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

FORM 10-K/A

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended June 30, 2023

or

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

For the transition period from _____ to
Commission File Number 001-41279

5E ADVANCED MATERIALS, INC.

(Exact name of Registrant as specified in its Charter)

Delaware **(State or other jurisdiction of incorporation or organization)**	**87-3426517** **(I.R.S. Employer Identification No.)**
9329 Mariposa Road, Suite 210 **Hesperia, CA** **(Address of principal executive offices)**	**92344** **(Zip Code)**

Registrant's telephone number, including area code: (442) 221-0225

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.01 par value	**FEAM**	**The NASDAQ Global Select Market**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

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

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

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

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

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

Indicate by check mark whether the registrant 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. ☐

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant was approximately $304.4 million as of December 31, 2022 (based on the last sale price of such stock as quoted on the NASDAQ).

As of October 27, 2023, the number of shares of the registrant's Common Stock outstanding was 44,237,054.

5E ADVANCED MATERIALS, INC.
TABLE OF CONTENTS

EXPLANATORY NOTE

5E Advanced Materials, Inc. (the "Company") will not be filing its definitive proxy materials for its 2023 annual meeting of shareholders with the U.S. Securities and Exchange Commission ("SEC") within 120 days after the end of its fiscal year ended June 30, 2023.

Accordingly, pursuant to the instructions to Form 10-K, this Amendment No. 1 to the Company's Annual Report on Form 10-K for the fiscal year ended June 30, 2023, is being filed to include the Part III information required under the instructions to Form 10-K and the general rules and regulations under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), which Annual Report was originally filed with the SEC on August 30, 2023 (the "Original Form 10-K).

This Form 10-K/A amends and restates only Part III, Items 10,11,12,13, and 14, amends Part IV, Item 15 of the Company's Annual Report on Form 10-K for the fiscal year ended June 30, 2023, and replaces Exhibit 96.1 with a Technical Report Summary that includes additional and independent Qualified Persons. No other Items of the previous Form 10-K filing have been amended or revised in this Form 10-K/A, and all such other Item shall be as set forth in such previous Form 10-K filing.

In addition, no other information has been updated for any subsequent events occurring after August 30, 2023, the date of filing of the Original Form 10-K.

As used in this Form 10-K/A, references to "5E," the "Company," "we," "our," or "us" mean 5E Advanced Materials, Inc., our predecessors and consolidated subsidiaries, or any one or more of them, as the context requires.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Management

Information about our Executive Officers

The following table sets forth, as of October 27, 2023, the names and ages of our executive officers, including all offices and positions held by each officer for at least the past five years. There are no family relationships between our executive officers or between any of our directors and any of our executive officers.

Name	Age	Position
Susan Brennan	61	President, Chief Executive Officer and Director
Paul Weibel, CPA	39	Chief Financial Officer, Treasurer and Corporate Secretary

Ms. Brennan was appointed Chief Executive Officer and President in March 2023 and a Director in June 2023. Previously, Ms. Brennan has served as the President of Susan Brennan Leadership, LLC, a consulting firm that advises companies in the energy, automotive, and technology industries, since October 2022. Before launching Susan Brennan Leadership, LLC, Ms. Brennan served as the President and Chief Executive Officer of Romeo Power, an energy technology leader delivering electrification solutions for complex commercial vehicle applications, from August 2021 to October 2022. From November 2013 to August 2021, Ms. Brennan served as the Chief Operations Officer of Bloom Energy Corporation. Previously, she spent decades in a variety of leadership positions in the automotive manufacturing industry, including at Nissan North America, the Ford Motor Company, and the Douglas and Lomason Company. Ms. Brennan holds a MBA in Economics from the University of Nebraska at Omaha and a Bachelor of Science in Microbiology from the University of Illinois-Campaign-Urbana.

Paul Weibel was appointed Chief Financial Officer and Treasurer of 5E Advanced Materials, Inc. in November 2021, Chief Financial Officer of Fort Cady (California) Corporation in May 2021, and director of Fort Cady (California) Corporation in April 2022. Mr. Weibel was appointed Corporate Secretary in June 2023. Mr. Weibel served as Corporate Secretary of Fort Cady (California) Corporation from August 2021 to April 2022 and Treasurer since April 2022. Previously, Mr. Weibel was the Financial Controller of Genlith, Inc. from January 2017 to May 2021 and Finance Director of the Schooner Investment Group LLC from July 2014 to December 2014. Paul holds a Bachelor of Science in Accounting and Finance from Lehigh University.

Information about our Board of Directors and Board Committees

Board of Directors

Our Board of Directors oversees our management and business and affairs and serves as our ultimate decision-making body, except for those matters reserved to our shareholders. The Board of Directors oversees our management team, to whom it has delegated responsibility for our day-to-day operations. While the Board's oversight role is broad and may concentrate on different areas from time to time, its primary areas of focus are strategy, oversight, governance and compliance, as well as assessing management.

