two weeks off, to make it possible for employees to live anywhere in Idaho to reduce its impacts on local communities by spreading employees over a larger area. The company anticipates that about 120-150 employees will come from those who already live in the region, a third of the workforce will commute to the project, and some people (about 120) will move into the Valley and Adams County region from elsewhere. According to its study, Perpetua believes impacts will be limited since the number of people moving in appears to be relatively low compared to the community size and annual growth rate. Learn more [here](#).

# I

## INVESTORS

### WHO OWNS PERPETUA RESOURCES?

Perpetua Resources is a publicly traded company. Company shares are owned primarily by investors in the United States and Canada, as well as overseas. As of June 30, 2022, institutional investors make up more than 75% of the company ownership including Paulson & Co. (~39%), Sun Valley Gold (~9%), Kopernik (~8%) and Nokomis (~2%). The remaining ownership includes retail investors and insiders.

### IS PERPETUA JUST MAKING DECISIONS BASED ON WHAT IS BEST FOR THE SHAREHOLDER?

Perpetua Resources is focused on unlocking value for all stakeholders through the redevelopment and restoration of an abandoned mine site. One of Perpetua's stakeholders is their shareholders. Shareholders who invest in Perpetua Resources are investing in the company's vision and business plan, where strong ESG principles are foundational in everything Perpetua does. This includes its commitment to corporate social responsibility, earning a robust social license, prioritizing environmental sustainability, cleaning up legacy impacts and doing the right thing. Many investors recognize that strong ESG standards and doing business the right way is linked to unlocking long-term value and are a criteria for investment. Learn more [here](#).

# L

## LINER

### WHAT IS THE LIFE EXPECTANCY OF THE TAILINGS FACILITY LINER?

The plastic component of the tailings facility liner has a half-life of over 450 years; however, the bentonite clay contained in the underlying geosynthetic clay liner (GCL) is a natural low-permeability material that will not degrade with time. In addition, owing to both their fine grind and our addition of lime and limestone during ore processing, the tailings themselves create a nearly impermeable layer as they compact and cement over time.

Perpetua is happy to walk you through the design and the contents of the tailings storage facility, you can also watch the company's webinar [here](#). It is also important to note that today, millions of tons of spent ore and tailings sit uncontained in the Meadow Creek valley and interact with ground and surface water. One of Perpetua's first actions during operations will be to pick up this material for reprocessing, reuse and safe storage.

# M

## MERCURY

### **WILL MERCURY BE CAPTURED DURING THE PROCESSING OF ORE? IF SO, HOW WILL IT BE DISPOSED? AND WHAT MEASURES ARE IN PLACE TO CAPTURE MERCURY GAS?**

*Mercury (Hg) that is naturally occurring in the ore and that is volatilized in the autoclave will be collected by scrubbers. Hg that volatilizes in the onsite refinery will be recovered in retort condensers. Hg collected through these two systems will be transported to an approved offsite hazardous waste storage facility.*

### **WHEN REPROCESSING LEGACY TAILINGS, WILL PERPETUA RESOURCES CAPTURE MERCURY THAT REMAINS IN THE TAILINGS?**

*Yes, mercury capture systems are included in several circuits in the ore processing plant, and Perpetua's expects that most of the mercury in the legacy tailings will be captured by these systems.*

# O

## OPERATIONS

### **WHERE ARE YOU MINING?**

*Perpetua is in the middle of permitting right now, so it is not currently mining. The Stibnite Gold Project is located in central Idaho, roughly 50 miles northeast of Cascade and several miles outside of Yellow Pine. The project is located on a combination of private and public land. Ninety percent of the mineral reserves are found on land owned by Perpetua. Once permitting is complete, the company plans to mine for gold, antimony and a little bit of silver. Learn more [here](#).*

### **IS THE STIBNITE GOLD PROJECT AN UNDERGROUND MINE?**

*The Stibnite Gold Project will utilize open pit mining; it is not an underground mine. However, Perpetua's mining plans do include some underground mine exploration.*

### **WHAT MINERALS IS THE STIBNITE GOLD PROJECT LOOKING FOR?**

*The Stibnite Gold Project is designed to mine gold, antimony and silver. Perpetua has found valuable deposits of these minerals at site. Learn more [here](#).*

### **DOES PERPETUA RESOURCES HAVE OTHER OPERATIONS?**

*No, Perpetua is solely focused on permitting and mining the Stibnite Gold Project.*

### **WHEN DO YOU EXPECT TO RECEIVE YOUR PERMITS FOR THE STIBNITE GOLD PROJECT? WHEN WILL MINING START?**

*The Stibnite Gold Project continues to make its way through permitting. Perpetua Resources is currently on track to receive a record of decision (ROD) from the U.S. Forest Service in late 2023 or early 2024. Once the ROD is received, Perpetua will have three years of construction before operations will start. Learn more [here](#) and [here](#).*

## **IS IT FAIR TO CALL THE STIBNITE GOLD PROJECT A RESTORATION PROJECT?**

*The project goes beyond the reclamation required by law. Perpetua designed the Stibnite Gold Project to leave the site better than they found it. Repairing the East Fork South Fork of the Salmon River, restoring fish passage, addressing legacies of the past, and repairing Blowout Creek are not required by regulation but they are the right thing to do. Perpetua Resources believes restoration and operations go hand in hand; they were designed to complement one another and can't happen alone. Learn more [here](#).*

## **CAN PERPETUA RESOURCES PROMISE NOTHING WILL GO WRONG?**

*Realistically, the company can't make that promise. However, Perpetua Resources can promise you its team is doing absolutely everything it can to ensure they will limit potential risks, they take every possible precaution to protect the environment and they keep the safety of its employees and the community at the forefront of all of its decisions.*

*The permitting process is also designed with many checks and balances. Projects are required to identify possible risks and either eliminate risk or mitigate the possibility of the risk and then put in place plans to address a situation should it occur. The projects that receive approval to move forward today have to pass strict requirements and be deemed safe by federal, state and local agencies. Learn more [here](#).*

## **WHAT IS PERPETUA RESOURCES DOING TODAY?**

*Right now, Perpetua is in the midst of permitting the Stibnite Gold Project. It submitted its original Plan of Restoration and Operations to the USFS in late 2016. Through the permitting process, the company has continued to improve its plan using science and public feedback. The refined plan is available on the USFS website, if you want to learn more about it and receive updates on the process. In addition to permitting, Perpetua also started early clean up actions at site in the summer of 2021. Perpetua signed an agreement with the EPA, US Forest Service and in consultation with the Department of Justice. The agreement (Administrative Settlement and Administrative Order on Consent) is a legally enforceable agreement that will guide the planning and cleanup of the Stibnite site before, during and after the Stibnite Gold Project is approved by the U.S. Forest Service. It provides clarity to both Perpetua Resources and the EPA on expectations, milestones and outcomes. The work includes moving 325k tons of legacy waste away from the river and rerouting and lining streams away from waste.*

