UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 20-F/A
(Amendment No. 1)

☐ REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended June 30, 2022

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

OR

☐ SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Date of event requiring this shell company report
For the transition period from __________ to __________

Commission File No. 001-41338

IPERIONX LIMITED
(Exact name of Registrant as specified in its charter)

N/A	**AUSTRALIA**
(Translation of Registrant's name into English)	(Jurisdiction of incorporation or organization)

129 W Trade Street
Suite 1405
Charlotte, NC 28202
(Address of principal executive offices)
Anastasios Arima
Chief Executive Officer and Managing Director
(704) 578-3217 (telephone)
info@iperionx.com (e-mail)
129 W Trade Street
Suite 1405
Charlotte, NC 28202
(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

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

Title of each class	*Trading Symbol(s)*	*Name of each exchange on which registered or to be registered:*
American Depositary Shares each representing 10 Ordinary Shares, no par value(1)	IPX	The Nasdaq Capital Market

(1) Evidenced by American Depositary Receipts

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

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: None

Number of outstanding shares of each of the issuer's classes of capital or common stock as of June 30, 2022: 140,288,491 ordinary shares.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ☐ No ☒

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act of 1934.

Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Exchange Act during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months.

Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company.

Large accelerated filer ☐ Accelerated filer ☐ Non-accelerated filer ☒ Emerging growth company ☒

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

Yes ☐ No ☒

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing.

U.S. GAAP ☐

International Financial Reporting Standards as issued by the International Accounting Standards Board ☒

Other ☐

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.

Item 17 ☐ Item 18 ☐

If this is an annual report, indicate by check mark whether the registrant is a shell company.

Yes ☐ No ☒

(APPLICABLE ONLY TO ISSUERS INVOLVED IN BANKRUPTCY PROCEEDINGS DURING THE PAST FIVE YEARS)

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court.

Yes ☐ No ☐

Auditor Name:	Auditor Location:	Audit Firm ID:
PricewaterhouseCoopers	Perth, Australia	1379

EXPLANATORY STATEMENT

IperionX Limited (the "Company") filed its Annual Report on Form 20-F for the year ended June 30, 2022 (the "Original Form 20-F"), with the U.S. Securities and Exchange Commission (the "SEC") on August 26, 2022. The Company is filing this Amendment No. 1 to the Original Form 20-F (this "Amendment") to amend Section "Mineral Resources" of the Original Form 20-F and remove Exhibit 15.1, "Technical Report Summary for Titan Project", which have been subsequently replaced with a revised Technical Report Summary dated May 30, 2023 (the "Amended TRS"). The Amended TRS is being filed as Exhibit 15.1 to the Amendment and contains updated disclosures presented in accordance with Item 1300 of Regulation S-K. See the forepart of the Amended TRS for a full description as to the updates made to the initial Technical Report Summary. This Amendment solely relates to, and replaces, all information previously included in Part I-Item 4. Information on the Company and Part III-Item 19. Exhibits.

Except as described above, this Amendment does not amend, update or change any other information set forth in the Original Form 20-F and does not reflect or purport to reflect any information or events occurring after the original filing date or modify or update those disclosures affected by subsequent events. Accordingly, this Amendment should be read in conjunction with the Original Form 20-F and the Company's other filings with the Securities and Exchange Commission. This Amendment consists solely of the preceding cover page, this explanatory note, Part I-Item 4. Information on the Company, Part III-Item 19. Exhibits, a signature page and the exhibits filed herewith.

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ITEM 4. INFORMATION ON THE COMPANY

A. History and Development of the Company

Our head office is located at 129 West Trade Street, Suite 1405, Charlotte, North Carolina 28202, United States. Our registered office is located at 28 The Esplanade, Level 9, Perth WA 6000, Australia. The telephone number of our registered office is +(61) 8-9322-6322.

IperionX was originally incorporated in Western Australia as Tao Commodities Limited on May 5, 2017 and changed its name to Hyperion Metals Limited on April 14, 2021, following our acquisition of HMAPL, which holds the Titan Project, on December 1, 2020, and most recently changed to its current name, IperionX Limited, on February 9, 2022. HMAPL was originally incorporated in Western Australia as Hyperion Metals Pty Ltd on July 20, 2020 and changed its name to Hyperion Metals (Australia) Limited on April 14, 2021, following its acquisition by the Company. We are subject to the provisions of the Australian Corporations Act.

The SEC maintains an internet site at http://www.sec.gov that contains reports, information statements, and other information regarding issuers that file electronically with the SEC.

We also maintain a web site at www.iperionx.com. The information contained on our website or available through our website is not incorporated by reference into and should not be considered a part of this annual report on Form 20-F, and the reference to our website in this annual report on Form 20-F is an inactive textual reference only.

B. Business Overview

Our mission

Our mission is to be a leading developer of U.S.-based sustainable critical mineral and critical material supply chains, to facilitate the global transition towards a circular, low-carbon, resource efficient and socially inclusive green economy.

IperionX holds an exclusive option to acquire titanium processing technologies with the potential to enable the development of a mineral-to-metal, low-carbon, cost-competitive, high-quality titanium supply chain, and is rapidly working to expand its titanium metal production. These technologies have demonstrated to be effective means of producing titanium at the pilot scale and have shown the potential to be applied to other critical minerals as well.

IperionX's immediate focus is on the commercialization of these Technologies to re-shore the titanium metal and other critical mineral supply chains in North America. To facilitate the commercialization of these Technologies, the Company has secured a potentially large source of titanium and other critical minerals, including rare earth elements, in Tennessee.

We aim to achieve this mission through a multi-pronged strategy focused on technology, integration, and sustainability.

Titanium metal technologies

Blacksand invented the Technologies at the University of Utah in partnership with the U.S. Department of Energy's Advanced Research Projects Agency – Energy (ARPA-E) and industry leaders Boeing and Arconic. By combining the Technologies with wide scale industrial advanced manufacturing capabilities such as Additive Manufacturing (AM)/3D printing, MIM and other methods, there is a compelling market opportunity with the potential to produce low-carbon spherical titanium powders at a fraction of current costs.

We believe Titanium to be a superior metal to stainless steel and aluminum for a wide range of high-performance applications in the aerospace, medical, space and defense sectors. No metal has the same combined superior properties of light weight, strength and corrosive resistance as titanium. Only titanium's historically high cost has held it back from being used in larger consumer markets.

The Technologies offers IperionX the potential to produce US-sourced, circular, low-carbon titanium that costs less and can reduce the carbon emissions of an advanced economy through replacing inferior metals. The potential exists to apply the Technologies to produce other metals as well.

Blacksand is a materials innovation company founded in 2013 by Dr. Z. Zak Fang, Professor of Materials Science and Engineering of the University of Utah. Blacksand has developed proprietary and patented technologies to produce low-cost, low carbon spherical and non-spherical titanium and its alloys, stainless-steel powders, and refractory metal alloy powders. Core competencies of Blacksand include expertise on metallic materials manufacturing processes, especially metal powders synthesis, characterization, processing, sintering, and mechanical properties. Blacksand expertise covers titanium, refractory metals, hard materials, and other specialty alloys.

The patented technology is a potential low-cost, low-carbon titanium powder production process that utilizes hydrogen to destabilize Ti-O, making it possible to turn the reduction of TiO_2 with magnesium from thermodynamically impossible to thermodynamically favored. This allows TiO_2 to be reduced and deoxygenated directly by magnesium to form TiH_2, with low oxygen levels that can meet the needs of the industry. TiH_2 can be further processed to titanium metal through standard industry methods. The patented Hydrogen Assisted Magnesiothermic Reduction ("HAMR") process reduces the energy intensity and resulting carbon emissions and cost of producing titanium metals.

The Granulation-Sintering-Deoxygenation ("GSD") process applies the HAMR technology to a simple process that has the potential to produce spherical titanium powders which can then be used in 3D printing and additive manufacturing. GSD significantly improves the yield of metal powders compared to traditional gas and plasma atomization techniques and produces a spherical powder with low oxygen, controllable particle size and excellent flowability.

The Hydrogen Sintering and Phase Transformation ("HSPT") process is a patented technology that makes it possible to achieve a wrought-like microstructure in Ti-6Al-4V alloy parts without thermo-mechanical working. We believe the ability to leave out thermo-mechanical processing opens the door for potential production of Ti-6Al-4V parts at a fraction of the cost without compromising performance.

Importantly, with these Technologies the source material can be recycled titanium scrap material. The manufacturing of titanium components and structures can generate a large amount of titanium machining chips. This 'scrap' loss can account for a substantial portion of the weight of complex traditionally milled parts. This scrap titanium can be sorted, cleaned, and prepared for processing as a source material for the GSD process. This recycling pathway can reduce costs and significantly improve the sustainability of titanium metal manufacturing.

We currently have access to the Technologies through the MSA with Blacksand pursuant to which we and Blacksand will investigate the scale up and commercialization of Blacksand's HAMR and GSD patented technologies for the processing of titanium ore or feedstock and the production of titanium metal or alloy products under two statements of work. The MSA and statements of work also grant us with options to enter into license agreements with Blacksand with respect to the same technologies. Separately, we and Blacksand have entered into the Blacksand Option Agreement whereby Blacksand granted us an exclusive option to purchase 100% of the ownership interests of Blacksand. If we choose not to exercise our option under the Blacksand Option Agreement, the existing MSA and statements of work will continue which provide us with options to enter into license agreements with Blacksand over the HAMR and GSD patented technologies and related products, to be applied to certain applications. For more information on our agreements with Blacksand, see "Item 4. Information on the Company—B. Business Overview—Additional Business Information—Potential Acquisition of Blacksand."

Critical minerals project

Integration of these Technologies with sustainable, resource efficient material feedstocks could be accomplished (in part) by the development of a U.S.-based titanium mineral supply chain through the potential future development of IperionX's 100% interest in the Titan Project in Tennessee, United States.

In addition to any future potential IperionX's supply from the Titan Project, the Technologies can accept scrap metal feedstocks. The Technologies have demonstrated the effectiveness of using both mineral and scrap feedstock at the pilot scale and the Company is working to secure additional scrap feedstocks and to potentially develop the Titan Project to secure long-term vertically integrated supply of feedstock for the Technologies.

The Titan Project covers over 11,000 acres in Tennessee, United States, and is considered prospective for critical minerals including titanium, rare earth elements, zircon, and silica sand. The Titan Project is located in West Tennessee, a region the Company believes has access to world class infrastructure, with nearby access to excellent roads, rail, river, power and skilled labor.

The Titan Project forms part of a large-scale critical mineralization trend in the physiographical area of the United States known as the Mississippi embayment that contains significant potential for critical materials including titanium, zirconium and rare earth elements.

We believe that vertical integration with U.S.-based resource operations would be a major competitive advantage for IperionX, providing a potential source of critical mineral feedstock.

On June 30, 2022, we reported the results of the Initial Assessment, which demonstrate the Titan Project’s potential to be a sustainable, low cost and globally significant North American producer of titanium, rare earths and other low carbon critical minerals needed for advanced U.S. industries such as space, aerospace, electric vehicles and 3D printing, as well as critical defense applications.

Sustainability

We believe the global transition towards the green economy could drive significant increased demand for critical minerals and advanced metals. In particular, we believe high demand could arise for those minerals and metals needed for the drive to achieve decarbonization via electrification, especially those that enable advanced technologies including titanium and rare earth elements. We believe these raw materials have historically been produced without a focus on environmental sustainability, resource scarcity, or social equity.

Through the Technologies, utilization of titanium scrap could result in the development of a circular and sustainable titanium metal supply chain. In addition, IperionX’s aim for the development of the Titan Project (and any future critical mineral operations) would focus on environmental sustainability and improving the well-being of the surrounding communities, setting the standard for future development of similar critical mineral projects.

Why Titanium?

Titanium is a strong, lightweight metal with ideal properties for broad applications in defense, aerospace, space exploration, transportation and electric vehicles, unmanned vehicles, and many other advanced manufacturing applications.

We believe titanium has the potential to be a key critical material via its substitution for stainless steel and aluminum. In our opinion, the use of stainless steel or aluminum as structural metals, whether it be for the structural components in an electric vehicle battery pack, light weighting components to reduce fuel emissions in the transport sector, or the mounting structures in solar arrays, will increase with the transition to a green economy. We believe the existing production of these metals results in carbon emissions which must be addressed to transition to a net-zero economy.

We believe titanium to be a superior metal to stainless steel and aluminum due to its combined superior properties including high strength-to-weight ratio and excellent corrosion resistance. In our opinion, only titanium’s historically high production cost has held it back from being widely used in place of stainless steel and aluminum.

Titanium metal manufacturing capacity in the United States from titanium minerals is almost non-existent. As of 2022, the current U.S. titanium metal demand from the aerospace, medical, space and defense sectors are heavily reliant on international supply chains. We believe these supply chains are not only environmentally and socially unsustainable but are also a threat to U.S. national security given the reliance on imported titanium feedstocks for use within the U.S. defense sector.

The Technologies have the potential to create a cost-competitive production of low-carbon titanium via scrap-to-metal and mineral-to-metal manufacturing processes within the U.S. The Company’s strategy would allow for the substitution of titanium metal in numerous applications ranging from aerospace and defense to electric vehicles and transportation. Widespread use of the Company’s titanium would enable a domestic, closed-loop supply chain, longer product lifetimes and increased product re-usability.

The United States is one of the largest global consumers of titanium metal for aerospace and defense applications and has become highly reliant on titanium feedstock imports to service these industries. IperionX aims to address this import dependence by developing a domestic supply chain in accordance with manufacturing and extraction industry best practices.

Domestic U.S. Titanium Market

Primary titanium metal is called titanium sponge and is produced from converting titanium minerals via the energy intensive and expensive Kroll process. Titanium products are produced by melting titanium sponge into semi-finished goods (ingot, billet) which are then used to create final products (wire, plate, bar, sheet).

In the report publicly delivered in July 2021 by the U.S. Department of Commerce Bureau of Industry and Security, The Effect of Imports of Titanium Sponge on The National Security, Congress noted that it has recognized that titanium sponge is critical to national security by including titanium as a strategic material in the Specialty Metals Clause, with all titanium used in national defense systems directed to be melted or produced in the United States or a qualifying country.

Titanium was further recognized as essential to U.S. security by the Department of the Interior. In 2018, the Department of the Interior found that the absence of a titanium sponge supply would have significant consequences for the U.S. economy and national security and added titanium to its List of Critical Minerals.

While the United States was the first nation ever to commercialize titanium sponge production in the 1950s, by 2020 the United States did not have a single large-scale titanium sponge plant.

The United States now has minimal commercial titanium sponge production capacity (approximately 500 tonnes per annum), a critical material for many U.S. defense systems, including fighter jets, bombers, attack aircraft, transports and helicopters, with newer aircraft using increased amounts of titanium, shown in the table below.

Titanium Content in Select U.S. Military Airframes

Airframe	Introduction into Service	% of Titanium Content
CH-47 Chinook	1962	8
F-15 Eagle	1976	10
F-16 Fighting Falcon	1978	7
F/A-18 Hornet	1984	12
F-22 Raptor	2005	39
V-22 Osprey	2007	31
F-35 Lightning II	2015	20

Military airframes entering service after 2000 have an average 30 percent titanium content; airframes entering service prior to 2000 had an average of just 9 percent.

Source: Arconic Engineered Structures, “World Titanium Trends in Defense”, Presentation at the Titanium USA conference, September 24, 2019

Titanium is frequently deployed in applications which require high strength and low weight, such as the A-10 Thunderbolt II attack aircraft, where a titanium cockpit tub has proved vital to the safe return of pilots despite heavy damage from enemy ground fire.

Titanium is also extensively used in naval applications due to its excellent anti-corrosion characteristics, as well as army ground vehicles due to its very high strength and light weight.

Currently only Japan, Russia, and Kazakhstan have titanium sponge plants certified to produce aerospace rotating-quality sponge that can be used for aerospace engine parts and other sensitive aerospace applications. In 2018, Russian and Chinese titanium sponge producers controlled 61% of the world’s titanium sponge production, an increase on their combined 55% share in 2008 and 37% share in 1998. In 2020, Russia and China’s control of global titanium sponge production had increased to approximately 70%.

Absent domestic titanium sponge production capacity, the United States is completely dependent on imports of titanium sponge and scrap and lacks the surge capacity required to support defense and critical infrastructure needs in an extended national emergency. IperionX’s potentially closed-loop titanium has the potential to supply additional markets and industries outside of defense. Titanium’s historical high-cost and high-carbon profile have precluded its use in a variety of other industries including consumer electronics and medical technology – IperionX’s potential low-cost, low carbon titanium supply opens up an array of these potential new applications.

Given the lack of domestic production capacity, and that the United States no longer maintains titanium sponge in the National Defense Stockpile, U.S. producers of titanium-containing products including fighter jets, bombers, attack aircraft, transports and helicopters are dependent on non-U.S. sources of titanium. We believe that this dependence presents the possibility that in a national emergency, U.S. titanium producers would be denied access to imports of titanium sponge and scrap.

In addition to bringing titanium production back to the United States, we believe IperionX's potential low-cost, low carbon titanium supply opens up an array of potential new applications including in consumer electronics and medical technology.

Our Strategies

We aim to re-shore U.S. critical mineral supply at reduced carbon intensity through the continued development and growth of the closed-loop advanced metal Technologies and the development of our critical mineral properties.

Our objective is to create long-term shareholder value through the development, scale up and commercialization of the Technologies, and the potential development of additional critical metal and material products to support a future-facing, renewable and sustainable economy in the United States.

Additionally, we aim to create long-term, productive jobs for the communities in which we operate, and invest into our communities and ensure that they remain beneficiaries and participants in our continued growth as a company.

To achieve our stated mission and objectives, we currently have the following business strategies and prospects over the medium to long term:

- Continue to **research, investigate, scale-up and commercialize** the Technologies to produce titanium metal powders for the stakeholders within defense, space, aerospace, electric vehicles and additive manufacturing.

- Complete techno-economic evaluations, including **providing titanium samples produced using the Technologies for potential customers,** to outline material physical and economic metrics of the development of the Technologies as well as securing long term offtake contracts.

- Continue to **investigate potential alternative applications of the Technologies to develop additional value-added metal closed-loop production capabilities**, including zircon and synthetic rutile, and the potential production of rare earth elements.

- Continue to **progress Environmental, Sustainability and Corporate Governance ("ESG") assessments and integration studies** to outline material physical and economic ESG metrics as well as major development milestones and timelines.

- Continue discussions with potential customers and strategic partners for **future production and sale of titanium metal products and critical minerals, including, but not limited to rare earth elements**.

- Continue to **expand IperionX's land position in the United States, explore for additional critical minerals** and secure relevant permit and zoning approvals.

To date, we have only commenced pilot scale production of titanium metal but have not commenced commercial production of any titanium metal, titanium minerals or other minerals, nor have we identified any ore reserves.

Our Competitive Strengths

We believe that we are well-positioned to successfully execute our business strategies because of the following competitive strengths:

- ***Patented titanium metal production technologies.*** We have an exclusive option to acquire Blacksand which holds the exclusive commercial licensing rights for the patented Technologies to produce low carbon titanium metal and spherical powders developed by Blacksand at the University of Utah with support from ARPA-E.

- ***Market opportunity that capitalizes on a shift to low carbon metal production.*** The social and macroeconomic shift to the low carbon production of metals and a circular economy provides a significant opportunity for IperionX to apply the Technologies and position us to take advantage of a compelling high growth market.

- ***Ability to recycle existing titanium metal feedstock and titanium metal products in a closed-loop process.*** The Technologies have demonstrated, at pilot-scale, to be capable of producing fully recycled titanium metal powders using titanium scrap as feedstock in a closed-loop process, technology that potentially offers lower cost, low carbon titanium metal and powders. See "Item 3. Key Information—D. Risk Factors—Risks Related to our Business—Failure to commercially scale our closed-loop titanium production processes may result in material adverse impacts to, or failure to achieve, our growth projections".

- ***Differentiated and integrated U.S. domestic supply chain.*** We believe that our integrated business model in the U.S. will allow us to achieve our objective to provide a domestic end-to-end supply chain of low-cost and low carbon titanium metal for strategic and high value applications including light-weighting for electric vehicles and battery packs as well as broad defense and light-weighting applications for commercial and military applications.

- ***Sales of critical minerals.*** The Titan Project contains titanium minerals that can supply the titanium pigment and metals markets as well as the Technologies. It also contains significant volumes of other highly valuable critical minerals which may be sold as co-products, including zircon and rare earth elements.

- ***Strategically located close to existing processing facilities.*** The Titan Project is strategically located in the southeastern U.S., close to significant manufacturing capacity, including the Chemours facility in New Johnsonville, Tennessee, one of the world's largest producers of titanium dioxide.

- ***Significant existing infrastructure available.*** The Titan Project's location enjoys low-cost access to road, rail and water logistics connecting it to world class manufacturing industries. The Titan Project is also well situated to take advantage of a highly skilled labor force and low-cost renewable baseload grid power.

- ***First mover in restarting exploration of critical minerals in the West Tennessee area.*** As a first mover in restarting exploration of critical minerals in West Tennessee, IperionX aims to develop a strategic, U.S. domestic source of high-quality, low-cost and low carbon titanium metal products and other critical minerals, including rare earths and silica sand. The Titan Project is located in an area which saw significant historic exploration from the 1950's to the 1990's by companies including DuPont, Kerr-McGee Corp., BHP Group, RGC Ltd and Altair International Corp.

- ***Experienced management team.*** Our senior management team has significant experience in acquiring, developing, and financing minerals extraction projects in the United States. They have previously held senior business development, financial, and operational positions at both large, publicly traded extraction companies as well as successful private extraction operations.

Customers and Partnerships

IperionX is engaged in a wide range of commercial discussions that are advancing with potential customers, collaborators, and strategic partners interested in titanium metal and products produced with the Technologies.

Because IperionX is an early-stage company, we do not currently have established marketing or distribution channels or sales contracts. However, we have non-binding memoranda of understanding related to the development of sales channels for our products with the following companies:

- IperionX has a non-binding Memorandum of Understanding ("MOU") to potentially establish a partnership with Energy Fuels that aims to build an integrated, all-American rare earths supply chain. The MOU will evaluate the potential supply of rare earth minerals from the Titan Project to Energy Fuels for value added processing at Energy Fuels' White Mesa Mill. Rare earths are highly valued as critical materials for magnet production essential for wind turbines, electric vehicles, consumer electronics and military applications.

- IperionX has a non-binding MOU with Chemours to investigate a potential supply agreement between IperionX and Chemours for up to 50,000 metric tons of ilmenite, 10,000 metric tons of rutile, and 10,000 metric tons of staurolite. Chemours operates one of the largest titanium dioxide plants at its New Johnsonville plant which is located approximately 20 miles from IperionX's Titan Project in Tennessee.

- IperionX has a non-binding MOU with EOS to accelerate the deployment of the Technologies for the potential production of low-cost, low carbon titanium metal powders. IperionX and EOS have agreed to negotiate in good faith to enter into definitive agreements to give effect to a partnership that allows IperionX and EOS to work together to advance deployment of spherical and non-spherical titanium metal powders for use in the additive manufacturing industry.

- IperionX has a non-binding MOU with Mario Pilato BLAT S.A. for the potential supply of zircon products. The MOU contemplates a supply agreement for an initial five-year term on an agreed market-based pricing methodology for the annual supply of up to 20,000 tonnes of zircon products from IperionX's Titan Project in Tennessee.

Competition

IperionX competes with other metals technology, metal, natural resource, and exploration companies in what is a fragmented industry. For now, IperionX represents a small portion in this sector. Many of our competitors have been in business longer than we have and have established more strategic partnerships and relationships and have greater financial accessibility than we have.

While we compete with other companies in the metals and natural resource space, we believe that there are readily available purchasers of critical materials, including titanium metal, titanium minerals and rare earth minerals, if they are able to be produced by our business operations. The price of metals and minerals can be affected by a number of factors beyond our control, including:

- Fluctuations in the market prices for critical materials, titanium metal, titanium minerals and rare earth minerals;

- Fluctuating supplies of critical materials, titanium metal, titanium minerals and rare earth minerals;

- Fluctuating demand for critical materials, titanium metal, titanium minerals and rare earth minerals; and

- Metals and extraction activities of others.

Capital Expenditures

Our capital expenditures amounted to US$2.8 million for fiscal 2022 and US$0.6 million for fiscal 2021 which represents the purchase of exploration and evaluation properties and the purchase of property, plant, and equipment.

We expense all other exploration and evaluation expenditures when incurred (other than expenditures incurred in the acquisition of the rights to explore, including option payments to landowners).

If we complete a definitive Feasibility Study for the Titan Project and ultimately make a decision to develop the Titan Project, this will require substantial additional funds, which would require future debt or equity financings. The Initial Assessment estimates the Titan Project's initial capital costs to be US$237 million for the construction of the mine, WCP (as defined herein), and MSP (as defined herein), including a 30% contingency. The intended accuracy of the initial capital cost estimate for the Titan Project is ± 35%.

EXPLORATION RESULTS

Since securing the initial Titan Project land position in late-2020, we have focused on proving the Titan Project's potential. We have conducted multiple drilling programs at the Titan Project, comprising more than 300 drill holes totaling more than 10,000 meters drilled during the fiscal periods ended June 30, 2021 and 2022. On June 30, 2022, we reported the results of the Initial Assessment on the Titan Project, which demonstrate the Titan Project's potential to be a sustainable, low cost and globally significant North American producer of titanium, rare earths and other low carbon critical minerals needed for advanced U.S. industries such as space, aerospace, electric vehicles and 3D printing, as well as critical defense applications. We also believe the results suggest that there is a significant potential to grow production and the Titan Project's life in the future. The Initial Assessment, which adhered to the guidelines in Subpart 1300 of Regulation S-K, considered mining, processing, metallurgical, infrastructure, economic, marketing, legal, environment, social and government factors.

However, we remain an exploration stage minerals extraction company, and we have declared no reserves as defined under Subpart 1300 standards. See "Item 4. Information on the Company—D. Property, Plant and Equipment" for additional information relating to the Titan Project, including the relevant exploration results, which information is incorporated by reference.

EXPLORATION AND DEVELOPMENT PLANS

We are required by ASX Listing Rules to report ore reserves and mineral resources in Australia in compliance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code 2012 Edition) prepared by the Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC). In contrast, the SEC generally requires disclosure of extraction reserves in accordance with Regulation S-K, Subpart 1300. We are an exploration stage minerals extraction company, and we have no reserves as defined under Subpart 1300 standards. See "Cautionary Note to United States Investors."

On June 30, 2022, we reported the results of the Initial Assessment. Over the next twelve months we have plans to undertake further drilling to expand and increase confidence in Titan Project deposit, as well as further metallurgical testwork, hydrology and geotechnical studies, and economic studies to assess the economic potential of the Titan Project and define a critical minerals reserve base.

In addition to the Initial Assessment, we may undertake additional technical studies, including pre-feasibility and/or feasibility studies. These additional studies will also adhere to the guidelines in Subpart 1300 of Regulation S-K. If we complete all technical studies (and all necessary permitting activities), we may then undertake minerals extraction and processing activities. However, we currently do not have detailed plans for any component of the exploration and development plans.

Subject to market conditions and the ability to define an economically viable critical minerals deposit, our separate business plan for the Titan Project is to become a strategic, U.S. domestic source of high-quality and sustainable titanium and other critical mineral feedstocks, including rare earths, to the United States. The titanium minerals could form an important sustainable feedstock for the Technologies and assist in the scale up of the Technologies to meet potential future market demand. We believe that vertical integration with U.S.-based resource operations is a major competitive advantage for IperionX, providing a potential source of critical mineral feedstock.

We plan to effect our business plan for the Titan Project by:

- completing our exploration drilling program on initial land position and continuing to secure additional land leases to undertake additional exploration;
- undertaking necessary technical studies to assess the economic potential of the Titan Project and defining a critical minerals reserve base;
- completing required permitting and zoning activities;
- undertaking discussions with potential customers for future sale of titanium and other critical minerals, including rare earths;
- completing required financing activities;
- completing construction of the Titan Project's minerals extraction and processing facilities; and
- commencing minerals extraction and processing activities to supply the United States demand for clean, low-cost domestic sources of titanium and other critical minerals, including rare earths.

ADDITIONAL BUSINESS INFORMATION

Potential Acquisition of Blacksand

IperionX and Blacksand entered into the Blacksand Option Agreement in October 2021 whereby Blacksand granted IperionX an exclusive option to purchase 100% of the ownership interests of Blacksand. The option period terminates upon the earliest to occur of (i) the closing of the purchase of Blacksand, (ii) termination of the existing Blacksand Research Agreement, (iii) December 31, 2022, or (iv) the termination of the Blacksand Option Agreement, which may be terminated by IperionX at any time for any reason upon 60 days' notice to Blacksand or by either party if there is a breach, inaccuracy in, or failure to perform any representation, warranty, covenant or agreement made by the other party pursuant to the Blacksand Option Agreement and such breach, inaccuracy, or failure has not been cured by the other party within 30 days' of receipt of written notice of such breach.

Separately, IperionX and Blacksand also have the MSA in place pursuant to which IperionX and Blacksand will investigate the scale up and commercialization of Blacksand's HAMR and GSD patented technologies for the processing of titanium ore or feedstock and the production of titanium metal or alloy products under two statements of work. Under the first statement of work ("SOW 1"), Blacksand provides research and development services to investigate the scale up and commercialization of the HAMR technology for a cost of US$480,000. The term of SOW 1 ends on the earlier of (i) termination of the MSA or (ii) the completion of the research and development program. Under the second statement of work ("SOW 2"), Blacksand provides research and development services to investigate the scale up and commercialization of the GSD technology for a cost of US$1,200,000. The term of SOW 2 ends on the earliest of (i) termination of the MSA, (ii) the completion of the research and development program or (iii) June 1, 2023. The MSA continues until terminated (a) by IperionX at any time for any reason upon 90 days' notice to Blacksand or (b) by either party if there is a breach of the MSA by the other party and such breach has not been cured by the other party within 15 days' of receipt of written notice of such breach.

While the Blacksand Option Agreement (detailed above) gives IperionX exclusive rights to develop Blacksand's patented technologies, including the HAMR and GSD patented technologies and related products, the MSA separately grants IperionX with options to enter into license agreements with Blacksand with respect to the same technologies. If IperionX exercises the option to license the HAMR technology, it will pay total license fees to Blacksand of US$1.9 million over a two-year period. From the third anniversary of the option exercise, IperionX will pay Blacksand the greater of the minimum annual license payment (between US$150,000 and US$250,000) and a royalty of 3% of the net value of licensed product sold. If IperionX exercises the option to license the GSD technology, it will pay total license fees to Blacksand of US$3 million over a two-year period. From the third anniversary of the option exercise, IperionX will pay Blacksand the greater of the minimum annual license payment (between US$250,000 and US$500,000) and a royalty of 5% of the net value of licensed product sold. The options to enter into license agreements can be exercised by IperionX at any time during the term of the MSA.

Blacksand holds the exclusive commercial licensing rights for more than forty global patents through a license agreement with the University of Utah ("UoU License Agreement") including the global patents for the patented HAMR and GSD technologies that can produce low-cost and low carbon titanium metal. The License Agreement grants Blacksand a royalty bearing exclusive license to commercialize the intellectual property that Blacksand developed in conjunction with the University of Utah. The UoU License Agreement automatically continues unless one of the parties terminates. IperionX will be able to apply this patent and technology platform across a wider range of advanced metal alloys and powders for markets including space, aerospace, electric vehicles and 3D printing and additive manufacturing.

If IperionX chooses to exercise its option under the Blacksand Option Agreement, IperionX will: (i) pay US$12,000,000 to Blacksand and its members, of which the Company can elect to pay an amount (between 22.5% to 30%) in shares of the Company (based on a share price equal to 75% of the 10-day VWAP of IperionX shares on ASX immediately preceding the closing date, subject to a floor of A$0.85 and a ceiling of A$3.00), subject to IperionX obtaining shareholder approval; (ii) commit to invest US$1,000,000 over a 3 year period towards the establishment of an endowed chair professorship at the University of Utah, which shall be used to support research and development related to Blacksand and IperionX, and other related technologies in the field of titanium, critical metals, and minerals; and (iii) pay the Blacksand members a royalty equal to 0.5% of cumulative net sales that relate to Blacksand assets or properties above US$300,000,000.

If IperionX chooses not to exercise its option under the Blacksand Option Agreement, the existing MSA and statements of work will continue which provide IperionX with options to enter into license agreements with Blacksand over a suite of patents, including the HAMR and GSD patented technologies and related products, to be applied to certain applications.