Our Board of Directors currently consists of six members, as set forth in the table below. Each of our directors is subject to election each year at our annual meeting of shareholders. Our Certificate of Incorporation and Bylaws do not limit the number of terms a member may be re-elected as a director.

The following table sets forth, as of October 27, 2023, the names and ages of the members our Board of Directors. Biographies of each director are included below the table.

Name	Age	Current Position
David Jay Salisbury	71	Chairman of the Board
Susan Brennan	61	President, Chief Executive Officer and Director
Stephen Hunt	60	Director
Sen Ming Lim	49	Director
H. Keith Jennings	52	Director
Graham van't Hoff	60	Director

Board Skills Matrix

	David Jay Salisbury	Susan Brennan	Stephen Hunt	H. Keith Jennings	Sen Ming (Jimmy) Lim	Graham van't Hoff	Total
Executive Leadership	✓	✓	✓	✓	✓	✓	6
Mining/Rare Earth Minerals/Specialty Chemicals Industry Experience	✓			✓		✓	3
Business Operations	✓	✓		✓		✓	4
Strategic Development/Planning	✓	✓	✓	✓	✓	✓	6
Corporate Governance				✓		✓	2
Financial and Accounting				✓			1
Marketing, Branding and Consumer Insights		✓					1
Capital Markets				✓	✓		2
ESG Leadership	✓	✓		✓		✓	4
M&A Experience		✓		✓	✓	✓	4
International Experience	✓	✓	✓	✓	✓	✓	6

Board Diversity Matrix (as of October 27, 2023)

Total Number of Directors: 6

Part I: Gender Identity	Female	Male	Nonbinary	Did Not Disclose
Directors	1	5	—	—
Part II: Demographic Background	—	—	—	—
African American or Black	—	1	—	—
Alaskan Native or Native American	—	—	—	—
Asian	—	1	—	—
Hispanic or Latinx	—	—	—	—
Native Hawaiian or Pacific Islander	—	—	—	—
White	1	3	—	—
Two or More Races or Ethnicities	—	—	—	—
LGBTQ+	—	—	—	—
Did Not Disclose Demographic Background	—	—	—	—

More detailed biographical descriptions of the Directors are set forth in the text below. These descriptions include the experience, qualifications, qualities, and skills that led to the conclusion that each director should serve as a member of our Board at this time.

David J. Salisbury was appointed as Chairman of the Board in January 2022. Mr. Salisbury has served as Chairman of ABR since August 1, 2020 and served as Executive Chairman of ABR from May 2021 to August 2021. Mr. Salisbury has also served as Chairman of Fort Cady (California) Corporation, a subsidiary of ABR, since August 2020 and served as the President and CEO of Fort Cady (California) Corporation from May 2021 to August 2021. Mr. Salisbury's business experience spans a period of over 40 years with significant involvement in underground and surface coal, open pit gold, uranium mining and copper mine development. Over that period, he has held senior executive positions at The Coteau Properties Company, Energy Resources Company, Al Hamilton Contracting Company, Cordero Mining Company, Kennecott Ridgeway Mining Company Inc., Rössing Uranium Limited, Kennecott Minerals Company, Resolution Copper Mining, LLC (Rio Tinto) and PetroDome Energy LLC. While working for Rio Tinto, Mr. Salisbury was President and CEO of Resolution Copper Company LLC, President and CEO of Kennecott Minerals Company and Managing Director and CEO of Rössing Uranium Limited. In addition, he was a leader for Rio Tinto's global improvement program, Improving Performance Together, focused on the development of common improvement processes related to ore and mineral processing across global operations. Over his career, Mr. Salisbury has been responsible for operating and capital budget development, operating cost control, product quality, profit/loss, engineering, safety, field operations and maintenance, strategic planning, environmental compliance, market development, merger and acquisition analysis, employee relations, community, public relations and government relations at both the state and federal levels. He was also directly responsible for the development, construction and operations of four mines. Mr. Salisbury holds a Bachelor of Science, Electrical Engineering from Utah State University and an MBA from the University of South Carolina.

Stephen Hunt was appointed as a Director in January 2022. Mr. Hunt has also served as a Director of ABR since May 2017. Mr. Hunt is currently Executive Chairman of Sparc Technologies Ltd. (ASX: SPN), which is developing and commercializing graphene applications as well as photocatalytic hydrogen production and sodium ion anode material. Mr. Hunt's experience includes over 20 years of serving as a Director of multiple ASX-listed companies. Previous Directorships include Executive Chairman and Non-Executive Director of Volt Resources Ltd. (ASX: VRC), Non-Executive Director of Magnis Energy Technologies Ltd. (ASX: MNS), Non-Executive Director of IMX Resources Ltd. and Australian Zircon Ltd.

