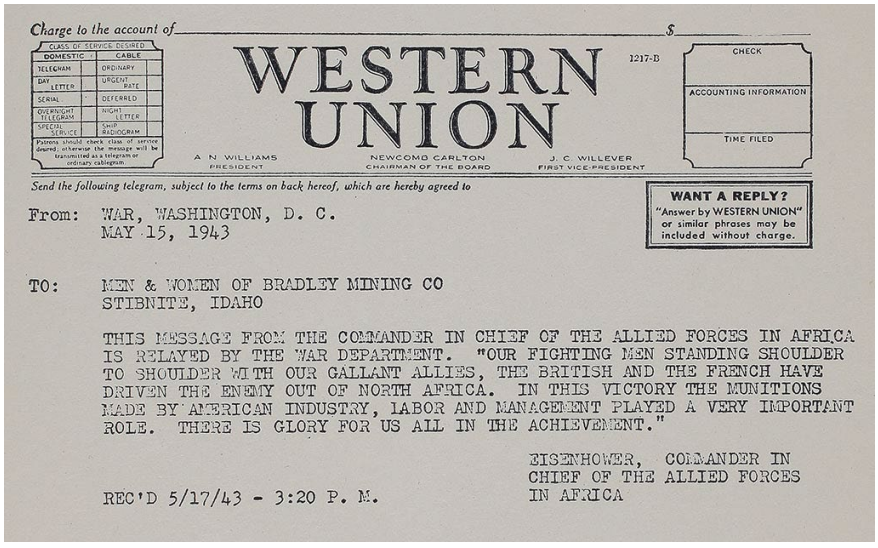
Perpetua Resources

# **Testimony for the Record -** The Stibnite Gold Project: Our Nearest- Term Solution to China's Antimony Crackdown

Mckinsey M. Lyon, Perpetua Resources



Charge to the account of $

CLASS OF SERVICE DESIRED

| DOMESTIC | CABLE |
|---|---|
| TELEGRAM | ORDINARY |
| DAY LETTER | URGENT RATE |
| SERIAL | DEFERRED |
| OVERNIGHT TELEGRAM | NIGHT LETTER |
| SPECIAL SERVICE | SHIP RADIOGRAM |

Patrons should check class of service desired; otherwise the message will be transmitted as a telegram or ordinary cablegram.

WESTERN UNION

1217-B

CHECK

ACCOUNTING INFORMATION

TIME FILED

A. N. WILLIAMS, PRESIDENT — NEWCOMB CARLTON, CHAIRMAN OF THE BOARD — J. C. WILLEVER, FIRST VICE-PRESIDENT

Send the following telegram, subject to the terms on back hereof, which are hereby agreed to

WANT A REPLY?
"Answer by WESTERN UNION" or similar phrases may be included without charge.

From: WAR, WASHINGTON, D. C.
MAY 15, 1943

TO: MEN & WOMEN OF BRADLEY MINING CO
STIBNITE, IDAHO

THIS MESSAGE FROM THE COMMANDER IN CHIEF OF THE ALLIED FORCES IN AFRICA IS RELAYED BY THE WAR DEPARTMENT. "OUR FIGHTING MEN STANDING SHOULDER TO SHOULDER WITH OUR GALLANT ALLIES, THE BRITISH AND THE FRENCH HAVE DRIVEN THE ENEMY OUT OF NORTH AFRICA. IN THIS VICTORY THE MUNITIONS MADE BY AMERICAN INDUSTRY, LABOR AND MANAGEMENT PLAYED A VERY IMPORTANT ROLE. THERE IS GLORY FOR US ALL IN THE ACHIEVEMENT."

EISENHOWER, COMMANDER IN CHIEF OF THE ALLIED FORCES IN AFRICA

REC'D 5/17/43 - 3:20 P. M.