Acquisition of the Titan Project

Following its acquisition of HMAPL in December 2020 (the "Acquisition"), IperionX holds a 100% interest in the Titan Project, covering over 11,000 acres of critical minerals properties in Tennessee, United States, considered prospective for critical minerals including titanium, rare earth elements, silica sand and zircon. The Titan Project is located in West Tennessee and we believe the Titan Project has access to world class infrastructure, with nearby access to excellent roads, rail, river, power and skilled labor. Mineral sands projects operational costs are heavily influenced by electricity and labor costs.

Since securing the initial Titan Project land position in late-2020, IperionX has successfully focused on proving the Titan Project's potential. We have completed multiple drilling programs at the Titan Project, confirming consistent grade and thickness of critical minerals mineralization over approximately 2 miles of strike. Assays from all holes of the first two drilling programs and the first batch of the third program have returned thick zones of high-grade total heavy minerals near surface.

The Company completed its acquisition of HMAPL after issuing 26,500,000 ordinary shares, 5,000,000 unlisted options, 8,000,000 performance options and 36,000,000 performance shares in the Company to the vendors, following shareholder approval received at the Company's general meeting of shareholders held on November 30, 2020. As a result of the acquisition, the former shareholders of HMAPL effectively obtained control of the combined entity. Accordingly, using the reverse acquisition principles of the business combination accounting standard, while the Company is the legal acquirer of HMAPL, for accounting purposes HMAPL is deemed to be the acquirer of the Company. Therefore, the consolidated financial statements of the Company have been prepared as a continuation of the consolidated financial statements of HMAPL. The deemed acquirer, HMAPL, has accounted for the acquisition of the Company from December 1, 2020. In addition, at the date of the transaction, it was determined that the Company was not a business. Accordingly, for accounting purposes, the acquisition has been treated as a share-based payment transaction. As a result of the reverse acquisition, during the prior fiscal 2021 period, the combined entity recognized an expense of US$5.1 million in its statement of profit or loss and other comprehensive income, effectively representing the cost of listing on the ASX. The cost is calculated as the difference in the fair value of the equity instruments that HMAPL is deemed to have issued to acquire the Company and the fair value of the Company's identifiable net assets.

GOVERNMENTAL REGULATIONS

U.S. Securities Regulations

Emerging Growth Company Status

We are an "emerging growth company" under the U.S. Jumpstart Our Business Startups Act of 2012, or the JOBS Act, and will continue to qualify as an "emerging growth company" until the earliest to occur of:

- the last day of the fiscal year during which we have total annual gross revenues of US$1,070,000,000 (as such amount is indexed for inflation every five years by the SEC) or more;
- June 30, 2027, being the last day of our fiscal year following the fifth anniversary of the completion of our first sale of common equity securities pursuant to an effective annual report under the Securities Act;
- the date on which we have, during the previous three-year period, issued more than US$1,070,000,000 in non-convertible debt; or
- the date on which we are deemed to be a "large accelerated filer", as defined in Rule 12b-2 of the U.S. Securities Exchange Act of 1934, as amended, or the Exchange Act, which would occur if the market value of our ordinary shares and ADSs that are held by non-affiliates exceeds US$700,000,000 as of the last day of our most recently completed second fiscal quarter.

An emerging growth company may take advantage of specified exemptions from various requirements that are otherwise applicable to public companies in the United States. Generally, a company that registers any class of its securities under Section 12 of the Exchange Act is required to include in the second and all subsequent annual reports filed by it under the Exchange Act, a management report on internal control over financial reporting and an auditor attestation report on management's assessment of the company's internal control over financial reporting. However, for so long as we continue to qualify as an emerging growth company, we will be exempt from the requirement to include an auditor attestation report in our annual reports filed under the Exchange Act. In addition, Section 103(a)(3) of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, has been amended by the JOBS Act, to provide that, among other things, auditors of an emerging growth company are exempt from any rules of the Public Company Accounting Oversight Board requiring mandatory audit firm rotation or a supplement to the auditor's report in which the auditor would be required to provide additional information about the audit and the financial statements of the company.

For information on the risks that accompany our status as an emerging growth company, see "Item 3. Key Information—D. Risk Factors—Risks Related to Our ADSs—We are an emerging growth company, and we cannot be certain if the reduced disclosure requirements applicable to emerging growth companies may make the ADSs less attractive to investors and, as a result, adversely affect the price of the ADSs and result in a less active trading market for the ADSs."

In the event that we cease to qualify as an emerging growth company, we will still be exempt from certain rules under the Exchange Act as a foreign private issuer, as described immediately below.

Foreign Private Issuer Status

We are also considered a "foreign private issuer" pursuant to Rule 405 under the Securities Act. As a foreign private issuer, we are exempt from certain rules under the Exchange Act that impose certain disclosure obligations and procedural requirements for proxy solicitations under Section 14 of the Exchange Act. In addition, our officers, directors and principal shareholders are exempt from the reporting and "short-swing" profit recovery provisions of Section 16 of the Exchange Act and the rules under the Exchange Act with respect to their purchases and sales of our ordinary shares or ADSs. Moreover, we are not required to file periodic reports and financial statements with the SEC as frequently or as promptly as United States companies whose securities are registered under the Exchange Act. In addition, we are not required to comply with Regulation FD (Fair Disclosure), which restricts the selective disclosure of material information.

Nasdaq also allows us a foreign private issuer to elect to follow certain home country laws instead of Nasdaq practices applicable to U.S. companies. In particular, we follow home country law instead of Nasdaq practice regarding:

- Nasdaq's requirement that our independent directors meet regularly in executive sessions. The ASX Listing Rules and the Corporations Act do not require the independent directors of an Australian company to have such executive sessions and, accordingly, we have claimed this exemption.

- Nasdaq's requirement that an issuer provide for a quorum as specified in its bylaws for any meeting of the holders of ordinary shares, which quorum may not be less than 33 1/3% of the outstanding shares of an issuer's voting ordinary shares. In compliance with Australian law, our Constitution provides that two shareholders present shall constitute a quorum for a general meeting.

- Nasdaq's requirement that issuers obtain shareholder approval prior to the issuance of securities in connection with certain acquisitions, changes of control or private placements of securities, or the establishment or amendment of certain stock option, purchase or other compensation plans. Applicable Australian law and rules differ from Nasdaq requirements, with the ASX Listing Rules providing generally for prior shareholder approval in numerous circumstances, including (i) issuance of equity securities exceeding 15% (or an additional 10% capacity to issue equity securities for the proceeding 12-month period if shareholder approval by special resolution is sought at the Company's annual general meeting) of our issued share capital in any 12-month period (but, in determining the available issue limit, securities issued under an exception to the rule or with shareholder approval are not counted), (ii) issuance of equity securities to related parties (as defined in the ASX Listing Rules) and (iii) directors or their associates acquiring securities under an employee incentive plan.

For as long as we are a "foreign private issuer" we intend to file our annual financial statements on Form 20-F and furnish our semi-annual financial statements and quarterly updates on Form 6-K to the SEC for so long as we are subject to the reporting requirements of Section 13(g) or 15(d) of the Exchange Act. However, the information we file or furnish is not the same as the information that is required in annual and quarterly reports on Form 10-K or Form 10-Q for U.S. domestic issuers. Accordingly, there may be less information publicly available concerning us than there is for a company that files as a domestic issuer.

We may take advantage of these exemptions until such time as we are no longer a foreign private issuer. We are required to determine our status as a foreign private issuer on an annual basis at the end of our second fiscal quarter. We would cease to be a foreign private issuer at such time as more than 50% of our outstanding voting securities are held by U.S. residents and any of the following three circumstances applies: (1) the majority of our executive officers or directors are U.S. citizens or residents; (2) more than 50% of our assets are located in the United States; or (3) our business is administered principally in the United States. Since more than 50% of our assets are located in the United States, we will lose our status as a foreign private issuer if more than 50% of our outstanding voting securities are held by U.S. residents as of the last day of our second fiscal quarter in any year.

For information on the risks that accompany our status as a foreign private issuer, see “Item 3. Key Information—D. Risk Factors—Risks Related to Our ADSs—As a foreign private issuer, we are permitted to file less information with the SEC than a domestic issuer” and “Item 3. Key Information—D. Risk Factors—Risks Related to Our ADSs—We may lose our foreign private issuer status, which would then require us to comply with the Exchange Act’s domestic reporting regime and cause us to incur additional legal, accounting and other expenses.”

U.S. Environmental, Health and Safety Laws

IperionX’s business operations, including the Technologies and the Titan Project, will be required to comply with applicable environmental protection laws and regulations and licensing and permitting requirements. The material environmental, health and safety laws and regulations that we must comply with include, among others, the following United States federal laws and regulations:

- National Environmental Protection Act (“NEPA”), which requires careful evaluation of the environmental impacts of extraction operations that require federal approvals;
- Clean Air Act (“CAA”) and its amendments, which governs air emissions;
- Clean Water Act (“CWA”), which governs discharges to and excavations within the waters of the United States;
- Safe Drinking Water Act (“SDWA”), which governs the underground injection and disposal of wastewater;
- Resource Conservation and Recovery Act (“RCRA”), which governs the management of solid waste;
- Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), which imposes liability where hazardous substances have been released into the environment (commonly known as Superfund); and
- Federal Mine Safety and Health Act, which established the primary safety and health standards regarding working conditions of employees engaged in extraction, related operations, and preparation and milling of the minerals extracted, as well as the Occupation Safety and Health Act, which regulates the protection of the health and safety of workers to the extent such protection is not already addressed by the Federal Mine Safety and Health Act.

Our operations may also be subject to state environmental law and regulations, including but not limited to laws and regulations related to the reclamation of mined lands, which may require reclamation permits to be acquired prior to the commencement of minerals extraction operations and may require substantial financial guarantees to cover the cost of future reclamation activities.

Solid and Hazardous Waste

RCRA, and comparable state statutes, affect our operations by imposing regulations on the generation, transportation, treatment, storage, disposal and cleanup of hazardous wastes and on the disposal of non-hazardous wastes. Under the auspices of the United States Environmental Protection Agency (“EPA”), the individual states administer some or all of the provisions of RCRA, sometimes in conjunction with their own, more stringent requirements.

In addition, the federal Superfund law can impose joint and several liability without regard to fault or legality of conduct on classes of persons who are statutorily responsible for the release of a hazardous substance into the environment. These persons can include the current and former owners, lessees or operators of a site where a release occurs, and anyone who disposes or arranges for the disposal of a hazardous substance. Under CERCLA, such persons may be subject to strict, joint and several liability for the entire cost of cleaning up hazardous substances that have been released into the environment and for other costs, including response costs, alternative water supplies, damage to natural resources and for the costs of certain health studies. Moreover, it is not uncommon for neighboring landowners, workers and other third parties to file claims for personal injury and property damage allegedly caused by hazardous substances released into the indoor or outdoor environment. Each state also has environmental cleanup laws analogous to CERCLA. Hazardous wastes may have been previously handled, disposed of, or released on or under properties currently or formerly owned or leased by us or on or under other locations to which we sent waste for disposal. These properties and any materials disposed or released on them may subject us to liability under CERCLA, RCRA and analogous state laws. Under such laws, we could be required to remove or remediate disposed wastes or property contamination, to contribute to remediation costs, or to perform remedial activities to prevent future environmental harm.

Air Emissions

The federal CAA and comparable state laws restrict the emission of air pollutants from numerous sources through the issuance of permits and the imposition of other requirements. Major sources of air pollutants are subject to more stringent, federally imposed permitting requirements. Air pollution regulations may require us to obtain pre-approval for the construction or modification of certain projects or facilities expected to produce or significantly increase air emissions, obtain air permits and comply with stringent permit requirements or utilize specific equipment or technologies to control emissions of certain pollutants. The need to obtain permits has the potential to delay our operations, and we may be required to incur capital expenditures for air pollution control equipment or other air emissions related obligations. Administrative enforcement actions for failure to comply strictly with air pollution regulations or permits are generally resolved by payment of monetary fines and correction of any identified deficiencies. Alternatively, regulatory agencies could require us to forego construction, modification or operation of certain air emission sources.

Climate Change

Numerous regulatory initiatives have been enacted, and are likely to continue to be developed, at the international, national, regional and state levels of government to monitor and limit existing emissions of greenhouse gases (“GHGs”) as well as to restrict or eliminate such future emissions. At the federal level, in December 2009, the EPA determined that emissions of carbon dioxide, methane and other GHGs endanger public health and the environment because emissions of such gases are, according to the EPA, contributing to warming of the earth’s atmosphere and other climatic changes. Based on these findings, the EPA began adopting and implementing regulations to restrict emissions of GHGs under existing provisions of the CAA.

President Biden and the Democratic Party, which now controls the U.S. Congress, have identified climate change as a priority, and it is expected that new executive orders, regulatory action and/or legislation targeting greenhouse gas emissions, or prohibiting or restricting oil and gas development activities in certain areas, will be proposed and/or promulgated during the Biden Administration.

Congress has from time to time considered adopting legislation to reduce emissions of GHGs, and a number of state and regional efforts have emerged that are aimed at tracking and/or reducing GHG emissions by means of cap-and-trade programs. Cap and trade programs typically require major sources of GHG emissions to acquire and surrender emission allowances in return for emitting those GHGs. Further, the United States has rejoined the Paris Agreement and has committed to reduce U.S. GHG emissions by up to 52% by 2030. The adoption of legislation or regulatory programs or other government action to reduce emissions of GHGs could require us to incur increased operating costs.

Clean Water Act

The CWA imposes restrictions and strict controls regarding the discharge of wastes, including mineral processing wastes, into waters of the United States, a term broadly defined to include, among other things, certain wetlands. Permits must be obtained to discharge pollutants into federal waters. The CWA provides for civil, criminal and administrative penalties for unauthorized discharges, both routine and accidental, of pollutants. It imposes substantial potential liability for the costs of removal or remediation associated with discharges of oil or hazardous substances. State laws governing discharges to water also provide varying civil, criminal and administrative penalties, and impose liabilities in the case of a discharge of petroleum or its derivatives, or other hazardous substances, into state waters. In addition, the EPA has promulgated regulations that require permits to discharge storm water runoff, including discharges associated with construction activities. In the event of an unauthorized discharge of wastes, we may be liable for penalties and costs.

Pursuant to these laws and regulations, we may also be required to develop and implement spill prevention, control and countermeasure plans, also referred to as “SPCC plans,” in connection with on-site storage of significant quantities of oil. Some states also maintain groundwater protection programs that require permits for discharges or operations that may impact groundwater conditions. The CWA also prohibits the discharge of fill materials to regulated waters including wetlands without a permit from the USACE.

In May 2015, the EPA issued a final rule that attempted to clarify the federal jurisdictional reach over waters of the United States, but the agency repealed this rule in September 2019 and replaced it with the Navigable Water Protection Rule in April 2020, which narrowed federal jurisdictional reach relative to the 2015 rule. The repeal and replacement of the 2015 rule is currently subject to litigation and the scope of the jurisdictional reach of the Clean Water Act may therefore remain uncertain for several years, with a patchwork of legal guidelines applicable to various states potentially developing. We could face increased costs and delays with respect to obtaining permits for dredge and fill activities in wetland areas to the extent they are required.

Underground Injection Control Permits

The federal SDWA creates a nationwide regulatory program protecting groundwater. This act is administered by the EPA. However, to avoid the burden of dual federal and state (or Indian tribal) regulation, the SDWA allows for the Underground Injection Control ("UIC") permits issued by states (and Indian tribes determined eligible for treatment as states) to satisfy the UIC permit required under the SDWA under two conditions. First, the state's program must have been granted primacy. Second, the EPA must have granted, upon request by the state, an aquifer exemption. The EPA may delay or decline to process the state's application if the EPA questions the state's jurisdiction over the mine site. Permits must be obtained before developing and using deep injection wells for the disposal or storage of produced fluids, and well casing integrity monitoring must be conducted periodically to ensure the well casing is not leaking produced fluids to groundwater. Contamination of groundwater by natural gas and oil drilling, production and related operations may result in fines, penalties, remediation costs and natural resource damages, among other sanctions and liabilities under the SDWA and other federal and state laws. In addition, third-party claims may be filed by landowners and other parties claiming damages for groundwater contamination, alternative water supplies, property impacts and bodily injury.

NEPA

NEPA requires federal agencies to evaluate major agency actions having the potential to significantly impact the environment. The NEPA process involves public input through comments which can alter the nature of a proposed project either by limiting the scope of the project or requiring resource-specific mitigation. NEPA decisions can be appealed through the court system by process participants. This process may result in delaying the permitting and development of projects or increase the costs of permitting and developing some facilities.

Endangered Species Act

The federal Endangered Species Act ("ESA") restricts activities that may affect endangered and threatened species or their habitats. Some of our operations may be located in areas that are designated as habitats for endangered or threatened species. A critical habitat designation could result in further material restrictions to federal and private land use and could delay or prohibit land access or development. The United States Fish and Wildlife Service continues its effort to make listing decisions and critical habitat designations where necessary. The ESA has not previously had a significant impact on our operations. However, the designation of previously unprotected species as being endangered or threatened could cause us to incur additional costs or become subject to operating restrictions in areas where the species are known to exist.

Environmental, Social and Governance

During fiscal 2021, IperionX engaged Presidio Graduate School's expert consulting division, PGS Consults to commence an Environmental, Sustainability and Corporate Governance ("ESG") assessment and subsequent integration study. PGS Consults is housed in Presidio Graduate School, the country's first and only independent graduate school focused entirely on sustainability and social justice, with corporate clients including HP Inc., Flex Ltd., Granite Construction, Thermo Fisher Scientific and Domaine Chandon.

PGS Consults will undertake a materiality assessment, a life cycle assessment and create a playbook for ESG leadership. The review and assessment will identify priority ESG focus areas, highlight key ESG recommendations, and deliver an actionable life cycle assessment. PGS Consults will conduct the study in accordance with Global Reporting Initiative, UN Sustainable Development Goals, and Task Force on Climate-Related Financial Disclosures standards. The ESG integration study will outline material physical and economic ESG metrics as well as major development milestones and timelines. The study will be completed in the second half of 2022.

Extraction Permits and Approvals

We currently have permits authorizing the exploration drilling activities with respect to the Titan Project. We are required to obtain governmental permits for some of our exploration activities and may be required to renew the permits we already have. Prior to developing or extracting any mineralization that we discover, we will be required to obtain new governmental permits authorizing, among other things, any site development activities and site operating activities. Obtaining and renewing governmental permits is a complex and time-consuming process and involves numerous jurisdictions. public hearings and possibly costly undertakings. The timeliness and success of permitting efforts are contingent upon many variables not within our control, including the interpretation of permit approval requirements administered by the applicable permitting authority. We may not be able to obtain or renew permits that are necessary to our planned operations or the cost and time required to obtain or renew such permits may exceed our expectations. Any unexpected delays or costs associated with the permitting process could delay the exploration, development or operation of our properties.

See “Item 3. Key Information—D. Risk Factors—Risks Related to Regulatory and Industry Matters—We will be required to obtain governmental permits in order to conduct development and minerals extraction operations, a process which is often costly and time-consuming.”

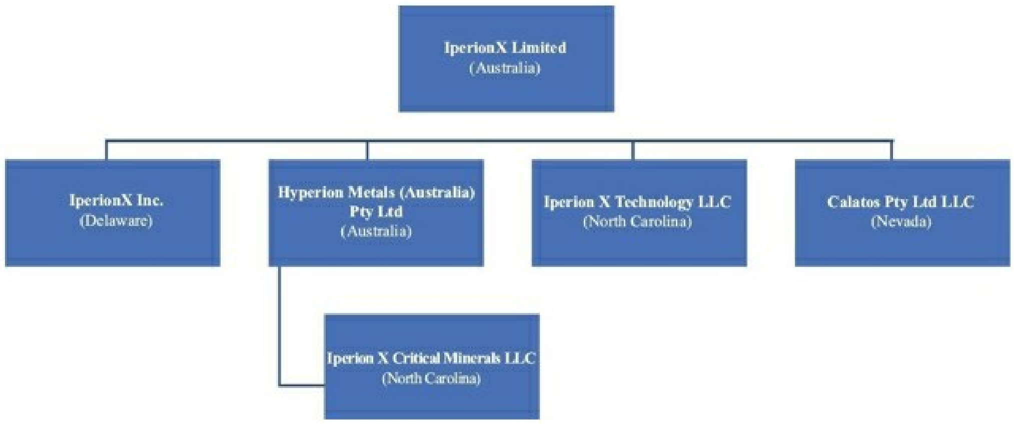
Our exploration operations are subject to extensive laws and regulations, which are overseen and enforced by multiple U.S. federal, state and local authorities. These laws govern exploration, development, production, exports, various taxes, labor standards, occupational health and safety, waste disposal, protection and remediation of the environment, protection of endangered and protected species and other matters. Mineral exploration operations are also subject to U.S. federal and state laws and regulations that seek to maintain health and safety standards by regulating the design and use of drilling methods and equipment. Various permits from government bodies are required for drilling operations to be conducted, and we cannot assure you such permits will be received. Environmental laws and regulations may also, among other things:

- Require notice to stakeholders of proposed and ongoing operations.
- Require the installation of pollution control equipment.
- Restrict the types, quantities and concentration of various substances that can be released into the environment in connection with minerals extraction or drilling activities.
- Limit or prohibit extraction or drilling activities on lands located within wetlands, areas inhabited by endangered species and other protected areas, or otherwise restrict or prohibit activities that could impact the environment, including water resources.
- Impose substantial liabilities for pollution resulting from current or former operations on or for any preexisting environmental impacts at the Titan Project site.
- Require preparation of an Environmental Assessment or an Environmental Impact Statement.

As of the date hereof, other than with respect to the acquisition of the Titan Project and related permitting activities, we have not been required to spend material amounts on compliance with environmental regulations. However, compliance with these laws and regulations may impose substantial costs on us, subject us to significant potential liabilities, and have an adverse effect upon our capital expenditures, results of operations or competitive position. Violations and liabilities with respect to these laws and regulations could result in significant administrative, civil, or criminal penalties, remedial clean-ups, natural resource damages, permit modifications or revocations, operational interruptions or shutdowns and other liabilities. The costs of remedying such conditions may be significant, and remediation obligations could adversely affect our business, results of operations and financial condition. Additionally, Congress and federal and state agencies frequently revise environmental laws and regulations, and any changes in these regulations or the interpretations thereof could require us to expend significant resources to comply with new laws or regulations or changes to current requirements and could have a material adverse effect on our business operations.

C. Organizational Structure

The following reflects our organizational structure. All our subsidiaries are wholly-owned.



D. Property, Plant and Equipment

Titan Project

Overview

IperionX holds a 100% interest in the Titan Project, covering over 11,000 acres of critical minerals properties in Tennessee, United States, considered prospective for critical minerals including titanium, rare earth elements, silica sand and zircon.

The Titan Project is located in west Tennessee and we believe the Titan Project has access to world class infrastructure, with nearby access to excellent roads, rail, river, power and skilled labor. We believe mineral sands projects operational costs are heavily influenced by electricity and labor costs.

At June 30, 2022, the book carrying value of the Titan Project was US$2,431,229. See note 6 to our audited consolidated financial statements for the fiscal period ended June 30, 2022 for further details.

The Titan Project is located in an area which saw significant historic exploration from the 1950's to the 1990's by companies including DuPont, Kerr-McGee Corp., BHP Group, RGC Ltd and Altair International Corp. The Titan Project is also strategically located in the southeast of the United States, close to significant manufacturing capacity, including the Chemours facility in New Johnsonville, one of the world's largest producers of titanium dioxide.

Geology and geological interpretation

The Titan Project's location in western Tennessee represents the eastern flank of the Mississippi embayment, a large, southward plunging syncline within the Gulf Coastal Plain. This feature extends from southern Illinois to the north and to Mississippi and Alabama to the south. The embayment is filled with sediments and sedimentary rocks of Cretaceous to Quaternary age.

The McNairy Sand Formation represents a pro-grading deltaic environment during a regressive sequence. This is evidenced by the coarsening upward sequence grading from the glauconitic clay rich Coon Creek Formation to the fine lower member of the McNairy Formation to the coarser upper member of the McNairy Formation.

Mineralization at the Titan Project resides primarily in two zones within the primary McNairy Sand Formation. The main mineralized zone at the 'Benton' deposit is hosted stratigraphically in the lower member of the McNairy Formation. Mineralization averages 31 meters thick and has been traced, to date, for approximately 6 kilometers along strike at the Benton deposit.

The ‘Camden’ deposit represents the up-dip extension of the lower portion of the McNairy Sand formation encountered at the Company’s Benton deposit. The McNairy Sand dips gently to the west and the Camden deposit represents the most easterly outcrop of this formation.

Drilling and exploration

Since securing the initial Titan Project land position in late-2020, we have focused on proving the Titan Project’s potential. We have conducted multiple drilling programs at the Titan Project, comprising more than 300 drill holes totaling more than 10,000 meters drilled during fiscal 2021 and fiscal 2022.

Our drilling was initially focused on our core property area covering approximately 3,675 acres, which we designated as the ‘Benton’ deposit. To date we have drilled 136 holes for a total of 5,428 meters at the Benton deposit. Drill assays received to-date at the Benton deposit have returned thick zones of high-grade total heavy minerals (“THM”) near surface.

The drilling results at the Benton deposit highlight a consistent grade and thickness of mineralization averaging 31 meters thickness, and to-date has been traced for approximately 6 kilometers along strike. The mineralization appears to occur as a single, large, and coherent near-surface deposit.

In addition to the Benton deposit, exploration drilling at other properties within the Titan Project, located approximately 4 kilometers southeast of the Benton deposit, has indicated additional near surface, high-grade mineralization. We have designated this new discovery as the ‘Camden’ deposit. The Camden deposit represents the up-dip extension of the lower portion of the McNairy Sand formation encountered at the Benton deposit.

Mineral resources

The mineral resource figures presented herein are estimates based on information available at the time of calculation. A “mineral resource” is a concentration or occurrence of solid material of economic interest in or on the earth’s crust in such form, grade, or quality and quantity that there are reasonable prospects for economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. The reference point for mineral resources is in situ. Mineral resources are subdivided in order of increasing geological confidence into inferred, indicated and measured categories. Metric tons of mineral resources containing total heavy minerals (“THM”), included in the indicated, and inferred resources, are those contained prior to losses during metallurgical treatment. The terms “measured resource”, “indicated resource”, and “inferred resource” mean the part of a mineral resource for which quantity and grade or quality are estimated on the basis of geological evidence and sampling that is considered to be comprehensive, adequate, or limited, respectively.

Market fluctuations in the price of THM as well as increased production costs or reduced metallurgical recovery rates, could change future estimates of resources.

We have reported mineral resources, prepared in accordance with Subpart 1300 requirements of the SEC as part of our exploration and evaluation activities. On July 1, 2022, we filed a technical report summary for our Titan Project, dated June 30, 2022, which report is an exhibit to this Annual Report on Form 20-F. As of June 30, 2022, we have reported 431 million metric tons of mineral resources at a grade of 2.2% total heavy minerals (“THM”), containing 9.5 million metric tons of THM at a 0.4% cut-off. Slimes (“SL”) and oversize material accounts for approximately 20% and 2.5% of the THM fraction respectively. Mineralization occurs as a single, large, and coherent near-surface deposit. In addition, preliminary analysis of valuable heavy minerals (“VHM”) (which form a proportion of the THM) indicates a valuable mineral assemblage consisting of zircon, rutile, ilmenite, rare earth elements (“REE”), and staurolite.

The estimated breakeven economic cut-off grade of 0.4% THM utilized for resource reporting purposes has been calculated using on a revenue cost break even calculation and is based on the following assumptions:

- historical 2017 to 2021 annual average prices for ilmenite, rutile, rare earth concentrate and zircon as set out below;
- recovery factors of 82.6% for ilmenite, 60.9% for rutile, 77.1% for rare earth concentrate and 90.8% for zircon;
- operating cost estimates of $3.00/t ROM mining, $3.00/t ROM processing, $0.40/t ROM transport and $0.90/t ROM general and administrative costs; and
- a royalty of 5% is included in the cut-off grade.

Historic, spot, and forecast product prices (US$/t, 2022 real terms, rounded).

Product	Historic 2017 – 2021 (annual average, US$/t)	Spot pricing[1]	Forecast 2023 – 2027 (annual average, US$/t)	Forecast 2028+ (annual average, US$/t)
Rare earth concentrate	$4,821[2]	$11,180 – $12,850	$14,325	$17,690
Rutile	$1,030	$1,960 – $2,280	$1,475	$1,285
Chloride Ilmenite	$200	$390 – $470	$305	$310
Zircon (premium)	$1,405	$2,500 – $3,025	$2,240	$1,685
Zircon (concentrate)	$630	$945 – $1,330	$1,010	$760

Historic, spot, and forecast individual REE prices (US$/t, 2022 real terms, rounded).

Rare Earth Oxide	Historic 2017 - 2021 (annual average US$/kg)[3]	Spot pricing[4] (US$/kg)	Forecast 2023 - 2027 (annual average US$/kg)	Forecast 2028+ (annual average US$/kg)
Lanthanum	$1.8	$1.2	$1.4	$1.4
Cerium	$1.7	$1.3	$1.5	$1.5
Praseodymium	$64.1	$143.9	$194.4	$242.4
Neodymium	$58.2	$143.9	$204.6	$255.1
Samarium	$2.0	$$3.3	$4.9	$6.8
Europium	$44.5	$27.6	$34.5	$40.2
Gadolinium	$24.0	$79.0	$108.1	$130.1
Terbium	$695.0	$2,109.6	$2,419.6	$2,935.2
Dysprosium	$253.3	$371.2	$565.5	$690.6
Holmium	$61.7	$193.1	$295.5	$337.1
Erbium	$26.3	$53.7	$64.8	$73.9
Ytterbium	$12.8	$14.8	$18.6	$21.7
Lutetium	$545.8	$782.7	$900.9	$1,051.0
Yttrium	$3.6	$12.3	$16.1	$22.7

[1] Sources: Ruidow.com at June 29, 2022 and Iluka Resources.
[2] Refer to table below for individual prices for REE’s that contribute to the REE concentrate price and table below for the percentage of each REE in our REE concentrate. REE historic average pricing is based on limited available data for 2017.
[3] REE historic average pricing is based on limited available data for 2017.
[4] Source: Argus at June 29, 2022.

Pricing has been based upon the following standard product specification requirements:

Initial Assessment product specification requirements.

Product	Product specification requirements
Rare earth concentrate	Mineral rare earth concentrate with 58.68 weight % total rare earth oxides (TREO) – as set out in Table 19. Value of rare earth concentrate calculated as 31% value of contained TREO plus 10% premium for Titan Project's heavy rare earth enrichment.
Rutile	Bulk rutile with titanium dioxide content (TiO_2) of 94% - 96%
Chloride Ilmenite	Chloride ilmenite with titanium dioxide content (TiO_2) of 58% - 65%
Zircon (premium)	Premium bulk zircon with $ZrO_2 + HfO_2$ >66%
Zircon (concentrate)	Zircon concentrate with $ZrO_2 + HfO_2$ >30%

Key product specifications of Titan-derived rare earth mineral concentrate.

Rare Earth Oxide	Concentration (weight %)
La	10.50%
Ce	21.90%
Pr	2.59%
Nd	9.85%
Sm	1.80%
Eu	0.15%
Gd	1.48%
Tb	0.20%
Dy	1.19%
Ho	0.22%
Er	0.66%
Tm	0.09%
Yb	0.54%
Lu	0.08%
Y	7.43%
TREO	**58.68%**

Key assumptions and parameters relating to the THM mineral resources are discussed in technical report summary for our Titan Project, dated June 30, 2022, which is being filed as an exhibit to this annual report.

Titan Project – Mineral Resources as of June 30, 2022

Resource Category	Metric tons (in millions)	Grade (THM %)	THM (million metric tons)	Cut-off grade (THM %)	THM assemblage Zircon (% of THM)	Rutile (% of THM)	Ilmenite (% of THM)	REE (% of THM)	Staurolite (% of THM)
Measured	-	-	-	-	-	-	-	-	-
Indicated	241	2.2	5.3	0.4	11.3	9.3	39.7	2.1	15.6
Inferred	190	2.2	4.2	0.4	11.7	9.7	41.2	2.2	13.7
Total	**431**	**2.2**	**9.5**	**0.4**	**11.5**	**9.5**	**40.3**	**2.1**	**14.8**

Comparison of mineral resources as of June 30, 2022 and June 30, 2021

We did not have mineral resources estimates as of June 30, 2021. As a result, we are not providing an analysis of changes in estimates for mineral resources. Our mineral resource estimate (MRE) as of June 30, 2022 incorporates results from 107 sonic core drill holes for a total of 4,101 meters drilled by us during 2020 and 2021. We have subsequently completed drilling outside of the MRE area and it is anticipated that these drill hole results will be incorporated into a future upgraded MRE. For information about the assumptions and criteria used in preparing our mineral resources, our technical report summary, which is an exhibit to this Annual Report on Form 20-F, including Section 11 (Mineral Resource Estimate), Section 13 (Mining Methods) and Section 16 (Market Studies).