Sen Ming (Jimmy) Lim was appointed as a Director in January 2022. Mr. Lim has also served as a Director of ABR since February 2021. Mr. Lim has served as the Managing Director and Founder of Virtova Capital Management Limited, a natural resources industry advisory firm providing corporate advisory services encompassing M&A and structured financings in relation to assets in the sector since 2018. In this role, he advises several ASX-listed mining companies with respect to mergers, acquisitions and structured finance. Mr. Lim has worked for global investment banks in Australia (J.P. Morgan) and Hong Kong (Morgan Stanley and Goldman Sachs). Mr. Lim has served as a Non-Executive Director of Stanmore Resources Limited since October 2019 and as a Director of Virtova Alpha Investments Limited since November 2018.

Mr. H. Keith Jennings was appointed as a Director in October 2022. Mr. Jennings has over 30 years' experience as a global business leader with a focus on finance across the pharmaceuticals, genomics, chemicals, fuels and energy sectors. Mr. Jennings most recently served as Executive Vice President and Chief Financial Officer of Weatherford International (NASDAQ: WFRD). Prior to this, Executive Vice President and Chief Financial Officer of Calumet Specialty Products Partners (NASDAQ: CLMT), the Vice President, Finance and Vice President & Treasurer of Eastman Chemical Company (NYSE: EMN). He also served as the Vice President & Treasurer of Cameron International (NYSE: CAM). Mr. Jennings holds a Bachelor of Commerce from the University of Toronto and an MBA from Columbia University and is a Chartered Professional Accountant.

Mr. Graham van't Hoff was appointed as a Director in October 2022. Mr. van't Hoff is a global business executive with a 35 year career focused on business restructuring and growth with a track record of scaling business and driving growth through business disruption, restructures, technology integration and tight project management disciplines. Mr. van't Hoff finished his 35 year career with Royal Dutch Shell PLC (NYSE: SHEL) as the Executive Vice President of Global Chemicals where he was responsible for the company's $25 billion global chemicals business over a seven year period of record profitability. Prior to this role, he held the positions of Chairman, Shell UK, Executive Vice President, Alternative Energies and CO2 and Vice President, Base Chemicals. Mr. van't Hoff holds a Bachelor of Arts and Master of Arts in Chemistry from Oxford University, UK and a Master of Business Management with distinction from Alliance Manchester Business School, UK.

Our directors bring a range of skills and experience in relevant areas, including finance, exploration and production, environment, international business and leadership, as well as specialty chemicals. We believe this cross-section of capabilities enables our Board of Directors to help guide our strategic objectives and leading corporate governance practices.

Corporate Governance

Our Board believes sound corporate-governance processes and practices, as well as high ethical standards, are critical to handling challenges and to achieving business success. We embrace leading governance practices and conduct ongoing reviews of our governance structure and processes to reflect changing circumstances. Below are highlights of our corporate-governance practices and principles.

Director Independence

Our Common Stock is listed on the Nasdaq Stock Market (the "Nasdaq"). Under the rules of the Nasdaq, independent directors must comprise a majority of a listed company's board of directors within one year of listing on the Nasdaq. In addition, subject to specified exceptions, each member of a listed company's audit, compensation, and nominating and corporate governance committees must be independent. Under the rules of the Nasdaq, a director will only qualify as an "independent director" if the director has no relationship which, in the opinion of the Company's board of directors, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

Audit Committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Exchange Act. In order to be considered independent for purposes of Rule 10A-3, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors, or any other board committee, (1) accept, directly or indirectly, any consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries or (2) be an affiliated person of the listed company or any of its subsidiaries.

At least annually, our Board evaluates all relationships between us and each director in light of relevant facts and circumstances for the purposes of determining whether a relationship exists that might interfere with such director's ability to satisfy his or her responsibilities as an independent director. Based on this evaluation, our Board will make an annual determination of whether each director is independent within the meaning of the independence standards of Nasdaq and the SEC.

Our Board has determined that each of Messrs. Salisbury, Hunt, Jennings, and van't Hoff qualifies as an "independent director" as defined under the rules of the Nasdaq. Ms. Brennan and Mr. Lim are not independent. Our Board also has determined that Messrs. Jennings, Hunt, and Salisbury, who comprise our Audit Committee, Messrs. van't Hoff and Jennings, who comprise our Compensation Committee, and Messrs. Salisbury and van't Hoff , who comprise our Nominating and Corporate Governance Committee, satisfy the independence standards for such committees established by the SEC and the rules of the Nasdaq, as applicable. In making such determinations, our Board considered the relationships that each such non-employee director has with our Company and all other facts and circumstances our Board deemed relevant in determining independence, including the beneficial ownership of our capital stock by each non-employee director and any institutional stockholder with which he or she is affiliated.