## **IS THE CURRENT PROPOSAL THE FINAL PLAN?**

*No. As long as the Stibnite Gold Project is going through the permitting process, there may continue to be changes. Perpetua submitted its original Plan of Restoration and Operations, after five years of planning and community outreach. However, that plan has continued to be refined and improved based off the latest science and stakeholder feedback. In December of 2020, Perpetua Resources submitted an updated mining plan to the U.S. Forest Service. The improvements eliminated the need for perpetual water treatment, reduced the project footprint and improved water quality on site. This is the permitting process at work. Learn more [here](#).*

## **WHY IS MINING TODAY DIFFERENT THAN HISTORICAL MINING?**

*Mining practices have greatly improved today compared to past decades—especially compared to the early to mid-1900s when major mining activity occurred at Stibnite.*

*Mining, environmental technology and practices have evolved, engineering controls have been developed, and federal and state regulatory programs and financial assurance requirements have been adopted and successfully implemented since the early 1990s to ensure comprehensive bonding for mining's impacts. Societal values have also changed and, Perpetua Resources is very aware of its potential impact on the environment and has taken extensive and comprehensive measures to address those potential impacts. In contrast to historic mining activities, which focused on profit (or, in the case of Stibnite, focused on providing critical and strategic metals for the United States and its allies during World War II and the Korean War) with little regard for*

*impacts to the environment, the Stibnite Gold Project was designed from the start with ultimate closure in mind, and with restoration and reclamation as primary design standards.*

*It is important to note that, since the implementation of stronger environmental standards and bonding requirements over the past several decades, there have been no new mines developed in the U.S. that required Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) funding for clean-up. Learn more [here](#).*

### **WILL PERPETUA RESOURCES OPERATE THE MINE?**

*Perpetua Resources fully intends to own, construct and operate the Stibnite Gold Project long term. As a public company, Perpetua Resources Corp. is always looking to the future, and particularly to future funding sources for the eventual construction and operation of the project. The company will continue to pursue potential new investors or partnerships that allow it to provide the capital required for construction of the proposed operation and restoration, once permits are granted. Perpetua Resources intends to remain in the community and ensure the Stibnite Gold Project, with all its environmental, economic and social benefits, is completed as planned. The conditions of approval contained within the final authorization will bind Perpetua, or any other operator, to abide by the operating restrictions, requirements and obligations of the final approved action.*

### **IF OWNERSHIP CHANGES, WOULD RESTORATION STILL HAPPEN AT STIBNITE?**

*The Stibnite Gold Project was intentionally designed to restore the site. Restoration is built into multiple aspects of Perpetua Resources' plan, so the river, wetlands and habitat could be left in better shape than they are today. Currently, the Stibnite Gold Project is going through federal permitting process. Once the project is approved, the conditions contained within the final document will bind us, or any other operator, to abide by the operating restrictions, requirements and restoration obligations outlined in final plan. This also includes Perpetua's road maintenance agreements, commitments to the Stibnite Advisory Council and the Stibnite Foundation and all bonding requirements. As long as federal regulators approve Perpetua's restoration plans, they will happen regardless of who is operating the project.*

### **WHAT WILL PERPETUA RESOURCES DO ABOUT DUST ABATEMENT?**

*Dust abatement is a high priority across the site and throughout the life of the project. Perpetua has already invested hundreds of thousands of dollars in reducing dust on roads to the project location and on site.*

*Best management practices to control fugitive dust are very important for employee and public health and safety, are a key aspect of the air quality permit, and help prevent delivery of fine sediment into streams. Perpetua plans to implement numerous best management practices to inhibit fugitive dust on the haul road and access roads, on stockpiles, and in ore processing areas where dust may be generated (crushers, grinders, hoppers, feeders). These may include application of water and/or approved chemical treatments to road surfaces, ongoing road maintenance to remove loose material, installation of spray bars at processing areas, and enclosure of dust generating mill processes. Other activities where dust suppression may be applicable include drilling, ore handling (loading/dumping), excavation and other ground-disturbing activities. Solutions for dust abatement in the longer term, such as for development rock storage facilities and the TSF will include concurrent reclamation where practicable, which may include installation of soil/rock cover material, growth media, and establishing vegetation. In addition to these engineering and design best management, practices such as shift scheduling, on-site employee housing and employee busing and vanpooling will reduce the frequency of activities that generate fugitive dust, particularly along the project access route.*

### **WILL YOU COMPOST FOOD AND RECYCLE UP AT SITE?**

*Yes, Perpetua Resources currently has a robust recycling program to reduce trash delivery to area landfills for materials such as plastic, glass, aluminum and scrap metal. This program will continue through the life of the mine. In addition, the company plans to compost food wastes at the worker housing facility using large-scale worm bins found in many restaurants or by using a powered composter. Incorporating that compost into concurrent reclamation activities and will be an important process at the Stibnite Gold Project to continue to*

drive sustainable operations. Solid waste management has been clearly outlined by the company in the plans it has submitted to the U.S. Forest Service

### **WILL PERPETUA RESOURCES USE SOLAR POWER AT THE SITE DURING OPERATIONS? HOW MUCH?**

Current solar panel arrays at site will be installed at new facilities once operations start, such as the worker housing, logistics, and maintenance facilities to offset overall electrical demand. Additionally, solar panels will be used in backup power generation and ancillary activities, such as remote data collectors and transmitters. Perpetua Resources evaluated using solar panels more heavily during operations but to meet the maximum power demand during operations, which are expected to be at 63 MW, with solar panels would have required an unfeasible amount of land for the project site. Although it has yet to be precisely calculated, solar power will likely a very small amount of the overall electrical power for the site.

### **ANY PLANS TO RECYCLE GREY WATER?**

Perpetua Resources currently does not have plans to recycle grey water. Grey water will be handled by the septic and leach field systems.

### **HAS PERPETUA CONSIDERED PLACING FLOATING SOLAR PANELS ON THE TSF POND AS WAS CONSTRUCTED AT A COPPER MINE IN CHILE?**

Perpetua has looked at bringing alternate sources of energy to site, however, the company didn't specifically evaluate floating solar panels. This is in large part because the tailings facility will not be a pond and the minimal amount of water on the surface won't accommodate this option. In addition, the tailings facility sits in the bottom of deep valleys, so the period of direct sunshine would be very low, making it an inefficient option.