Mineral resource internal controls

We have internal controls for reviewing and documenting the information supporting the mineral resource estimates, describing the methods used, and ensuring the validity of the estimates. Information that is utilized to compile mineral resources is reviewed by appropriate QPs and is subject to our internal review process, which includes an internal peer-review. The QP reviews and validates the reasonableness of the criteria used for the purposes of estimating resources and reserves. We recognize the risks inherent in mineral resource and reserve estimates, such as the geological complexity, interpretation and extrapolation of data, changes in operating approach, macroeconomic conditions and new data, among others. Overestimated resources and reserves resulting from these risks could have a material effect on future profitability.

Initial Assessment

The Company engaged Primero Group Americas Inc. (“Primero”) to manage the Initial Assessment for the Titan Project near Camden, Tennessee.

The Initial Assessment for our Titan Project is based on a mine life of 25 years and includes a mineral deposit with a nearby Wet Concentrator Plant (“WCP”) located approximately at 28 km northwest from the city of Camden. The Titan Project also includes a dry Mineral Separation Plant (“MSP”) located approximately 2 km southwest of the city of Camden. The distance separating the two plants is approximately 30 km and accessed via public roads and highways.

The products from the Titan Project include ilmenite, rutile, premium zircon, zircon concentrate and rare earth concentrate (mainly monazite). Key production values are presented below.

Titan Project – Key Initial Assessment Outcomes

Titan Project Average Annual Production Targets over 25-year mine life :	
Ilmenite	95,500 t/y
Rutile	16,700 t/y
Monazite	4,600 t/y
Zircon - premium	22,400 t/y
Zircon - concentrate	16,000 t/y

Operating and capital costs

The Initial Assessment estimates the Titan Project’s annual average annual operating cost of approximately US$67 million per annum over the 25-year mine life, including royalties. The intended accuracy of the operating cost estimate for the Titan Project is ±35%.

The Initial Assessment estimates the Titan Project’s initial capital costs to be US$237 million for the construction of the mine, WCP, and MSP, including a 30% contingency. The intended accuracy of the initial capital cost estimate for the Titan Project is ± 35%.

Land tenure status

At June 30, 2022, the Titan Project comprised of approximately 11,071 acres of surface and associated mineral rights in Tennessee, of which approximately 453 acres are owned outright, approximately 1,357 acres are subject to exclusive option to purchase agreements, and approximately 10,618 acres are subject to exclusive option to lease agreements. Other than the option agreements described above, there currently are no material liens or encumbrances on the property comprising the Titan Project. However, in order to develop the project, we will need to obtain permits and approvals as described under “Item 4. Information on the Company—B. Business Overview—Governmental Regulations—Extraction Permits and Approvals.”

Our option to lease agreements, upon exercise, allow us to lease the surface property and associated mineral rights from the local landowners, and generally have expiry dates between mid-2026 to late-2027. During the option period, our option to lease agreements provide us with exclusive right to access, enter, occupy and use the surface property for all purposes related to exploring for and evaluating all minerals in return for making annual option payments and bonus payments during periods when we conduct drilling. Our annual option payments generally range between US$25.00 to US$75.00 per acre and our drilling bonuses generally average approximately US$1.00 per drill foot. Our obligation to make annual option payments and drilling bonus payments cease if we exercise our option to lease. Upon exercise, in the case of an option to lease, we will pay an annual minimum royalty, generally US$75 per acre, and a mining royalty, generally 5% of net revenues from products sold.

Our option to purchase agreements, upon exercise, allow us to purchase outright the surface property and associated mineral rights from the local landowners, and generally have expiry dates between 2022 to 2023. During the option period, our option to purchase agreements provide us with exclusive right to access, enter, occupy and use the surface property for all purposes related to exploring for and evaluating all minerals in return for making annual option payments and bonus payments during periods when we conduct drilling. Our annual option payments generally range between US$25.00 to US$50.00 per acre and our drilling bonuses generally average approximately US$1.00 per drill foot. Our obligation to make annual option payments and drilling bonus payments cease if we exercise our option to purchase. Upon exercise, in the case of a purchase, we will pay cash consideration approximating the fair market value of the property, excluding the value of any minerals, plus a premium.

Exploration and development plans

During the next twelve months, we have plans to undertake further drilling to expand and increase confidence in Titan Project deposit, as well as further metallurgical testwork, hydrology and geotechnical studies, and economic studies to assess the economic potential of the Titan Project and define a critical minerals reserve base.

On June 30, 2022, we reported the results of the Initial Assessment on the Titan Project, which demonstrate the Titan Project's potential to be a sustainable, low cost and globally significant North American producer of titanium, rare earths and other low carbon critical minerals needed for advanced U.S. industries such as space, aerospace, electric vehicles and 3D printing, as well as critical defense applications. We also believe the results suggest that there is a significant potential to grow production and the Titan Project's life in the future. The Initial Assessment, which adhered to the guidelines in Subpart 1300 of Regulation S-K, considered mining, processing, metallurgical, infrastructure, economic, marketing, legal, environment, social and government factors.

Following the completion of this initial assessment, we may undertake additional technical studies, including pre-feasibility and/or feasibility studies. These additional studies will also adhere to the guidelines in Subpart 1300 of Regulation S-K. If we complete all technical studies (and all necessary permitting activities), we may then undertake minerals extraction and processing activities. However, we currently do not have detailed plans for any component of the exploration and development plans.

Subject to market conditions and the ability to define an economically viable critical minerals deposit, our separate business plan for the Titan Project is to become a strategic, U.S. domestic source of high-quality, sustainable, low-cost and low-carbon titanium and other critical mineral feedstocks, including rare earths, to the United States.

We plan to effect our business plan as described in "Item 4. Information on the Company—A. History and Development of the Company—Exploration and Development Plans."

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Figure 1: Titan Project location of properties

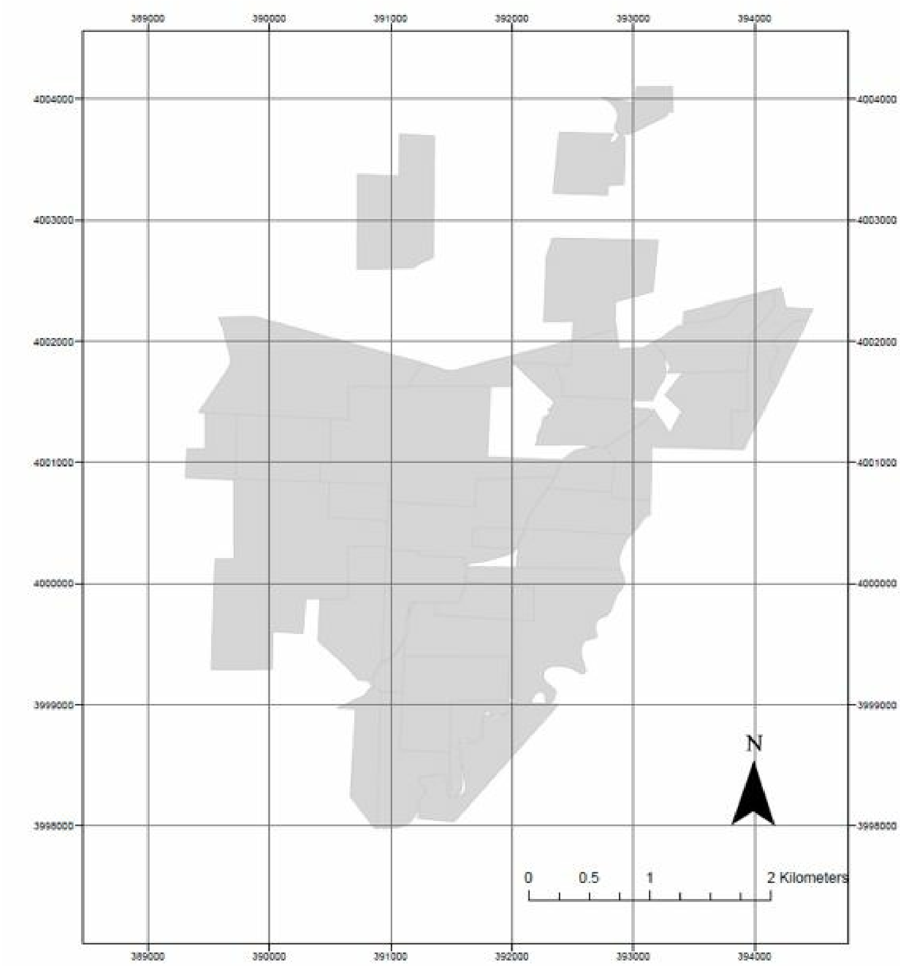


Figure 2: Titan Project location of properties containing mineral resources (the coordinate system and datum used for modeling is UTMZ16N, NAD83)

ITEM 19. EXHIBITS.

Exhibit Number	Description
1.1#	Certificate of the Registration of IperionX Limited (formerly Hyperion Metals Limited) (incorporated by reference to Exhibit 1.1 to the Company's Registration Statement on Form 20-F, filed on March 29, 2022)
1.2#	Constitution of IperionX Limited (formerly Hyperion Metals Limited) (incorporated by reference to Exhibit 1.2 to the Company's Registration Statement on Form 20-F, filed on March 29, 2022)
2.1#	Deposit Agreement among IperionX Limited, The Bank of New York Mellon, and Owners and Holders of American Depositary Shares (incorporated by reference to Exhibit 2.1 to the Company's Registration Statement on Form 20-F, filed on June 10, 2022)
2.2#	Form of American Depositary Receipt evidencing American Depositary Shares (included in Exhibit 2.1)
2.3#	Description of Share Capital
4.1+#	Option Agreement by and among Hyperion Materials & Technologies, LLC, IperionX Limited (formerly Hyperion Metals Limited) and Blacksand Technology, LLC and its members, dated October 20, 2021 (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form 20-F, filed on March 29, 2022)
4.2+#	Option of Exclusive License Agreement between Hyperion Materials & Technologies, LLC and Blacksand Technology, LLC, dated February 13, 2021 (incorporated by reference to Exhibit 4.2 to the Company's Registration Statement on Form 20-F, filed on March 29, 2022)
4.3+#	Master Services Agreement between Blacksand Technology, LLC and Hyperion Materials & Technologies, LLC, dated February 13, 2021, and related statements of work (incorporated by reference to Exhibit 4.3 to the Company's Registration Statement on Form 20-F, filed on March 29, 2022)
4.4#	IperionX Limited (formerly Hyperion Metals Limited) Employee Incentive Plan (incorporated by reference to Exhibit 4.4 to the Company's Registration Statement on Form 20-F, filed on March 29, 2022)
4.5#	Form of Indemnity, Insurance and Access for Directors (incorporated by reference to Exhibit 4.5 to the Company's Registration Statement on Form 20-F, filed on March 29, 2022)
8.1#	List of Subsidiaries of IperionX Limited (incorporated by reference to Exhibit 8.1 to the Company's Registration Statement on Form 20-F, filed on March 29, 2022)
12.1*	Section 302 Certification of Chief Executive Officer

12.2*	Section 302 Certification of Chief Financial Officer
15.1*	Technical Report Summary on the Titan Project
15.2*	Consent of Qualified Person (Adam Karst)
15.3*	Consent of Qualified Person (Eugene Dardengo)
15.4*	Consent of Qualified Person (Stephen Miller)
15.5*	Consent of Qualified Person (Jacques Parent)
101.1#	The following financial statements from the Company’s Annual Report on Form 20-F for the year ended June 30, 2022, formatted in Inline XBRL: (i) Consolidated Statements of Profit or Loss and Other Comprehensive Income, (ii) Consolidated Statement of Financial Position, (iii) Consolidated Statements of Changes in Equity, (iv) Consolidated Statements of Cash Flows, and (v) Notes to Consolidated Financial Statements, tagged as blocks of text and including detailed tags.
104*	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

\# Filed previously with the annual report on Form 20-F, dated August 26, 2022.

\+ Certain confidential information contained in this document, marked by [***], has been omitted because it is both (i) not material and (ii) would be competitively harmful if publicly disclosed.

* Filed herewith.

SIGNATURES

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on Form 20-F filed on its behalf.

IPERIONX LIMITED

By: /s/ Anastasios Arima

Anastasios Arima
Chief Executive Officer and Managing Director

Date: May 30, 2023

Exhibit 12.1

I, Anastasios Arima, certify that:

1. I have reviewed this annual report on Form 20-F of IperionX Limited, as amended by Amendment No. 1 thereto on Form 20-F/A;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

Date: May 30, 2023

By: /s/ Anastasios Arima
Name: Anastasios Arima
Title: Chief Executive Officer and Managing Director
(principal executive officer)

Exhibit 12.2

I, Gregory Swan, certify that:

1. I have reviewed this annual report on Form 20-F of IperionX Limited, as amended by Amendment No. 1 thereto on Form 20-F/A;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

Date: May 30, 2023

By: /s/ Gregory Swan
Name: Gregory Swan
Title: Chief Financial Officer and Company Secretary
(principal financial officer)

TECHNICAL REPORT SUMMARY FOR TITAN PROJECT

Statement of Use and Preparation

This Technical Report Summary (TRS) serves as an amendment to a previously filed TRS, maintains an effective date of June 30, 2022 with regards to assumptions and the knowledge of Competent/Qualified Persons (QPs), and was prepared for the sole use of IperionX Limited (IPX) and its affiliated and subsidiary companies and advisors. Copies or references to information in this report may not be used without the written permission of IPX.

This report is intended to provide sufficient information in a single document to support the disclosure of a statement of heavy mineral sand mineral resources by IPX, as defined under the United States Securities and Exchange Commission (SEC) Regulation S-K 1300 Modernization of Property Disclosures, as well as under the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code), through the consideration of geological, mining, environmental, and other factors, and ultimately to contribute to revenues and profits in a hypothetical business plan. Certain information set forth in this report contains “forward-looking information”, including mineral resource estimates, operating cost estimates, capital cost estimates, sales prices, and other assumptions. These statements are not guarantees of future performance and undue reliance should not be placed on them. The assumptions used to develop the forward-looking information and the risks that could cause the actual results to differ materially are detailed in the body of this report.

By definition, “indicated” and “inferred” terminology carries a lower level of geological and engineering confidence than that which would be reflected through the derivation of “measured” resources. Indicated definitions provide a confidence level to support broad estimates of Mineral Resource quantity and grade adequate for long-term mine planning to support Probable Reserve definitions, Resource and reserve estimations, and their impacts on production schedules, processing recoveries, saleable product tonnages, costs, revenues, profits, and other results presented in this TRS align with the definition and accuracy of indicated resources and probable reserves. Through future exploration campaigns, geological and engineering studies, IPX desires to elevate classifications of resources in due time.

The statement is based on information provided by IPX and reviewed by various professionals and Competent/Qualified Persons from Primero Group Americas Inc. and Karst Geo Solutions.

Competent/Qualified professionals who contributed to the drafting of this report meet the definition of Qualified Persons (QPs), consistent with the requirements of the SEC. The information in this TRS related to ore resources and mineral reserves is based on, and fairly represents, information compiled by the QPs as of the effective date of the report.

Description of "Amended" Technical Report Summary

This Technical Report Summary (TRS), dated May 30, 2023, serves as an amendment to a TRS filed on August 26, 2022, effective June 30, 2022, following **IperionX Limited *(IPX)***'s receipt of comment letters and associated dialogue with the **United States Securities and Exchange Commission *(SEC)***. While this Amended TRS incorporates changes to the original version, it maintains an effective date of June 30, 2022 with regard to assumptions and the knowledge of the Qualified/Competent Persons (QPs). Notable revisions and changes to the previously filed TRS include:

- Includes various additional clarifications as requested by the SEC:
  - Revision of the name of the report from "Scoping Study" to "Initial Assessment".
  - Addition of a map showing the location of material properties containing mineral resources (Section 3.2).
  - Disclosure of individual prices for all of the Rare Earth Elements (REE) that contribute to the REE concentrate price along with the percentage of each REE found in the typical concentrate sold for the calculation of the estimated breakeven economic cut-off grade of 0.4% THM (Section 11.8).
  - Clarification as to which resources must have reasonable prospects for economic extraction to more clearly align with the mineral resource definition in Item 1300 of Regulation S-K (Section 11.8).
  - Addition of the final pit outline and (ii) disclosures of the numeric values for the annual Life of Mine (LOM) production for waste material and ore, along with the associated grades (Sections 13.2 and 13.3).
  - Addition of disclosure of the modified cutoff grade used for the optimized schedule along with the associated parameters and an explanation of how and when the remaining resources will be mined and processed (Section 13.3).
  - Addition of historical prices, along with spot prices and forecast prices utilized, and addition of tables for (i) historic, spot, and forecast individual REE prices, (ii) product specification requirements and (iii) key product specifications of Titan-derived rare earth mineral concentrate (Section 16.2).
  - Addition of a subsection including an opinion of the Qualified Person to the adequacy of the current environmental plans to comply with Item 601(b)(96)(iii)(B)(17)(vi) of Regulation S-K (Section 17.1.6).
  - Addition of a detailed life-of-project cash flow analysis, including the corresponding LOM production schedule (tonnage & grade) and a line item for royalties and a description of the results of the analysis in the accompanying text with equal prominence (Section 19.2).
  - Addition of separate after tax cash flow analysis excluding inferred resources, presented with equal prominence (Section 19.2)

TECHNICAL REPORT SUMMARY FOR TITAN PROJECT

Contents

DISCLAIMER

The following report was prepared for IperionX by Primero Group Americas Inc. (Primero) as an independent consultant and is part based on information provided by IperionX and part on information not within the control of either IperionX or Primero. While it is believed that the information, conclusions, and recommendations will be reliable under the conditions and subject to the limitations set forth herein, Primero does not guarantee their accuracy. The use of this report and the information contained herein shall be at the user's sole risk, regardless of any fault or negligence of Primero.

USE OF THIS INFORMATION

This document summarizes the scope of works Primero was engaged to undertake as an independent consultant, appointed by IperionX to investigate the requirements associated with establishing the mineral processing of the Titan Project, along with associated infrastructure in accordance with Primero's proposals Doc No. 40501-PPL-GE-001_4.

Primero gives its permission to IperionX to use the information if it reflects the findings and understanding that are presented in this report. Use of this document, for whatever purpose, by any third party must seek written prior approval by Primero.

Primero has relied on other experts for the study portions on mineral resource estimate (Karst Geo Solutions) and metallurgical testing (Mineral Technology). Primero engaged sub-consultants, Palaris for the mining discipline and Keypoint for the metallurgical test work review and mineral processing method.

1. Executive Summary

IperionX engaged Primero Group Americas Inc. (Primero) to develop a Initial Assessment for the Titan Project near Camden, TN. The Project includes a sand mineral deposit with a nearby Wet Concentrator Plant (WCP) located approximately at 17 miles northwest from the city of Camden. The Project also includes a dry Mineral Separation Plant (MSP) located approximately 1.2 miles southwest of the city of Camden. The distance separating the two plants is approximately 19 miles and accessed via public roads and highways. IperionX holds a 100% interest in the Titan Project.

The products of the Titan Project include ilmenite, rutile, premium zircon, zircon concentrate and rare earth concentrate (mainly monazite).

Key production values are presented in Table 1. Note: All references to mass within this report are metric.

Table 1: Titan Project production average values.

Production Target	Average Value	Units
ROM	9.7	Mt/y
Ilmenite	95,500	t/y
Rutile	16,700	t/y
Monazite	4,600	t/y
Zircon - Premium	22,400	t/y
Zircon - Concentrate	16,000	t/y

1.1 Exploration and Mineral Resource Estimate

IperionX engaged Karst Geo Solutions to prepare a Mineral Resource Estimate (MRE) for Total Heavy Minerals (THM), in accordance with the JORC Table 1 requirement. The content in this chapter is extracted from an ASX release dated 6 October 2021 entitled “Maiden Resource Confirms Tennessee as Major Untapped Critical Mineral Province by IperionX”.

The Mineral Resource is based on 107 drill holes totaling 4,101 m and occupies an area roughly 6.2 km (north) by 3.6 km (east); the Mineral Resource is further broken up into several areas based on land holdings (land agreements). These range from 0.5 km (north) by 0.9 km (east) for the smallest area to 5.1 km (north) by 3.6 km (east) for the largest area.

The maiden MRE for the Titan Project comprises 431 Mt @ 2.2% THM, containing 9.5 Mt THM at a 0.4% cut-off and includes a high-grade core of 195 Mt @ 3.7% THM, containing 7.1Mt THM at a 2.0% cut-off. Slimes (SL) and oversize (OS) material accounts for approximately 20% and 2.5% of the in-ground material respectively SL and OS values for the Initial Assessment were derived from the metallurgical bulk sample testwork as it has been identified that the dry-screening method utilized for the drill samples tends to under-report SL and over-report OS. It should be noted that these discrepancies do not materially impact THM and a revised method (wet screening) for drill samples has been developed and tested for the Project moving forward in the next phase that will produce more accurate SL and OS values.

There is a high level of confidence associated with the MRE classification, with 56% (241 Mt) classified as being in the Indicated resource category. Mineralization occurs as a single, large, and coherent near-surface deposit.

Table 2: Mineral Resource Estimate and THM assemblage at 0.4% cut-off grade.

THM Assemblage									
	Cut off	**Tons**	**THM %**	**THM**	**Zircon**	**Rutile**	**Ilmenite**	**REE**	**Staurolite**
	(THM %)	*(Mt)*	*(%)*	*(Mt)*	*(%)*	*(%)*	*(%)*	*(%)*	*(%)*
Indicated	0.4	241	2.2	5.3	11.3	9.3	39.7	2.1	15.6
Inferred	0.4	190	2.2	4.2	11.7	9.7	41.2	2.2	13.7
Total	**0.4**	**431**	**2.2**	**9.5**	**11.5**	**9.5**	**40.3**	**2.1**	**14.8**

1.2 Mining Methods

IperionX tasked Primero and its sub-consultant Palaris for the mine design, integrating the IperionX provided Project mineral resource block model. Reconciliation of the reported MRE of the resource block model against the MRE report was achieved and confirmed. IperionX, requested that a high-level trade off study of the mining method be undertaken. The recommendation of using mobile mining units (MMU's) for the mineral sand and conventional loading and trucking units for the topsoil, overburden and interburden excavation, transportation and deposition was recommended and accepted. The MMU's will be owned by the Project owner whereas the conventional loading and trucking activities be made by a mining contractor.

The basic mining cycle is depicted in Figure 1, which shows the mine cycle from clearing to final condition post mining. The sequential mining method allows for low cost, reduced area footprint and environmentally logical mining process by limiting the change in final material location with the mineralized material and waste basically being returned to a similar position in the ground strata. This proposed method of mining, and mining cycle, is well proven in the heavy mineral sands industry, incorporating progressive backfill and rehabilitation to the pre-mining state.

Figure 1: Titan Project mining cycle.

Pit optimizations were completed in order to produce a production schedule on an annual basis. This resulted in a total Production Targets of 243 Mt @ 3.0% THM In-Situ with a mine life of 25 years. The mining schedule delivers an outcome with the first 14 years mining 100% of indicated mineralized resource only, and the remaining years mining the inferred mineralized resource, resulting in a total mine life of 25 years. The schedule is based on 57% of the total mine ROM material being in an Indicated category.

Table 3: Mine production schedule with % Indicated category processed by time period.

Year	ROM Tons	Inferred Tons	Indicated Tons	% Indicated Tons
	(Mt)	*(Mt)*	*(Mt)*	*(%)*
1-14	136.5	0	136.5	100%
15-25	106.1	105.3	0.8	1%
LOM	**242.6**	**105.3**	**137.3**	**57%**

1.3 Mineral Processing and Metallurgical Testing

Four bulk samples were processed by Mineral Technologies through pilot equipment designed to emulate a full-scale Feed Preparation Plant (FPP), Wet Concentrator Plant (WCP), Monazite Flotation/Concentrate Upgrade Plant and a Mineral Separation Plant (MSP). Mineral Technologies is a reputable test laboratory with significant experience in mineral sands flowsheet development.

Assays were conducted by SGS in Lakefield, Canada and Bureau Veritas in Perth, Australia, with XRF, laser ablation / ICPMS and QEMSCAN analytical methods.

The final products and the grades of those final products that were produced form the testwork demonstrated that the Upper and Lower mineralized resource could be separated using processing stages common to most mineral sands' operations. Notably, the flotation test work achieved an overall 97% recovery of rare earth minerals in the final rare earth concentrate.

Based on the testwork results, it was concluded that a viable commercial operation could be established with appropriate processing options for a 10 Mtpa operation commencing in Benton area.

1.4 Processing and Recovery Methods

IperionX tasked Primero and its sub-consultant Keypoint for the metallurgical test work review and mineral processing method.

An overview of the major processing stages can be description as follows, please refer to Figure 17 & Figure 18 for simplified flow diagrams.

1. Run of Mine mineralized resource is processed in the Mobile Mining Unit (MMU) which removes trash & oversize. The undersize is pumped to the Feed Preparation Plant (FPP) and Wet Concentrator Plant (WCP)

2. In the FPP, the feed is de-slimed to separate clay and the sand. The slimes are directed to the thickener where they are thickened and then filtered. The sand fed into a constant density tank which is pumped to the rougher spiral stage at 1,000 tph at the start of the WCP

3. The WCP comprises of multiple stages of spiral separators which produce a tailings and a Heavy Mineral Concentrate (HMC) stream. The WCP tailings stream is dewatered and pumped to the mining void while the HMC (at a target grade of >85% THM) is dewatered and trucked to the Monazite Separation Plant.

4. The Monazite Separation Plant which consists of a flotation circuit and wet gravity circuits, to produce a monazite product and an upgraded HMC which consists predominantly of the titanium minerals & zircon minerals. The upgraded HMC is the feedstock for Mineral Separation Plant (MSP).

5. The MSP consists of a dryer, multiple stages of electrostatic separators, magnetic separators and wet gravity separators to produce ilmenite, rutile, premium zircon and zircon concentrate.

1.5 Capital Cost Estimate

Capital Estimates for the mine and process plant have been prepared by Primero Group using a combination of cost estimates from suppliers, historical data, reference to recent comparable projects. Costs are presented in US$ for Q2 2022 and are exclusive of escalation. The intended accuracy of the initial capital cost estimate for the Project is ± 35%. Table 4 highlights the total estimated capital expenditures for the Project.

Table 4: Titan Project capital cost estimate summary.

Capital Cost Estimate Breakdown	US$ Million
Mine and Wet Concentration Plant	94.6
Mineral Separation Plant	22.3
Common Services	12.5
Project Indirects	35.2
Mobile Mining Units Turnkey	23.3
Contingency (30%)	49.4
Total Initial Capital	**237.2**
Deferred and sustaining capital	198.5

1.6 Operating Cost Estimate

The processing plant operating cost estimate is based on a ±35% level of accuracy, utilizing indicative quotations where possible, and otherwise Primero database estimates and recent experience in the industry.

The OPEX is presented in USD and is current for Q1 2022. Table 5 summarizes the estimated operating costs at steady state.

Table 5: Titan Project operating cost estimate summary.

Operating Cost Estimate Breakdown	Average Annual Cost (US$ Million/y)	US$/t ROM
Mining	25.8	2.66
Processing	28.2	2.91
Transport	2.1	0.22
General & Admin	6.9	0.71
Royalties	4.0	0.41
Total Operating Costs	**67.1**	**6.91**

1.7 Economic Analysis

A detailed financial model and discounted yearly cash flow (DCF) has been developed to complete the economic assessment of the Project and is based on current (Q1 2022) price projections and cost estimates in U.S. dollars. No provision was made for the effects of future inflation, but cost estimates incorporate recent 2021 inflationary price increases. The evaluation was carried out on a 100%-equity basis using an 8% discount factor. Current US federal and Tennessee state tax regulations were applied to assess the corporate tax liabilities.

Table 6: Titan Project economic measures summary

Economic Measures Summary (After Tax)	Value
Annual EBITDA (first five years)	$118M
Project NPV (discounted at 8.0%)	$692M
Internal rate of return (IRR)	40%
Payback period (from start of operations)	1.9 y

1.8 Interpretation and Conclusions

The QPs are confident in the technical and economic assessment presented in this TRS.

The QPs also recognize that the results of this TRS are subject to many risks including, but not limited to: commodity prices, unanticipated inflation of capital or operating costs, geological uncertainty and geotechnical and hydrologic assumptions.

The Initial Assessment update highlights several advantages which include:

- Low complexity mining practices can be employed utilizing local service providers.
- Mining footprint can be controlled to limit environmental and social impacts.
- Mining approach presented returns land mass to pre-mining conditions as minimum.
- Signed Memorandum of Understanding (MOU) for rare earth concentrate and titanium minerals (rutile and ilmenite) and zircon products.
- Shipping advantage, given that a large proportion of the rare earth concentrate and titanium (rutile and ilmenite) products are anticipated to be sold within the U.S.
- Exposure to high-demand, future-facing commodities experiencing increasing commodity prices.
- The net present value of the 25-year based project is $692M at an 8% discount rate and after tax.
- The internal rate of return (IRR) is 40%.

At the time of publication of this Initial Assessment report a preliminary feasibility study is planned to be completed.

1.9 Recommendations

The Initial Assessment demonstrates the Titan Project's importance as a leading U.S. critical mineral project, and puts IperionX in a strong position to rapidly advance next steps in the development process, including:

- Continued exploration and expansion of the Company's land position;
- Advancing project permitting and development approvals;
- Commencement of a pre-feasibility study to optimize mine and process design;
- Performing feasibility study level flowsheet development test work (ongoing);
- Develop a Mineral Demonstration Facility on site (completed desliming, planning wet concentration and mineral separation stages.)

- Investigation of product upgrading and downstream processing;
- Undertaking a lifecycle analysis for the Company's mineral and metal projects and operations;
- Continue implementation of sustainable operating and rehabilitation practices with UTIA;
- Continued stakeholder awareness and engagement; and
- Formalizing agreements with a number of prospective strategic, technical and offtake partners.

2. Introduction

IperionX's mission is to be the leading developer of low-to-zero carbon, sustainable, critical material supply chains for advanced American industries including space, aerospace, electric vehicles and 3D printing.

The Company holds a 100% interest in the Titan Project, comprised of approximately 11,071 acres of surface and associated mineral rights in Tennessee prospective for heavy mineral sands (HMS), rich in minerals critical to the U.S., including titanium, rare earth minerals, high grade silica sand and zircon in Tennessee, U.S. The Titan Project is strategically located proximal to the town of Camden in the southeast of the U.S., with low-cost road, rail and water logistics connecting it to world class manufacturing industries and customers.

The Initial Assessment has confirmed that the Titan Project is one of the largest and most important critical mineral deposits in the U.S., with a high in-situ value underpinned by a product assemblage of high value zircon, titanium minerals and heavy and light rare earth elements.

This Initial Assessment combines information and assumptions provided by a range of independent and reputable consultants, including the following consultants who have contributed to key components of the Study.

Table 7: Initial Assessment consultants & inputs.

Scope of Work	Consultant / Basis of Estimate
Mine design, process design, capex & opex, financial analysis	Primero and its sub-consultants
Mineral Resource Estimate	Karst Geo Solutions
Metallurgical testwork and analysis	Mineral Technologies & SGS
Pricing – Titanium feedstock and zircon products	TZMI
Pricing – Rare earth concentrates	Adamas Intelligence
Permitting	HDR
Rehabilitation program	University of Tennessee
ESG assessment and integration	PGS Consults

2.1 Registrant and Terms of Reference

This report was prepared for the sole use of IperionX and its affiliated and subsidiary companies and advisors. The report is intended to provide sufficient information in a single document to support the disclosure of a statement of heavy mineral sand Mineral Resources by the Company, as defined under the United States Securities and Exchange Commission (SEC) Regulation S-K 1300 Modernization of Property Disclosures, as well as under the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code).

All units of measurement used in this report are International System of Units (SI) metric unless otherwise stated. Heavy mineral sand resources are reported in metric tons.