Board Leadership Structure

Our Corporate Governance Guidelines provide that the Board will determine the Board leadership structure in a manner that it determines to be in the best interests of the Company and its stockholders. The Chairman of the Board and CEO positions may, but need not be, filled by the same individual. At this time, the offices of the Chairman of the Board and the CEO are not combined. If the offices were combined, the Board would appoint a lead independent director to coordinate the activities of the other independent directors and to perform such other duties and responsibilities as the Board may determine.

Role of the Board in Risk Oversight

The Board is responsible for the oversight of risk, while management is responsible for the day-to-day management of risk. The Board, directly and through its committees, carries out its oversight role by regularly reviewing and discussing with management the risks inherent in the operation of our business and applicable risk mitigation efforts. Management meets regularly to discuss the Company's business strategies, challenges, risks and opportunities and reviews those items with the Board at regularly scheduled meetings. The Compensation Committee is responsible for overseeing the management of risks relating to our compensation plans and arrangements, including whether the Company's incentive compensation plans encourage excessive or inappropriate risk taking. The Audit Committee is responsible for overseeing our risk assessment and management processes related to, among other things, our financial reports and record-keeping, major litigation and financial risk exposures and the steps management has taken to monitor and control such exposures. The Nominating and Corporate Governance Committee is responsible for risk oversight associated with corporate governance practices and the composition of our Board and its committees.

Board Committees

Our Board has established an Audit Committee, a Compensation Committee and a Nominating and Corporate Governance Committee. The composition and responsibilities of each of the committees of our Board are described below. Copies of the charters of the committees are available on the investor relations page of our website at https://5eadvancedmaterials.com/investors/corporate-governance/. The information in or accessible through our website is not incorporated into, and is not considered part of, this 10-K. Members serve on these committees until their resignation or until otherwise determined by our Board. Our Board may establish other committees as it deems necessary or appropriate from time to time.

The following table provides membership and meeting information for 2023 for each of these committees of our Board with directors marked with an asterisk (*) identified as committee chair:

Name	Audit	Nominating and Corporate Governance	Compensation
David Jay Salisbury	✓	✓	
Stephen Hunt	✓		
H. Keith Jennings	✓*		✓
Sen Ming (Jimmy) Lim			
Graham van't Hoff		✓*	✓*
Susan Brennan			

Audit Committee

Messrs. Jennings, Hunt and Salisbury are the members of the Audit Committee. Mr. Jennings is the Chairman of the Audit Committee. Each proposed member of the Audit Committee qualifies as an independent director under the Nasdaq corporate governance standards and the independence requirements of Rule 10A-3 of the Exchange Act. Our Board has determined that Mr. Jennings qualifies as an "audit committee financial expert" as such term is defined in Item 407(d)(5) of Regulation S-K, and that each of the members is able to read and understand fundamental financial statements, as defined under the rules of the Nasdaq.

Under its charter, the functions of the Audit Committee include, among other things:

- the Company's accounting and financial reporting processes and the integrity of its financial statements;

- the audits of the Company's financial statements and the appointment, compensation, qualifications, independence and performance of the Company's independent auditors;
- the Company's compliance with legal and regulatory requirements; and
- the performance of the Company's internal accounting controls, disclosure controls and procedures and internal control over financial reporting.

The Audit Committee held a total of 5 meetings during the fiscal year ended June 30, 2023. The meetings attended by each Director, and the number of meetings that they were each eligible to attend, is as follows:

Name	Meetings Attended	Eligible to Attend
David Jay Salisbury*	3	3
Stephen Hunt*	5	5
H. Keith Jennings*	3	3
Sen Ming (Jimmy) Lim	2	2

*current member

Compensation Committee

Messrs. van't Hoff and Jennings are the members of the Compensation Committee. Mr. van't Hoff is the Chairman of the Compensation Committee. All of the members of the Compensation Committee are independent directors and are considered to be a "non-employee director" under Rule 16b-3 of the Exchange Act.

Under its charter, the functions of the Compensation Committee include, among other things:

- determine, or recommend to the Board for determination, the compensation of the Chief Executive Officer (the "CEO") and all other executive officers (as defined herein) of the Company;
- make recommendations to the Board with respect to (to the extent set forth in this charter or otherwise directed by the Board) compensation of the non-employee directors;
- make recommendations to the Board with respect to incentive compensation plans and equity-based plans that are subject to Board approval;
- exercise oversight with respect to the Company's compensation philosophy, incentive compensation plans and equity-based plans covering executive officers and senior management;
- review and discuss with management the Company's Compensation Discussion & Analysis required by SEC rules to be included in the Company's proxy statement and annual report on Form 10-K; and
- produce the annual compensation committee report for inclusion in the Company's proxy statement and annual report on Form 10-K.