## **OPEN PITS**

### **HOW MANY OPEN PITS DOES PERPETUA PROPOSE TO HAVE ON SITE?**

Perpetua Resources plans to excavate three open pits, two of which are expansions of existing pits at site today. The third proposed pit, known as the Hanger Flats pit, is located at the site of a former underground mine, processing facilities and smelter. After listening to community feedback and working to find ways to improve the project, Perpetua Resources updated its plans to include backfilling Hanger Flats pit. Perpetua Resources will backfill the Yellow Pine pit when mining is complete, restore the flow of the East Fork of the South Fork of the Salmon River so fish can permanently travel to their headwaters and create a lake to replace habitat used by bull trout today. The third pit, known as West End, will also partially backfilled. the expanded.

# **R**

## **RISK**

### **ISN'T THERE MORE RISK TO OPERATING A MINE THAN LEAVING THE SITE AS IS?**

There are 11 state and federal agencies reviewing the Stibnite Gold Project and the permitting process is focused on eliminating unnecessary risks and maximizing our protection of the environment. Currently, the Stibnite Gold Project is the only viable clean up solution for the area. Stibnite needs to be cleaned up for environmental and human health reasons, and industry brings the resources to get the job done right. There are 10.5 million tons of unlined tailings and waste rock sitting at the site impacting water quality. Blow Out Creek is the largest sedimentation source in the watershed. And fish migration has been blocked at the Yellow Pine Pit

for the last 80+ years. These conditions will not get better on their own. It is because of this that Perpetua Resources believes mining provides the best opportunity for the site's future.

## **HOW IS PERPETUA RESOURCES PREPARED FOR NATURAL EVENTS LIKE EARTHQUAKES?**

The project infrastructure for the Stibnite Gold Project must take into consideration known risks and safety hazards. Perpetua evaluated those risks ranging from rain on snow events to earthquakes and factored them into the engineering and design of the infrastructure proposed for the project.

It was important to the company, and in many cases required, to design project infrastructure to have a high factor of safety. This means the design of the facilities must withstand more than anticipated stress. For example, in Idaho, a standalone dam must have a factor of safety of at least 1.5. By adding an 80-million-ton buttress to the face of the tailings storage facility, the factor of safety for the facility more than doubles the necessary safety requirements at all stages. The tailings storage facility is designed to be a 5.9 factor of safety.

When Perpetua first started our engineering process, it commissioned a site-specific seismic hazard assessment. This study utilized all available local and regional data to develop and design earthquake recommendations for the site and proposed infrastructure, like the tailing storage facility. The study was updated in late 2019.

To give an earthquake specific example, the tailings facility for the Stibnite Gold Project was designed to withstand shaking about 6 times stronger than what was experienced in the March 2020 earthquake of a 6.5 magnitude.

## **RIVER**

### **GIVEN THERE IS ALREADY CONTAMINATION FROM PREVIOUS MINING, WHAT IS THE POTENTIAL FOR FURTHER CONTAMINATION?**

In order for the Stibnite Gold Project to move forward, the company must prove to the 11 state and federal regulatory agencies reviewing the project that the Stibnite Gold Project will minimize impacts to the environment. In addition to minimizing impacts, the company also needs to have clearly developed plans for how it would respond if the unexpected happened. Regulators will not allow the project to move forward if they believe it would negatively impact the river. The East Fork of the South Fork of the Salmon River has been impacted for more than a century and the water quality and fish habitat in its headwaters are degraded. Perpetua's plan will allow the company to repair and enhance more than 12 miles of the East Fork of the South Fork of the Salmon River and tributaries leading into it and get salmon and trout back to its headwaters for the first time in more than 80 years. Learn more [here](#).

### **WHAT WILL PERPETUA RESOURCES DO ABOUT WETLANDS?**

After improvements Perpetua Resources made to its plan, the company anticipates there will be a net increase in wetlands after mining and restoration work are complete compared to existing conditions at the site. The company's research shows there will be a 140% uplift in the quality of wetlands, known as wetland functional units, and a 63% net increase in wetland acres over baseline conditions. The company plans to restore and/or replace wetlands that would be impacted by project disturbances, preferably in place or at nearby locations within the upper East Fork of the South Fork of the Salmon River drainage.

## **WHAT WILL PERPETUA RESOURCES DO ABOUT STREAM RESTORATION AT SITE?**

*Perpetua Resources has prioritized stream restoration and habitat improvements in its plans. Following the public comment period of the DEIS, the company made even more improvements to its plans. These refinements will provide a 9.5% uplift in stream quality, known as stream functional units, and a 4% increase in linear stream feet over baseline conditions. Significant examples of Perpetua's plans on site include the restoration of the East Fork of the South Fork of the Salmon River. Today, access to its upper stretches are blocked by the Yellow Pine pit and have been for more than 80 years. Solutions like this will open an additional 21+ miles of habitat for fish, including approximately 7 miles of Bull Trout habitat, 13 miles of designated Chinook critical habitat, 8 miles of Steelhead spawning habitat and increasing the quality of the habitat available to all fish. Perpetua's stream restoration plans acknowledge the dynamic nature of streams and are designed to allow for natural channel migration over time. Learn more [here](#) and watch our webinar [here](#).*

## **WILL FISH AND GAME CONSIDER PLACING SALMON AND STEELHEAD SMOLT IN THE STREAMS NEAR SITE OR WILL IT NEED TO OCCUR NATURALLY?**

*This topic is under consideration as the design of the fish passageway around the Yellow Pine pit advances. Ideally, the completion of the fish passageway will facilitate volitional upstream fish passage and continued placement of hatchery fish into the upper reaches of the East Fork of the South Fork of the Salmon River will not be necessary. Perpetua expects this could take a few years, as returning populations are reestablished by continuing the present program of placing Chinook salmon adults (not smolts) in Meadow Creek to spawn when excess fish are available from the hatchery rearing program. While salmon are placed in Meadow Creek presently, Idaho Department of Fish & Game (IDFG)'s approach to steelhead recovery in the South Fork of the Salmon River basin avoids placing hatchery fish. While Perpetua welcomes accelerated reestablishment of both steelhead and salmon, it recognizes the desire to achieve this naturally when possible, as is the present policy regarding steelhead. Any reversal of this policy would be a decision for IDFG and applicable Federal agencies, not Perpetua Resources.*

## **IS PERPETUA TRYING TO HAVE FISH SWIM UPSTREAM IN A TUNNEL?**

*Fish have been unable to swim past the Yellow Pine pit since 1938. Currently, the East Fork of the South Fork of the Salmon River flows directly into an abandoned open pit. To fix this as quickly as possible, the company will install a temporary 0.9-mile fish passage tunnel designed with resting pools, lighting and the needed gradient and flow to provide a state of the art system for fish migration. This is a temporary solution but literature and examples from around the world suggests that fish will likely use the tunnel for passage.*

*After re-mining and backfilling the Yellow Pine pit, Perpetua Resources will restore the East Fork of the South Fork of the Salmon River in the later stages of operations providing a permanent pathway for fish to migrate upstream to their native spawning grounds using the routes similar to those they traveled prior to mining. By addressing legacies and investing in these solutions for fish migration, the project will provide access to approximately 21+ miles of perennial habitat, including 7 miles of Bull Trout habitat, 13 miles of designated Chinook critical habitat and 8 miles of Steelhead spawning habitat.*

## **REGULATIONS**

### **WHY SHOULD WE TRUST PERPETUA RESOURCES?**

*You can trust the Stibnite Gold Project because it will have to meet some of the strictest regulatory standards in the world, not just on day one—but every single day through the life of the mine. Perpetua Resources will also*

be required to set money aside for reclamation before its project moves forward. This will ensure that no matter what happens, the site will finally have the resources to be properly restored.