2.2 Information Sources

This document summarizes the scope of works Primero was engaged to undertake as an independent consultant, appointed by IperionX to investigate the requirements associated with establishing the mineral processing of the Titan Heavy Mineral Sands Project, along with associated infrastructure in accordance with Primero's proposals Doc No. 40501-PPL-GE-001_4.

Primero has relied on other experts for the study portions on mineral resource estimate (Karst Geo Solutions) and metallurgical testing (Mineral Technology). Primero engaged sub-consultants, Palaris for the mining discipline and Keypoint for the metallurgical test work review and mineral processing method.

2.3 Personal Inspections

Adam Karst P.G., CP & QP for mineral resource estimate, has made several inspections of the site from October 2020 to May 2022 to review the drilling methods, sample collection, bulk sample collection, bulk processing and QAQC procedures.

2.4 Previously Filed Technical Report Summary

No previous Technical Report Summaries have been filed.

2.5 Abbreviations, Acronyms and Units of Measure

Table 8: Abbreviations, acronyms and units of measure.

Symbol	Description
B	Billion
CAPEX	Capital Expenditure
COG	Cut Off Grade
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EBT	Earnings Before Taxes
FEED	Front End Engineering Detail
HMC	Heavy Mineral Concentrate
HMS	Heavy Mineral Sand
HTR	Electrostatic High Tension Roll Separator
IA	Initial Assessment
IRR	Internal Rate of Return
M	Million
MMU	Mobile Mining Unit
MSP	Mineral Separation Plant
MRE	Mineral Resource Estimate
Mtpy	Million tons (metric) per year
NPAT	Net Profit After Tax
NPI	Non-Process Infrastructure
NPV	Net Present Value
OPEX	Operational Expenditure
PFDs	Process Flow Diagrams
PFS	Pre-feasibility Study
Primero	Primero Group
RED	Rare Earth Drum
REE	Rare Earth Element
RER	Rare Earth Rolls
RHF	Rougher Head Feed
ROM	Run of Mine
SL	Slimes
SMP	Structural Mechanical and Piping
$	United States Dollars
WCP	Wet Concentrator Plant

3. Property Description

3.1 Location

IperionX's Titan Project is located near Camden, Tennessee, U.S., approximately 80 miles west of Nashville, Tennessee and approximately 7 miles northwest of Camden, Tennessee.

The Property is centered at approximately 36.14734997015158N, -88.20974639890532W. The Project is location on the Mansfield, Manleyville, Vale and Bruceton United States Geological Survey Quadrangles. The coordinate system and datum used for modeling is UTMZ16N, NAD83.

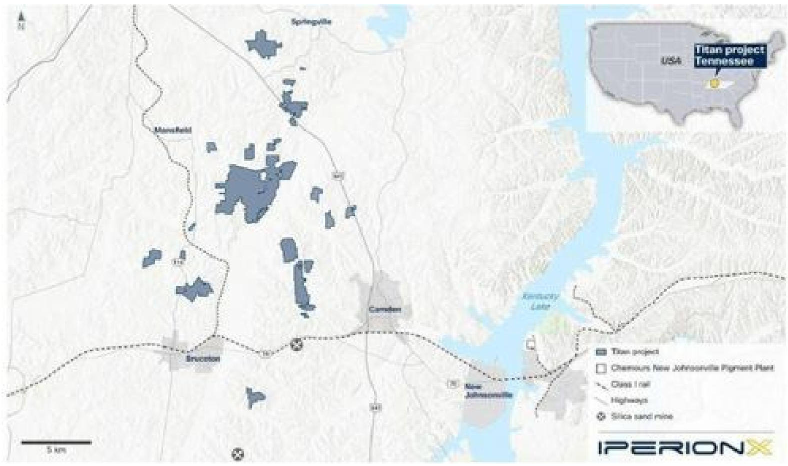


Figure 2: Titan Project location.

3.2 Titles, Claims or Leases

As of March 31, 2022, the Titan Project comprised of approximately 11,071 acres of surface and associated mineral rights in Tennessee within 82 separate property tracts, of which approximately 137 acres are owned outright, approximately 1,355 acres are subject to exclusive option to purchase agreements, and approximately 9,579 acres are subject to exclusive option to lease agreements.

Our option to lease agreements, upon exercise, allow us to lease the surface property and associated mineral rights from the local landowners, and generally have expiry dates between mid-2026 to late 2027. During the option period, our option to lease agreements provide for annual option payments and bonus payments during periods when we conduct drilling. Our annual option payments generally range between $25.00 to $75.00 per acre and our drilling bonuses generally average approximately $1.00 per drill foot. Our obligation to make annual option payments and drilling bonus payments cease if we exercise our option to lease. Upon exercise, in the case of an option to lease, we will pay an annual minimum royalty, generally $75 per acre, and a mining royalty, generally 5% of net revenues from products sold.

Our option to purchase agreements, upon exercise, allow us to purchase outright the surface property and associated mineral rights from the local landowners, and generally have expiry dates between mid-2022 to late-2023. During the option period, our option to purchase agreements provide for annual option payments and bonus payments during periods when we conduct drilling. Our annual option payments generally range between $25.00 to $50.00 per acre and our drilling bonuses generally average approximately $1.00 per drill foot. Our obligation to make annual option payments and drilling bonus payments cease if we exercise our option to purchase. Upon exercise, in the case of a purchase, we will pay cash consideration approximating the fair market value of the property, excluding the value of any minerals, plus a premium.

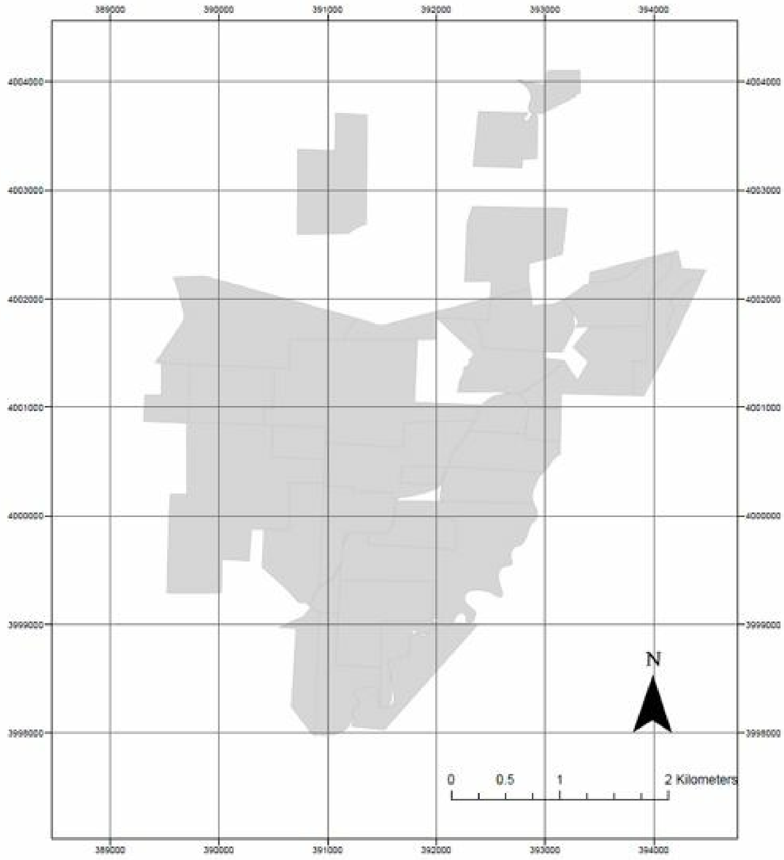


Figure 3: Titan Project location of material properties containing mineral resources (the coordinate system and datum used for modeling is UTMZ16N, NAD83)

3.3 Mineral Rights

IperionX provided maps to KGS of properties where IperionX controls the mineral right through Option to Purchase agreements, Option to Lease agreements or owning the land. KGS has no knowledge of the mineral rights and or related to these properties nor does KGS possess knowledge of any previous or current boundary disputes or other concerns that would affect any future mining or processing operations.

3.4 Encumbrances

No Title Encumbrances are known.

3.5 Other Risks

All property deeds and titles are reviewed by IperionX's legal team, no properties showed risks.

4. Accessibility, Climate, Local Resources, Infrastructure and Physiography

4.1 Topography, Elevation and Vegetation

The Project area is located in the eastern portion of the United States and contains gently rolling topography with drainages (wetlands) dissecting the Project area. Surface elevations at the Project range from approximately 175m above sea level in the upland regions and approximately 100m at the stream level.

4.2 Access and Transport

General access to the Project is via a well-developed network of primary and secondary roads. Interstate I-40 lies 22 miles to the south of the Project and provides access to Nashville International Airport approximately 85 miles to the east.

4.3 Climate and Length of Operating Season

The Climate is temperate with warm summers and cold winters including the potential for snow/ice; this area will support year-round mining operations. Annual rainfall for the area is 53.8 inches. Land tracts within the Project area are primarily used for agriculture with some timbered tracts.

4.4 Infrastructure

The Project area is located near the towns of Camden and Paris, Tennessee with proximity to abundant infrastructure and labor. The existing infrastructure includes power and gas, with high-capacity transmission lines near the Project area, abundant transportation infrastructure including the Norfolk Southern mainline running through Camden, the major I-40 highway just 10 miles south of Camden and a major barge-loading point 15 miles from the Titan Project connecting to all major U.S. customers and export ports. There are two international airports at Memphis and Nashville. Potential water sources include nearby surface water bodies but will likely involve shallow groundwater.

4.5 Location

IperionX's Titan Project is strategically located near Camden, Tennessee, and will benefit from significant cost advantages due to the location and proximity to low cost, world-class infrastructure.

95,000 miles of highway, including 8 interstate highways, put Tennessee within a day's drive of a majority of U.S. consumer markets. Tennessee is the third largest rail center in the U.S. and there are more than 1,000 miles of navigable waterways which access all other major waterways in the eastern U.S. There are over four commercial airports near Camden, including two international airports at Memphis and Nashville.

This world class infrastructure is expected to provide material cost and logistics advantages compared to projects located in more remote areas. The existing infrastructure includes low-cost power and gas, with high-capacity transmission lines near the Project, abundant transportation infrastructure including the Norfolk Southern mainline running through Camden, the major I-40 highway just 10 miles south of Camden and a major barge-loading point 15 miles from the Titan Project connecting to all major U.S. customers and export ports.

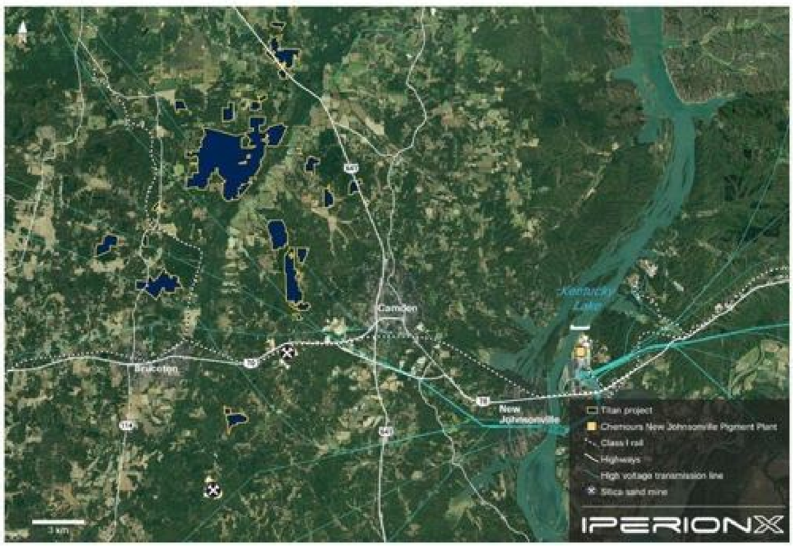


Figure 4: Titan Project location and access to major rail, barge and port infrastructure.

5. History

5.1 Previous Heavy Mineral Sand Mining in the Region

No previous heavy mineral sand mining has occurred in the region.

5.2 Previous Exploration

This area has been explored for HMS since the 1950s as the McNairy Sand was known to contain high concentrations of economic heavy minerals based on work by federal and state agencies. DuPont, Kerr-McGee, RGC, Iluka, Altair, and Astron are known to have evaluated the McNairy deposits in the Project area at various times; however, there has been no known heavy mineral production from the McNairy Sand in Tennessee.

6. Geological Setting, Mineralization, and Deposit

6.1 Regional, Local and Property Geology

The Titan Project's location in western Tennessee represents the eastern flank of the Mississippi Embayment, a large, southward plunging syncline within the Gulf Coastal Plain. This feature extends from southern Illinois to the north and to Mississippi and Alabama to the south. The embayment is filled with sediments and sedimentary rocks of Cretaceous to Quaternary age.

The McNairy Sand Formation represents a pro-grading deltaic environment during a regressive marine sequence. This is evidenced by the coarsening upward sequence grading from the glauconitic clay rich Coon Creek Formation to the fine lower member of the McNairy Formation to the coarser upper member of the McNairy Formation.

The main mineralized zone at the Project is hosted stratigraphically in the lower member of the McNairy Formation, the McNairy Formation dips gently into the west in the Project area. Mineralization averages 31 meters thick and has been traced, to date, for 6.2 kilometers along strike. The upper zone is also mineralized in some areas.

6.2 Deposit Model

Exploration of the Project area utilizes the depositional model described in the previous section, sedimentary relationships, topography, and geological unit controls to target areas for evaluation.

7. Exploration

7.1 Non-Drilling Procedures and Parameters

This section is not applicable to this TRS.

7.2 Drilling Procedures

All drilling for the Project has been roto-sonic. This method alternates advancement of a core barrel and a removeable casing (casing is used when needed to maintain sample integrity). The core barrel utilized for this Project is 4 inches in diameter with a 6 inch diameter outer casing. The core barrel is retrieved from the ground and the samples are recovered directly from the barrel into a plastic sleeve. All holes are drilled vertically. The sonic drilling method has been shown to provide representative unconsolidated mineral sands samples across a variety of deposits as it is a direct sampling method of the formation(s). At times water is used to create a head on the formation to help prevent run-up.

A roto-sonic drill rig, the Geoprobe 5140LS, utilized a 10 ft core barrel to obtain direct 5 ft samples of the unconsolidated geological formations hosting the mineralization in the Project area. All holes were drilled vertically which is essentially perpendicular to the mineralization. The sonic cores were used to produce approximately 2 kg samples for heavy liquid separation as well as further mineralogical analysis. Each core is measured, and the recovery is calculated as length of recovered core divided by length drilled (typically 10 ft).

The Mineral Resource is based on 107 drill holes totaling 4,101 m, and occupies an area roughly 6.2 km (north) by 3.6 km (east); the Mineral Resource is further broken up into several areas based on land holdings (land agreements). These range from 0.5 km (north) by 0.9 km (east) for the smallest area to 5.1 km (north) by 3.6 km (east) for the largest area. Figure 8 shows the drilling completed to date plan view, cross section and long section.

7.3 Hydrology and Hydrogeology

HDR is completing the one-year ground water base line study. No other hydrology and hydrogeology study has been completed.

7.4 Geotechnical Data

No geotechnical work has been completed.

8. Sample Preparation, Analyses, and Security

8.1 Sample Collection and Security

Roto-sonic drill core samples, typically 1.5 m in length, are collected directly from the plastic sample sleeve at the drill site. Some interpretation is involved as the material can expand or compact as it is recovered from the core barrel into the plastic sleeve. Each core is measured, and the recovery is calculated as length of recovered core divided by length drilled (typically 10'). Samples are logged for lithological, geological, and mineralogical parameters in the field to help aid in determining depositional environment, major geologic units, and mineralized zones. Total depth of the drillhole is recorded as well as any drilling issues/concerns that could impact sample representativeness. Samples are collected at regular (1.5m) intervals unless the geology/mineralogy warrant altering this as to co-mingle samples across major geological/mineralized boundaries.

All samples are panned and estimates made for the %THM and %SL. Logging is both qualitative (sorting, color, lithology) and quantitative (estimation of %THM, %SL) to help support the integrity of the Exploration Results and Mineral Resource estimate. Photographs are taken of the sonic cores. All pertinent sample information (geology, sample ID, etc.) are collected on sequentially numbered tag books provided by the laboratory. The tag is inserted into the sample bag and the information from the tag book is entered nightly into the Project database (GeoSpark).

The unconsolidated sonic cores are sampled by splitting the core in half lengthwise using a machete then recovering an even fillet with a trowel along the entire length of the sample interval. Sample volume is ~2 kg and is appropriate for the analytical method(s) being used and ensure adequate sample volume is collected. Samples are collected directly to the pre-labeled/pre-tagged sample bags; the remaining sample is further split into a replicate/archival sample and what remains is used to backfill the drillhole. A chip tray is maintained for each hole to keep a representative sample for each interval for later use during geological interpretation or between holes in the field or if any questions arise during modelling.

Sample bags are sealed with a zip tie at the drill site, placed in rice bags, and remain in the custody of the field geologist from time of collection until time of delivery to the Project's temporary storage location which is a secure third-party storage unit or within a leased barn. A red security tag is used to secure the top of each rice bag and these tags are verified by the lab to guarantee all sample bags are intact.

8.2 Laboratory Procedures

Drill samples are sent to SGS NA facility in Lakefield, ON, Canada. SGS is a qualified third-party laboratory not related to IperionX. Samples are subjected to standard mineral sand industry assay procedures of size fraction analysis, heavy-liquid separation, and chemical analysis. Samples are dry-screened at 44-micron (325 mesh) for slimes and 595-micron (30 mesh) for oversize. An 85 g aliquot of the -30/+325 sand is then submitted to methylene iodide diluted with acetone to target specific gravity of 2.95 g/cm3, the greater than 2.95 g/cm3 portion is dried and weighed to calculate the percent heavy minerals. The THM is calculated by adding the percent slimes and oversize to the total. Composites, based on geological domains, are then submitted for QEMSCAN analysis for mineralogical assemblage data. The mineral species determined from QEMSCAN are further combined and/or divided into groups representing anticipated products based on metallurgical test work for inclusion in the geologic block model.

8.3 QA and QC Controls

Accuracy monitoring has been achieved through submission of in-house heavy mineral sand standard reference materials (SRM) developed specifically for the Project. A low-grade and a high-grade SRM were produced with materials (HMs and silica sand) from the Project area to ensure representativeness. Each SRM was analyzed by the Project laboratory to generate a mean and standard deviations. SRMs are inserted at a 2.5% rate (1 every 40 samples). These SRMs are placed loose in a standard sample bag that is labeled sequentially as to mimic a typical drill sample and passed through the laboratory process "blind". A record of the SRM inserted and its sample IDs is kept in the Project database so that data can be matched up and reviewed. Standards were created multiple times during the Project and each time a new dataset was generated to compare against.

A quality control sample failure is any single sample 3 standard deviations from the true value for the comparison for each sample, or two out of three consecutive samples between 2 and 3 standard deviations, on the same side of the mean value (i.e. both above or both below the mean value). Should the errors for a particular batch exceed these limits, the section of a batch bracketed by the SRM samples (i.e. number samples on either side) are reviewed to determine if the SRM failures are material to the overall data for that batch or if the laboratory has had any procedural issues that need to be addressed. If necessary, samples are re-analyzed. Overall, the objective of the quality assurance program for resource purposes is a pass rate of >95%. A lower pass rate, on the order of 90% is acceptable for exploration purposes. Eleven SRMs (6 high and 5 low grade) were submitted during the drilling campaign for analysis and results were all within 3 standard deviations of the mean of the SRM.

Sampling precision has been monitored by selecting a sample interval at a 3% rate (3 every 100 samples) and taking a second fillet sample over the same sample interval. These samples are consecutively numbered after the primary sample and recorded in the sample database as “field duplicates” and the primary sample number recorded. Field duplicates are collected at the rate of approximately 3 in 100 samples and ideally should be collected when sampling mineralized sonic core intervals containing visible THM (panning). Analytical precision is also be monitored using HLS duplicates that the laboratory produces at a rate of approximately 3 in 100 samples. Data from these two types of duplicate analyses can be used to constrain sampling variance at different stages of the sampling and preparation process.

Field duplicates should have an average coefficient of variation (CoV) <10%, whereas laboratory duplicates should have an average CoV <5%. For the drilling results reported, 83 field duplicates were submitted to the laboratory with results showing a CoV of less than 10%.

The use of an 85 g sub-sample for heavy liquid separation (HLS) results in a relative precision of 4% based on repeat analyses of standard reference materials (SRM) at SGS. This sub-sample mass is therefore appropriate for the grain size being sampled.

Analysis of field duplicates indicates a relative precision of 31, indicating sampling of drill material presents the greatest uncertainty in the sampling procedure.

8.4 Opinion of Qualified Person

The QP is comfortable that the sample preparation, security, and analytical procedures are sufficient to reasonably support the mineral resource estimate in this TRS, in the opinion of the QP.

9. Data Verification

9.1 Procedures of Qualified Person

The QP has conducted several site visits throughout the drilling campaigns and metallurgical test programs. The site visits provided visual confirmation of mineralization, drill hole locations, bulk sample collection and logging and sampling procedures.

9.2 Limitations

None.

9.3 Opinion of Qualified Person

The QP is comfortable that the data is of a high quality and that no systemic or procedural issues that could impact the exploration results or mineral resource estimate are present that have not been reported in this TRS.

10. Mineral Processing and Metallurgical Testing

Four bulk samples were processed by Mineral Technologies through pilot equipment designed to emulate a full-scale Feed Preparation Plant (FPP), Wet Concentrator Plant (WCP), Monazite Flotation/Concentrate Upgrade Plant and a Mineral Separation Plant (MSP). Mineral Technologies is a reputable test laboratory with significant experience in mineral sands flowsheet development. Assays were conducted by SGS in Lakefield, Canada and Bureau Veritas in Perth, Australia, with XRF, laser ablation / ICPMS and QEMSCAN analytical methods.

The final products and the grades of those final products that were produced form the testwork demonstrated that the Upper and Lower mineralized resource could be separated using processing stages common to most mineral sands' operations. Notably, the flotation test work achieved an overall 97% recovery of rare earth minerals in the final rare earth concentrate.

Based on the testwork results, it was concluded that a viable commercial operation could be established with appropriate processing options for a 10 Mtpa operation commencing in Benton area.

An overview of the Benton Upper and Lower and Camden Lower testwork programs are depicted in Figure 5.

Further confirmation test work is planned to proceed during the next phase of the Project development.

The QP of Exploration Results and Mineral Resources is comfortable that the samples are representative of the type and style of mineralization exhibited at the Titan Project, in the opinion of the QP.

The QP of Process Design is comfortable that the analytical procedures and data for the purposes used in this TRS are adequate, in the opinion of the QP.

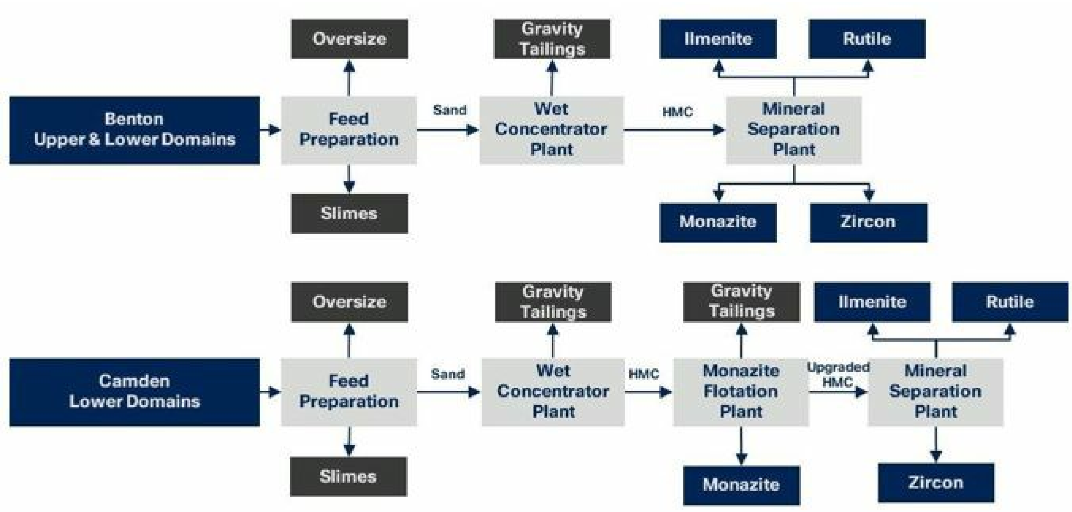


Figure 5: Overview of initial metallurgical testwork program.

Figure 6: Rare earth (LHS) and heavy mineral concentrate (RHS) streams from wet shaking table tests after flotation.

11. Mineral Resource Estimate

11.1 Assumptions, Parameters and Methods

The Mineral Resource occupies an area roughly 6.2 km (north) by 3.6 km (east); the MRE is further broken up into several areas based on land holdings (land agreements). These range from 0.5 km (north) by 0.9 km (east) for the smallest area to 5.1 km (north) by 3.6 km (east) for the largest area.

The base of mineralization ranges in RL from 90 m to 110 m above current sea level. Mineralization varies from 6 m to 51 m thick and averages 31 m thick. Mineralization resides primarily in two zones within the primary McNairy Sand unit. The grade interpolation was carried out using Vulcan software. Grade, slimes, and assemblage estimations were completed using inverse distance cubed (ID3) which is appropriate for this style of mineralization.

No THM top cut has been used or is deemed necessary for this deposit due to the geology, style, and consistency of the mineralization. Drill hole sample data was flagged with domain (zone) codes corresponding to the geological structure of the deposit and the domains imprinted on the model from 3-dimensional surfaces generated from geological interpretations. A primary search dimension of 212*425*3 m (X*Y*Z) was used for all assay data. Successive search volume factors of 2 and 4 have been adopted to interpolate grade in areas of lower data density. A parent cell size of 100*200*1.5 m was used. Parent cells are typically centered on the drill holes with a floating cell centered between drill holes along and across strike. A search orientation of 30 east of north was used to emulate the trend of the mineralization. No consistent plunge is apparent in the mineralization.

The Octant search option was used with minimum of 1 and a maximum of 5 samples per octant and a minimum of 2 octants being estimated to calculate the grade for a block. If the insufficient data was found within the first search, secondary and tertiary searches were used based on the search volume factors. In addition, a minimum of 2 samples were used from any particular drill hole. Standard mineral sands industry assay procedures (sizing 44-micron [325 mesh] for slimes and 595-micron [30 mesh] for oversize) heavy-liquid separation of an 85 g split of the -30/+325 sand using methylene iodide. For mineralogy, QEMSCAN analysis was utilized. A total of 107 drill holes for 2,626 THM assay samples (heavy liquid) and 181 THM and composite mineralogy (QEMSCAN) have been used to inform this MRE.

11.2 Mineral Resource Estimate

The maiden MRE for the Titan Project comprises 431 Mt @ 2.2% THM, containing 9.5 Mt THM at a 0.4% cut-off, and includes a high-grade core of 195 Mt @ 3.7% THM, containing 7.1 Mt THM at a 2.0% cut-off. Slimes and oversize material accounts for approximately 20% and 2.5% of the in-ground material respectively SL and OS values for the Initial Assessment were derived from the metallurgical bulk sample testwork as it has been identified that the dry-screening method utilized for the drill samples tends to under-report SL and over-report OS. It should be noted that these discrepancies do not materially impact THM and a revised method (wet screening) for drill samples has been developed and tested for the Project moving forward in the next phase that will produce more accurate SL and OS values. There is a high level of confidence associated with the MRE classification, with 56% (241 Mt) classified as being in the Indicated resource category. Mineralization occurs as a single, large, and coherent near-surface deposit.

The MRE incorporates results from 107 sonic core drill holes for a total of 4,101 m drilled by IperionX during 2020 and 2021. This includes 45 new holes drilled during the Phase 3 drilling campaign in 2021, which are previously unreported. A further 109 holes totaling 3,566 m have subsequently been drilled outside of the MRE area and are in the final stages of processing. It is anticipated that these drill hole results will be incorporated into an upgraded MRE.

Table 9: Mineral Resource Estimate and THM assemblage at 0.4% cut-off grade.

THM Assemblage									
	Cut off	**Tons**	**THM %**	**THM**	**Zircon**	**Rutile**	**Ilmenite**	**REE**	**Staurolite**
	(THM %)	(Mt)	(%)	(Mt)	(%)	(%)	(%)	(%)	(%)
Indicated	0.4	241	2.2	5.3	11.3	9.3	39.7	2.1	15.6
Inferred	0.4	190	2.2	4.2	11.7	9.7	41.2	2.2	13.7
Total	**0.4**	**431**	**2.2**	**9.5**	**11.5**	**9.5**	**40.3**	**2.1**	**14.8**

Table 10: Mineral Resource Estimate and THM assemblage at 2.0% cut-off grade.

THM Assemblage									
	Cut off	**Tons**	**THM %**	**THM**	**Zircon**	**Rutile**	**Ilmenite**	**REE**	**Staurolite**
	(THM %)	(Mt)	(%)	(Mt)	(%)	(%)	(%)	(%)	(%)
Indicated	2.0	105	3.8	3.9	11.7	9.8	42.0	2.3	10.7
Inferred	2.0	90	3.5	3.2	12.1	9.9	42.1	2.3	10.8
Total	**2.0**	**195**	**3.7**	**7.1**	**12.1**	**9.9**	**42.0**	**2.3**	**10.7**

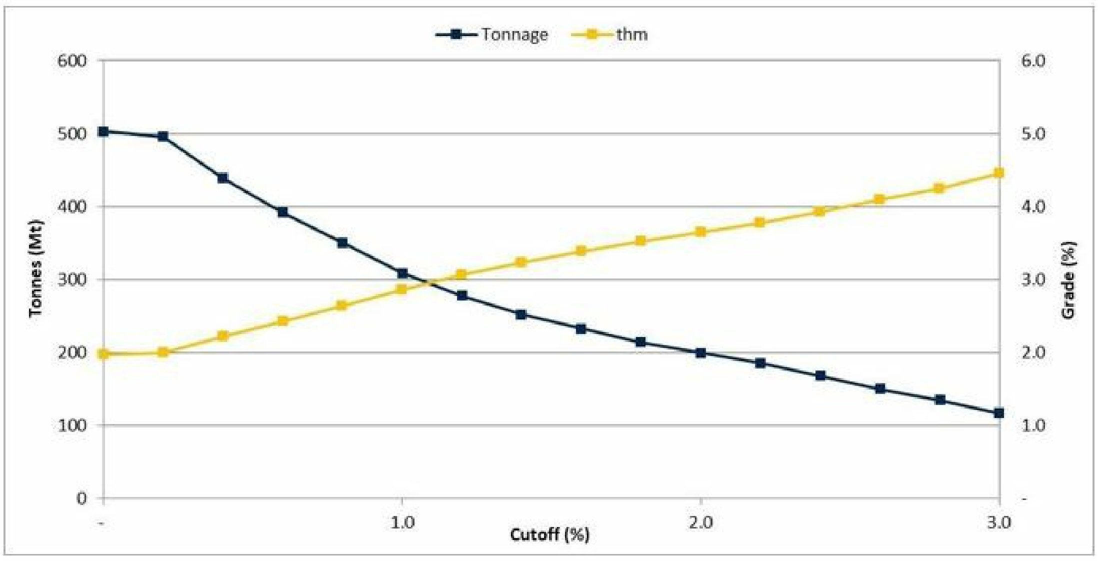
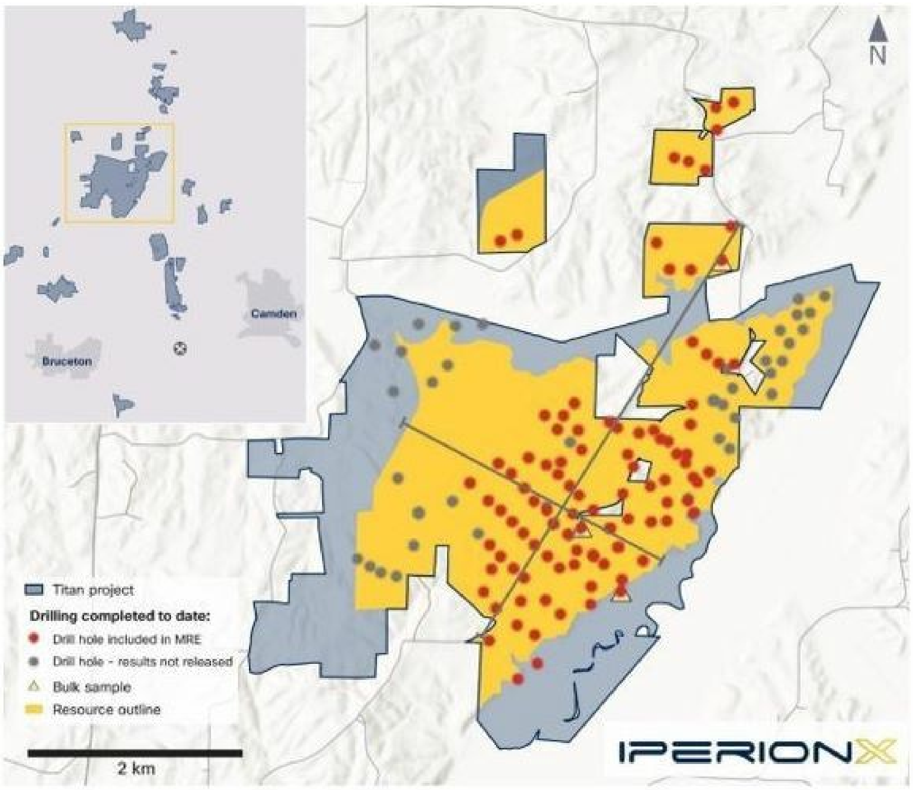
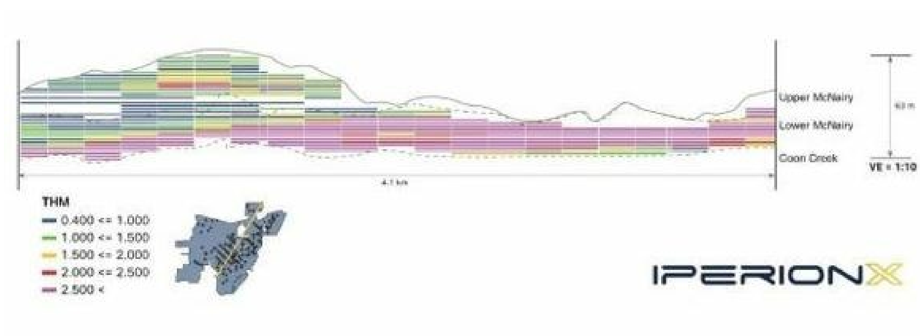


Figure 7: THM grade cutoff v. tonnage curve.