The Compensation Committee charter also provides that the Compensation Committee shall have the sole authority to retain or obtain the advice of a compensation consultant, legal counsel or other adviser. However, before engaging or receiving advice from a compensation consultant, external legal counsel or any other adviser, the Compensation Committee will consider the independence of each such adviser.

The Compensation Committee held a total of 4 meetings during the fiscal year ended June 30, 2023. The meetings attended by each Director, and the number of meetings that they were each eligible to attend, is as follows:

Name	Meetings Attended	Eligible to Attend
Graham van't Hoff*	2	2
H. Keith Jennings*	2	2
David Jay Salisbury	2	2
Stephen Hunt	2	2

*current member

Nominating and Corporate Governance Committee

Messrs. Salisbury and van't Hoff are members of the Nominating and Governance Committee. Mr. van't Hoff is the Chairman of the Nominating and Corporate Governance Committee. All of the members of the Nominating and Governance Committee are independent directors.

Under its charter, the functions of the Nominating and Corporate Governance Committee include, among other things:

- identify and recommend to the Board for selection the individuals qualified to serve on the Company's Board (consistent with criteria that the Board has approved) either for election by stockholders at each meeting of stockholders at which directors are to be elected or for appointment to fill vacancies on the Board;
- develop, recommend to the Board and assess corporate governance policies for the Company; and
- oversee the evaluation of the Board.

The Nominating and Corporate Governance Committee has the sole authority to retain and terminate any search firm to be used to identify director candidates and shall have sole authority to approve the search firm's fees and other retention terms.

The Nominating and Corporate Governance Committee meets periodically, and no less frequently than annually, to assess, develop and communicate with the full Board concerning the appropriate criteria for nominating and appointing directors, including the Board's size and composition, corporate governance policies, applicable listing standards and laws, individual director performance, expertise, experience, qualifications, attributes, skills, tenure and willingness to serve actively, the number of other public and private Company Boards on which a director candidate serves, consideration of director nominees proposed or recommended by stockholders and related policies and procedures, and other appropriate factors. Whenever a new seat or a vacated seat on the Board is being filled, candidates that appear to best fit the needs of the Board and the Company will be identified, interviewed and evaluated by the Nominating and Corporate Governance Committee. Potential director candidates recommended by the Company's management and stockholders are evaluated in the same manner as nominees identified by the Nominating and Corporate Governance Committee. Candidates selected by the Nominating and Corporate Governance Committee will then be recommended to the full Board.

The Nominating and Corporate Governance Committee held a total of 4 meetings during the fiscal year ended June 30, 2023. The meetings attended by each Director, and the number of meetings that they were each eligible to attend, is as follows:

Name	Meetings Attended	Eligible to Attend
David Jay Salisbury*	4	4
Graham van't Hoff*	2	2
Sen Ming (Jimmy) Lim	2	2

*current member

Director Nominations by Stockholders

Nominations of persons for election to the Board may be made by any stockholder of the Company who is a stockholder of record and complies with the notice procedures set forth in the Bylaws, and such nominations must be accompanied by a written consent from the proposed nominee to be named as a nominee and to serve as a director if elected. All candidates, regardless of the source of their recommendation, are evaluated in the same manner as nominees identified by the Nominating and Corporate Governance Committee.

Election of Directors

We have voluntarily adopted a majority-voting standard for uncontested elections of directors. Our Bylaws provide that, unless otherwise required by law or our Certificate of Incorporation or Bylaws, the election of our directors will be decided by a majority of the votes cast at a meeting of the stockholders by the holders of stock entitled to vote in the election, unless our Secretary determines that the number of nominees for director exceeds the number of directors to be elected, in which case directors will be elected by a plurality of the votes of the shares represented in person or by proxy at any meeting of stockholders held to elect directors and entitled to vote on such election of directors.

If a nominee for director who is not an incumbent director does not receive a majority of the votes cast, the nominee will not be elected. Our Nominating and Corporate Governance Committee has established procedures under which a director standing for reelection in an uncontested election must tender a resignation conditioned on the incumbent director's failure to receive a majority of the votes cast. If an incumbent director who is standing for reelection does not receive a majority of the votes cast, the Nominating and Corporate Governance Committee will make a recommendation to the Board of Directors on whether to accept or reject the resignation, or whether other action should be taken. The Board of Directors must act on the committee's recommendation and publicly disclose its decision and the rationale behind it within 90 days from the date of the certification of the election results. The

director who fails to receive a majority vote is not permitted to participate in the committee's recommendation or the Board of Directors' decision.

Corporate Governance Guidelines and Code of Business Conduct

We have adopted Corporate Governance Guidelines and a written Code of Business Conduct, which are available on our website at https://5eadvancedmaterials.com/investors/corporate-governance/. The information in or accessible through our website is not incorporated into, and is not considered part of, this 10-K.