## The Stibnite Gold Project: Our Nearest-Term Solution to China's Antimony Crackdown

*By Mckinsey Lyon, VP of External Affairs, Perpetua Resources*

Good morning Chairman Stauber, Ranking Member Ansari, and members of the subcommittee. My name is Mckinsey Lyon, I am an Idahoan, and I serve as Vice President of External Affairs for Perpetua Resources.

My road to becoming a miner was unconventional. When this company came to my office in 2012, they said they wanted help making sure they did this "right from the start" – and saw community and stakeholder communication as a pillar of that vision. However, I started out as a skeptic, not wanting to see mining return to my backyard. Then I met the people in mining and saw that we shared values. Quickly, I then learned more about the regulatory system that shapes the safety and environmental rigor of the industry. But, I truly became a miner when I came to recognize that I was more comfortable with mining in my backyard than I was with the reality of pushing these impacts to places I will never go, to people I will never meet, under conditions I can never control. I joined this team fully in 2017 and see the Stibnite Gold Project as the right project for my backyard and for my country.

Located in the heart of central Idaho, our Stibnite Gold Project is designed to return to and restore an abandoned mine site, breathe economic vitality into our rural communities, responsibly produce gold, and provide the only domestically mined source of the critical mineral antimony.

Our site's history is particularly important to today's discussion. It goes back to the eve of World War II when blockades in the Pacific cut off America's supply of antimony and tungsten being sourced from China. The Stibnite Mining District in Idaho was then tapped to supply antimony and tungsten for the war effort. At the conclusion of war, the US Munitions Board credited the men and women of Stibnite with shortening World War II by a year and saving one million American lives. But following the Allied victory, all domestically mined sources of antimony were taken offline. And once again, our industrial base became reliant on Chinese-sourced antimony.

Today, antimony has a huge array of commercial applications, from semiconductors and batteries to lubricants and fire retardants. The Department of Defense uses antimony trisulfide as a key, non-replaceable component in the primer for hundreds of munition types. Despite antimony's importance to America's defense and manufacturing base, we are almost entirely dependent on non-allied nations.

All told, China, Russia, and Tajikistan control 90% of mined antimony, up to 80% of which is distributed through China's processing facilities.

With this level of dominance, in 2021, China was able to cut off America's supply of military grade antimony trisulfide – *wounding* our defense readiness. Taking it further, last year, the Chinese government struck our exposed Achilles heel, completely banning all antimony exports to the US, expanding the impact to all industrial and manufacturing uses of antimony. Today, US manufacturers are receiving force majeure notices that supply chains, once paid little attention to, are now unable to provide antimony.

The Stibnite Gold Project is the best and nearest-term solution to this urgent challenge. We hold a reserve of 148 million pounds of antimony, and last month, we received our Final Record of Decision from the U.S. Forest Service, capping eight years of NEPA review.

Our 8 years in permitting came after 6 years in early community engagement and environmental planning - in total representing over $400 million in investment to-date - including nearly $75 million in Defense Production Act funding and army research funds.

And to be clear, we have not yet been able to put a shovel in the ground. We still need a few more authorizations before we can begin the 3-year construction process this summer. We also hope to utilize debt financing from US EXIM under the Make More in America and China Transformational Exports Programs. Getting into construction this year is vital to meet the DOD's need for antimony by 2028.

Without a secure source of antimony trisulfide soon, our warfighters may be at risk. While we are new to the industrial base, we are taking our role as a potential supplier with utmost urgency. Without DOD's focus on antimony, and the Defense Production Act funds made available, we would not be here today.

This 18-year timeline from prospecting to production is far too long - our nation cannot wait 18 years to bring critical resources online – especially for vital technology, energy and manufacturing inputs that put our security and economy at risk when China decides to turn off the tap.

When we control our access to critical minerals, we control our prosperity and protect our future. Benjamin Franklin is quoted as saying "but for want of a nail, the kingdom fell." Critical minerals, while they may be obscure or used in small volumes, are our proverbial nail – the foundation of our economic, energy and national security. It is time to learn from our history and reaffirm our commitment to building back American industry by bringing responsible mining home.