N
Camden
Bruceton
Titan project
Drilling completed to date:
Drill hole included in MRE
Drill hole - results not released
Bulk sample
Resource outline
2 km


Upper McNairy
Lower McNairy
Coon Creek
VE = 1:10
THM
0.400 <= 1.000
1.000 <= 1.500
1.500 <= 2.000
2.000 <= 2.500
2.500 <

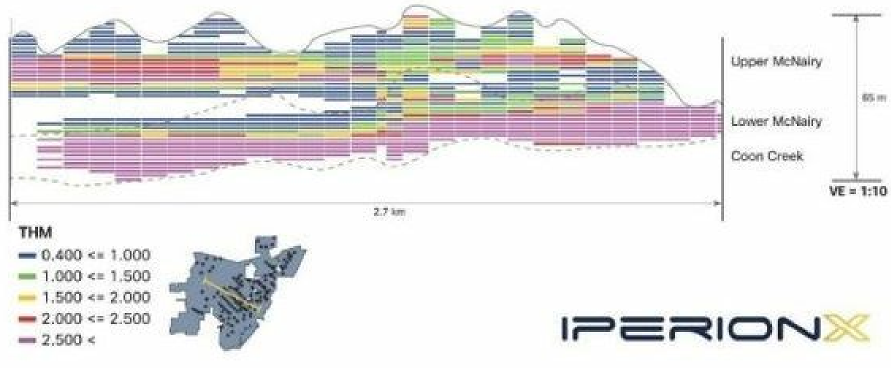


Figure 8: MRE plan view, cross section and long section.

The shallow, high grade and unconsolidated nature of mineralization enables the potential for simple mining operations supported by an industry standard mineral processing flowsheet. The Company is focusing on becoming the leading developer of low-to-zero carbon, sustainable, critical materials in the U.S., and is working with Presidio Graduate School's expert consulting division, PGS Consults, to undertake Environmental, Sustainability and Corporate Governance studies to define best practice mining and processing operations in this critical mineral province.

11.3 Geology and Geological Interpretation

The Titan Project's location in western Tennessee represents the eastern flank of the Mississippi Embayment, a large, southward plunging syncline within the Gulf Coastal Plain. This feature extends from southern Illinois to the north and to Mississippi and Alabama to the south. The embayment is filled with sediments and sedimentary rocks of Cretaceous to Quaternary age.

Figure 9: Mississippi embayment & Cretaceous age coastline.

The McNairy Sand Formation represents a pro-grading deltaic environment during a regressive sequence. This is evidenced by the coarsening upward sequence grading from the glauconitic clay rich Coon Creek Formation to the fine lower member of the McNairy Formation to the coarser upper member of the McNairy Formation.

The main mineralized zone at the Project is hosted stratigraphically in the lower member of the McNairy Formation. Mineralization averages 31 meters thick and has been traced, to date, for 6.2 kilometers along strike.

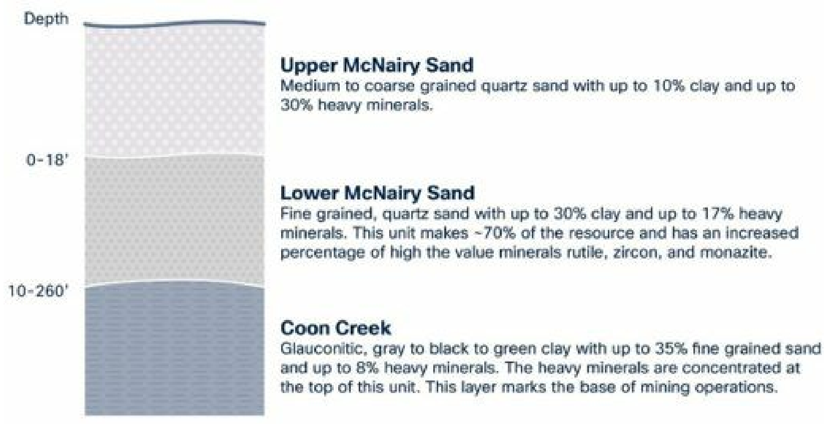


Figure 10: Idealized cross-section of McNairy Sand.

11.4 Drilling and Sampling Techniques

All drilling for the Project has been roto-sonic. This method alternates advancement of a core barrel and a removeable casing (casing is used when needed to maintain sample integrity). The core barrel utilized for this Project is 4 inch in diameter with a 6 inch diameter outer casing. The core barrel is retrieved from the ground and the samples are recovered directly from the barrel into a plastic sleeve. All holes are drilled vertically. The sonic drilling method has been shown to provide representative unconsolidated mineral sands samples across a variety of deposits as it is a direct sampling method of the formation(s). At times water is used to create a head on the formation to help prevent run-up.

A roto-sonic drill rig, the Geoprobe 5140LS, utilized a 10 ft core barrel to obtain direct 5 ft samples of the unconsolidated geological formations hosting the mineralization in the Project area. All holes were drilled vertically which is essentially perpendicular to the mineralization. The sonic cores were used to produce approximately 2kg samples for heavy liquid separation as well as further mineralogical analysis. Each core is measured, and the recovery is calculated as length of recovered core divided by length drilled (typically 10 ft).

Some interpretation is involved as the material can expand or compact as it is recovered from the core barrel into the plastic sleeve. Samples are logged for lithological, geological, and mineralogical parameters in the field to help aid in determining depositional environment, major geologic units, and mineralized zones.

All samples are panned and estimates made for the %THM and %SL. Logging is both qualitative (sorting, color, lithology) and quantitative (estimation of %THM, %SL) to help support the integrity of the Exploration Results and Mineral Resource estimate. Photographs are taken of the sonic cores.

The unconsolidated sonic cores are sampled by splitting the core in half lengthwise using a machete then recovering an even fillet with a trowel along the entire length of the sample interval. Samples are collected directly to the pre-labeled/pre-tagged sample bags; the remaining sample is further split into a replicate/archival sample and what remains is used to backfill the drillhole.

11.5 Sample Analysis Methodology

Roto-sonic drill core samples, typically 1.5 m, are sent to SGS NA facility in Lakefield, ON, Canada. Samples are subjected to standard mineral sand industry assay procedures of size fraction analysis, heavy-liquid separation, and chemical analysis. Samples are screened at 44-micron (325 mesh) for slimes and 595-micron (30 mesh) for oversize. An 85g aliquot of the -30/+325 sand is then submitted to methylene iodide diluted with acetone to target specific gravity of 2.95 g/cm^3, the greater than 2.95 g/cm^3 portion is dried and weighed to calculate the percent heavy minerals. The THM is calculated by adding the percent slimes and oversize to the total. Composites, based on geological domains, are then submitted for QEMSCAN analysis for mineralogical assemblage data.

11.6 Resource Estimation Methodology

The Mineral Resource occupies an area roughly 6.2 km (north) by 3.6 km (east); the MRE is further broken up into several areas based on land holdings (land agreements). These range from 0.5 km (north) by 0.9 km (east) for the smallest area to 5.1 km (north) by 3.6 km (east) for the largest area.

The base of mineralization ranges in RL from 90 m to 110 m above current sea level. Mineralization varies from 6 m to 51 m thick and averages 31 m thick. Mineralization resides primarily in two zones within the primary McNairy Sand unit. The grade interpolation was carried out using Vulcan software. Grade, slimes, and assemblage estimations were completed using inverse distance cubed (ID3) which is appropriate for this style of mineralization.

No THM top cut has been used or is deemed necessary for this deposit due to the geology, style, and consistency of the mineralization. Drill hole sample data was flagged with domain (zone) codes corresponding to the geological structure of the deposit and the domains imprinted on the model from 3-dimensional surfaces generated from geological interpretations. A primary search dimension of 212*425*3 m (X*Y*Z) was used for all assay data. Successive search volume factors of 2 and 4 have been adopted to interpolate grade in areas of lower data density. A parent cell size of 100*200*1.5 m was used. Parent cells are typically centered on the drill holes with a floating cell centered between drill holes along and across strike. A search orientation of 30 east of north was used to emulate the trend of the mineralization. No consistent plunge is apparent in the mineralization.

The Octant search option was used with minimum of 1 and a maximum of 5 samples per octant and a minimum of 2 octants being estimated to calculate the grade for a block. If the insufficient data was found within the first search, secondary and tertiary searches were used based on the search volume factors. In addition, a maximum of 2 samples were used from any particular drill hole.

11.7 Classification Criteria

The resource classification has been predominantly determined by the drill hole density reflecting the geological confidence. Supporting data are of suitable quality for resource estimation. Resource material defined by sampling with an approximate density of 212mE-W by 425mN-S by 3mRL and having sufficient mineralogy data has been assigned an Indicated Resource classification, material defined by sampling with an approximate density of 305mE-W by 610mN-S by 3mRL with some mineralogy data has been assigned an Inferred Resource classification. Approximately 56% of the Mineral Resource is classified in the Indicated Mineral Resource category and approximately 44% is classified in the Inferred Mineral Resource category. Variograms are run to test spatial continuity within the selected geological domains. Down hole and directional variography are run using 'R' software and Vulcan version 2021.3.

Table 11: Sources of uncertainty.

Source of Uncertainty	Discussion
Drilling	All drilling has been roto-sonic drilling. The roto-sonic drill rig provides a representative sample, with sufficient recoveries of unconsolidated sand, in order to represent the in-ground material and is suitable for use in the MRE.
Sampling	Field duplicates are taken at a rate of 3% in order to identify in biases or inconsistencies. Examination of these duplicates indicates satisfactory performance of the sampling.
Geological Modelling	The geological model is supported with sufficient drill data. The Coon Creek formation is reached in >95% of the holes used the model. This provides a sufficient base to the extractable mineralization. Discrimination between the upper and lower members of the McNairy Sand Formation is easily identified by the relative difference in grain size and the presence of micas within the lower member.
Estimation	The estimation techniques used are suitable for the deposit type and mineralization style. All data is log transformed and shows normally distributed grade data. A validation infill program will be executed in a future study in order to gain additional confidence in the estimation.

11.8 Cut-off Grade

A nominal bottom cut of 0.4% THM is offered, based on preliminary assessment of resource value and anticipated operational cost evaluated through preliminary engineering work.

The estimated breakeven economic cut-off grade of 0.4% THM utilized for resource reporting purposes has been calculated using on a revenue cost break even calculation and is based on the following assumptions:

- historical 2017 to 2021 annual average prices for ilmenite, rutile, rare earth concentrate and zircon as set out in Tables 16 and 17;
- recovery factors of 82.6% for ilmenite, 60.9% for rutile, 77.1% for rare earth concentrate and 90.8% for zircon;
- operating cost estimates of $3.00/t ROM mining, $3.00/t ROM processing, $0.40/t ROM transport and $0.90/t ROM general and administrative costs; and
- a royalty of 5% is included in the cut-off grade.

SEC Regulation S-K 1300 requires that all reports of Mineral Resources must have reasonable prospects for economic extraction regardless of the classification of the resource.

As detailed in the Initial Assessment, Mineral Resources are amenable to exploitation, incorporating a multi-decade mine life and the application of conventional mining and processing technology.

The QP has used this information as the basis for determining reasonable prospects for economic extraction.

11.9 Mining and Metallurgical Methods and Parameters

The MRE assumes that the deposit will be mined by standard mineral sands dry-mining methods and hydraulic excavator/shovel with a mobile mining unit. It has been assumed that mineralized resource will be transported to the wet concentrator plants after extraction via slurry pipeline(s).

Metallurgical testing has been conducted, with 3 bulk samples collected from both upper and lower mineralized horizons as well as spatially throughout the deposit footprint. Each bulk sample was processed by both wet (gravity) and dry (magnetic and electrostatic) methods to produce ilmenite, rutile, zircon, and monazite/xenotime concentrates.

Products were further analyzed by QEMSCAN, XRF and ICPMS to provide scoping-level product and quality information for use in assessing salability and markets. Product information has not been included in the block model at this stage of the Project.

11.10 Qualified Person's Opinion

Based on a review of the data, third party verification of data integrity and validation of the block model, the QP believes that this is an accurate representation of IperionX's heavy mineral sand resource.

12. Mineral Reserve Estimate

This section is not relevant to this report.

13. Mining Methods

13.1 Geotechnical and Hydrogeology

For the purpose of this study, no geotechnical or hydrological test work has been completed on the Project area. Preliminary mining void designs have been provided by IperionX utilizing batter and berm configuration have been used for the purpose of defining potential mining limits

Exploration data suggests that the water table is 5 m below ground surface, but no water flow rate information has been provided.

13.1.1 Hydrology

No formal hydrology work for surface or sub-surface water flows has been completed and therefore for the purpose of this study the following main assumptions have been made:

1. Restricted areas due to region surface water management have adequately been defined with the provision of surface water buffer zones.
2. Ground water is not expected to present a pit wall stability issue and will be managed through the use of in-pit pumping associated with the sand tailing water reclaim system.
3. All surface water that interacts with the active mining areas will remain in the mine water management system and all surface water that does not interact with the active mining area will be diverted to natural water ways that move the water from the mining areas.
4. All mine water used for the transportation of the mineralized material to the Wet Concentrator Plant (WCP) and used in the transportation of sand tails returned to the pit working area will be controlled within the mine water management system which will prevent mine water from leaving the boundary of the mining areas in an uncontrolled fashion.
5. All mine water management system components (pumps, storage dams and pump lines) are adequately sized to manage expected peak performance requirements for high flow rates.
6. Ancillary mine water for use in dust suppression and all WCP water supply will be drawn from the Mine Water Management System.

Hydrology studies to validate these assumptions are required for the next study phase to provide direct input into the design elements.

13.1.2 Geotechnical

The depth of the planned workings below the surface varies from 25 to 40 m below an average ground surface of 125 m Above Sea Level (ASL). The depth is increased due to the terrain in the region having hills reaching 165 m ASL. This combination could result in pit void wall extending from 165 m to 80 m, creating 85 m walls. With this potential operating face height, the geotechnical design for the wall must be considered in detail, considering the impact of the material types, the material mechanical characterization, the moisture content, potential of hydraulic pressures and geological structures.

With these geotechnical, hydrology and material characterization test work still to be done, preliminary designs for the mining voids have used batter and berm configurations from similar mineral sands type projects. These slopes are adequate for the purpose of this study but will require refinement in future studies taking into account the local conditions and geometry.

The selected batter and berm configuration is based on 35-degree batters over a vertical height of 10 m and 5 m berms widths resulting in an overall pit slope of less than 28.6 degrees.

The final pit walls are assumed to have this configuration over the exposed working area side wall exposure, prior to back filling of the mining void. This “open pit mining approach” limits the time of exposure of the mined void walls potentially allowing for more aggressive wall angles to be considered.

13.2 Mine Design and Rehabilitation

The basic mining cycle is depicted in Figure 11, which shows the mine cycle from clearing to final condition post mining. The sequential mining method allows for low cost, reduced area footprint and environmentally logical mining process by limiting the change in final material location with the mineralized material and waste basically being returned to a similar position in the ground strata. This proposed method of mining cycle is well proven in heavy mineral sands industry with progressive backfill and rehabilitation to the pre-mining state.

Figure 11: Titan Project mining cycle.

The mineralized material would be mined using excavator or front-end loader feeding an in-pit mining unit or mobile mining unit (MMU). The MMU would then transport the mined mineralized material in slurry form to the Wet Concentrator Plant (WCP).

Figure 12: A – Example mobile mining unit mineralized material feed (courtesy of Mineral Technologies); B – Example dry mining of waste; C – Example wet sand tails waste.

The topsoil and dry waste will be mined using conventional excavator/loader and truck mining practices applied in an open pit mining approach, with the objective of limit trucking distances and size of the open mining void. This will minimize the mining operating costs and minimize mining footprint on the environment. Equipment for dry mining will likely consists of a contracted mining fleet for all activities for the mining of the mineralized material and waste including the mining of the mineralized material to the input mining unit.

The wet waste sand from the WCP is returned via pipeline to the mine workings where it is discharged by a cyclone cluster that dumps retrieves water from the waste stream, dumping high solid content sands into a cone. This sand will then be moved be spread by the dozers, with the dewatered slimes from WCP being returned to the mining void by trucks prior to being covered by the dry overburden and inter-burden.

The mining process is commenced with the excavation of the pre-mining void. The initial mining void sets up the working faces and working space to allow the open pit mining approach to operate its full cycle.

Figure 13: Titan Project site plan and mining area.

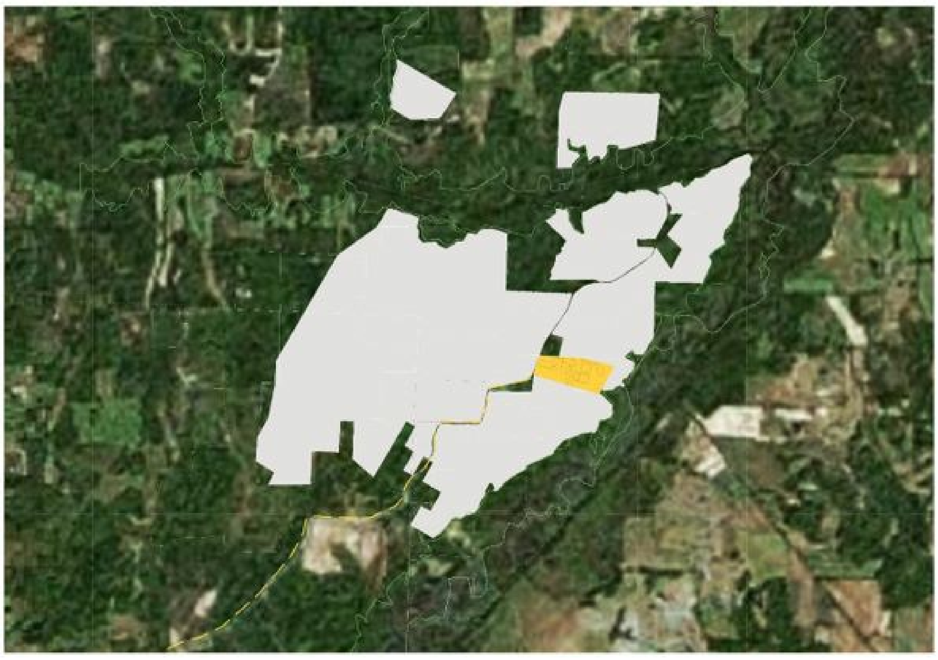


Figure 14: Titan Project mining outline (the mining outline defines the area mined and not a final open pit void as the process is incremental and pits are backfilled progressively)

13.3 Production Target and Mine Schedule

Pit optimizations were completed in order to produce a production schedule on an annual basis. This resulted in a total Production Targets of 243 Mt @ 3.0% THM In-Situ with a mine life of 25 years. The mining schedule delivers an outcome with the first 14 years mining 100% of indicated mineralized resource only, and the remaining years mining the inferred mineralized resource, resulting in a total mine life of 25 years. The schedule is based on 57% of the total mine ROM material being in an Indicated category. Currently we have no plans to mine and process the remaining mineral resources located outside of this optimized pit, however this may change as the market evolves.

Table 12: Mine production schedule with % Indicated category processed by time period.

Year	ROM Tons	Inferred Tons	Indicated Tons	% Indicated Tons
	(Mt)	*(Mt)*	*(Mt)*	*(%)*
1-14	136.5	-	136.5	100%
15-25	106.1	105.3	0.8	1%
LOM	**242.6**	**105.3**	**137.3**	**57%**

Table 13: Annual LOM production tonnage and grade (Indicated and Inferred Resources).

Description	ROM	Waste	ROM AND WASTE	THM In-Situ
Units	**Mt**	**Mt**	**Mt**	**%**
Year 1-25	242.6	163.4	406.0	3.0%
1	10.0	3.6	13.6	3.9%
2	9.8	6.2	16.0	4.2%
3	9.9	12.3	22.3	3.6%
4	9.9	4.8	14.7	2.3%
5	9.9	3.7	13.6	2.6%
6	9.7	11.7	21.3	3.0%
7	9.4	9.1	18.5	2.9%
8	9.4	8.2	17.6	2.8%
9	9.5	6.8	16.3	2.7%
10	9.6	6.0	15.6	2.7%
11	9.7	6.1	15.9	2.8%
12	9.9	6.6	16.5	2.8%
13	9.9	7.2	17.1	2.6%
14	9.9	1.7	11.6	3.1%
15	9.3	12.4	21.7	3.0%
16	9.5	11.2	20.6	3.1%
17	9.5	10.5	20.0	3.1%
18	9.4	6.9	16.3	3.1%
19	9.5	6.3	15.9	3.0%
20	9.7	6.3	16.0	2.9%
21	10.0	4.6	14.6	2.7%
22	9.9	3.6	13.4	2.7%
23	9.8	5.1	14.9	2.8%
24	9.8	1.0	10.8	3.1%
25	9.9	1.4	11.2	3.4%

Table 14: Annual LOM production tonnage and grade (assuming Indicated Resources only).

Description	ROM	Waste	ROM AND WASTE	THM In-Situ
Units	Mt	Mt	Mt	%
Year 1-14	136.5	94.2	230.7	3.0%
1	10.0	3.6	13.6	3.9%
2	9.8	6.2	16.0	4.2%
3	9.9	12.3	22.3	3.6%
4	9.9	4.8	14.7	2.3%
5	9.9	3.7	13.6	2.6%
6	9.7	11.7	21.3	3.0%
7	9.4	9.1	18.5	2.9%
8	9.4	8.2	17.6	2.8%
9	9.5	6.8	16.3	2.7%
10	9.6	6.0	15.6	2.7%
11	9.7	6.1	15.9	2.8%
12	9.9	6.6	16.5	2.8%
13	9.9	7.2	17.1	2.6%
14	9.9	1.7	11.6	3.1%

Figure 15: Titan Project Indicated and Inferred material split over mine life.

Figure 16: Titan Project production targets and grade profile.

Each of the solids of the various mining limits is bound by the constraining limits being: lease boundaries, flood plain buffer, the Coon Creek basement surface and regional topography. All physicals used for mine scheduling and financial modelling in this report are inside (sub-set of) these mining limits.

With these geotechnical, hydrology and material characterization test work still to be done, preliminary designs for the mining voids have used batter and berm configurations from similar mineral sands type projects. These slopes are adequate for the purpose of this study but will require refinement in future studies taking into account the local conditions and geometry.

The selected batter and berm configuration is based on 35 degree batters over a vertical height of 10m and 5m berms widths resulting in an overall pit slope of less than 28.6 degrees.

The mine schedule is planned to provide a continuous rougher head feed rate of 1,000 tons per hour. The cut-off grade is defined at 1.00% THM based on preliminary economic assessment.

The estimated economic cut-off grade of 1.0% THM utilized for the purposed of determining the optimized pit in the Initial Assessment is based on the following assumptions:

- TZMI forecast pricing for ilmenite, rutile and premium zircon products, and Adamas Intelligence forecast pricing for rare earth concentrate as set out in Table 17;
- recovery factors of 81.0% for ilmenite, 72.3% for rutile, 88.2% for rare earth concentrate and 83.3% for zircon;
- operating cost estimates of $1.94/t ROM mining, $3.60/t ROM processing, $0.53/t ROM transport and $1.56/t ROM capital expenditures; and
- a royalty of 5% and commission of 3% is included in the cut-off grade.

Given the nature of the resource model, the block dimensions and the type of deposit, dilution is assumed to be included in into the modelled blocks, requiring no further modification for the purposed of this study in scheduling physicals for the financial model inputs.

The mining recovery factor based on the planned mining equipment and the resource model block dimension, the selective mining units is a small percentage of a parent block size and therefore in practice should be 100%.

Assumed values of 10% slime for the Upper McNairy and 20% for the Lower McNairy.

The start point was selected to provide immediate access to high grade material in the Indicated mineral resource category. The schedule was based on reporting the optimized physicals for the blocks in panels and then mining in the general sequence shown. The sequence for the East block results in the final stages of mining in year 5 being beside the WCP but also adjacent to the waste stockpiles created by the excavation of the initial mining void.

The second phase of the general scheduling has the workings moving the western areas of the current Indicated mining limits. This satisfies the requirement of Indicated mineral resource category only initially then allowing Indicated & Inferred mineral resource category at the tail of the schedule.

The general mining sequence adopted for the schedule is south to north in full width panels. This is done intentionally to avoid mineralized material loss from having parallel narrower mining paths which will result in mineralized material loss in the Lower McNairy due issues of mining adjacent to a previous mining path.

The final phase of the Project as known is the scheduling of the inferred mineral resource category from south to north, in the same manner as done for the second phase.

14. Processing and Recovery Methods

An overview of the major processing stages can be described as follows:

1. Run of mine mineralized resource is processed in the Mobile Mining Unit (MMU) which removes trash & oversize. The undersize is pumped to the Feed Preparation Plant (FPP) and Wet Concentrator Plant (WCP).

2. In the FPP, the feed is de-slimed to separate clay and the sand. The slimes are directed to the thickener where they are thickened and then filtered. The sand fed into a constant density tank which is pumped to the rougher spiral stage at 1,000 tph at the start of the WCP.

3. The WCP comprises of multiple stages of spiral separators which produce a tailings and a Heavy Mineral Concentrate (HMC) stream. The WCP tailings stream is dewatered and pumped to the mining void while the HMC (at a target grade of >85% THM) is dewatered and trucked to the Monazite Separation Plant.

4. The Monazite Separation Plant which consists of a flotation circuit and wet gravity circuits, to produce a monazite product and an upgraded HMC which consists predominantly of the titanium minerals & zircon minerals. The upgraded HMC is the feedstock for Mineral Separation Plant (MSP).

5. The MSP consists of a dryer, multiple stages of electrostatic separators, magnetic separators and wet gravity separators to produce ilmenite, rutile, premium zircon and zircon concentrate.

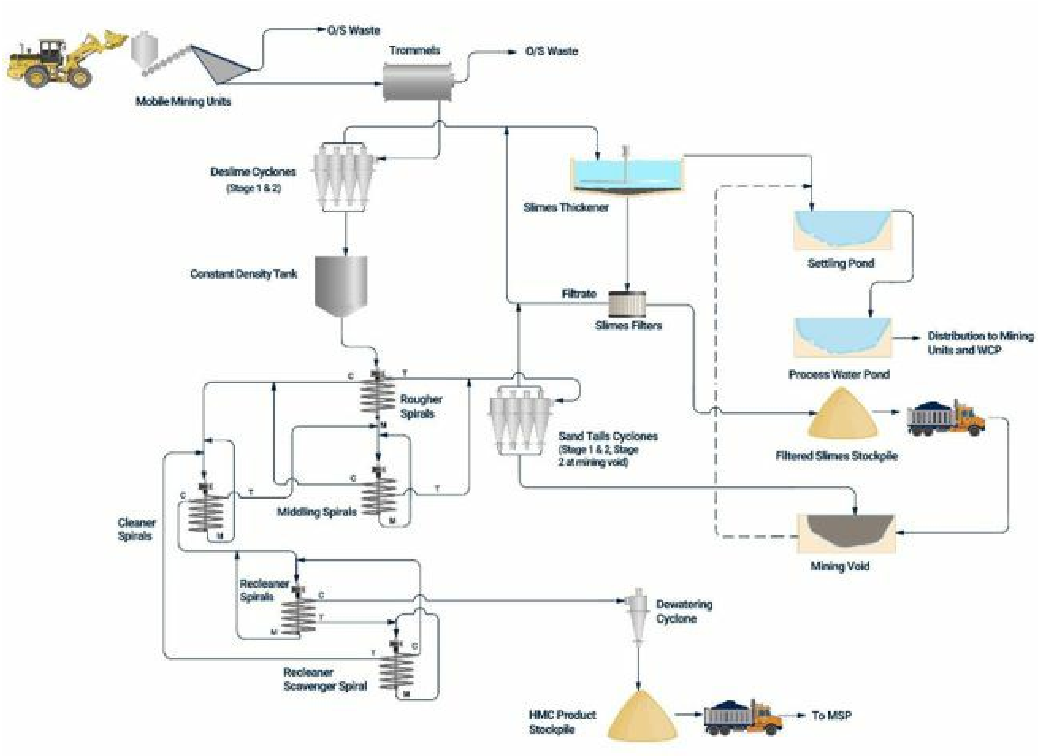


Figure 17: Titan Project mining and wet concentration plant simplified process diagram.

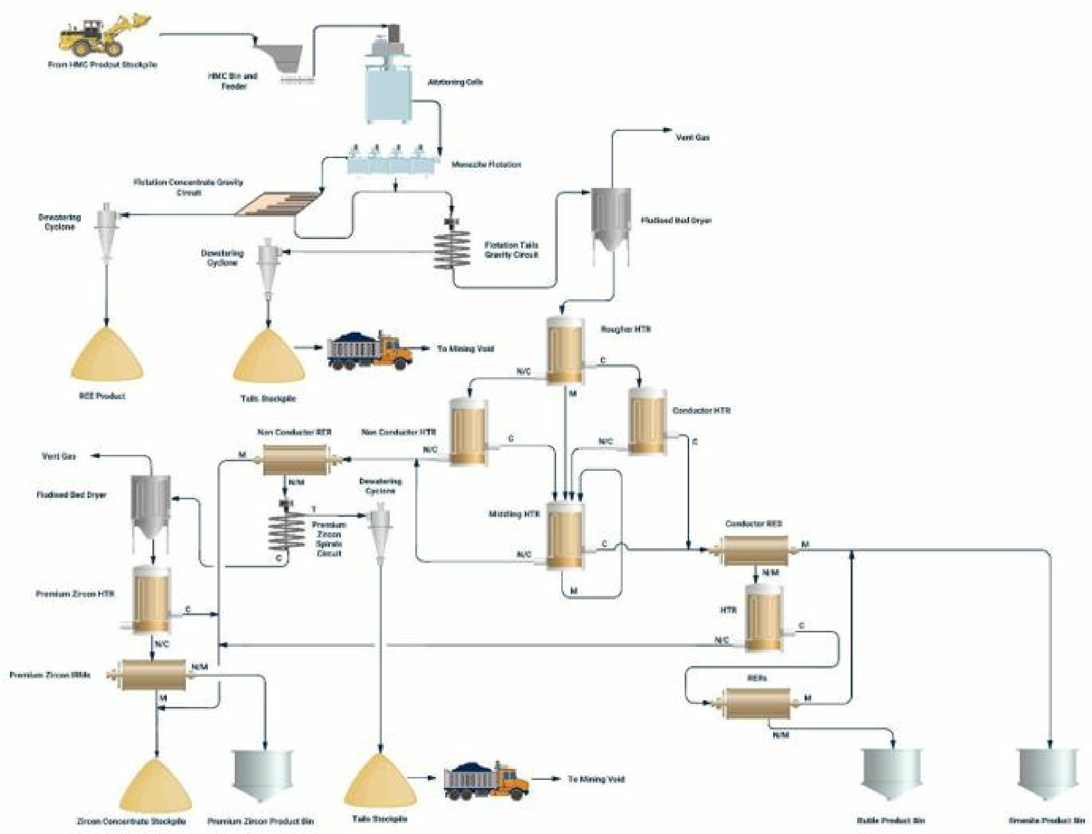


Figure 18: Titan Project mineral separation plant simplified process diagram.