Our Corporate Governance Guidelines provide the framework for our corporate governance along with our Charter, Bylaws, committee charters and other key governance practices and policies. Our Corporate Governance Guidelines cover a wide range of subjects, including the conduct of Board meetings, independence and selection of directors, Board membership criteria, and Board committee composition.

Our Code of Business Conduct and Ethics is applicable to our directors, executive officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, and persons performing similar functions. The Code of Business Conduct and Ethics codifies the business and ethical principles that govern all aspects of the Company's business. Any waiver of this Code of conduct for any individual director or officer of our Company must be approved, if at all, by our board of directors. Any such waivers granted, as well as substantive amendments to this Code, will be publicly disclosed by appropriate means in compliance with applicable listing standards and SEC rules.

Stockholder Communications

Any stockholder or other interested party who wishes to communicate with our Board or any individual director may send written communications to our Board or such director, care of 5E Advanced Materials, Inc., 9329 Mariposa Road, Suite 210, Hesperia, California, 92344, Attention: Corporate Secretary. Our Corporate Secretary shall initially review and compile all such communications and may summarize such communications prior to forwarding to the appropriate party. Our Secretary will not forward communications that are not relevant to the duties and responsibilities of the Board. The Board will generally respond, or cause the Company to respond, in writing to bona fide communications from stockholders addressed to one or more members of the Board.

Delinquent Section 16(a) Reports

The rules of the SEC require that the Company disclose late filings of reports of stock ownership (and changes in stock ownership) by its directors, executive officers, and beneficial owners of more than ten percent of the Company's stock. The Company has undertaken responsibility for preparing and filing the stock ownership forms required under Section 16(a) of the Securities and Exchange Act of 1934, as amended, on behalf of its officers and directors. Based upon a review of forms filed and information provided by the Company's officers and directors, we believe that all Section 16(a) reporting requirements were met during fiscal year 2023, except for the following (i) each member of the Board of Directors have not filed a Form 4 with respect to their director grants received on June 29, 2022 and July 1, 2022; and (ii) each executive officer has not filed a Form 4 with respect to their employee grants received on May 9, 2022, June 29, 2022, August 15, 2022, and September 1, 2022. These late filings are not due to the fault of any of the individuals above.

Australian Corporate Governance Statement

The Board is committed to complying with the highest standards of corporate governance to ensure that all of its business activities are conducted fairly, honestly and with integrity in compliance with all applicable laws. The Board considers that the Company's corporate governance framework is generally consistent with the 4th Edition of the Corporate Governance Principles and Recommendations of the ASX Corporate Governance Council ("ASX Principles and Recommendations").

The Company has prepared a Corporate Governance Statement to explain how it complies with the ASX Principles and Recommendations on an "if not, why not" basis. Where the Company's practices depart from a recommendation, the Company discloses the departure along with the reasons for adopting an alternate practice.

The Corporate Governance Statement is available on our website at https://5eadvancedmaterials.com/investors/corporate-governance/

Item 11. Executive Compensation

Introduction and Named Executive Officers

During fiscal year 2023, our named executive officers or "NEOs" were:

Name	Age	Position
Susan Brennan[1]	61	President, Chief Executive Officer and Director
Henri Tausch[2]	58	Former Chief Executive Officer and Director
Anthony Hall[3]	48	Performed the functions of Principal Executive Officer
Paul Weibel, CPA[4]	39	Chief Financial Officer, Treasurer and Corporate Secretary
Dinakar Gnanamgari[5]	40	Former Chief Commercial Officer

(1) On March 21, 2023, the Board appointed Susan Brennan as Chief Executive Officer effective April 24, 2023.
(2) On September 28, 2022, the Board accepted the resignation of Henri Tausch as President and Chief Executive Officer and as a member of the Board, effective as of October 31, 2022.
(3) On October 1, 2022, the Board engaged the services of Anthony Hall to perform the functions of the Company's Principal Executive Officer until the appointment of Susan Brennan.
(4) Paul Weibel was appointed Corporate Secretary in June 2023.
(5) On May 12, 2023, Dinakar left the Company as part of cost cutting measures.

Summary Compensation Table

	Fiscal Year Ended June 30,	Salary ($)	Bonus ($)		Stock Awards[1] ($)	Option Awards[2] ($)	All Other Compensation ($)		Total ($)
Susan Brennan	2023	96,154	—	(8)	1,000,000	1,480,000	—		2,576,154
Henri Tausch	2023	196,250	—		—	—	914,191	(3)	1,110,441
	2022	351,000	278,582		79,174	2,478,908	19,554	(4)	3,207,218
Anthony Hall	2023	—	—		—	—	286,776	(5)	286,776
Paul Weibel	2023	297,033	—	(8)	221,993	—	77,510	(6)	596,536
	2022	245,192	80,831		22,564	1,564,384	46,936	(6)	1,959,907
Dinakar Gnanamgari	2023	274,598	—		124,591	—	98,181	(7)	497,370
	2022	250,961	100,000		22,564	1,173,907	12,298	(4)	1,559,730