Thank you, Mr. Chairman, and I look forward to our discussion.

**BACKGROUND on the STIBNITE GOLD PROJECT**

The Stibnite Gold Project (Project) is in the abandoned Stibnite Mining District in central Idaho. The site produced 90% of the antimony and 50% of the tungsten used by the US war efforts during World War II and the Korean War. Gold production occurred intermittently until the mid-1990's. Between 2000-2012, the site was officially abandoned by former operators and government parties.

Today, Perpetua Resources is nearing final permitting approvals to redevelop the site for the remaining 4.8 million ounce gold reserve and 148 million pound antimony reserve. With gold as the economic driver, the Project is also designed to repair environmental legacies left behind from mining activities that started over a century ago, leaving the environment better than it is today.

The Stibnite Gold Project is the only identified domestic reserve of antimony (USGS 2025) and the only domestic source of mil-spec antimony trisulfide.

**Project**:

Perpetua Resources, earlier known as Midas Gold, began investigating the site for redevelopment in 2010 and submitted the Plan of Restoration and Operations to the U.S. Forest Service for evaluation under the National Environmental Policy Act (NEPA) process in September of 2016.

Altogether, the Stibnite Gold Project has undergone 14 years of scientific study, community engagement, and engineering (2010-2024); 8 years in the National Environmental Policy Act ("NEPA") permitting process (2016-2024); 150 days of formal public comment in which 28,000 letters were received, with approximately 85% expressing support for the Project; and a 90-day objection and resolution period led by the U.S. Forest Service.

Through the long and detailed permitting process, Perpetua has worked with stakeholders and regulators to improve the environmental outcomes of the project to reach the ultimate vision of being able to "restore the site." From the original plan submitted in 2016 to the Draft EIS in 2020 and then the Supplemental Draft EIS in 2022, the project when through a number of design changes and improved outcomes, including:

- 13% reduction in project footprint over original design.
- 70% reduction in Hangar Flats Pit over original design.
- 20+ miles of habitat opened for migrating fish.

- 96% reduction in arsenic in Meadow Creek vs. existing conditions.
- 40% reduction in arsenic in EFSF Salmon River (below Sugar Creek) vs. existing conditions.
- 140% uplift in wetlands quality (wetland functional units).
- 63% net increase in wetland acres vs. existing conditions.
- Water temperature reduced to be at, or below, existing conditions.
- 60% reduction in mercury emissions over original design to be less than 20% of applicable EPA standards.
- 9.5% uplift in stream habitat quality (stream functional units).

Significantly, the 2022 Supplemental EIS found "*The restoration activities, particularly providing volitional passage in the East Fork SFSR, would result in major, permanent, regional, and beneficial effect on Chinook salmon, steelhead, bull trout, and westslope cutthroat trout within the vicinity of the mine*." (US Forest Service, 2022 SDEIS)

In the Final Record of Decision published in January 2025, the US Forest Service conditioned approval on a number of mitigation measures specific to tribal interests. These mandatory mitigations include a Tribal Monitoring program and a Tribal Observation program in addition to a Tribal Member Access program to ensure tribal members can access the site.

**Antimony**:

Antimony, a listed critical mineral, is essential for national defense, technology, and energy applications. It is a primer in hundreds of munition types, a doping agent in semiconductors and printed circuit boards, and a central component in solar panels and wind turbines. However, today, no domestically mined supply of antimony currently exists. The United States meets 18 percent of demand through the recycling of lead-acid batteries, but is otherwise import reliant on China (63 percent), Belgium (8 percent), India (6 percent), and Bolivia (4 percent). (CSIS, 8.20)

Globally, ~50 percent of antimony usage goes to flame retardants, 20 percent in photovoltaic glass to improve solar cell performance and the remainder goes to products like lead-acid batteries, break pads, lubricants, and defense applications such as ammunition, infrared missiles, nuclear weapons and night vision goggles.