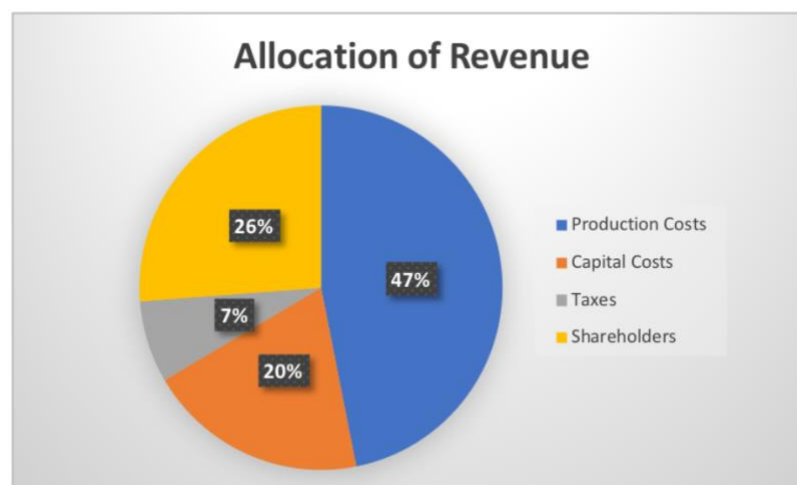
## WHAT IS THE PROCESS OF PERMITTING THE STIBNITE GOLD PROJECT?

Perpetua Resources Idaho proposed the Plan of Restoration and Operations (PRO) for Stibnite Gold Project in 2016; this plan is now undergoing an Environmental Impact Statement (EIS) review by the U.S. Forest Service. This review considers economic, community and environmental components of the plan, takes in public feedback and then proposes a final plan for implementation. Already, the permitting process has helped Perpetua Resources improve its plans. In refinements it submitted to the U.S. Forest Service, the company identified ways to shrink the project footprint, reduce water temperature and improve water quality. Currently, the U.S. Forest Service is on track to issue a record of decision on the project in late 2023 or very early 2024. Additional permits are required through the Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers; state agencies, including Idaho Department of Environmental Quality and Idaho Department of Lands; and Valley County. All agencies are working cooperatively to coordinate their review processes. Learn more [here](#).

## WHAT IS THE 1872 MINING LAW?

The 1872 Mining Law governs the transfer of rights to mine gold and other minerals from federal lands. In Perpetua's case, more than 90 percent of the mineral resources proposed to be extracted as part of the Stibnite Gold Project lie on the company's private land, not on public Forest Service land. Some claim by allowing Perpetua to mine on Forest Service land, the government is giving the resources on site "away for free." This is simply not true. Not just because most of the resources for the project are already owned by Perpetua Resources, but because money is given back to the local, state and federal governments through taxes and profit sharing agreements. Modern, first-world countries see the benefits of mining primarily through income taxes, sales taxes, employment and payroll taxes. Third-world countries with weak income tax collection and enforcement tend to collect royalties, which are offset against income taxes and therefore reduce income taxes overall.

Regardless of who owns the gold at Stibnite, the local, state and federal governments will see the benefits of the project through taxes and other benefits. Many critics of the 1872 Mining Law just focus on the gross value of the metal in the ground and do not account that companies are never able to recover 100% of the metal. In Perpetua's case it is important to mention the company will have to invest \$1.2 billion in capital to build the mine, spend another ~\$2.4 billion in mining and processing costs and provide hundreds of Idahoans with family-wage jobs along the way. Perpetua will also have to fund tens of millions of dollars in clean-up and restoration work. The distribution of revenue from the project is illustrated in the pie chart below.





## RECLAMATION

### WHAT ENSURES ENVIRONMENTAL RECLAMATION WILL BE COMPLETED?

Before work can commence on site, Perpetua Resources is required to set aside funds required to reclaim the site. Financial assurance laws have strengthened over the years, requiring companies to set aside the real cost of reclamation work and not a flat fee per acre. Additionally, the company designed its plans to repair many of the historical environmental impacts early in the life of the project, during construction or early operations, which ensures they will happen. Perpetua also proposed to continue restoration and reclamation work in parallel with operating the mine. Learn more [here](#).

### HASN'T THE AREA ALREADY BEEN RESTORED? WON'T THE STIBNITE GOLD PROJECT DESTROY THE RESTORATION WORK?

The U.S. Government and the mining industry invested some money to help with restoration efforts at Stibnite, public records indicate about \$12 million went into reclamation but it was not nearly enough to achieve comprehensive restoration of the site. There is still arsenic in the water coming from improperly stored historical tailings and waste rock. Hundreds of tons of sediment are dumped into the river each year from Blowout Creek, the site of a failed hydro dam that blew out in 1965 (hence the nickname of the creek). Fish have been blocked from their native spawning grounds for nearly 80 years. The area needs to be reforested after being destroyed by wildfires. And wetlands in the East Fork of Meadow Creek are drying up as uncontrolled erosion drops the water table. With all of the issues facing the site today, we cannot say the site has already been restored - there is a lot more to do. Learn more [here](#).

In the summer of 2021, Perpetua Resources started early clean up activities at the site to address long-standing water quality issues, left behind by previous operators. The first phase of work included moving 325k tons of legacy waste away from the river and rerouting and lining streams away from waste.

### WILL RESTORATION BE AN ONGOING PROCESS OR HAPPEN AT THE END OF THE PROJECT?

Perpetua Resources designed the Stibnite Gold Project to address legacy issues early in the project life and conduct concurrent reclamation throughout the life of the project. This work was a key facet of Perpetua's Plan of Restoration and Operations (PRO) and continues to be in the company's improved plans.