The processing plant is designed to process 9.7 Mt/y ROM material, and will produce approximately 95,500 t/y ilmenite, 16,700 t/y rutile, 4,600 t/y monazite concentrate, 22,400 t/y premium zircon and 16,000 t/y zircon concentrate on a life-of-mine average basis.

An estimate of the power demand for each area is 11.4 MW at the mine and WCP facility, and 2.2 MW at the MSP facility.

An allowance has been made for production, maintenance and management personnel associated with running the mine and processing plant. Rosters are based on 12 hours per shift, 2 shifts per day and 4 rotating crews. Further rationalization of operational requirements for ramp-up will be reviewed in the PFS. An estimated total of 179 personnel are required for mine, WCP and MSP.

14.1 Mobile Mining Units (MMU)

The MMUs receive run-of-mine (ROM) mineralized resource fed by a loading tool. These units are designed to move along with the mining face. Separate to the MMU but integral to its operation is a static scrubber/trommel which sits on the side of the mining area. The trommel protects the equipment by removing any grossly oversize material including vegetation.

‘Shredders’ are included to assist with the liberation of the clay from the sand minerals. The material existing the ‘shredder’ is pumped to the scrubber/trommel which is stationed on the side of the mining area. The scrubber/trommel breaks down larger material clumps through slurry rotational motion and spray water is also injected into the second half of the unit to help liberate the clay from the sand. The >2 mm particles at the end of the scrubber are rejected to directly back to the mining void. The <2 mm material is then pumped from the scrubber/trommel to the WCP where the clay is firstly separated from the sand.

14.2 Feed Preparation Plant (FPP) and Wet Concentration Plant (WCP)

14.2.1 Feed Preparation Plant (FPP)

The <2.0 mm ROM will be pumped into cyclones to separate out the slimes. The cyclone overflow containing the slimes will report to a thickener where they will be treated with flocculant to produce a high solids concentration slurry. Thickener underflow is pressure filtered and stockpiled for disposal via truck back to the mining void. Thickener overflow is recirculated as process water to the WCP and MMUs.

The cyclone underflow reports to a Constant Density (CD) tank. The CD tank provides several roles. The design of the CD tank distributes the sand so that the discharge output can be controlled. Therefore, any fluctuations in tonnage upstream (mining units) are eliminated, allowing constant steady operation of downstream WCP. Similarly, the discharge density can also be controlled by injecting water into the sand by a dedicated injection water pump. The CD tank also provides surge capacity that allows continued operation of the WCP in the advent of any mining interruptions. The CD tank can also provide a secondary desliming stage through the overflow launder.

There are also two discharge pumps on the CD tank feeding two parallel spiral circuits. This premise is to ensure that at a minimum, the plant can operate at half capacity if there are any downtime issues with mining units. The sand from the CD tank is discharged at the nominated solids concentration (% solids) suitable for processing over spiral separators.

14.2.2 Wet Concentrator Plant (WCP)

The WCP will have two parallel circuits which comprise of a combination of MG12 and HG10i spirals to concentrate the heavy mineral component of the ROM into an HMC. The tailings stream from the spiral circuit is pumped to the mining void where it is dewatered via cyclones with the underflow discharging into the mining void and the overflow is reused in the WCP via the thickener. The HMC from each of the parallel circuits is combined. The final stage of the WCP is desliming cyclones and an HMC stacker. Return water from the cyclone is reused in the WCP via the thickener.

The HMC stacker HM can slew between three stacking positions so that while one stockpile is being stacked, one is being removed, leaving the last one to drain.

A front-end loader is used to load the damp HMC into trucks for transport to the Mineral Separation Plant.

The WCP installation also includes support infrastructure such as the tailings thickener, process water dam and tanks, workshop, administration buildings, and a HMC stockpile. The WCP design and construction will ensure that the plant is suitable to be moved if required.

14.3 Mineral Separation Plant (MSP)

HMC from the WCP is trucked to the MSP where it is processed through the Monazite Flotation Plant (MFP) to produce a monazite product and an upgraded HMC as a feedstock for the Mineral Separation Plant (MSP). HMC from the MSP HMC stockpile is reclaimed by front end loader and fed to the MFP via bin and feeder.

14.3.1 Monazite Flotation Plant (MFP)

The reclaimed HMC is conditioned to make the monazite mineral amenable to flotation. A two stage (rougher-scavenger) float circuit is employed to help with the recovery of the monazite. After flotation, the concentrate (float) is upgraded by wet gravity tables that are used to remove any residual heavy minerals and other impurities.

The monazite product produced from these tables is then filtered to reduce the moisture content (to approximately 5%). By not completely drying the monazite product, it reduces the risk of airborne particles and dust. This stream is then conveyed to a product bin, and then loaded into specially designed 200L drums ready for transport.

The (rougher-scavenger) float circuit tailings (sinks) are then further upgraded using three stages of spirals to remove the remaining quartz and trash heavy mineral that is still present. The spiral tailings stream is dewatered and transported back to the mining void. The concentrate then goes to the MSP where it is dewatered using a belt filter and dried in readiness for separation to make ilmenite, rutile & zircon products.

The metallurgical testwork has shown that rare earth minerals (REM) can be separated readily from the other valuable heavy minerals using flotation techniques.

14.3.2 Mineral Separation Plant (MSP)

As discussed above, the frontend electrostatic circuit of the MSP Process Option 2 is the same as process Option 1 MSP. This also includes the ilmenite and rutile magnetic circuit.

With Process Option 2, the non-conductors stream containing nearly all of the zircon mineral, plus residual staurolite, residual quartz, and some miss placed titanium minerals is further processed to produce a premium zircon product plus a smaller zircon concentrate stream which will contain residual zircon mineral, plus residual staurolite, residual quartz, and some titanium minerals.

The separation of the zircon from the non-conductors stream begins when the material is passed over a rare earth roll separator (RER). In the RERs, the zircon reports to the non-magnetic stream and other materials such as staurolite and other magnetic minerals to the magnetics stream. The magnetics stream is directed to the zircon concentrate product.

The zircon is then processed in a wet gravity circuit to remove quartz and other light heavy non-magnetic minerals resulting in an upgraded zircon stream. The wet zircon concentrate is then dried and further processed through electrostatic separation stages and magnetic separation stages. The conductors from the electrostatic separators are directed to the zircon concentrate, while the non-conductors collected and processed over two stages of induced roll magnetic separators. The cleaned non-magnetics become the premium zircon product, with the magnetics stream being directed to the zircon concentrate.

15. Infrastructure

IperionX's Titan Project is strategically located near Camden, Tennessee, and will benefit from significant cost advantages due to the location and proximity to low cost, world-class infrastructure.

95,000 miles of highway, including 8 interstate highways, put Tennessee within a day's drive of a majority of U.S. consumer markets. Tennessee is the third largest rail center in the U.S. and there are more than 1,000 miles of navigable waterways which access all other major waterways in the eastern U.S. There are over four commercial airports near Camden, including two international airports at Memphis and Nashville.

This world class infrastructure is expected to provide material cost and logistics advantages compared to projects located in more remote areas. The existing infrastructure includes low-cost power and gas, with high-capacity transmission lines near the Project, abundant transportation infrastructure including the Norfolk Southern mainline running through Camden, the major I-40 highway just 10 miles south of Camden and a major barge-loading point 15 miles from the Titan Project connecting to all major U.S. customers and export ports. Potential water sources include nearby surface water bodies but will likely involve shallow groundwater.

Site infrastructure is an essential component to the success of the Project. The Project's mineral sands resources and nearby Wet Concentrator Plant (WCP) are located approximately 17 miles northwest of the city of Camden, Tennessee. The Project also includes a dry Mineral Separation Plant (MSP) that is located approximately 1.3 miles southwest of the city of Camden, Tennessee. The distance separating the two plants is approximately 19 miles and accessed via public roads and highways.

The MSP is just 2 miles from Highway 70 and Highway 641, 15 miles from Interstate 40 and is less than 50 miles to Jackson McKellar Sipes Airport. It also has rail access.

Camden is a city of approximately 3,500 people with established infrastructure including scheme water, waste-water treatment, high voltage power, sealed roads and skilled labor.

15.1 Site Layout

A preliminary integrated site plan including mining operations, wet concentration plant and dry separation plant and ancillary facilities was developed by Primero Group during the study.

15.2 Potable Water

Potable water is provided to the plant from the Camden municipal water supply. Potable water supply to the WCP will be trucked approximately 17 miles from Camden and stored in a dedicated potable water tank. Potable water supply to the MSP will be sourced direct from the Camden scheme water supply.

15.3 Wastewater Treatment

Wastewater will be treated through the existing Camden Wastewater Treatment Plant (WWTP). Waste from both the WCP and MSP will be stored at each-site then systematically pumped to a waste truck and delivered to the existing WWTP for treatment.

15.4 Fire Services

Both the WCP and MSP sites will be protected by a fire water system in accordance with the National Fire Protection Association (NFPA) standards. This system comprises of a dedicated fire water storage tank, electrical and diesel fire water pumps, fire water hose reels, standpipes and sprinkler systems as required.

15.5 Natural Gas

Natural gas shall be used as the fuel source for the rotary dryers, and for various heating duties associated with the HVAC systems around the site. Natural gas is supplied from the municipal distribution network.

15.6 Roads

Site roads shall be provided for all operations and maintenance activities. Roads shall be asphalt in high traffic areas only.

15.7 Diesel

A diesel storage and distribution facilities shall be provided at both the WCP and MSP sites to supply mobile equipment. Diesel shall be supplied by road tanker and each facility will provide sufficient diesel storage, provision for tanker unloading and for refueling of mobile equipment.

15.8 Compressed Air

Compressed air will be used at both the WCP and MSP circuits. The compressed air will be supplied by rotary screw compressors. Each compressed air circuit is complete with air dryers and filters to provide the required air quality, and with air receivers sized to accommodate the maximum instantaneous flow rate required.

15.9 Renewable Power

IperionX intends to implement fully renewable power sourcing options for the Titan Project, including the assessment of existing on-grid solutions currently provided by incumbent power generators and suppliers in the area. The WCP and MSP facility will each contain a substation with high voltage switchboard and suitable feeders to supply switch rooms located in different areas of the plant to reduce cable cost and drop voltage. An estimate of the power demand for each area is 11.4 MW at the Mine and WCP facility, and 2.2 MW at the MSP facility.

15.10 Communication

There will be separate PLC-RIO, PLC-EOL, PLC-VFD, PLC-PLC, PLC_SCADA and SCADA_SCADA networks serviced by separate communications cards in the PLC processor racks. PLC to Remote PLC IO (RIO) communications will be Ethernet over multimode fiber, copper and / or wireless. Communications within the plant area will be hardwired.

15.11 Buildings

Administration buildings located at the WCP and MSP facilities will be provided for all operations and maintenance personnel. Buildings shall be of prefabricated modular construction. The administration buildings will be plumbed, powered, and contain HVAC as required.

Control rooms will be provided at both the WCP and MSP facilities. The control rooms will be modular, air-conditioned buildings. Maintenance workshop and stores located at both the WCP and MSP facilities will include designated storage and laydown yards. The workshop will consist of mechanical, boilermaker, electrical and instrument work areas.

A site laboratory at the MSP facility will be provided. The laboratory will be of a prefabricated modular construction and connected to all services.

Figure 19: Titan Project WCP 3D model.

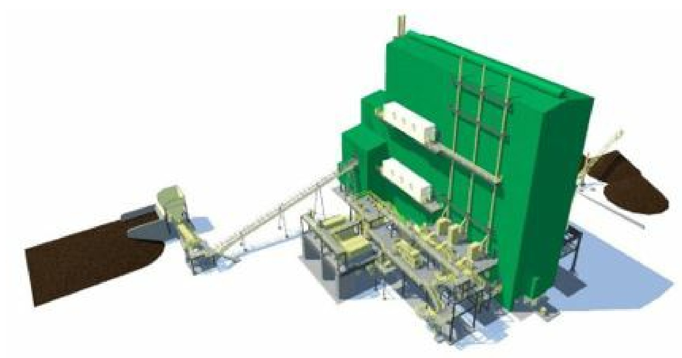


Figure 20: Titan Project MSP 3D model.

16. Market Studies

16.1 Market Fundamentals and Product Sales

16.1.1 Critical Minerals Overview

A consistent, secure, and domestically sourced supply of critical minerals has been acknowledged by the U.S. government as one of the most urgent issues to U.S. national security and economic prosperity. Critical minerals are both ubiquitous to current everyday life, and are essential inputs in advanced applications and technologies, particularly those related to decarbonization.

"Critical minerals provide the building blocks for many modern technologies and are essential to our national security and economic prosperity. These minerals—such as rare earth elements, lithium, and cobalt—can be found in products from computers to household appliances. They are also key inputs in clean energy technologies like batteries, electric vehicles, wind turbines, and solar panels. As the world transitions to a clean energy economy, global demand for these critical minerals is set to skyrocket by 400-600 percent over the next several decades, and, for minerals such as lithium and graphite used in electric vehicle (EV) batteries, demand will increase by even more—as much as 4,000 percent. The U.S. is increasingly dependent on foreign sources for many of the processed versions of these minerals." ***– U.S. White House, February 2022***[6]

The U.S. Energy Act of 2020 defines a "critical mineral" as a non-fuel mineral or mineral material essential to the economic or national security of the U.S. and which has a supply chain vulnerable to disruption. Critical minerals are also characterized as serving an essential function in the manufacturing of a product, the absence of which would have significant consequences for the economy or national security.

In February 2022, the U.S. Geological Survey, an office of the U.S. Department of the Interior, published its final list of minerals considered critical to the U.S.[7], being: aluminum, antimony, arsenic, barite, beryllium, bismuth, cerium, cesium, chromium, cobalt, dysprosium, erbium, europium, fluorspar, gadolinium, gallium, germanium, graphite, hafnium, holmium, indium, iridium, lanthanum, lithium, lutetium, magnesium, manganese, neodymium, nickel, niobium, palladium, platinum, praseodymium, rhodium, rubidium, ruthenium, samarium, scandium, tantalum, tellurium, terbium, thulium, tin, titanium, tungsten, vanadium, ytterbium, yttrium, zinc, and zirconium.

Foreign nations, including China and Russia, currently dominate many of these critical mineral and material supply chains, including titanium and rare earth elements. Relying on foreign sources for these critical materials poses a risk to the U.S.'s readiness to deter and defeat adversaries, with important defense applications for these supply chains including rare earth permanent magnets for jet fighter engines, missile guidance systems, antimissile defense, space-based satellites, and communication systems and well as titanium for the structures of fighter jets, bombers, attack aircraft, transports and helicopters.

16.1.2 Rare Earth Concentrates

Rare elements earths (rare earths) are a group of 15 elements in the periodic table known as the Lanthanide series, plus Yttrium. Rare earths are categorized into light elements (lanthanum to samarium) and heavy elements (europium to lutetium). Rare earths are used in many industrial applications, including mature industries, typically as additives in a mix of other materials to help products achieve superior performance. Rare earths react with other metallic and non-metallic elements to form compounds which have specific chemical behaviors. This makes them indispensable and non-replaceable in many electronic, optical, magnetic, and catalytic applications.

Rare earths are used in many applications including battery alloys, catalysts, ceramics and metal alloys. However, it is the increasing demand for rare earths used in high strength permanent magnets, specifically neodymium-iron-boron (NdFeB) magnets, found in power dense electric motors used in electric vehicles and wind turbines that makes up the majority of global consumption, accounting for ~90% of the global market by value in 2019 and expected to grow rapidly along with growth in electric vehicle (EV) and wind turbine production.

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[6] Fact Sheet: Securing a Made in America Supply Chain for Critical Minerals (link)
[7] 2022 Final List of Critical Minerals (link)

NdFeB magnets rely on the light rare earths neodymium (Nd) and praseodymium (Pr), with heavy rare earths such as dysprosium (Dy) and terbium (Tb) also used to improve resistance to demagnetization at temperatures above 120°C. These magnets are key intermediate components of permanent magnet direct drive generators in wind turbines and electric synchronous traction motors for propulsion systems in EVs. Given their importance in key components in the renewable energy electrification supply chain, namely energy generation and energy storage, rare earths are critical to the U.S.'s decarbonization efforts.

Figure 21: Major uses of rare earth containing permanent magnets.

Following a pandemic-induced lull in 2020, Adams Intelligence, an independent research and advisory consultant focused on strategic metals and minerals, data indicates that consumption of NdFeB magnets increased by 18.1% in 2021, with forecast demand to increase at a CAGR of 8.6% from 2022 through 2035 leading to a significant supply deficit throughout this period.

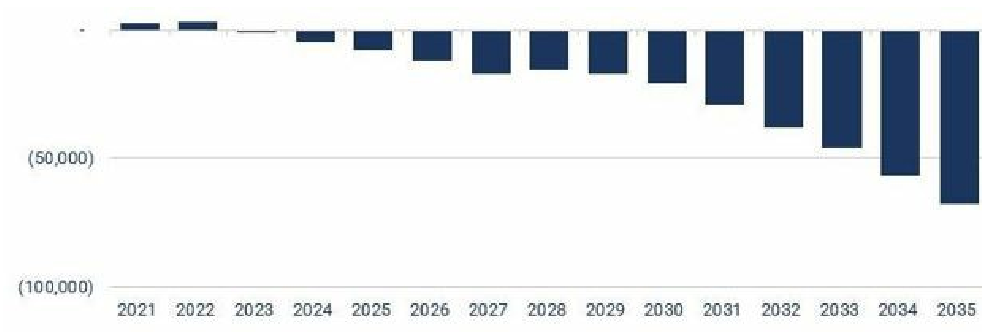

Figure 22: Global NdPr supply / demand imbalance (Nd/Pr oxide tons)[8].

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[8] Source: Pensana PLC, June 2022 (link)

Further, rare earths, particularly the heavy rare earths dysprosium and terbium, are essential for U.S. defense applications, primarily in targeting and weapons systems, including smart bombs and missiles, as well as for their use in compact and powerful electric motors in air, sea and subsea weapons platforms.

There is only minor production of dysprosium and terbium outside of China, and no material production within the U.S. The potential production of these heavy rare earths within the U.S. is strategic and highly valuable to the country's leading defense, EV and clean energy sectors. In September 2021 the Commerce Department's Bureau of Industry and Security initiated an investigation under section 232 of the Trade Expansion Act of 1962, to determine the effects on U.S. national security from imports of NdFeB permanent magnets.

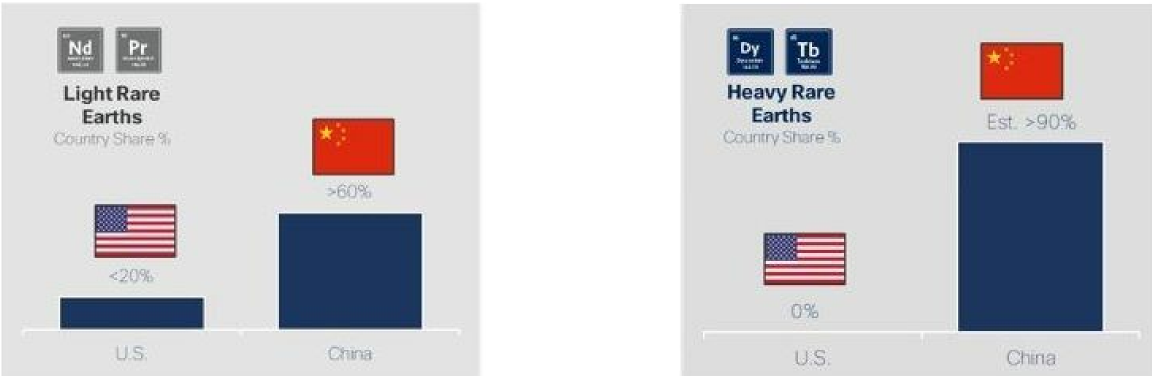

Figure 23: Rare earth production attributable to China and the U.S.

There is only minor production of dysprosium and terbium outside of China, and no material production within the U.S., and the potential production of these heavy rare earths at the Titan Project is strategic and highly valuable to the country's leading defense, EV and clean energy sectors.

Test work to date has highlighted that the rare earth minerals at the Titan Project contain a high percentage of rare earth oxides, with significant proportions of the highly valuable heavy rare earths terbium and dysprosium as well as the valuable light rare earths neodymium and praseodymium identified within IperionX's monazite and xenotime mineral concentrates.

Table 15: Titan Project rare earth concentrate profile, highlighting enrichment of heavy rare earths.

(%)	Typical Monazite Concentrate	IperionX REE Concentrate
TREO	53 – 55	58 – 59
Monazite / Xenotime	-	80 / 10
LREO (% TREO)	90.7	79.5
HREO (% TREO)	9.3	20.5
NdPr Oxides (%TREO)	22.0	21.2
DyTb Oxides (%TREO)	0.9	2.4

In April 2021, IperionX and Energy Fuels signed a Memorandum of Understanding for the supply of monazite sands from IperionX's Titan Project in Tennessee to Energy Fuels' White Mesa Mill in Utah. Energy Fuels and IperionX are continuing to evaluate expanding their collaboration to establish a fully integrated permanent rare earth magnet supply chain in the U.S.

In March 2022, Energy Fuels undertook laboratory evaluation of rare earth mineral concentrates from IperionX's Titan Project in west Tennessee. Energy Fuels' evaluation indicates that IperionX's rare earth minerals are suitable as a high quality feedstock to produce a high purity mixed rare earth carbonate at Energy Fuels' White Mesa Mill in Utah. Energy Fuels is currently producing a mixed rare earth carbonate at commercial scale at its mill. This commercial product is the most advanced rare earth material being produced in the U.S. today at scale.

Energy Fuels also intends to construct solvent extraction rare earth separation infrastructure at its mill in the coming years, allowing the facility to produce separated rare earth oxides from high quality feedstocks like the rare earth concentrate expected to be produced from IperionX's Titan Project.

16.1.3 Titanium Products

Titanium is the key input into the global paints and pigment industry, while titanium metal is desired by industry for its light weight, high strength to weight ratio, stiffness, fatigue strength and fracture toughness, excellent corrosion resistance, and the retention of mechanical properties at elevated temperatures. Titanium and titanium alloys are used in diverse areas such as aerospace, defense, automotive components, chemical processing equipment and medical implants. However, a barrier for the widespread use of titanium is the cost associated with manufacturing a finished part, with approximately half of the cost historically associated with fabrication.

The U.S. market is one of the largest and highest value titanium markets globally due to the significant use of titanium in the high-performance space, aerospace and defense sectors.

In the report delivered in June 2021 by the U.S. Department of Commerce Bureau of Industry and Security, *The Effect Of Imports Of Titanium Sponge On The National Security*, it was noted that Congress has recognized that titanium sponge is critical to national security by including titanium as a strategic material in the Specialty Metals Clause, with all titanium used in national defense systems directed to be melted or produced in the United States or a qualifying country.

Further, the Department of the Interior's 2018 List of Critical Minerals established titanium as essential to U.S. security, and found that the absence of a titanium sponge supply would have significant consequences for the U.S. economy and the national security.

The U.S. was the first nation to commercialize titanium sponge production in the 1950s. In 1984, there were five plants producing titanium sponge in the U.S. but by 2019, only one producer was capable of producing titanium sponge for defense, commercial, and industrial purposes. That final production facility closed in 2020 and now the U.S. has no commercial titanium sponge production capacity and is 99.9% import reliant to produce semi-finished and final products.

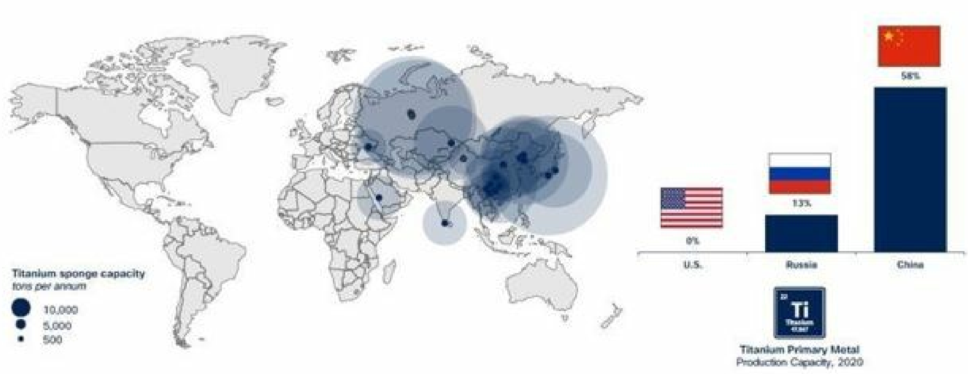

Figure 24: Global titanium sponge production capacity[9].

[9] Source: USGS

The U.S. now has minimal commercial titanium sponge production capacity, which is a critical material for many U.S. defense systems, including fighter jets, bombers, attack aircraft, transports and helicopters, with newer aircraft using increased amounts of titanium. Titanium is frequently deployed in applications which require high strength and low weight, such as the A-10 Thunderbolt II attack aircraft, where a titanium cockpit tub has proved vital to the safe return of pilots despite heavy damage from enemy ground fire.

Table 16: Titanium content in select U.S. military airframes.

Airframe	Introduction into Service	% of Titanium Content
CH-47 Chinook	1962	8
F-15 Eagle	1976	10
F-16 Fighting Falcon	1978	7
F/A-18 Hornet	1984	12
F-22 Raptor	2005	39
V-22 Osprey	2007	31
F-35 Lightning II	2015	20
Military airframes entering service after 2000 have an average 30 percent titanium content; airframes entering service prior to 2000 had an average of just 9 percent.		
Source: Arconic Engineered Structures, “World Titanium Trends in Defense”, Presentation at the Titanium USA conference, September 24, 2019		

Titanium is also extensively used in naval applications due to is excellent anti-corrosion characteristics, as well as army ground vehicles and hypersonic missile programs due to its very high strength and light weight.

Currently only Japan, Russia, and Kazakhstan have titanium sponge plants certified to produce aerospace rotating-quality sponge that can be used for aerospace engine parts and other sensitive aerospace applications. In 2018, Russian and Chinese titanium sponge producers controlled 61% of the world’s titanium sponge production, an increase on their combined 55% share in 2008 and 37% share in 1998. In 2021, Russia and China’s control of global titanium sponge production is likely to increase to over 70%

Absent domestic titanium sponge production capacity, the U.S. is completely dependent on imports of titanium sponge and scrap, and lacks the surge capacity required to support defense and critical infrastructure needs in an extended national emergency.

Given the lack of domestic production capacity, and that the U.S. no longer maintains titanium sponge in the National Defense Stockpile, titanium producers, including producers of goods such as ingot, billet, sheet, coil, and tube, are almost all entirely dependent on non-U.S. sources of titanium. This presents the possibility that in a national emergency, U.S. titanium producers would be denied access to imports of titanium sponge and scrap due to supply disruption.

Titanium minerals found at the Titan Project are dominated by rutile and highly altered ilmenite, which are feedstocks for a variety of uses including for titanium dioxide, titanium metal and other applications including welding and nanomaterials. Natural rutile is a high-grade titanium dioxide feedstock (typical TiO_2 content of 92-95%), which commands a significant price premium in the titanium dioxide market. Ilmenite is also a titanium dioxide feedstock (typical TiO_2 content of 58-62%), which can be sold directly to pigment producers or can be used as a feedstock for synthetic rutile production.

Test work to date indicates that ilmenite mineral found at the Titan Project is likely to be suitable for the chloride ilmenite market, with a TiO_2 content greater than 58%. Additionally, the rutile product has the potential to be a high-grade feedstock, with a TiO_2 content of between 93% and 97%.

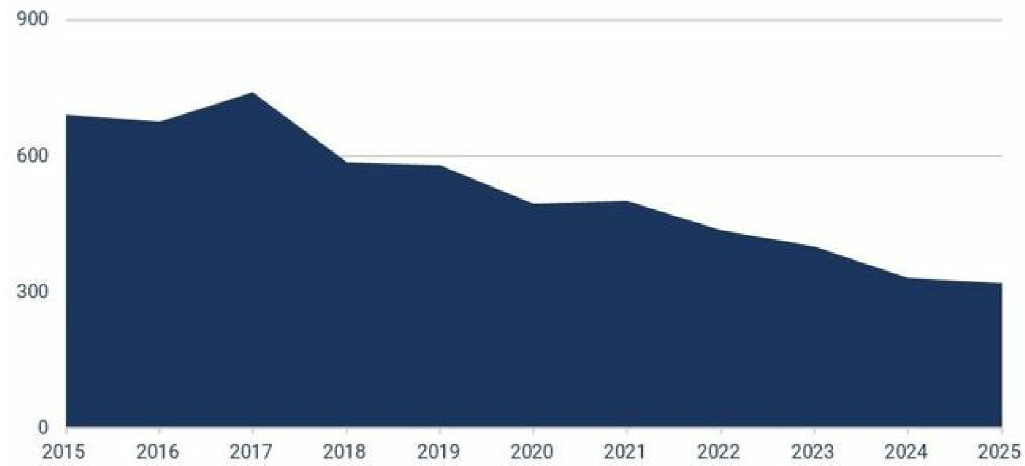

Figure 25: Global rutile supply outlook (kt)[10].

In December 2021, the company entered into a Memorandum of Understanding with The Chemours Company (Chemours) for the supply of the titanium feedstocks ilmenite and rutile from IperionX's Titan Project in west Tennessee to Chemours. Chemours is one of the world's largest producers of high quality titanium dioxide products for coatings, plastics, and laminates, with a nameplate titanium dioxide capacity of 1,250,000 tons globally, including New Johnsonville, Tennessee, located 20 miles from IperionX's Titan Project, and DeLisle, Mississippi, located 1,100 miles by back haul barge on the Mississippi River.

The MoU contemplates the commencement of negotiations of a supply agreement between IperionX and Chemours for an initial five year term on an agreed market based pricing methodology for the annual supply of up to 50,000 tons of ilmenite and 10,000 tons of rutile, which is equivalent to approximately 50% of total ilmenite production and approximately 60% of total rutile production over the first 5 years of operations at the Titan Project.

16.1.4 Zircon Products

Zircon is an opaque, hard mineral widely used in the production of ceramics, where it provides whiteness, strength and corrosion resistance, including in tiles, sinks, sanitary ware and tableware. Refractory linings and foundry castings also utilize zircon in their manufacturing to provide chemical and corrosion resistance. Zircon can also be used as a feedstock for production of zirconium metal, used in many advanced industries including clean energy, health and aerospace, with two zirconium metal producers currently operating in the U.S.

Test work to date indicates that zircon mineral found at the Titan Project is likely to be suitable for the premium zircon market, with a ZrO_2+HfO_2 content greater than 65%, with the potential to be sold into the domestic U.S. zircon premium market.

The global supply of zircon is forecast to decline due to mine depletions, with new projects required to meet predicted demand. There is no meaningful new capacity forecast in the near term, and market conditions remain extremely tight.

[10] Source: Iluka Resources, February 2022 (link)

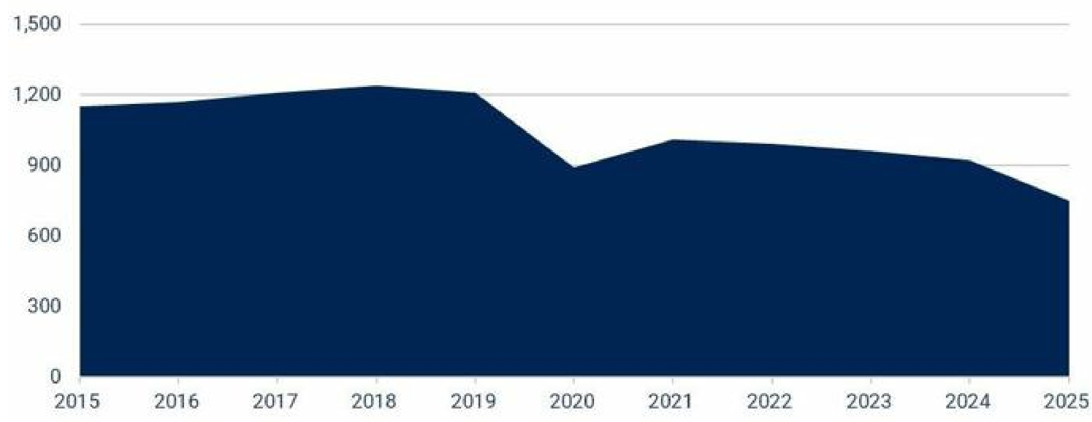

Figure 26: Global zircon supply outlook (kt)[11].