Antimony is a listed critical mineral, not only because of its essential role in defense and energy products, but also because access to the mineral is constrained. In August 2024, the Chinese government announced the intent to restrict antimony exports and in December 2024 moved to ban the export of all antimony products. As a result, some analysts believe that 97 percent of antimony has stopped moving out of China. Recent reporting has also illuminated that over the last 20 years, China spent over $57 billion on securing critical mineral resources worldwide (Mining, 1.25).

In the US, the leading uses of antimony include antimonial lead and ammunition, as well as flame retardants, according to US Geological Survey in 2024 (*South China Morning Post*, 8.15) and flame retardants, as well as ceramics, glass and rubber products (*Bloomberg*, 8.15).

Antimony products will typically rely on either antimony trisulfide, antimony oxides or antimony metal. Antimony trioxide is arguably one of the most important of the antimony compounds – it is primarily used in flame-retardant formulations. (*South China Morning Post*, 8.15). And the use of antimony trioxide as a clarifying agent in photovoltaic glass has been on the rise in the past years (*South China Morning Post*, 8.15). About a fifth of antimony was used to make photovoltaic glass to improve the performance of solar cells (Reuters, 8.16). Antimony hydride is used in the semiconductor industry to dope silicon with small quantities of antimony via the chemical vapor deposition (CVD) process.

The defense industrial base uses many types of antimony but the most critical is antimony trisulfide, which is a non-replaceable component for more than 300 types of munitions (*Wall Street Journal*, 8.20). Antimony is used in bullets, nuclear weapons production and lead-acid batteries. Antimony is used in military equipment such as infrared missiles, nuclear weapons, products requiring lead-free solder, night vision goggles, and as a hardening agent for bullets and tanks (*Asia Times*, 8.17).

Perpetua Resources' 2020 Feasibility Study estimated 115 million pounds of antimony will be produced from the 148 million pound reserve. This is enough to meet about 35 percent of US demand in the first six years of operations. Perpetua's Feasibility Study in 2020 assumed a price of about $7,700 per ton. Prices in 2024 reached a peak of ~$33,000 per ton after the export ban announcement from China.

Price fluctuation and foreign manipulation of critical mineral prices is often a liability to the long-term stability and economic feasibility critical mineral projects domestically. In this case however, 95 percent of the project economics are based on gold, helping to insulate the production of antimony from price drops related to market flooding or changing market conditions.

**DEPARTMENT OF THE ARMY**
JOINT PROGRAM EXECUTIVE OFFICE
ARMAMENTS & AMMUNITION
ONE BUFFINGTON ROAD
PICATINNY ARSENAL NJ 07806-5000

SFAE-AA

08 August 2024

MEMORANDUM FOR RECORD

SUBJECT: United States Army Joint Program Executive Office Armaments and Ammunition Portfolio Impact of Antimony Sulfide for Ammunition Production

1. This memorandum explains the use of antimony sulfide in ammunition production and the impact of its supply on U.S. Army and National Security interests.

2. Joint Program Executive Office Armaments and Ammunition (JPEO A&A) is designated as the Department of Defense's (DoD) Single Manager for Conventional Ammunition (SMCA) Executor, responsible to develop, procure, produce, and demilitarize conventional ammunition for all Military Services. JPEO A&A is organized within the Office of the Secretary of Defense (OSD), Secretary of the Army, and the Assistant Secretary of the Army for Acquisition Logistics and Technology (ASA(ALT)).

3. Antimony sulfide is a key ingredient in nearly 30% of all military ammunition items to ensure the primers that ignite the propellant operate properly across all temperature ranges. This material was previously sourced only from China, but in 2021, that source discontinued its supply. A sustainable solution is restarting domestic antimony sulfide production. Since 2010, a public company, Perpetua Resources, has been actively seeking to restart a mine in Idaho through the Stibnite Gold Project. This mine contains the raw antimony sulfide ore that can be extracted and refined into military grade antimony sulfide and represents the nearest-term solution for a secure, reliable, domestic source of military grade antimony sulfide. The environmental permitting process is on-going. After permit approvals are received it will take an estimated three (3) years before production is brought online. Delays in establishing a domestic source of antimony sulfide will impact production and supply chains for ammunition items that support National Security.