Blowout Creek, mentioned above, will be addressed early to mitigate the release of sediment into Meadow Creek and the East Fork of the South Fork of the Salmon River (EFSFSR) from Blowout Creek. The construction of a tunnel around the Yellow Pine pit will serve not only the function of diverting the EFSFSR around the pit but will also reestablish anadromous fish passage into the upper East Fork of the South Fork of the Salmon River throughout operations; upstream passage which has been blocked since 1938. Other legacy mine features will also be reclaimed prior to and during mining operations. The Meadow Creek valley includes 10.5 million tons of unconstrained spent ore and tailings. During tailings storage facility (TSF) construction prior to operations, the approximately 6 million tons of spent ore in the Spent Ore Disposal Area (SODA) will be repurposed and incorporated into the TSF. This will provide access to the approximately 3 million tons of underlying tailings, which currently are not contained by any low permeability design feature (i.e. liner). The tailings will be reprocessed early in the mine operations phase to recover remaining sulfide minerals (and associated gold, antimony and silver), and the reprocessed tailings will be stored in the new, fully-engineered TSF.

### HOW MUCH OF PERPETUA'S RESTORATION PLANS ARE REQUIRED?

Although there are some minor advantages to the mine plan, removal and environmental stabilization of the SODA materials and Bradley Tailings are not required by state or federal agencies. Early restoration of the Blowout Creek and early establishment of anadromous fish passage through the East Fork of the South Fork of

the Salmon River diversion tunnel are not mandated by state or federal agencies but rather engaged as a restoration prerogative by Perpetua. Additionally, complete backfilling of the Yellow Pine Pit and the reestablishment of perpetual volitional anadromous fish passage through restoration of the East Fork of the South Fork of the Salmon River across the backfill is not a requirement of typical mine site reclamation. Perpetua is realistically only required to reclaim the lands to preexisting conditions and functionality.

## **DEFINE THE DIFFERENCE BETWEEN RECLAMATION AND RESTORATION?**

Reclamation is intended to provide stable low to moderate land function. Restoration is intended to establish naturally dynamic and high functioning ecosystems.

## **WILL PERPETUA HAVE TO HAUL IN TOPSOIL OR USE GLACIAL TILL?**

Due to the loss of topsoil over the last century of poor mining practices in the Stibnite valley, there is a deficit of available soils needed to achieve all the restoration presented in the reclamation and closure plan. However, with the addition of glacial till, woody debris and nutrient amendments this deficit is eliminated. Therefore, no topsoil is planned to be hauled into the site. The reclamation and closure plan does call for 10 tons/acre of compost to be applied as a soils texture and nutrient enhancement. This compost is anticipated to be hauled in from off site.



## **SAFETY**

### **CAN MINING BE DONE SAFELY?**

Perpetua Resources' goal is to do everything in the safest way possible. The company's track record is proof of its commitment. We have explored the site since 2010 without a reportable spill or serious safety incident. Perpetua's dedication to safety was carried through the design of our project in order to minimize potential risks as much as possible. Learn more [here](#).

## **SPILLS**

### **HOW WILL SPILLS OF TRANSPORTED MATERIALS BE PREVENTED AND OR ADDRESSED?**

Currently, Perpetua has spill kits in all of its company vehicles at site and along the roadway in order to respond quickly if an accident happens. The company also uses pilot vehicles to help safely guide sensitive loads to site. These practices will continue throughout the life of the project.

Perpetua Resources developed its plans to move the travel route to site away from waterways and contain chemicals on site using best management practices in order to reduce the chances of any type of spill.

Additionally, during operations, the ore processing vessels on site will have a secondary containment to hold up to 110% of the volume of the vessel in case of a rupture. Safety measures like these are built into the company's plans and will be enhanced as Perpetua moves into operations. However, it is important to point out that Perpetua has not had a reportable spill for more than 118 months, as of the end of 2021.



## TAILINGS SAFETY

### **WHAT MEASURES ARE IN PLACE TO PREVENT THE TAILINGS POND FROM BREACHING, OVERFLOWING OR SEEPING INTO THE GROUNDWATER?**

*Perpetua Resources' tailings storage facility (TSF) is designed to meet or exceed the most stringent design factor-of-safety set forth in Idaho regulations. In Idaho, tailings dams are regulated three ways - through Idaho Department of Water Resources' dam safety regulations and tailings impoundment regulations; through Idaho Department of Environmental Quality's Ore Processing by Cyanidation regulations, and through Idaho Department of Lands' mine closure regulations. In addition to establishing minimum factors of safety, these regulations specify certain practices and design features to promote long-term stability and protect water quality.*

*Our TSF incorporates site-specific design features that were selected based on regulations and what the industry has learned about best practices specific to the facility location, purpose, lifespan, and contents. Specific elements that will prevent breaching, overtopping, or leakage consist of both design features and operational measures. These serve to prevent release of water and tailings into the environment by promoting geotechnical stability, preventing excess water accumulation in the TSF, allowing sufficient capacity to temporarily store any excess that could occur, and providing redundancy for critical components of the water management system.*

*See the question above for the aforementioned design elements.*

### **HOW WILL THE TAILINGS DAM BE STABILIZED DURING OPERATIONS AND POST-RECLAMATION?**

*"Stability" in the context of tailings storage has several meanings, relating to the structure and its contents.*

*Geotechnical stability refers to the ability of the structure and its foundation to remain stable under the expected static and seismic loads. The geotechnical design of the tailings embankment is subject to approval by the Idaho Department of Water Resources (IDWR), which requires the embankment to have a minimum static factor of safety of 1.5. The TSF embankment design meets or exceeds this criterion on a standalone basis, and also meets or exceeds the seismic criterion for the Maximum Credible Earthquake. The approximately 80-million-ton rock buttress abutting the downstream dam face is larger than the embankment itself, and its presence raises the static factor of safety of the embankment to at least double the required value during all phases of operations onward through post-closure. The high factors of safety afforded by the buttress, coupled with rockfill (as opposed to tailings or soil) as a construction material, the presence of the geosynthetic liner, and use of the downstream construction method (where raises are built upon a previously placed embankment or prepared foundation, not tailings), lead to an extremely robust facility.*

*With geotechnical stability addressed, the stability of the stored tailings must also be considered. The tailings will be thickened (partially dewatered) in a thickener at the processing facility before being transported by pipeline to the TSF. Tailings in the TSF will consolidate concurrent to, and following, deposition. The resultant tailings mass will have low hydraulic conductivity and low effective porosity (resulting from the fine grinding of the ore, added lime, and naturally occurring clays in the ore), minimizing the movement of water through it in the long term in conjunction with the liner system. The dewatering and consolidation of tailings in the TSF is facilitated in part through the continual removal and recycling of supernatant water from the surface of the tailings during operations. This process is*

continued during site reclamation and closure phases as the tailings continue to consolidate under their own self-weight. Ultimately, the surface of the TSF will be covered and revegetated.