(1) The amounts reported in this column represent the aggregate grant-date fair value of stock awards granted in the relevant year compiled in accordance with FASB Topic 718, excluding forfeiture estimates. Stock Awards comprise Restricted Stock Units ("RSUs") and Performance Stock Units ("PSUs"). For additional details regarding Stock Awards, see "— Outstanding Equity Awards at Fiscal Year End" below. Based on a probability analysis, no value was reported for the 2022 PSUs granted.
(2) The amounts reported in this column represent the aggregate grant-date fair value of option awards granted in the relevant year compiled in accordance with FASB Topic 718, excluding forfeiture estimates. For additional information regarding the valuation assumptions used to determine the grant-date fair value of option awards in this column, see footnote 12 to our consolidated financial statements in Item 8 of this Form 10K. For additional details regarding Option Awards, see "— Outstanding Equity Awards at Fiscal Year End" below.
(3) Amount reflects $881.7 thousand in severance and $32.4 thousand in employer match contributions under our 401(k) plan.
(4) These amounts reflect employer match contributions under our 401(k) plan.
(5) Amount reflects amounts paid to Mr. Hall as compensation for performing the functions of the Company's Principal Executive Officer from October 2022 through April 2023.
(6) Amounts reflect $60 thousand and $35 thousand paid to Mr. Weibel during 2023 and 2022, respectively as reimbursement for relocation costs. The remaining amounts in both years reflect employer match contributions under our 401(k) plan.
(7) Amount reflects $91.7 thousand paid as severance to Mr. Gnanamgari and $6.5 thousand in employer match contributions under our 401(k) plan.
(8) The Company's Compensation Committee approved fiscal year 2023 bonuses for Susan Brennan and Paul Weibel in the amount of $80,000 and $95,000, respectively. The amounts are contingent upon the closing of an equity financing.

Employment Agreements

We had employment agreements with each of the above NEOs.

Susan Brennan

Under the terms of Ms. Brennan's employment agreement, Ms. Brennan will receive a base salary of $500,000 per year and was eligible to earn a target bonus opportunity of eighty percent (80%) of her annual base salary. She received an annual equity award for fiscal year 2023 with a value equivalent to $1.0 million, which consisted of 117,925 restricted share units ("RSUs") and 117,925 performance share units ("PSUs"). Ms. Brennan also received an additional one-time sign-on bonus of 400,000 stock options having a per share exercise price of $7.73.

Ms. Brennan's Employment Agreement provides severance benefits to her if her employment is terminated by the Company for reasons other than for cause, or by Ms. Brennan for good reasons (as each term is defined in the employment agreement). However, if such termination is within three months prior to or within 12 months immediately after a change in control of the Company (the "Change in Control Period"), Ms. Brennan would receive a higher level of severance benefits. Severance benefits under the Employment Agreement and in connection with a change of control are "double trigger" and any payments under the Employment Agreement are subject to Ms. Brennan's execution of a general release in favor of the Company and its affiliates, and their respective officers and directors, as well as compliance with a perpetual confidentiality obligation, a non-disparagement obligation, a covenant not to compete, and a covenant not to solicit the Company's customers or employees during employment and for 18 months following any termination of employment. Finally, pursuant to the terms of the equity awards Ms. Brennan receives under the Equity Compensation Plan, if Ms. Brennan is terminated by the Company for reasons other than for cause, by her for good reason, or by reason of her death or disability, she may be entitled to accelerated vesting, and/or pro-rated vesting, for certain of her equity or equity-linked awards, depending on whether the termination is during a Change in Control Period.

Paul Weibel

Under the terms of Mr. Weibel's employment agreement, Mr. Weibel's salary in fiscal year 2023 was $300,000. Mr. Weibel is eligible to earn an annual bonus of up to 80% of his then-in-effect base salary (on target performance would result in a bonus payment equal to 40% of Mr. Weibel's then-in-effect base salary). During the year ended June 30, 2022, Mr. Weibel received options to purchase 250,000 common shares in our stock with a weighted average per-share exercise price equal to $16.08 and vest in accordance with the terms of each award (see footnote (4) to table below), subject to his continued employment. Mr. Weibel's retirement benefits are paid in accordance with 401(k) requirements. Mr. Weibel's Employment Agreement provides severance benefits to him if his employment is terminated by the Company for reasons other than for cause. Severance benefits under the Employment Agreement, which include six months of annual base pay, six months COBRA coverage and the continued vesting of outstanding equity based compensation awards, are subject to Mr. Weibel's execution of a general release as well as compliance with a perpetual confidentiality obligation.