4. The Office of the Assistant Secretary of Defense for Industrial Base Policy, through its Defense Production Act (DPA) Investments Program has provided $59.3M to Perpetua to conduct environmental and engineering studies necessary to complete environmental permitting requirements. The JPEO A&A Office of the Project Manager Maneuver Ammunition Systems (PM MAS) has initiated a $15.5M Defense Ordnance Technology Consortium (DOTC) effort to develop a process for producing military grade antimony sulfide from raw ore, which could be leveraged to process domestically sourced raw antimony sulfide.

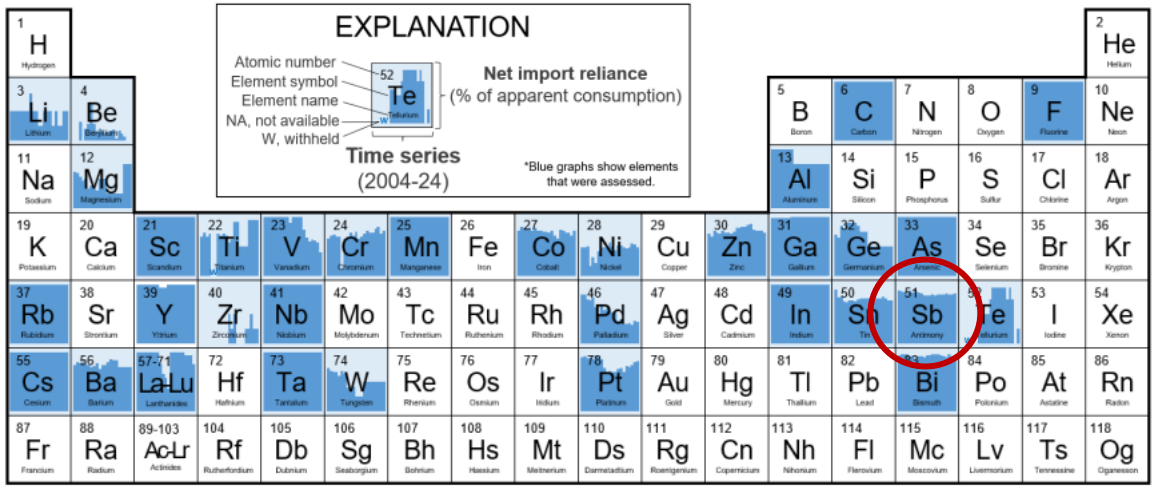
5. The point of contact for this action is Mr. Daniel Flynn, PM MAS– Systems Engineering and Technology Integration (SETI) Director, at 973-724-8036.

JOHN T. REIM
Major General, USA
Joint Program Executive Officer
Armaments & Ammunition