Physical stability refers to the degree to which the tailings are protected from leaving the facility due to an embankment failure (addressed by having a geotechnically stable embankment) or by wind or water erosion. During operations, the tailings deposition process (of thickened tailings slurry) controls wind erosion, and any tailings eroded by rainwater are retained inside the facility, which has a large freeboard (including reserve storage for the Probable Maximum Flood from the entire Meadow Creek watershed, plus 4 feet) to prevent overtopping the embankment even if diversions (100-year design) fail. At closure, when the tailings deposit has consolidated sufficiently to allow heavy equipment traffic, the surface of the facility will be covered with a geosynthetic, soil, and rock cover and then revegetated to prevent wind and water erosion over the long term. Conventional construction dust control BMPs such as water application, will be used to control dust as needed, particularly in the interim period between the end of operations and placement of the cover. As part of closure, Meadow Creek and its tributaries and associated wetlands will be re-established across the reclaimed surface within a geosynthetic lined floodplain corridor. The lined stream/floodplain corridor will have a scour protection layer of coarse rock below the surface, and buried rock berms along its margins to prevent high flows from scouring down to the liner or causing the stream to migrate off the corridor, while allowing for natural fluvial processes within the corridor.

Chemical stability refers to the degree to which metals or other harmful substances can leach from the tailings, and measures to prevent generation or migration of these substances. The addition of a hot arsenic cure circuit to the ore processing sequence encourages formation of stable, insoluble arsenic compounds that do not leach, and the nature of the host rock combined with the use of lime and limestone in processing ensure that the tailings do not generate acid. Cyanide is detoxified at the processing plant before tailings are pumped to the TSF. Some leachable arsenic and antimony remain, however, but the geosynthetic cap and liner prevent interaction of the tailings with surface and groundwater while also contributing to physical stability as discussed above. The process water used to transport the tailings (via thickened slurry) and thus entrained with the settled tailings also contains metals, high dissolved solids (sulfate, etc.), and low levels of residual cyanide. The geosynthetic liner and related drainage systems prevent migration of the process water to groundwater, and the water at the surface of the TSF is recycled back to the processing plant during operations. For approximately the first 25 years of closure, as the tailings consolidate, expelling pore water, the water will be collected and treated for discharge and the water treatment residuals disposed of in a dedicated cell on top of the TSF. Learn more [here](#).

## **WHAT SAFETY MEASURES ARE IN PLACE FOR THE TAILINGS STORAGE FACILITY?**

Perpetua Resource's tailings storage facility (TSF) is designed to meet or exceed the most stringent factor of safety designs set forth in Idaho regulations. In Idaho, tailings dams are regulated three ways - through Idaho Department of Water Resources' dam safety regulations and tailings impoundment regulations; through Idaho Department of Environmental Quality's Ore Processing by Cyanidation regulations, and through Idaho Department of Lands' mine closure regulations. In addition to establishing minimum factors of safety, these regulations specify certain practices and design features to promote long-term stability and protect water quality. Perpetua's TSF incorporates site-specific design features that were selected based on regulations and what the industry has learned about best practices specific to the facility location, purpose, lifespan, and contents. Specific elements that will prevent breaching, overtopping, or leakage consist of both design features and operational measures. These serve to prevent the release of water and tailings into the environment by promoting geotechnical stability, preventing excess water accumulation in the TSF, allowing sufficient capacity to temporarily store any excess that could occur, and providing redundancy for critical components of the water management system. These elements include the following:

1. The Stibnite Gold Project tailings storage facility will be 90% contained by surrounding hillsides and the remaining 10% of the perimeter will be retained by a dam. This can be contrasted with facilities in flat terrain where as much as 100% of the facility might be retained by a dam (i.e., a ring dike).

2. *The Stibnite Gold Project tailings dam will be made of coarse rockfill (not tailings sand or fine-grained soil), constructed by the "downstream method" wherein each successive lift of the dam is founded entirely upon the underlying rockfill, rather than upon tailings as in the "upstream" construction method. In general, downstream-constructed rockfill dams are the most stable among the alternatives, under both static and seismic loading.*
3. *The Stibnite Gold Project TSF impoundment, including the interior dam face, will be fully lined with geosynthetic (both geomembrane and geosynthetic clay liner, GCL, for redundancy), preventing seepage. Seepage can destabilize a dam as well as presenting a water quality problem if seepage enters groundwater or surface water. GCL is particularly useful in preventing TSF seepage because the GCL acts as a cushion to protect the overlying geomembrane from irregularities in the subgrade, thereby reducing the occurrence of leaks, and the bentonite clay component of GCL will hydrate and swell in response to a leak in the geomembrane, sealing off the leak. The tailings contribute to minimization of leaks as well, both by directly filling voids and because of their naturally low permeability that limits transfer of water to a liner leak.*
4. *After the first stage of the dam is constructed, Perpetua Resources will begin placement of a buttress that will ultimately contain approximately 80 million tons of development rock. With the buttress in place, the static factor of safety of the dam will approximately double the minimum requirement from the regulations.*
5. *Excess accumulation of water will be prevented by diverting clean water (Meadow Creek, tributaries, and hillsides) around the facility in surface diversions designed to convey the 100-year peak runoff.*
6. *Due to the size and risk category of the TSF, IDWR requires that it maintain sufficient freeboard to store the Probable Maximum Flood (PMF), i.e., the runoff from the Probable Maximum Precipitation (PMP). The PMP is the greatest amount of precipitation that is physically possible over a given watershed. The facility is designed to maintain sufficient freeboard above the normal operating pool to store the runoff from the PMP, conservatively assuming diversion failure at the onset of rainfall, plus an additional 4 feet dry freeboard (the 4 feet including 2 feet for wave runoff). Such PMP events are rare, commonly estimated as having less than a 1 in 10,000-year frequency.*
7. *To ensure that the freeboard volume is sufficient as mining progresses, dam lifts will be added to the TSF to keep ahead of TSF filling. The total freeboard (PMF + 4 feet) provided in the SGP TSF varies by stage as the facility surface area increases, and represents 11 to 12 times the estimated 100-year flood volume (24-hr design rainfall basis), or 6 to 7 times the 500-year flood volume. Also note that the minimum freeboard is present for a limited exposure window (weeks or months not years) while a stage is nearly full but before the next stage (dam raise and liner expansion) is complete. Available excess volume in the facility is thus much greater than the minimum for much of the operating life.*
8. *Mercury is removed during ore processing, and WAD (weak acid dissociable) cyanide is neutralized down to less than 10 ppm before tailings are pumped to the TSF. WAD cyanide levels below 50 ppm are protective of wildlife. Addition of lime to the oxidation circuit helps to create stable (insoluble) forms of arsenic.*
9. *The tailings are also thickened before pumping to the TSF which helps to reduce the amount of water being introduced to the TSF, and promotes consolidation of the tailings.*
10. *The reclaim pumping system (that returns water to the process plant) will be redundant, with at least one installed spare pump in addition to the operating pump(s) at the TSF.*
11. *Repair parts (additional reclaim pump, pump seals, impellers, screens, pipe sections, flanges, etc.) will be stored on-site to effect immediate repair of a pipe rupture or pump failure.*
12. *Perpetua Resources will utilize evaporators (EcoMisters, etc.) to reduce free water inventory on the TSF, during both operations and pre-closure, and will generally have at least one or two spare evaporators warehoused on site.*
13. *In the event of an unusually severe and highly improbable set of circumstances (extensive length of pipe rupture, multiple concurrent pump failure, protracted site-wide power outage, failed diversion or excessive meteoric water buildup in the facility during a time when evaporators are ineffective due to temperature or humidity), the process would be shut down, and repair parts or backup systems brought from off site. The reclaim pipeline is a common pipe size, and readily available from suppliers in Idaho and regionally (Utah, Nevada, Washington) and, as the reclaim line is largely gravity flow, any number of substitute pumps available regionally or at Perpetua Resources facilities could be installed to*