In February 2022, the company entered into a Memorandum of Understanding with Mario Pilato BLAT S.A. (Mario Pilato) for the potential supply of zircon products. Mario Pilato is a leading international supplier of raw materials for ceramics, glass and refractories, headquartered in Valencia, Spain The MoU contemplates the commencement of negotiations of a supply agreement between IperionX and Mario Pilato for an initial five year term on an agreed market based pricing methodology for the annual supply of up to 20,000 tons of zircon products from the Titan Project, which is equivalent to approximately 50% of total zircon production over the first 5 years of operations at the Titan Project.

16.2 Price Forecasts

The Company engaged Adamas Intelligence, an independent research and advisory consultant focused on strategic metals and minerals, to provide a pricing methodology and price forecast for rare earth concentrates produced at the Titan Project. The pricing methodology is based upon Adamas' forecast pricing of IperionX's rare earth concentrates with reference to the value of rare earth oxides contained, with a premium applied by Adamas for the specific rare earth oxide enrichment, including heavy rare earths, contained within the Titan Project product.

The Company utilized commodity pricing based upon forecasts from TZMI for ilmenite, rutile and zircon products, adjusted for economic factors. TZMI is a global independent consulting and publishing company which specializes in all aspects of the mineral sands, titanium dioxide and coatings industries, particularly the titanium and zirconium value chains. Zircon concentrate pricing forecasts have been assessed by the Company as receiving a 55% discount to the price of premium zircon, a standard industry benchmark discount.

Table 17: Historic, spot, and forecast product prices (US$/t, 2022 real terms, rounded).

Product	Historic 2017 – 2021 (annual average, US$/t)	Spot pricing[12] (US$/t)	Forecast 2023 – 2027 (annual average, US$/t)	Forecast 2028+ (annual average, US$/t)
Rare earth concentrate	$4,821[13]	$11,180 – $12,850	$14,325	$17,690
Rutile	$1,030	$1,960 – $2,280	$1,475	$1,285
Chloride Ilmenite	$200	$390 – $470	$305	$310
Zircon (premium)	$1,405	$2,500 – $3,025	$2,240	$1,685
Zircon (concentrate)	$630	$945 – $1,330	$1,010	$760

Table 18: Historic, spot, and forecast individual REE prices (US$/t, 2022 real terms, rounded).

Rare Earth Oxide	Historic 2017 - 2021 (annual average US$/kg)[14]	Spot pricing[15] (US$/kg)	Forecast 2023 - 2027 (annual average US$/kg)	Forecast 2028+ (annual average US$/kg)
Lanthanum	$1.8	$1.2	$1.4	$1.4
Cerium	$1.7	$1.3	$1.5	$1.5
Praseodymium	$64.1	$143.9	$194.4	$242.4
Neodymium	$58.2	$143.9	$204.6	$255.1
Samarium	$2.0	$$3.3	$4.9	$6.8
Europium	$44.5	$27.6	$34.5	$40.2
Gadolinium	$24.0	$79.0	$108.1	$130.1
Terbium	$695.0	$2,109.6	$2,419.6	$2,935.2
Dysprosium	$253.3	$371.2	$565.5	$690.6
Holmium	$61.7	$193.1	$295.5	$337.1
Erbium	$26.3	$53.7	$64.8	$73.9
Ytterbium	$12.8	$14.8	$18.6	$21.7
Lutetium	$545.8	$782.7	$900.9	$1,051.0
Yttrium	$3.6	$12.3	$16.1	$22.7

Pricing has been based upon the following standard product specification requirements:

Table 19: Initial Assessment product specification requirements.

Product	Product specification requirements
Rare earth concentrate	Mineral rare earth concentrate with 58.68 weight % total rare earth oxides (TREO) – as set out in Table 20. Value of rare earth concentrate calculated as 31% value of contained TREO plus 10% premium for Titan Project's heavy rare earth enrichment.
Rutile	Bulk rutile with titanium dioxide content (TiO_2) of 94% - 96%
Chloride Ilmenite	Chloride ilmenite with titanium dioxide content (TiO_2) of 58% - 65%
Zircon (premium)	Premium bulk zircon with $ZrO_2 + HfO_2$ >66%
Zircon (concentrate)	Zircon concentrate with $ZrO_2 + HfO_2$ >30%

Table 20: Key product specifications of Titan-derived rare earth mineral concentrate.

Rare Earth Oxide	Concentration (weight %)
La	10.50%
Ce	21.90%
Pr	2.59%
Nd	9.85%
Sm	1.80%
Eu	0.15%
Gd	1.48%
Tb	0.20%
Dy	1.19%
Ho	0.22%
Er	0.66%
Tm	0.09%
Yb	0.54%
Lu	0.08%
Y	7.43%
TREO	**58.68%**

[11] Source: Iluka Resources, February 2022 (link).
[12] Source: Ruidow.com at June 29, 2022 and Iluka Resources.
[13] Refer to Table 18 for individual prices for REE's that contribute to the REE concentrate price and Table 20 for the percentage of each REE in our REE concentrate. REE historic average pricing is based on limited available data for 2017.
[14] REE historic average pricing is based on limited available data for 2017.
[15] Source: Argus at June 29, 2022.

17. Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups

17.1 Environmental Studies

17.1.1 Critical Issues Analysis

IperionX has engaged HDR to support permitting activities on the proposed Project. In 2020, HDR conducted a desktop review of topographic and aerial photograph base maps for the Project area utilizing publicly available Geographic Information System (GIS) and interactive web-based mapping applications.

HDR utilized available data for Benton, Carroll and Henry Counties, TN to assess potential environmental conditions.

Following mapping and the initial environmental assessment, HDR completed a regulatory review and permit evaluation of the proposed Project as it relates to the following federal, state, and local environmental regulations:

- Clean Water Act (Sections 404 and 401);
- National Pollutant Discharge Elimination System (NPDES) for Storm Water Discharges associated with Construction;
- Section 10 (Rivers and Harbors Act);
- Federal and State Threatened & Endangered Species;
- Section 106 Historic Preservation Act;
- Public Lands Permitting;
- State and Local Floodplain;
- State and Local Construction Dewatering;
- Local Soil Erosion and Sedimentation Control requirements;
- State Mining Permit; and,
- Other applicable state and local environmental requirements.

17.1.2 USACE Wetland Delineation and TDEC Hydrologic Determination Field Work

In 2021, HDR conducted a stream/wetland delineation, threatened and endangered species habitat survey, cultural resources review, and continue to support a groundwater quality and quantity testing program.

HDR conducted field visits in May and June 2021 to document United States Army Corps of Engineers (USACE)-regulated jurisdictional Waters of the U.S. and TDEC-regulated waters of the state within the site.

17.1.3 Federally and State Threatened and Endangered Habitat Survey

HDR identified federal and state listed species habitat likely to occur on or in the vicinity of the site. HDR requested an Environmental Review through TDEC Natural Heritage Program (NHP) which provided site-specific data of known state and federal concern plant and animal species, ecologically significant sites, and certain conservation managed lands. Concurrent with Task 2, HDR conducted a pedestrian survey of the site to verify the presence or absence of potential habitat for federally threatened and endangered species that may occur on the site. A brief memo to IperionX was prepared detailing the results of the federal and state threatened and endangered (T&E) species habitat survey results. The memo was delivered to IperionX on July 1, 2021.

17.1.4 Cultural Resources Background Research

HDR conducted a National Historic Preservation Act (NHPA) cultural resources background investigation for the approximately 2,432-acre Titan Project in Carroll and Henry counties, Tennessee in April 2021. The purpose of the investigation was to identify known historic (National Register of Historic Places (NRHP)-eligible) properties in the Project Area and surrounding one-mile radius and make recommendations on further NHPA cultural resources work for the Project.

The research included results from the Tennessee Division of Archaeology (TDOA), the Tennessee Historical Commission (THC), the NRHP GIS database, and the Tennessee Cemetery Database (TNGenWeb). HDR synthesized the research results and authored a report summarizing the findings of the background investigation completed for the Titan Project and associated recommendations that was delivered to IperionX on June 30, 2021.

HDR identified six previously recorded archaeological sites and five cemeteries within one mile of the Project Area. None of these known resources are located in the Project Area.

17.1.5 Groundwater Quality and Quantity Testing Program

HDR proposed to support IperionX with an evaluation of groundwater conditions within the Study area through 1) completion of an aquifer pumping test and 2) groundwater level monitoring and groundwater quality testing. Both tasks required installation of monitoring wells.

In Q2 2021, HDR provided oversight for the installation of monitoring and aquifer test wells; conducted a 72-hour aquifer pumping test; and conducted the first of six planned bi-monthly groundwater sampling events. The purpose of the well installation and testing is to provide a baseline understanding of aquifer properties, groundwater position, and ground water quality as they pertain to development of the Site as a mineral sand mine.

HDR will continue to collect baseline groundwater and surface water quality data on a bi-monthly basis for a period of one year. In 2022, HDR will provide a memo summarizing findings to include boring logs, sample location map, potentiometric surface maps (per sampling event), aquifer test results, stream flow measurements, and laboratory data for groundwater and surface water samples.

17.1.6 Opinion of Qualified Person

The QP is comfortable that the current environmental plans to address environmental compliance, permitting, and local communities as reported in this TRS are adequate, in the opinion of the QP.

17.2 ESG Assessment and Integration

In May 2021, IperionX commenced an ESG (environmental, social, and governance responsibility) assessment and integration process, toward its development plan to produce low-to-zero carbon titanium in the U.S. The company commissioned PGS Consults to conduct the following activities: materiality assessment, life cycle assessment, ESG-leadership playbook, and an environmental health and safety (EHS) management system gap assessment.

17.2.1 ESG Materiality Assessment

During the summer of 2021, PGS Consults was pleased to interview 59 individual identified stakeholders representing over 30 companies and organizations. The purpose of the interviews was to assess what Environmental, Social, and Governance factors were most material for IperionX based on their stakeholder's feedback. All interviews were anonymous, and all information gathered was aggregated, except for the final question where interviewees were invited to share their thoughts associated with their name.

Of the respondents, 5 are IperionX executives and board members, 5 are IperionX management, and 49 work for other organizations or are representing themselves as residents near IperionX's Tennessee location and represented a variety of stakeholder categories.

17.2.2 ESG Factors Most Material to IperionX

Based on the ratings collected during the stakeholder interviews, PGS Consults plotted the potential material factors, as shown below. The material factors were scored by IperionX's stakeholders from 1 (least important) to 3 (most important) and were graphed with the internal stakeholder's scoring on the "X" axis and the external stakeholder's scoring on the "Y" axis. As can be seen by the range of the graph below, IperionX's stakeholders scored most of the material factors highly. The most important material factors appear in the darker blue areas of the graph (top and right portions), the medium ranked factors are in the medium blue (middle) portion of the graph.

Figure 27: IperionX materiality index.

From the materiality matrix above, PGS Consults identified five ESG focus areas for IperionX:

- ESG Focus Area 1 – Business Conduct & Ethics and Regulatory Compliance.
- ESG Focus Area 2 – Health & Safety – Community & Employees.
- ESG Focus Area 3 – End-State Vision: Tailings Management & Closure Planning.
- ESG Focus Area 4 – Community & Labor Relations: Employment & Diversity/Equity/Inclusion.
- ESG Focus Area 5 – Environmental Management: GHG Emissions, Air quality, water, energy, waste, biodiversity.

17.2.3 Life Cycle Assessment

Following the materiality assignment, PGS Consults began a life cycle assessment (LCA) of one of IperionX's metals processes at their Utah facilities. The Granulation, Sintering, Deoxygenation (GSD) converts scrap titanium metal to pure spherical titanium powder for the additive manufacturing industry. The LCA will help IperionX to continue to decarbonize their processes and compare the impacts of their process to more conventional titanium processes.

17.2.4 ESG Playbook

PGS Consults next prepared a "playbook" for IperionX's ESG leadership and attainment of preliminary sustainability goals, tied to the five focus areas identified during the Materiality Assessment. Concurrently, the consultants are forecasting the cost, impacts, and return on investment (ROI) and other business benefits of IperionX's key ESG goals.

17.2.5 EHS Management System

As part of their commitment to the health and safety of their employees and the environment in which they operate, IperionX commissioned PGS Consults to conduct a Gap Assessment of IperionX's Tennessee and Utah operations against the global standards of ISO 45001 (occupational health and safety management systems) and ISO 14001 (environmental management systems). This EHS Management System Gap Assessment was completed in the fourth quarter of 2021 and identified key improvement areas for IperionX. Next PGS Consults prepared an Implementation Plan to support IperionX in setting up a world class EHS Management system to ensure compliance and leading environmental and occupational health and safety management in all their operations.

17.2.6 ESG – Next Steps

During the first quarter of 2022, PGS Consults initiated work on IperionX's carbon footprint baseline to quantify their carbon footprint for fiscal years 2021 and 2022, to support their company-wide low-to-zero carbon goal. Additionally, work has commenced to prepare the first Annual Sustainability Report for IperionX, targeting a third quarter 2022 publication. This report will further summarize all the ESG achievements and ongoing work towards IperionX's ESG goals.

17.3 Community Engagement

The groundwork has been laid regarding the community engagement initiative, and we are very proud of those results thus far. Clearly, community relationships and engagement has made a positive impact on the corporate image and brand reputation. We have built honest trusting relationships within the community as well as within the state. At IperionX, we are extremely dedicated to building these trusting and sustainable relationships. Being successful in a community means creating long-term opportunity, managing environmental impacts and caring about the communities, their health and safety. The support of the communities, local and state governments is necessary in setting the standards that will make lasting, generational differences between industries and the communities. We have been very fortunate to have the full support of the communities, and the government in our areas, and we know the value of that union and trust.

IperionX will continue to foster these community relationships. Collectively we work with the communities, organizations, and stakeholders in a structured way. This allows IperionX to continue to build trust, broaden support, improve knowledge, promote participation, and involvement. All of these conditions together have certainly produced extraordinary results. The outcome has been allies, advocates and outside voices that actively validate and support IperionX. This has allowed us to improve our visibility and awareness, increase collaboration, communication and engagement with community members, stakeholders, and key partners. We are able to share resources and exchange ideas, and provide trust and accurate understanding of IperionX's ultimate values, mission and vision.

Some examples of those people and organizations who we continue to engage with include (but not limited to) TDEC, TVA, TN state government officials, community members, business owners, local government officials, local school systems, universities, tech schools, local and state government groups IperionX will continue identifying and engaging with new groups and stakeholders. IperionX's vision is to create a legacy of operational excellence by maintaining positive and sustainable industry standards, credible communications, and shared beneficial opportunities, including a focus on local employment. We continue to operate a transparent and open door standard.

Figure 28: Community engagement activities.

17.4 Partnership with University of Tennessee's Institute of Agriculture (UTIA)

IperionX is partnering with the University of Tennessee Institute of Agriculture to research the implementation of sustainable operating and rehabilitation practices at the Titan Project in West Tennessee. The University of Tennessee is the flagship university in the state of Tennessee, and UTIA is at the forefront of agribusiness research, education and community outreach. The Titan Project includes programs focused on post mineral extraction practices and carbon sequestration opportunities for generational land-use benefits for local landowners.

The initial scope of work will focus upon the elimination of invasive vegetation and subsequent improved ecological revegetation utilizing native warm season grasses, undertaken on IperionX's owned properties. IperionX will establish a 10-acre demonstration site at the Titan Project for UTIA's use for the initial scope of work, with the potential for the site to be used for further sustainability investigations, including the use of biochars, gypsum and other soil amendments to aid in higher crop yields and the carbon sequestration

17.4.1 Native Warm Season Grasses

Native Warm Season Grasses (NWSGs) are a variety of tall-growing bunch grasses that grow during the warmer months of the year and lay dormant in the autumn and winter. Native grasslands are among the most endangered ecosystems in the Mid-South of the U.S., resulting in habitat destruction for native fauna including quail, rabbits and grassland songbirds, who use native grasslands for cover and nesting.

NWSGs are known for their fast-growing, deep root systems, which retain soil and help prevent erosion, along with their high-quality forage and hay production once mature. These deeper root systems help NWSGs sequester more carbon than their non-native counterparts. Research has shown that NWSGs grow better and have better yields than non-native grasses commonly used at reclaimed mineral extraction operations in North America. UTIA and IperionX will investigate the usage of Big Bluestem, Little Bluestem, and Indian Grass at the Titan Project to help remediate post-mining areas and return the land to its natural state with strong ecosystems, and potentially provide meaningfully higher production capacity than pre-mining. Figure 29 shows the difference between NWSGs root depth and non-native grasses.

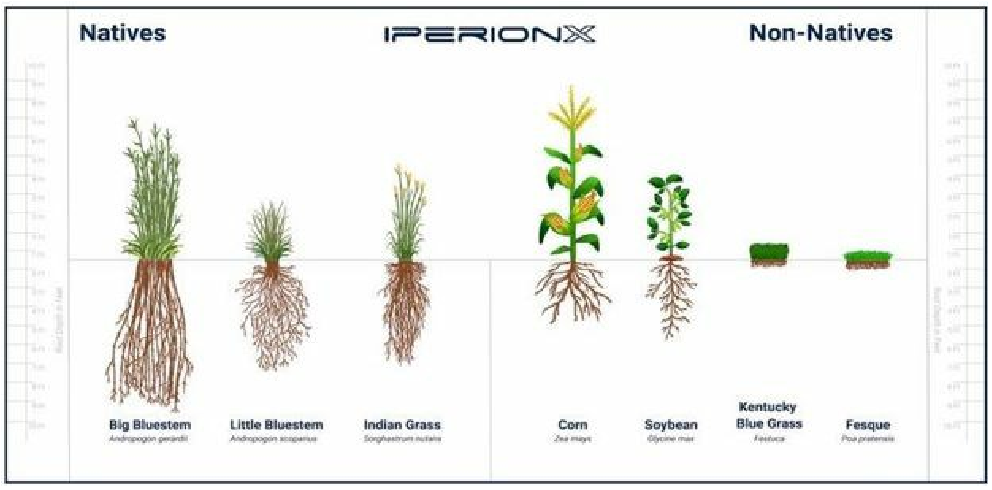

Figure 29: Native grass root growth vs. non-native.

17.4.2 Biochar and Gypsum Soil Amendments

Biochar is a charcoal-like material made from grasses, wood and other plant materials, that is produced via the thermochemical decomposition of biomass at high temperature in low oxygen environments. Biochar is added to soil mixtures to improve the productivity and resilience of agricultural systems by increasing water retention and increasing plant nutrient availability.

Gypsum, also known as calcium sulfate, is one of the earliest forms of fertilizer with 250 years of agricultural use. Gypsum's primary applications include high-sodium soil remediation, breaking up compact soils like clays, and providing calcium and sulfate sulfur nutrients to plants. Furthermore, it neutralizes aluminum toxicity in soils and improves drainage, reducing phosphorous runoff, crusting and ponding. Recent research has focused on using gypsum soil additives as a potential means of carbon sequestering in soils by enhancing root growth, which UTIA and IperionX will investigate at the Titan Project.

17.4.3 Carbon Sequestrating

Carbon sequestration is the removal and storage of carbon from the atmosphere, including by plants in the form of undecomposed organic material, primarily as dead plant root material. As such, plants with fast-growing, deep root systems, including Native Warm Season Grasses, may provide a significant opportunity for carbon sequestration under the right conditions, as does the use of soil additives which promote organic growth, including gypsum.

17.5 Waste Disposal and Closure Planning

Five waste and tailings types are generated at the Project, being:

- Dry waste from the overburden waste and inter-burden waste.
- Plus 250mm reject trash at MMU feed hopper grizzly.
- Plus 2mm oversize material reject from the feed preparation trommel generated from the ROM feed.
- Wet waste from the return of the sand tailing from the WCP generated from the ROM feed.
- Dewatered slimes from the WCP generated from the ROM feed.

Dry waste is managed as by dry mining methods, with wet waste sand from the WCP returned via pipeline to the mine workings where it is discharged by a cyclone cluster that dumps retrieved water from the waste stream, dumping high solid content sands into a cone. This sand will then be moved be spread by the Swamp D7 dozers, with the dewatered slimes from WCP being returned to the mining void by trucks prior to being covered by the dry overburden and interburden.

The mineralized material oversize reject material that is pulled from the mineralized material stream from the in-pit mining unit at the trommel is planned to be stockpiled for use in road works. It is likely that this material will be only onsite source of hard material that can be used to improve road conditions. While it is treated as an operating cost, this material also is valuable to the operations and the amount recovered could offset additional costs to import road building material from off-site.

A detailed waste and tailings disposal as well as the site water management plan will be developed in the next phase of the study.

Initial mine closure planning has been undertaken with temporary stockpiles for waste and topsoil to be replaced during the final mine void closure. To limit costs at mine closure, consideration during future mine scheduling will be given to where waste and topsoil is stockpiled from the initial mining void.

An allowance of mine closure cost of 10.25 US$ Million is estimated as part of the initial assessment. A detailed mine closure and rehabilitation plan will be developed in accordance with the regulations.

IperionX is partnering with the University of Tennessee Institute of Agriculture to research the implementation of sustainable operating and rehabilitation practices at the Titan Project in West Tennessee. The University of Tennessee is the flagship university in the state of Tennessee, and UTIA is at the forefront of agribusiness research, education and community outreach. The Titan Project includes programs focused on post mineral extraction practices and carbon sequestration opportunities for generational land-use benefits for local landowners.

IperionX is committed to prioritize local procurement and hiring during the Project development, execution, and operations.

18. Capital and Operating Costs

18.1 Capital Cost Estimate

Capital Estimates for the mine and process plant have been prepared by Primero Group using a combination of cost estimates from suppliers, historical data, reference to recent comparable projects. Costs are presented in US$ for Q2 2022 and are exclusive of escalation. The intended accuracy of the initial capital cost estimate for the Project is ± 35%.

The cost estimate basis along with the exchange rates used for the Project CAPEX is 0.73 USD/AUD.

The capital cost estimate was developed in two parts:

- Direct costs for the mine pre-production, wet concentrate plant (WCP), mineral separation plant (MSP), common services including reagents and air/water services and non-process infrastructure.
- Indirect costs were estimated for engineering, construction, and owner’s costs.

For the mine, the CAPEX estimation is based on the following aspects: clearing & grubbing, mine development, pumping & infrastructure, mobile mining equipment, and mining contractor mobilization.

For the WCP and MSP facilities, the process design criteria, flowsheets and mass balance calculations were produced with sufficient detail to allow for the preparation of a mechanical equipment list. Equipment pricing was collected from benchmark information. The Project used as a benchmark is a similar circuit producing both WCP and MSP products. The Project is currently under construction in Australia, being managed by Primero. The overall supply cost of mechanical equipment was then used to factor all other direct discipline costs such as concrete, steelwork, platework, piping, electrical, and instrumentation and control. These factors were also derived from the benchmarked Project.

In-direct costs, including EPCM, off-site management, capital spares, flights and accommodation, first fills and commissioning costs were also factored from the Project direct costs.

Project contingency was calculated as a factor of the total direct and in-direct costs.

For the non-process infrastructure (NPI), allowances were made for some costs not related to the mechanical equipment supply including process buildings and non-process infrastructure.

Table 21 highlights the total estimated capital expenditures for the Project.

Table 21: Titan Project capital cost estimate summary.

Capital Cost Estimate Breakdown	US$ Million
Mine and Wet Concentration Plant	94.6
Mineral Separation Plant	22.3
Common Services	12.5
Project Indirects	35.2
Mobile Mining Units Turnkey	23.3
Contingency (30%)	49.4
Total Initial Capital	**237.2**
Deferred and sustaining capital	198.5

18.2 Operating Cost Estimate

The operating cost estimate was prepared based on operating at annual average of 9.7 million t/y run-of-mine mineralized resource for a mine life of 25 years. Table 22 summarizes the estimated operating costs at steady state.

The operating cost estimate has been performed for the mining, tailings deslime, wet concentrator plant (WCP) that produces HMC and mineral separation plant (MSP). General and administration has been treated separately.

The following non-exhaustive list of cost centers have been used for the estimation: Salaries; G&A; reagents; consumables; utilities (electricity, fuel, water, etc.); and maintenance.

The processing plant operating cost estimate is based on a ±35% level of accuracy, utilizing indicative quotations where possible, and otherwise Primero database estimates and recent experience in the industry.

The OPEX is presented in USD and is current for Q1 2022.

Table 22: Titan Project operating cost estimate summary.

Operating Cost Estimate Breakdown	Average Annual Cost (US$ Million/y)	US$/t ROM
Mining	25.8	2.66
Processing	28.2	2.91
Transport	2.1	0.22
General & Admin	6.9	0.71
Royalties	4.0	0.41
Total Operating Costs	**67.1**	**6.91**

19. Economic Analysis

A detailed financial model and discounted yearly cash flow (DCF) has been developed to complete the economic assessment of the Project and is based on current (Q1 2022) price projections and cost estimates in U.S. dollars. No provision was made for the effects of future inflation, but cost estimates incorporate recent 2021 inflationary price increases. The evaluation was carried out on a 100%-equity basis using an 8% discount factor. Current US federal and Tennessee state tax regulations were applied to assess the corporate tax liabilities.

The total mine life utilized in the model is 25 years scheduled yearly with the first 14 years of the mine life classified as 100% indicated. The WCP & MSP commence operations at the same time and have a ramp up period of 8 months before reaching nameplate production.

19.1 Royalties, Taxes, Depreciation, and Depletion

The Initial Assessment project economics include the following key parameters related to royalties, tax, depreciation, and depletion allowances.

- Royalties of 5% of revenue generated are based on the average land lease agreement.
- Federal tax rate of 21% and Tennessee state corporate tax rate of 6.5% are applied.
- Depletion allowance of 22% of heavy mineral sands is applied to sales price.
- Depletion allowances for rare earth concentrate are assumed as 14%.
- Depreciation in the mine and concentrate operations is based on Asset Class 10 – Mining in IRS Table B-1 using GDS of 7 years with the double declining balance method.

19.2 Initial Assessment Economics

The DCF analysis demonstrated compelling economics of the prospective Titan Project, with an NPV (after-tax, at an 8% discount rate) of US$692 million and an IRR of 40%. The DCF analysis also highlighted the low operating costs, low royalties, and low corporate tax rates. Sensitivity analysis was performed on all key assumptions used. The robust Titan Project economics insulates IperionX's Titan Project from variation in market pricing, capital expense, or operating expenses. Payback period for the Project is 1.9 years from the start of operations. The payback period is based on free-cash flow, after taxes.

In the unlikely event that the remaining Inferred Mineral Resources are not able to be upgraded, the Project's viability is not affected. This is supported by a stand-alone DCF analysis prepared that assumes only Indicated Resources are included the mine plan in order to demonstrate the economic viability of the Project. Assuming only Indicated Resources are mined, the revised production target would be approximately 136.5 Mt ROM mineralized resource and the mine life would be approximately 14 years. This DCF analysis demonstrates that the Project would still be expected to exhibit levels of profitability that would contribute significant value to IperionX shareholders, even if no additional Indicated Resources are upgraded from existing Inferred Resources or replaced with new Indicated Resources that are yet to be discovered. The DCF analysis assuming only Indicated Resources are included the mine plan demonstrated with an NPV (after-tax, at an 8% discount rate) of US$469 million and an IRR of 39%.

The main Project economic indicators are presented in Table 23.

Table 23: Project economic measures summary.

Economic Measures Summary (After Tax)	Value
Annual EBITDA (first five years)	$118M
Project NPV (discounted at 8.0%)	$692M
Internal rate of return (IRR)	40%
Payback period (from start of operations)	1.9 y

Table 24: Key financial assumptions

Financial Assumptions	UoM	Value
Ilmenite LOM weighted average realized price	$/t	311
Rutile LOM weighted average realized price	$/t	1,311
Monazite LOM weighted average realized price	$/t	17,356
Zircon premium LOM weighted average realized price	$/t	1,748
Zircon concentrate LOM weighted average realized price	$/t	787
Discount rate	%	8
Royalties (leased land only)	%	5
Federal tax rate	%	21
Tennessee state corporate tax rate	%	6.5
Ilmenite depletion	%	22
Rutile depletion	%	22
Monazite depletion	%	14
Zircon premium	%	22
Zircon concentrate	%	22
Depreciation	-	7 year double declining method

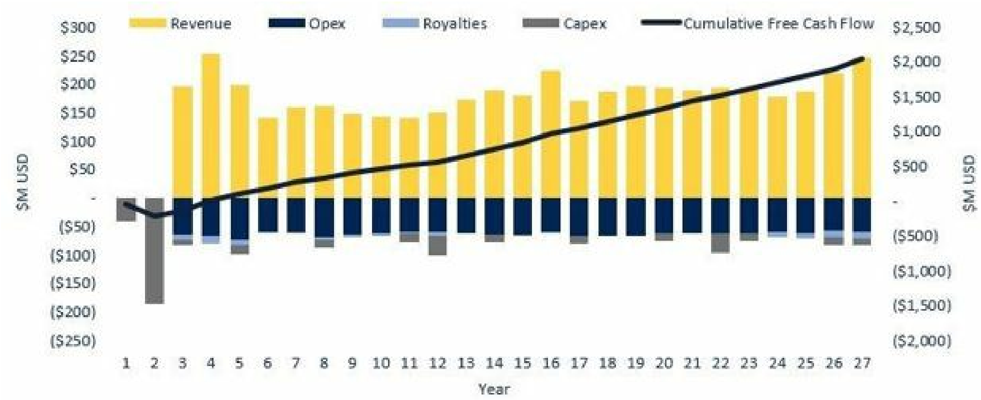

Figure 30: Titan Project after tax real cashflows.

Figure 31: Titan Project production profile.

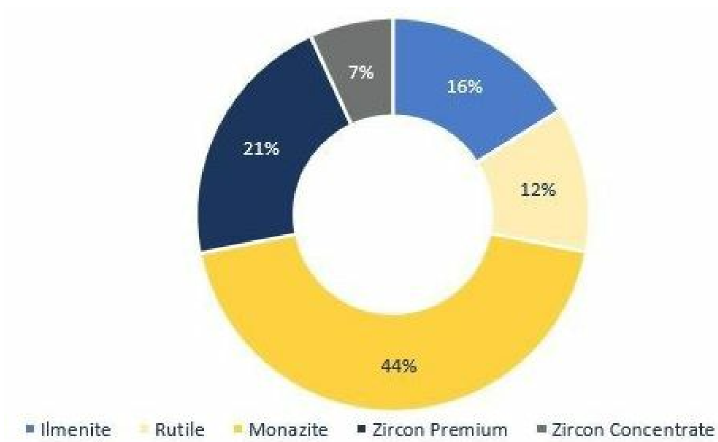

Figure 32: Titan Project revenue by product %.