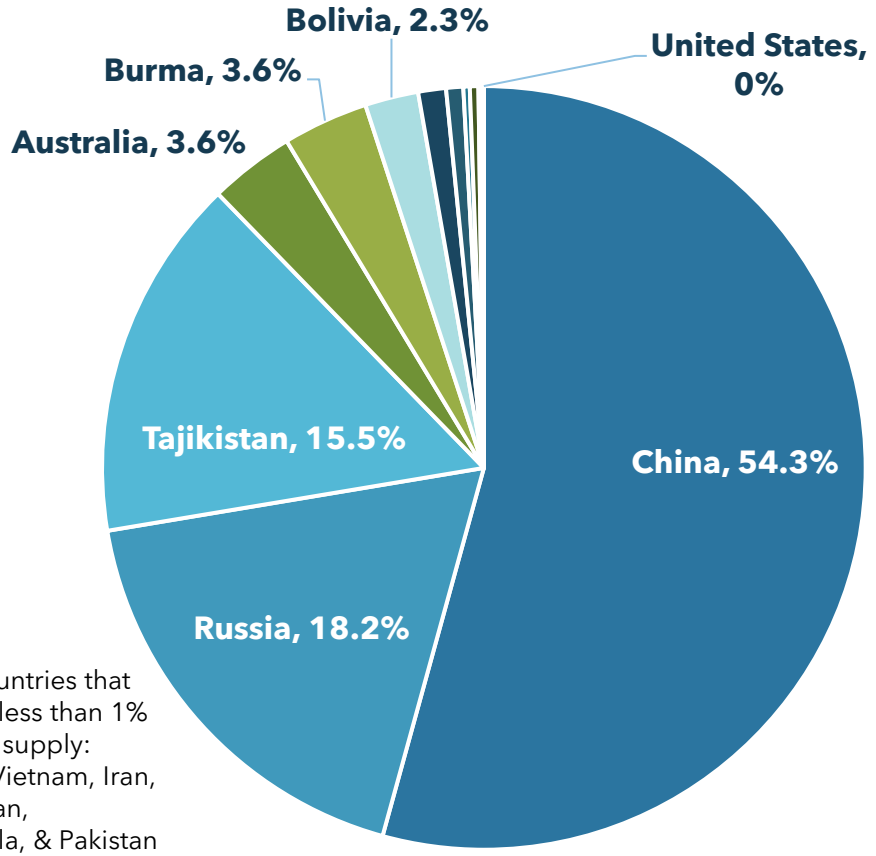
# US CRITICAL MINERAL SUPPLY CHAIN RISK.

**Critical Minerals** are metals and non-metals essential to economic and national security and are vulnerable to supply chain disruptions

**Figure 9.—20-Year Trend of U.S. Net Import Reliance for Critical Minerals**




## 2022 World Mine Production and Reserves




Other countries that produce less than 1% of global supply: Mexico, Vietnam, Iran, Kazakhstan, Guatemala, & Pakistan

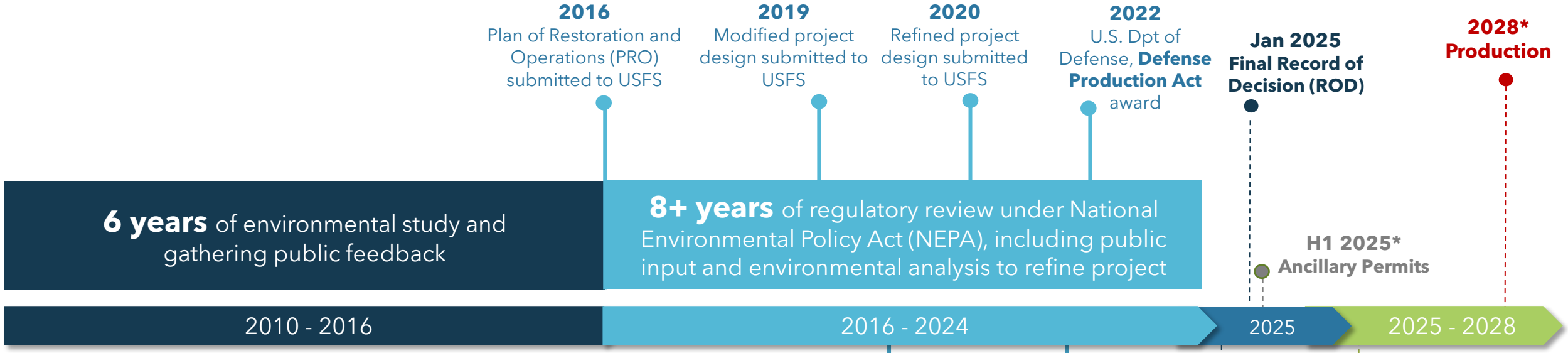
**Source**: 2023 USGS Mineral Commodity Summaries

**Perpetua Resources is estimated to produce enough antimony trisulfide to completely satisfy Defense needs and ~35% of U.S. annual commercial antimony demand in the first six years of production[1].**