return the reclaim system to operations – including by operating the reclaim pipeline as a siphon. Excess water would be managed first by use in the process, then by evaporation, and lastly by emergency treatment and discharge.

14. At closure, restored channel/floodplain corridors will be separated from the underlying tailings by a geosynthetic liner, and the dam will be notched to allow stable passage of floodwater without impounding water on the surface of facility.

Learn more [here](#).

## **DESCRIBE THE LINERS USED IN THE TAILINGS FACILITY?**

The TSF will be designed/constructed such that there is minimal probability of leakage of impounded contents to groundwater due to the two different liners laid down on compacted soil, together forming what is termed a “composite liner.” The first barrier applied is a Geosynthetic Clay Liner (GCL - sodium bentonite clay sandwiched between two layers of geotextile), which when coming into contact with water swells for a low permeability providing an effective hydraulic seal, and in this case equal to about 2.5 feet of compacted clay. The next liner, a linear low-density polyethylene (LLDPE) geomembrane, which has a half-life of approximately 450 years, is then applied on top of the GCL, constituting the second barrier to prevent tailing solution from seeping into the environment.

## **WHAT IS THE LIFE EXPECTANCY OF THE TAILINGS FACILITY LINER?**

The plastic component of the tailings facility liner has a half-life of over 450 years; however the bentonite clay contained in the underlying geosynthetic clay liner (GCL) is a natural low-permeability material that will not degrade with time. In addition, owing to both their fine grind and our addition of lime and limestone during ore processing, the tailings themselves create a nearly impermeable layer as they compact and cement over time.

Perpetua is happy to walk the community through the design and the contents of the facility. It is also important to note that today, millions of tons of spent ore and tailings sit uncontained in the Meadow Creek valley and interact with ground and surface water. One of Perpetua’s first actions during operations will be to pick up this material for reprocessing, reuse and safe storage.

## **CAN YOU EXPLAIN IN MORE DETAIL THE DESIGN OF THE TAILING IMPOUNDMENT DAM AND WHY THERE IS ESSENTIALLY ZERO PROBABILITY OF DAM BREACHING OR SEEPAGE OF CONTENTS INTO GROUND WATER?**

Please see a more detailed response above, specifically the points on design freeboard (PMP, and usually greater depending on timing), redundant geocomposite liner system, and greater-than-required factor of safety due to the buttress.

## **WHY ARE DAM SOLUTION CONTENTS RECYCLED BACK TO PLANT DURING THE LEACHING PROCESS?**

Solution is recycled back to the process plant to keep it from accumulating in a “runaway” fashion in the tailings storage facility (TSF), provide consistent water quality to the process, and to minimize the amount of clean groundwater added to the overall water balance. A certain amount of water must still be added, termed “makeup” water, to offset the losses due to water evaporated from the TSF surface or buried with the tailings.

## **WHAT WILL BE THE HEIGHT OF THE LINED DAM? WILL THE DAM HEIGHT BE INCREASED AS NEEDED OR CONSTRUCTED ALL AT ONCE?**

The starter (first stage) dam will be nearly 250 feet in height. The facility will be raised to stay ahead of mining and tailings deposition, with a new stage completed roughly every three years. The final stage will bring the total dam height to roughly 475 feet, though by this time the presence of the buttress immediately downstream (which reaches full height in year 5) will mean that little of the dam face will be visible.

### **WHAT WILL BE THE AVERAGE WATER DEPTH ABOVE THE SETTLED TAILINGS?**

Water depth over the tailings will vary, from zero (significant height of beach above water around the edges and particularly at the back of the facility as it nears closure) to over 50 feet during storage of the inflow design flood (the PMF), depending on the stage (later stages will store the same flood volume in less height; only roughly 15 vertical feet is required to store the flood at the end of Stage 4 that would require 40 feet at the end of Stage 1), and the volume of the operational water pool at the onset of the flood. As the tailings beach geometry has not been evaluated in detail at this design step, and will generally only be evaluated at key design points (end-of-a-stage), and the impoundment surface area will vary significantly as the tailings level increases, determining an "average" water depth is likely both meaningless and misleading.

### **WHAT IS THE EXPECTED TONS OF ROCK USED TO CAP THE POND DURING THE RECLAMATION?**

The current Reclamation and Closure Plan identifies tailings cover quantities needed, to fill the former pool where tailings consolidation is expected to be greatest, will be approximately 2.0 million cubic yards. This quantity of material will not only fill the former pool area to an appropriate level but will also cover the entire facility with 2-feet of cover material. In addition, the tailings facility will be covered with a minimum of 1-foot of soil and revegetated. As more detailed designs are completed, cover material quantities will be adjusted and finalized.

### **HOW WILL DE-WATERING BE ACCOMPLISHED AT END OF PROJECT?**

During active closure of the tailings storage facility (before and during cover placement), excess water inventory would be managed primarily via forced evaporation (EcoMisters, etc.), and if necessary, treated for discharge through a permitted Idaho Pollutant Discharge Elimination System Program (IPDES) outfall.

### **WILL CYANIDE BE NEUTRALIZED BEFORE IT ENTERS THE TAILINGS STORAGE FACILITY (TSF)?**

Cyanide concentrations in the tailings solution will be detoxified prior to transport via pipeline to the tailings storage facility (TSF). To be protective of wildlife, the International Cyanide Management Institute (ICMI) recommends that weak acid dissociable (WAD) cyanide concentrations be below 50 ppm; however, Perpetua Resources plans to detoxify the tailing solution to a WAD cyanide concentration of less than 10 ppm.

As indicated in Response 1, it is important for recycled water from the TSF to have a low concentration of cyanide prior to its re-introduction into the ore processing circuit. Cyanide concentrations above 10 ppm can negatively impact gold/silver recovery.