Table 25: Annual cash flow summary (Indicated and Inferred Resources)

	Units	LOM Total										
Calendar Year			**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Operation Year			**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Mining and Processing Schedule												
Total Material Mined	Mt	**406.0**	-	-	13.6	16.0	22.3	14.7	13.6	21.3	18.5	17.6
Total Ore Mined	Mt	**242.6**	-	-	10.0	9.8	9.9	9.9	9.9	9.7	9.4	9.4
Total Waste Mined	Mt	**163.4**	-	-	3.6	6.2	12.3	4.8	3.7	11.7	9.1	8.2
Mining Losses, Oversize, and Trash	Mt	**4.5**	-	-	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1
Slimes	Mt	**40.5**	-	-	1.8	1.6	1.7	1.7	1.8	1.5	1.4	1.4
Total Heavy Minerals (THM) In-Situ	Mt	**7.2**	-	-	**0.4**	**0.4**	**0.4**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**
In-Situ Total Heavy Minerals Grade	% THM	**3.0%**	-	-	3.8%	4.2%	3.6%	2.3%	2.6%	3.0%	2.9%	2.8
Mineral Grade Splits												
Ilmenite	% THM	**40.2%**	-	-	40.4%	35.9%	38.1%	42.5%	41.6%	37.9%	36.7%	35.2
Rutile	% THM	**9.4%**	-	-	9.5%	8.4%	8.9%	10.0%	9.8%	8.9%	8.6%	8.3
Monazite	% THM	**2.1%**	-	-	2.2%	1.9%	2.0%	2.3%	2.3%	1.9%	1.8%	1.7
Zircon	% THM	**11.5%**	-	-	11.6%	10.2%	10.9%	12.2%	12.0%	10.7%	10.3%	9.9
In-Situ Mineral Content in Mined Material												
Ilmenite	Mt	**2.9**	-	-	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Rutile	Mt	**0.7**	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monazite	Mt	**0.2**	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Zircon	Mt	**0.8**	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wet Concentration Plant Feed	Mt	**237.3**	-	-	**9.6**	**9.5**	**9.6**	**9.6**	**9.6**	**9.4**	**9.3**	**9.3**
Heavy Mineral Concentrate Produced	Mt	**7.6**	-	-	**0.4**	**0.4**	**0.4**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**
Saleable Mineral Products Recovered												
Ilmenite	kt	**2,388.0**	-	-	94.0	124.4	112.2	79.0	89.0	91.4	83.4	78.8
Rutile	kt	**417.5**	-	-	16.4	21.7	19.6	13.8	15.6	16.0	14.6	13.8
Monazite	kt	**116.2**	-	-	4.7	6.0	5.5	3.9	4.4	4.2	3.7	3.5
Zircon Premium	kt	**559.6**	-	-	22.1	29.1	26.3	18.6	20.9	21.2	19.2	18.1
Zircon Concentrate	kt	**402.4**	-	-	15.9	20.9	18.9	13.4	15.1	15.3	13.8	13.0
Mineral Product Prices												
Ilmenite	US$/t		$ 284.2	$ 298.7	$ 313.3	$ 327.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8
Rutile	US$/t		$ 1,440.5	$ 1,488.8	$ 1,566.4	$ 1,585.3	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2
Monazite	US$/t		$ 13,062.2	$ 14,296.3	$15,013.1	$14,708.0	$ 14,546.1	$ 14,296.5	$14,723.1	$ 15,426.6	$ 16,264.3	$ 16,928.3
Zircon Premium	US$/t		$ 2,376.3	$ 2,429.1	$ 2,398.6	$ 2,309.5	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4
Zircon Concentrate	US$/t		$ 1,069.3	$ 1,093.1	$ 1,079.4	$ 1,039.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3
Gross Revenue												
Ilmenite	US$M	**$ 742.3**	-	-	$ 29.5	$ 40.8	$ 34.8	$ 24.5	$ 27.6	$ 28.3	$ 25.8	$ 24.4
Rutile	US$M	**$ 547.3**	-	-	$ 25.8	$ 34.5	$ 25.2	$ 17.8	$ 20.0	$ 20.5	$ 18.7	$ 17.7
Monazite	US$M	**$ 2,016.0**	-	-	$ 70.0	$ 88.0	$ 79.9	$ 56.4	$ 65.3	$ 65.3	$ 60.2	$ 59.2
Zircon Premium	US$M	**$ 978.1**	-	-	$ 53.1	$ 67.2	$ 44.4	$ 31.4	$ 35.3	$ 35.8	$ 32.4	$ 30.6
Zircon Concentrate	US$M	**$ 316.5**	-	-	$ 17.2	$ 21.7	$ 14.4	$ 10.2	$ 11.4	$ 11.6	$ 10.5	$ 9.9
Total Gross Revenue	**US$M**	**$ 4,600.1**	**-**	**-**	**$ 195.4**	**$ 252.2**	**$ 198.7**	**$ 140.2**	**$ 159.6**	**$ 161.5**	**$ 147.7**	**$ 141.8**
Operating Costs												
Mining	US$M	**$ 644.9**	-	-	$ 22.8	$ 25.6	$ 33.2	$ 24.0	$ 22.7	$ 32.0	$ 28.5	$ 27.3
Wet Processing Plant	US$M	**$ 242.2**	-	-	$ 9.8	$ 9.7	$ 9.8	$ 9.8	$ 9.8	$ 9.6	$ 9.5	$ 9.5
Slimes Tailings Disposal	US$M	**$ 153.3**	-	-	$ 6.7	$ 6.1	$ 6.5	$ 6.4	$ 6.6	$ 5.9	$ 5.4	$ 5.4
Mineral Separation Plant	US$M	**$ 310.2**	-	-	$ 15.0	$ 15.9	$ 14.2	$ 10.6	$ 11.5	$ 12.4	$ 11.9	$ 11.8
General & Administration	US$M	**$ 173.1**	-	-	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9
Landowner Royalties	US$M	**$ 100.4**	-	-	$ 9.8	$ 12.6	$ 9.9	$ 1.4	-	$ 4.0	$ 5.9	$ 4.3
Transport and Logistics Costs	US$M	**$ 53.4**	-		$ 2.1	$ 2.8	$ 2.5	$ 1.8	$ 2.0	$ 1.9	$ 1.7	$ 1.6
Total Operating Costs	**US$M**	**$ 1,677.6**	**-**	**-**	**$ 73.2**	**$ 79.6**	**$ 83.1**	**$ 60.9**	**$ 59.6**	**$ 72.8**	**$ 69.9**	**$ 66.9**
Operating Income before Taxes	**US$M**	**$ 2,922.6**	**-**	**-**	**$ 122.3**	**$ 172.6**	**$ 115.6**	**$ 79.2**	**$ 100.0**	**$ 88.7**	**$ 77.8**	**$ 74.9**
Capital Costs												
Development Capital	US$M	**$ 237.2**	$ 42.2	$ 186.3	$ 8.7	-	-	-	-	-	-	-
Sustaining Capital, incl. Ongoing Reclamation	US$M	**$ 188.3**	-	-	-	-	$ 16.1	-	$ 2.0	$ 14.2	-	-
Final Closing/Reclamation Capital	US$M	**$ 10.3**	-	-	-	-	-	-	-	-	-	-
Total Capital Costs	**US$M**	**$ 435.7**	**$ 42.2**	**$ 186.3**	**$ 8.7**	**-**	**$ 16.1**	**-**	**$ 2.0**	**$ 14.2**	**-**	**-**
Depreciation	US$M	**$ 435.7**	-	-	$ 67.8	$ 48.4	$ 39.2	$ 28.0	$ 20.5	$ 18.7	$ 13.4	$ 9.6
Depletion	US$M	**$ 823.3**	-	-	$ 27.2	$ 46.0	$ 35.4	$ 25.6	$ 29.9	$ 29.5	$ 26.6	$ 25.7
Income Taxes	US$M	**$ 434.7**	-	-	$ 7.1	$ 20.4	$ 10.7	$ 6.7	$ 13.0	$ 10.6	$ 9.9	$ 10.4
Change in Working Capital	US$M	**-**	-	-	$ 12.4	$ 4.3	$ (4.4)	$ (3.5)	$ 1.7	$ (0.6)	$ (1.1)	$ (0.3)
After Tax Free Cash Flow	**US$M**	**$ 2,052.1**	**$ (42.2)**	**$ (186.3)**	**$ 94.0**	**$ 147.9**	**$ 93.2**	**$ 76.0**	**$ 83.4**	**$ 64.6**	**$ 69.0**	**$ 64.8**

	Units	LOM Total									
Calendar Year			**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**
Operation Year			**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**2**
Mining and Processing Schedule												
Total Material Mined	Mt	**406.0**	17.1	11.6	21.7	20.6	20.0	16.3	15.9	16.0	14.6	13
Total Ore Mined	Mt	**242.6**	9.9	9.9	9.3	9.5	9.5	9.4	9.5	9.7	10.0	9
Total Waste Mined	Mt	**163.4**	7.2	1.7	12.4	11.2	10.5	6.9	6.3	6.3	4.6	3
Mining Losses, Oversize, and Trash	Mt	**4.5**	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
Slimes	Mt	**40.5**	1.9	1.8	1.2	1.4	1.4	1.4	1.5	1.6	1.9	1
Total Heavy Minerals (THM) In-Situ	Mt	**7.2**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0**
In-Situ Total Heavy Minerals Grade	% THM	**3.0%**	2.5%	3.0%	3.0%	3.1%	3.1%	3.1%	3.0%	2.9%	2.6%	2
Mineral Grade Splits												
Ilmenite	% THM	**40.2%**	42.9%	44.2%	38.5%	40.2%	40.9%	40.4%	40.8%	42.1%	44.4%	41
Rutile	% THM	**9.4%**	10.1%	10.4%	9.0%	9.4%	9.6%	9.5%	9.6%	9.9%	10.4%	9
Monazite	% THM	**2.1%**	2.4%	2.4%	1.9%	2.0%	2.1%	2.1%	2.2%	2.2%	2.4%	2
Zircon	% THM	**11.5%**	12.4%	12.7%	10.9%	11.4%	11.7%	11.6%	11.7%	12.1%	12.8%	11
In-Situ Mineral Content in Mined Material												
Ilmenite	Mt	**2.9**	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0
Rutile	Mt	**0.7**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Monazite	Mt	**0.2**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Zircon	Mt	**0.8**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Wet Concentration Plant Feed	Mt	**237.3**	**9.6**	**9.6**	**9.1**	**9.3**	**9.3**	**9.3**	**9.4**	**9.5**	**9.6**	**9**
Heavy Mineral Concentrate Produced	Mt	**7.6**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0**
Saleable Mineral Products Recovered												
Ilmenite	kt	**2,388.0**	90.2	111.4	89.7	97.0	101.3	98.9	96.4	98.4	96.7	90
Rutile	kt	**417.5**	15.8	19.5	15.7	16.9	17.7	17.3	16.9	17.2	16.9	15
Monazite	kt	**116.2**	4.6	5.6	4.1	4.5	4.9	4.8	4.7	4.8	4.9	4
Zircon Premium	kt	**559.6**	21.3	26.3	20.8	22.6	23.7	23.2	22.6	23.1	22.9	21
Zircon Concentrate	kt	**402.4**	15.3	18.9	15.0	16.2	17.0	16.7	16.3	16.6	16.4	15
Mineral Product Prices												
Ilmenite	US$/t		$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309
Rutile	US$/t		$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284
Monazite	US$/t		$ 18,414.9	$18,414.9	$ 18,414.9	$18,414.9	$18,414.9	$ 18,414.9	$ 18,414.9	$18,414.9	$18,414.9	$ 18,414
Zircon Premium	US$/t		$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687
Zircon Concentrate	US$/t		$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759
Gross Revenue												
Ilmenite	US$M	**$ 742.3**	$ 27.9	$ 34.5	$ 27.8	$ 30.1	$ 31.4	$ 30.6	$ 29.9	$ 30.5	$ 30.0	$ 27
Rutile	US$M	**$ 547.3**	$ 20.3	$ 25.0	$ 20.1	$ 21.8	$ 22.7	$ 22.2	$ 21.6	$ 22.1	$ 21.7	$ 20
Monazite	US$M	**$ 2,016.0**	$ 84.3	$ 104.0	$ 75.7	$ 83.8	$ 89.5	$ 88.2	$ 86.6	$ 89.1	$ 90.3	$ 81
Zircon Premium	US$M	**$ 978.1**	$ 36.0	$ 44.4	$ 35.1	$ 38.1	$ 40.0	$ 39.1	$ 38.1	$ 39.0	$ 38.6	$ 35
Zircon Concentrate	US$M	**$ 316.5**	$ 11.6	$ 14.4	$ 11.4	$ 12.3	$ 12.9	$ 12.6	$ 12.3	$ 12.6	$ 12.5	$ 11
Total Gross Revenue	**US$M**	**$ 4,600.1**	**$ 180.1**	**$ 222.3**	**$ 170.1**	**$ 186.0**	**$ 196.5**	**$ 192.7**	**$ 188.5**	**$ 193.2**	**$ 193.1**	**$ 176**
Operating Costs												
Mining	US$M	**$ 644.9**	$ 27.0	$ 20.2	$ 32.3	$ 31.0	$ 30.2	$ 25.8	$ 25.3	$ 25.5	$ 23.9	$ 22
Wet Processing Plant	US$M	**$ 242.2**	$ 9.8	$ 9.8	$ 9.4	$ 9.5	$ 9.5	$ 9.5	$ 9.6	$ 9.7	$ 9.8	$ 9
Slimes Tailings Disposal	US$M	**$ 153.3**	$ 7.0	$ 6.8	$ 4.8	$ 5.4	$ 5.5	$ 5.4	$ 5.7	$ 6.2	$ 6.8	$ 6
Mineral Separation Plant	US$M	**$ 310.2**	$ 11.4	$ 12.8	$ 12.1	$ 12.4	$ 12.6	$ 12.5	$ 12.2	$ 12.2	$ 11.6	$ 11
General & Administration	US$M	**$ 173.1**	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6
Landowner Royalties	US$M	**$ 100.4**	-	$ 2.2	-	-	-	-	-	-	-	$ 8
Transport and Logistics Costs	US$M	**$ 53.4**	$ 2.1	$ 2.6	$ 1.9	$ 2.1	$ 2.2	$ 2.2	$ 2.2	$ 2.2	$ 2.3	$ 2
Total Operating Costs	**US$M**	**$ 1,677.6**	**$ 64.1**	**$ 61.3**	**$ 67.4**	**$ 67.3**	**$ 67.0**	**$ 62.4**	**$ 61.9**	**$ 62.7**	**$ 61.3**	**$ 68**
Operating Income before Taxes	**US$M**	**$ 2,922.6**	**$ 116.0**	**$ 160.9**	**$ 102.7**	**$ 118.7**	**$ 129.5**	**$ 130.3**	**$ 126.6**	**$ 130.6**	**$ 131.8**	**$ 108**
Capital Costs												
Development Capital	US$M	**$ 237.2**	-	-	-	-	-	-	-	-	-	
Sustaining Capital, incl. Ongoing Reclamation	US$M	**$ 188.3**	$ 2.0	-	$ 14.2	-	-	$ 14.2	-	$ 34.6	$ 14.2	
Final Closing/Reclamation Capital	US$M	**$ 10.3**	-	-	-	-	-	-	-	-	-	
Total Capital Costs	**US$M**	**$ 435.7**	**$ 2.0**	**-**	**$ 14.2**	**-**	**-**	**$ 14.2**	**-**	**$ 34.6**	**$ 14.2**	
Depreciation	US$M	**$ 435.7**	$ 9.9	$ 7.1	$ 9.1	$ 6.5	$ 4.6	$ 7.4	$ 5.3	$ 13.6	$ 13.8	$ 9
Depletion	US$M	**$ 823.3**	$ 32.9	$ 40.2	$ 31.4	$ 34.2	$ 36.1	$ 35.3	$ 34.6	$ 35.4	$ 35.3	$ 30
Income Taxes	US$M	**$ 434.7**	$ 19.1	$ 29.7	$ 16.3	$ 20.4	$ 23.2	$ 22.9	$ 22.7	$ 21.3	$ 21.6	$ 17
Change in Working Capital	US$M	-	$ (0.8)	$ 3.5	$ (4.4)	$ 1.3	$ 0.9	$ (0.1)	$ (0.3)	$ 0.3	$ 0.0	$ (2
After Tax Free Cash Flow	**US$M**	**$ 2,052.1**	**$ 95.7**	**$ 127.7**	**$ 76.7**	**$ 97.0**	**$ 105.4**	**$ 93.4**	**$ 104.3**	**$ 74.3**	**$ 95.9**	**$ 92**

Table 26: Annual cash flow summary (Indicated Resources only)

	Units	LOM Total										
Calendar Year			**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Operation Year			**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Mining and Processing Schedule												
Total Material Mined	Mt	**230.7**	-	-	13.6	16.0	22.3	14.7	13.6	21.3	18.5	17.6
Total Ore Mined	Mt	**136.5**	-	-	10.0	9.8	9.9	9.9	9.9	9.7	9.4	9.4
Total Waste Mined	Mt	**94.2**	-	-	3.6	6.2	12.3	4.8	3.7	11.7	9.1	8.2
Mining Losses, Oversize, and Trash	Mt	**2.6**	-	-	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1
Slimes	Mt	**23.2**	-	-	1.8	1.6	1.7	1.7	1.8	1.5	1.4	1.4
Total Heavy Minerals (THM) In-Situ	Mt	**4.1**	**-**	**-**	**0.4**	**0.4**	**0.4**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**
In-Situ Total Heavy Minerals Grade	% THM	**3.0%**	-	-	3.8%	4.2%	3.6%	2.3%	2.6%	3.0%	2.9%	2.8
Mineral Grade Splits												
Ilmenite	% THM	**39.2%**	-	-	40.4%	35.9%	38.1%	42.5%	41.6%	37.9%	36.7%	35.2
Rutile	% THM	**9.2%**	-	-	9.5%	8.4%	8.9%	10.0%	9.8%	8.9%	8.6%	8.3
Monazite	% THM	**2.1%**	-	-	2.2%	1.9%	2.0%	2.3%	2.3%	1.9%	1.8%	1.7
Zircon	% THM	**11.2%**	-	-	11.6%	10.2%	10.9%	12.2%	12.0%	10.7%	10.3%	9.9
In-Situ Mineral Content in Mined Material												
Ilmenite	Mt	**1.6**	-	-	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Rutile	Mt	**0.4**	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Monazite	Mt	**0.1**	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Zircon	Mt	**0.5**	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wet Concentration Plant Feed	Mt	**133.3**	**-**	**-**	**9.6**	**9.5**	**9.6**	**9.6**	**9.6**	**9.4**	**9.3**	**9.3**
Heavy Mineral Concentrate Produced	Mt	**4.3**	**-**	**-**	**0.4**	**0.4**	**0.4**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**
Saleable Mineral Products Recovered	Mt											
Ilmenite	kt	**1,293.0**	-	-	94.0	124.4	112.2	79.0	89.0	91.4	83.4	78.8
Rutile	kt	**226.1**	-	-	16.4	21.7	19.6	13.8	15.6	16.0	14.6	13.8
Monazite	kt	**62.5**	-	-	4.7	6.0	5.5	3.9	4.4	4.2	3.7	3.5
Zircon Premium	kt	**302.6**	-	-	22.1	29.1	26.3	18.6	20.9	21.2	19.2	18.1
Zircon Concentrate	kt	**217.6**	-	-	15.9	20.9	18.9	13.4	15.1	15.3	13.8	13.0
Mineral Product Prices												
Ilmenite	US$/t		$ 284.2	$ 298.7	$ 313.3	$ 327.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8	$ 309.8
Rutile	US$/t		$ 1,440.5	$ 1,488.8	$ 1,566.4	$ 1,585.3	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2	$ 1,284.2
Monazite	US$/t		$ 13,062.2	$ 14,296.3	$15,013.1	$14,708.0	$ 14,546.1	$ 14,296.5	$14,723.1	$ 15,426.6	$ 16,264.3	$ 16,928.3
Zircon Premium	US$/t		$ 2,376.3	$ 2,429.1	$ 2,398.6	$ 2,309.5	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4	$ 1,687.4
Zircon Concentrate	US$/t		$ 1,069.3	$ 1,093.1	$ 1,079.4	$ 1,039.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3	$ 759.3
Gross Revenue												
Ilmenite	US$M	**$ 403.1**	-	-	$ 29.5	$ 40.8	$ 34.8	$ 24.5	$ 27.6	$ 28.3	$ 25.8	$ 24.4
Rutile	US$M	**$ 301.5**	-	-	$ 25.8	$ 34.5	$ 25.2	$ 17.8	$ 20.0	$ 20.5	$ 18.7	$ 17.7
Monazite	US$M	**$ 1,027.9**	-	-	$ 70.0	$ 88.0	$ 79.9	$ 56.4	$ 65.3	$ 65.3	$ 60.2	$ 59.2
Zircon Premium	US$M	**$ 544.4**	-	-	$ 53.1	$ 67.2	$ 44.4	$ 31.4	$ 35.3	$ 35.8	$ 32.4	$ 30.6
Zircon Concentrate	US$M	**$ 176.2**	-	-	$ 17.2	$ 21.7	$ 14.4	$ 10.2	$ 11.4	$ 11.6	$ 10.5	$ 9.9
Total Gross Revenue	**US$M**	**$ 2,453.1**	**-**	**-**	**$ 195.4**	**$ 252.2**	**$ 198.7**	**$ 140.2**	**$ 159.6**	**$ 161.5**	**$ 147.7**	**$ 141.8**
Operating Costs												
Mining	US$M	**$ 365.5**	-	-	$ 22.8	$ 25.6	$ 33.2	$ 24.0	$ 22.7	$ 32.0	$ 28.5	$ 27.3
Wet Processing Plant	US$M	**$ 136.0**	-	-	$ 9.8	$ 9.7	$ 9.8	$ 9.8	$ 9.8	$ 9.6	$ 9.5	$ 9.5
Slimes Tailings Disposal	US$M	**$ 87.6**	-	-	$ 6.7	$ 6.1	$ 6.5	$ 6.4	$ 6.6	$ 5.9	$ 5.4	$ 5.4
Mineral Separation Plant	US$M	**$ 174.3**	-	-	$ 15.0	$ 15.9	$ 14.2	$ 10.6	$ 11.5	$ 12.4	$ 11.9	$ 11.8
General & Administration	US$M	**$ 96.9**	-	-	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9	$ 6.9
Landowner Royalties	US$M	**$ 59.0**	-	-	$ 9.8	$ 12.6	$ 9.9	$ 1.4	-	$ 4.0	$ 5.9	$ 4.3
Transport and Logistics Costs	US$M	**$ 28.7**	-		$ 2.1	$ 2.8	$ 2.5	$ 1.8	$ 2.0	$ 1.9	$ 1.7	$ 1.6
Total Operating Costs	**US$M**	**$ 947.9**	**-**	**-**	**$ 73.2**	**$ 79.6**	**$ 83.1**	**$ 60.9**	**$ 59.6**	**$ 72.8**	**$ 69.9**	**$ 66.9**
Operating Income before Taxes	**US$M**	**$ 1,505.2**	**-**	**-**	**$ 122.3**	**$ 172.6**	**$ 115.6**	**$ 79.2**	**$ 100.0**	**$ 88.7**	**$ 77.8**	**$ 74.9**
Capital Costs												
Development Capital	US$M	**$ 237.2**	$ 42.2	$ 186.3	$ 8.7	-	-	-	-	-	-	-
Sustaining Capital, incl. Ongoing Reclamation	US$M	**$ 97.1**	-	-	-	-	$ 16.1	-	$ 2.0	$ 14.2	-	-
Final Closing/Reclamation Capital	US$M	**$ 10.3**	-	-	-	-	-	-	-	-	-	-
Total Capital Costs	**US$M**	**$ 344.5**	**$ 42.2**	**$ 186.3**	**$ 8.7**	**-**	**$ 16.1**	**-**	**$ 2.0**	**$ 14.2**	**-**	**-**
Depreciation	US$M	**$ 344.5**	-	-	$ 67.8	$ 48.4	$ 39.2	$ 28.0	$ 20.5	$ 18.7	$ 13.4	$ 9.6
Depletion	US$M	**$ 437.6**	-	-	$ 27.2	$ 46.0	$ 35.4	$ 25.6	$ 29.9	$ 29.5	$ 26.6	$ 25.7
Income Taxes	US$M	**$ 189.0**	-	-	$ 7.1	$ 20.4	$ 10.7	$ 6.7	$ 13.0	$ 10.6	$ 9.9	$ 10.4
Change in Working Capital	US$M	**-**	-	-	$ 12.4	$ 4.3	$ (4.4)	$ (3.5)	$ 1.7	$ (0.6)	$ (1.1)	$ (0.3
After Tax Free Cash Flow	**US$M**	**$ 971.7**	**$ (42.2)**	**$ (186.3)**	**$ 94.0**	**$ 147.9**	**$ 93.2**	**$ 76.0**	**$ 83.4**	**$ 64.6**	**$ 69.0**	**$ 64.8**

19.3 Sensitivity Analysis

The Study have been designed to a Scoping level of detail with an intended accuracy of ± 35%. Key inputs into the Study have been tested by pricing, capital cost, and operating cost sensitivities.

The results highlight that the NPV is most sensitive to Monazite price and OPEX variations, and that IRR is most Sensitive to CAPEX variations.

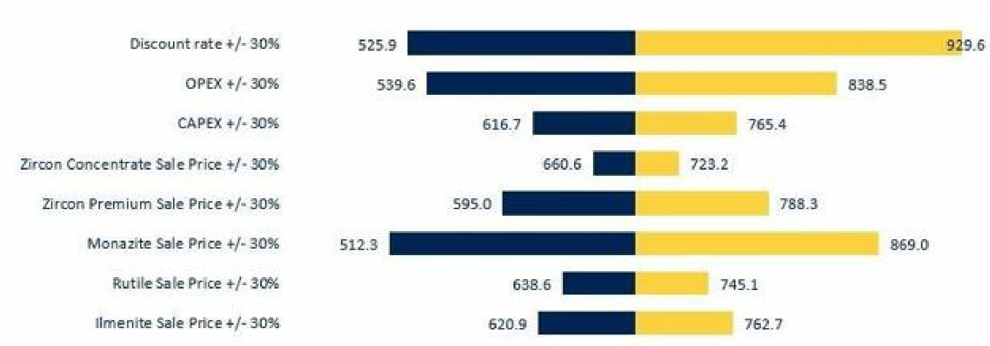

Figure 33: Titan Project sensitivity analysis results – post tax NPV (US$M).

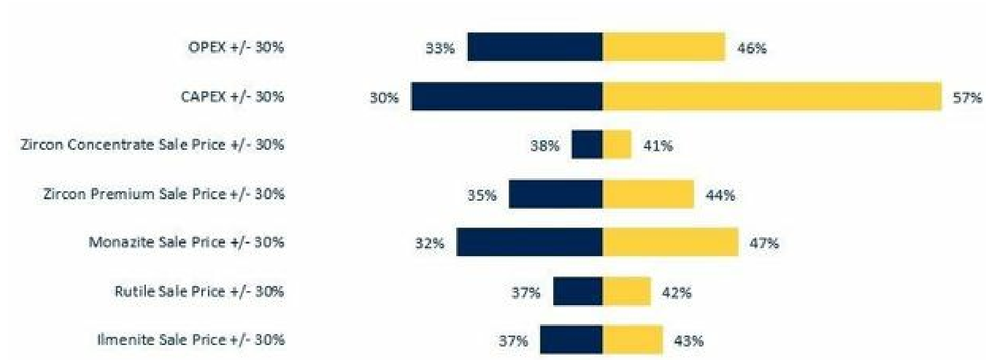

Figure 34: Titan Project sensitivity analysis results – post tax IRR (%).

20. Adjacent Properties

No proprietary information associated with neighboring properties was used as part of this study.

21. Other Relevant Data and Information

No other relevant data exist at this time.

22. Interpretation and Conclusions

The QPs are confident in the technical and economic assessment presented in this TRS.

The QPs also recognize that the results of this TRS are subject to many risks including, but not limited to: commodity prices, unanticipated inflation of capital or operating costs, geological uncertainty and geotechnical and hydrologic assumptions.

The Initial Assessment highlights several advantages which include:

- Low complexity mining practices can be employed utilizing local service providers.
- Mining footprint can be controlled to limit environmental and social impacts.
- Mining approach presented returns land mass to pre-mining conditions as minimum.
- Signed Memorandum of Understanding (MOU) for rare earth concentrate and titanium minerals (rutile and ilmenite) and zircon products.
- Shipping advantage, given that a large proportion of the rare earth concentrate and titanium (rutile and ilmenite) products are anticipated to be sold within the U.S.
- Exposure to high-demand, future-facing commodities experiencing increasing commodity prices.
- The net present value of the 25-year based Project is $692M at an 8% discount rate and after tax.
- The internal rate of return (IRR) is 40%.

At the time of publication of this Initial Assessment report a preliminary feasibility study is planned to be completed.

23. Recommendations

The Initial Assessment demonstrates the Titan Project's importance as a leading U.S. critical mineral project, and puts IperionX in a strong position to rapidly advance next steps in the development process, including:

- Continued exploration and expansion of the Company's land position;
- Advancing project permitting and development approvals;
- Commencement of a pre-feasibility study to optimize mine and process design;
- Performing feasibility study level flowsheet development test work (ongoing);
- Develop a Mineral Demonstration Facility on site (completed desliming, planning wet concentration and mineral separation stages.)
- Investigation of product upgrading and downstream processing;
- Undertaking a lifecycle analysis for the Company's mineral and metal projects and operations;
- Continue implementation of sustainable operating and rehabilitation practices with UTIA;
- Continued stakeholder awareness and engagement; and
- Formalizing agreements with a number of prospective strategic, technical and offtake partners.

24. References

Primero Scoping Study Report, Titan Heavy Mineral Sands Project, 40501-REP-GE-002, June 2022.

Mineral Technologies Report, Titan Mineral Sands Project – Benton Ore, Conventional Wet Gravity and Dry Physical Separation Testwork Including Creation of Ilmenite, Rutile, Zircon, and Monazite Concentrate from Provided Ore Samples, MTNA21069, Rev.2, 22 September 2021.

Mineral Technologies Report, Titan Mineral Sands Project – Camden Ore, Scoping Testwork for Wet Gravity, Rare Earth Mineral Flotation and Dry Physical Separation to Produce Concentrates of Zircon, Monazite and Titanium Minerals, MS21/3394979/1, Rev.2, 16 February 2022.

IperionX, ASX Release, Maiden Resource Confirms Tennessee as Major Untapped Critical Mineral Province, 6 October 2021.

25. Reliance on Information Provided by the Registrant

Primero has relied upon the following information supplied by IperionX:

- Section 16: Market Studies. Pricing information was based on data sourced from Adamas Intelligence, TZMI and IperionX.
- Section 17: Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups. This is based on the information from HDR, PGS Consults, UTIA and IperionX.

Exhibit 15.2

Consent of Qualified Person

I, Adam Karst, in connection with Amendment No. 1 to the annual report on Form 20-F of IperionX Limited for the year ended June 30, 2022 and any further amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary for Titan Project" (as amended, the "Technical Report Summary"), as an exhibit to the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statement on Form S-8 (File No. 333-267088) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: May 30, 2023

By: /s/ Adam Karst

Name: Adam Karst

Title President & Principal Geologist

Exhibit 15.3

Consent of Qualified Person

I, Eugene Dardengo, in connection with Amendment No. 1 to the annual report on Form 20-F of IperionX Limited for the year ended June 30, 2022 and any further amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary for Titan Project" (as amended, the "Technical Report Summary"), as an exhibit to the Form 20-F;

- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;

- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and

- the incorporation by reference in the Registration Statement on Form S-8 (File No. 333-267088) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: May 30, 2023

By: /s/ Eugene Dardengo

Name: Eugene Dardengo

Title: Consultant

Exhibit 15.4

Consent of Qualified Person

I, Stephen Miller, in connection with Amendment No. 1 to the annual report on Form 20-F of IperionX Limited for the year ended June 30, 2022 and any further amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary for Titan Project" (as amended, the "Technical Report Summary"), as an exhibit to the Form 20-F;
- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;
- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and
- the incorporation by reference in the Registration Statement on Form S-8 (File No. 333-267088) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: May 30, 2023

By: /s/ Stephen Miller

Name: Stephen Miller

Title: Senior Manager APAC

Exhibit 15.5

Consent of Qualified Person

I, Jacques Parent, in connection with Amendment No. 1 to the annual report on Form 20-F of IperionX Limited for the year ended June 30, 2022 and any further amendments or supplements and/or exhibits thereto (collectively, the "Form 20-F"), consent to:

- the filing and use of the technical report summary titled "Technical Report Summary for Titan Project" (as amended, the "Technical Report Summary"), as an exhibit to the Form 20-F;

- the use of and references to my name, including my status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 20-F and the Technical Report Summary;

- any extracts from, or summaries of, the Technical Report Summary in the Form 20-F and the use of information derived, summarized, quoted or referenced from the Technical Report Summary, or portions thereof, that was prepared by me, that I supervised the preparation of and/or that was reviewed and approved by me, that is included or incorporated by reference in the Form 20-F; and

- the incorporation by reference in the Registration Statement on Form S-8 (File No. 333-267088) of the above items as included in the Form 20-F.

I am responsible for authoring, and this consent pertains to, the particular sections identified in the Technical Report Summary as having been prepared by me and the corresponding sections of the Executive Summary.

Date: May 30, 2023

By: /s/ Jacques Parent

Name: Jacques Parent

Title: Senior Advisor (Primero)