1. *Based on the first 6 years of the 2020 Feasibility Study (FS) which is intended to be read as a whole and sections should not be read or relied upon out of context. The information in this presentation is subject to the assumptions, exclusions and qualifications contained in the FS. See "Regulatory Information" at the end of this presentation.*

# PROJECT TIMELINE

**18 years** from identifying the resource to production.




**Community Engagement**

- ✓ 1,020+ Community Meetings and ~300+ Site Tours
- ✓ Outreach and technical review with Idaho Tribal Nations since 2016
- ✓ Community Agreement with 8 communities
- ✓ Access agreement with Village of Yellow Pine
- ✓ Established Stibnite Foundation a profit-sharing endowment
- ✓ Established the Stibnite Advisory Council with monthly meetings
- ✓ Citizen's Water Monitoring Program
- ✓ Dark Skies Commitment
- ✓ Annual Sustainability Reports (starting in 2013)
- ✓ Adopted formal ESG policies and reporting
- ✓ Annual GHG audit and reporting (2021-2023)

**2020**
**Draft Environmental Impact Statement (EIS)**
*75-day public comment*

**Oct 2022**
**Supplemental Draft Environmental Impact Statement (SDEIS)**
*75-day public comment*

**Sept 2024**
**Final EIS | Draft Record of Decision (ROD)**

**2025**
**Construction ***

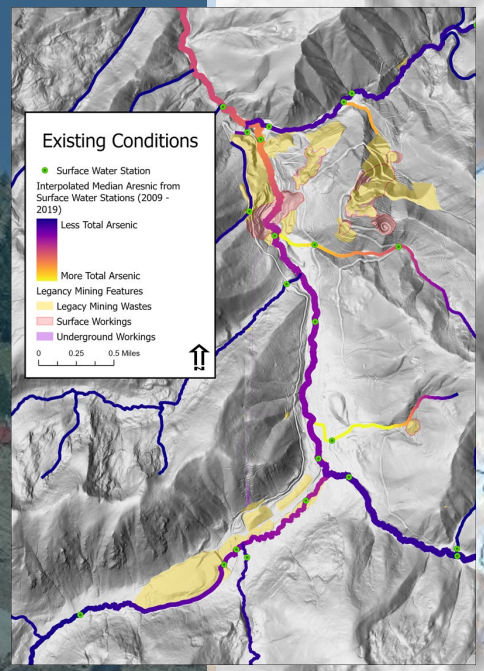
** Expected schedule based on company projections and current schedule from US Forest Service*