### **WILL PERPETUA RESOURCES LEAVE TOXIC SLUDGE ON THE SITE IN THE TAILINGS FACILITY?**

Toxic sludge is not a scientific term. There will be a slurry material deposited in the tailings storage facility (TSF), which will be neutralized prior to deposition. Cyanide in the tailings solution will be detoxified prior to transport via pipeline to the TSF. To be protective of wildlife, the International Cyanide Management Institute (ICMI) recommends that WAD cyanide concentrations be below 50 ppm; however, Perpetua Resources plans to detoxify the tailing solution to a WAD cyanide concentration of less than 10 ppm and is motivated to do this because higher cyanide levels would reduce gold recoveries. Further, the gold recovery process results in the stabilization of arsenic and antimony as ferric arsenate and ferric antimonate, which are long term stable products that do not break down in the natural environment.

### **WILL THERE BE A DRAIN UNDER THE TAILINGS STORAGE FACILITY?**

Yes, there is an underdrain system designed into the base of the TSF which provides a pathway for naturally occurring subsurface water to cleanly make their way out of the system.

## WHAT IS THE EXPECTATION OF MINERALS/METALS THAT WILL BE REMOVED FROM CONSOLIDATION WATER?

*These materials are sometimes call water treatment “Residuals”. Perpetua has designated a location on the tailings storage facility for a residuals disposal cell, which will be top and bottom lined similar to a burrito wrap to prevent any interaction with water and the environment.*

## TRANSPORTATION

### HOW WILL TRAFFIC IMPACT RESIDENTS?

*Overall, transportation experts anticipate the traffic created by the Stibnite Gold Project will add approximately 1-3% more new vehicles on the road. Vehicles will be a combination of light vehicles and trucks but will be the type of vehicles you see on the road every day. Traffic will also be kept to daylight hours during the week whenever possible. Perpetua plans for travel to and from the project site were designed to prioritize the safety of employees and Idahoans. The company knows continued access is a very important issue for many Idahoans, so Perpetua’s plan maintains recreational access, so Idahoans can continue to safely hike, hunt, fish, snowmobile and explore the areas surrounding the site much as they do today.*

*Perpetua estimates it will need to make approximately 25 round trips per day during construction and operations. A third of these trips would be made using the light vehicles like you see the company driving today. Perpetua’s plan was designed to minimize trips on the road in order to increase safety and sustainability. The company will drive 90% of its employees to the site on buses and have them work in two-week work cycles in order to have less traffic to and from the project site. In Perpetua’s plan, the company committed to transporting goods Monday through Friday during business hours as much as possible to reduce traffic during peak travel times. Learn more [here](#).*

### CAN EMPLOYEES DRIVE TO SITE?

*Perpetua Resources employees will not drive their own vehicles to site; almost all of the employees will be required to travel in company-provided buses from the Stibnite Logistics Facility in Valley County and other designated pick-up locations. In limited cases, some Perpetua Resources personnel and contractors may use individual vehicles to travel to and from the site.*

*Perpetua estimates it will need to make around 25 round trips per day during construction and operations. A third of these trips would be made using the light vehicles like you see the company driving today. Perpetua’s plan was designed to minimize trips on the road in order to increase safety and sustainability. The company will drive 90% of its employees to the site on buses and have them work in a two-week work cycles in order to have less traffic to and from the project site. Perpetua is committed to transporting goods Monday through Friday during business hours as much as possible to reduce traffic during peak travel times.*



## WATER TREATMENT

### WILL WASTE TREATMENT SLUDGE BE RECYCLED?

*Dried sludge from the treatment of sanitary wastewater will be mixed with compost (food waste) and incorporated into growth media to boost volumes of available topsoil and used during the reclamation process.*



## WHAT IS ESTIMATED NUMBER OF GALLONS PER DAY THAT WILL GO THRU WATER TREATMENT PLANT?

*Water treatment flows during operational time frames are anticipated to range from 30 gallons per minute (GPM) to 2,000 GPM with dependencies linked to operational phases. Closure period water treatment flows are anticipated to be approximately 1,000 GPM during the early closure years when the tailings storage facility supernatant pool is drawn down. Thereafter, closure period treatment flows are anticipated to be approximately 150 GPM reducing to zero GPM over the treatment period.*

## WATER QUALITY

### WHAT ABOUT ACID ROCK DRAINAGE?

*When it comes to concerns over acid rock drainage at Stibnite, the facts speak for themselves. The site has been mined off and on for almost 100 years and, throughout that time, acid rock drainage has never occurred. Simply put, the geochemical composition of the substantial majority of rocks at site, including those Perpetua proposes to mine, make acid rock drainage highly improbable.*

*While the rocks at site have low levels of sulfides, which can generate acid, they also have significant quantities of carbonate and other minerals that effectively neutralize any acid generated.*

*Perpetua has worked with third-party contractors to study the geochemical composition of rocks at Stibnite since 2011 to predict future water quality conditions on site. The company has collected and analyzed more than 50,000 samples, and conducted static testing to characterize the rocks' chemical composition and neutralization potential. Perpetua then ran kinetic tests, which occur over many months and are designed to accelerate natural weathering to determine the rates of acid production and metal leaching. Over extended kinetic testing, well beyond industry standard durations, none of the tests have ever produced acid rock drainage, including higher sulfide, ore-grade samples deliberately selected with the expectation they would become acidic. At the end of testing, the samples generally had minimal acid generating potential remaining, but a significant amount of neutralization potential. The testing methods the company follows are all approved by the U.S. Forest Service, and the results can be found in the Draft Environmental Impact Statement.*

*The testing Perpetua has done over multiple years shows us, bottom line, acid rock drainage is not a concern for the project. Learn more [here](#).*

### WILL ALL THE WASTE CHEMICALS BE STORED IN CLOSED CONTAINERS? HOW LONG DO THE CONTAINERS LAST?

*Waste chemicals will not be stored on site long-term. While stored temporarily on site, they will be held in approved containers and within secondary containment areas.*

### HOW WILL YOU KEEP METALS FROM ENTERING THE WATER?

*Arsenic is the dominant metal of concern at the Stibnite Gold Project given its association with mineralization. Arsenic concentrations in the groundwater and streams in the Stibnite area are naturally elevated as mineralized rock in the area are rich in arseno-pyrite and arsenian-pyrite; these are also the minerals that host (and encapsulate) gold and silver. These minerals will be concentrated in the flotation circuit, and the concentrate will report to the oxidation circuit (autoclave) where the sulfide minerals will be broken down to liberate the precious metals. The pH will be carefully controlled in the autoclave (by adding ground limestone to the ore) to promote the formation of stable, crystalline, ferric arsenates (e.g. scorodite) versus less stable, amorphous ferric arsenates (e.g. jarosite). This is done for environmental reasons (to result in stable forms of arsenic in the*

*tailings storage facility), and for metallurgical reasons (as jarosite tends to encapsulate and lock-up gold and silver particles, and crystalline ferric arsenates do not).*