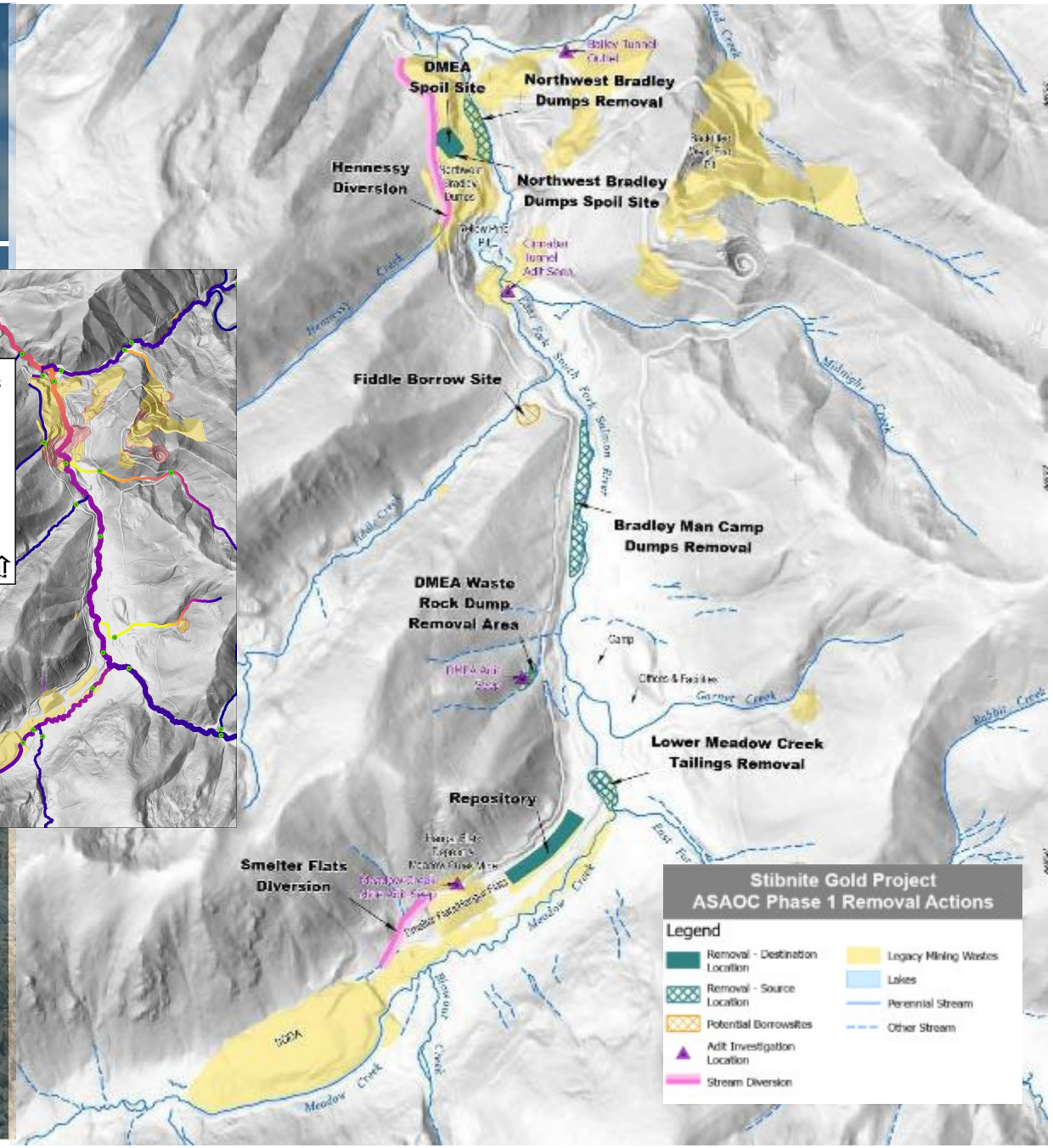
# CLEANUP STARTS TODAY

## A PATH FORWARD FOR STIBNITE

In a signed agreement with federal agencies, Perpetua has volunteered to remove and safely store 325,000 tons of legacy tailings & waste and divert and line streams to help keep clean water clean.

**Between 2022 and 2024 Perpetua invested >$18Million in cleanup**



# NEW PERSPECTIVES





**Note:** Numbers reflect Perpetua Resources Idaho, Inc. staff and board members as of January 2023

## Listen. Commit. Act. Report

**Responsible production** prioritizes environmental outcomes and community benefits along with the safe and economic production of minerals.

### Perpetua Resources is changing the face of mining.

- ✓ Sustainability Reports | 2013 – Today
- ✓ Community Agreement in | 2018
- ✓ Profit-sharing Foundation | 2019
- ✓ Dark Skies Commitment | 2019
- ✓ Adopted ESG policy | 2019
- ✓ Updated ESG policy | 2021
- ✓ Investment in legacy clean up | 2021
- ✓ Published GHG emissions inventory | 2021- 2024
- ✓ Citizen's water monitoring program | 2021
- ✓ Published Sustainability Roadmap | 2022
- ✓ 80k+ Trees Planted
- ✓ 12+ years No Reportable Spills
- ✓ 100% Safe Fuel Hauls since 2009
- ✓ 9 years No Lost Time Incidents