Outstanding Equity Awards at Fiscal Year End

The following table sets forth the outstanding equity awards held by our directors and NEOs as of June 30, 2023.

	Option Awards				Stock Awards			
Named	Number of Common Stock Underlying Unexercised Options (#) Exercisable	Number of Common Stock Underling Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units That Have Not Vested (#)	Market Value of Shares of Units of Stock That Have Not Vested ($)[7]	Equity Incentive Plan Awards: Number of Unearned Shares, Units, or Other Rights That Have Not Vested[8]	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units, or Other Rights that Have Not Vested ($)[7]
Named Executive Officers								
Susan Brennan	—	400,000 [1]	7.73	4/24/2033	117,925 [3]	386,794	117,925	386,794
Paul Weibel	100,000	150,000 [2]	16.08	10/1/2025	11,041 [4]	36,214	7,976	26,161
Directors								
David Salisbury	200,000	—	6.58	7/6/2024	19,736 [5]	64,734	—	—
Stephen Hunt	—	—	—	—	12,379 [5]	40,603	—	—
Sen Ming (Jimmy) Lim	—	—	—	—	11,087 [5]	36,365	—	—
H. Keith Jennings	—	—	—	—	9,889 [6]	32,436	—	—
Graham Van't Hoff	—	—	—	—	8,479 [6]	27,811	—	—

(1) Options vest cliff vest on April 24, 2026.
(2) 133,333 options vest in equal annual installments on each of November 29, 2023 and 2024 and 16,667 options vest on May 18, 2024.
(3) RSUs vest, subject to continued employment, in equal annual installments on each of April 24, 2024, 2025 and 2026.
(4) 1,851 RSUs vest, subject to continued employment, 40% on June 29, 2024, and 60% on June 29, 2025 and 9,190 RSUs vest in equal annual installments on each of September 1, 2023, 2024 and 2025
(5) 3,701 DSUs vest on the date of the second annual meeting of stockholders after the date of grant and the remaining RSUs vest on July 31, 2023.
(6) DSUs/RSUs vest on July 1, 2023.
(7) The value of each stock award is based on the target number of shares of Common Stock into which such stock award may convert and the closing price of our Common Stock on June 30, 2023.
(8) PSUs cliff vest, subject to continued employment, on the third anniversary of the grant date, subject to achievement of performance objectives.

2022 Equity Compensation Plan

We have adopted the 5E Advanced Materials, Inc. 2022 Equity Compensation Plan for purposes of granting options in us and other awards based on our shares to employees and other service providers of ours. The following is a summary of the principal terms of the Incentive Plan, which is qualified in its entirety by reference to the full text of the Incentive Plan, which is filed as an exhibit hereto and incorporated herein by reference.

Purpose of the Plan

The purpose of the Incentive Plan is to promote our financial interests by providing a means through which our current and prospective directors, officers, key employees, and consultants can be retained and motivated through acquiring an equity interest in us or be paid incentive compensation in the form of our Common Stock.

Administration of the Plan

The Incentive Plan is administered by the Board of Directors or, to the extent it has delegated its authority under the Incentive Plan, the Compensation Committee of the Board (or such other committee of the Board) (the "Administrator"). The Compensation Committee comprises "nonemployee directors" for purposes of Rule 16b-3 under the Exchange Act. The Administrator has the power in its discretion to grant awards under the Incentive Plan, to designate the eligible participants, to determine the terms and conditions of such awards, to construe and interpret the provisions of the Incentive Plan, and to make any other determination and take any other action as it deems necessary or desirable for the administration of the Incentive Plan and to protect our interests, among other authority provided under the Incentive Plan.

Number of Authorized Shares

The aggregate number of shares of Common Stock that may be issued or transferred pursuant to awards granted under the Incentive Plan may not exceed 2,500,000 shares of Common Stock. The number of shares that may be issued to any individual under the Incentive Plan (when combined with all of our other securities-based arrangements, as applicable) may not exceed 2% our outstanding number of issued shares from time to time.

The maximum number of shares subject to awards granted during a single fiscal year to any nonemployee director, taken together with any cash fees paid to such nonemployee director during the fiscal year, may not exceed $750,000 in total value (calculating the value of any such awards based on the grant-date fair value of such awards for financial-reporting purposes).

In the event of certain changes in our capitalization, the Administrator will adjust the number, class and type of securities available for issuance under the Incentive Plan and all awards shall be adjusted in accordance with certain tax requirements. Except as described below, shares subject to an award under the Incentive Plan that are terminated, canceled, or forfeited will be available for subsequent awards under the Incentive Plan. Shares withheld in payment of the exercise price of an option or withholding taxes related to an award will be returned to the Incentive Plan share reserve for future grants of awards under the Incentive Plan and will not reduce the Incentive Plan Share Reserve. To the extent an award under the Incentive Plan is paid out in cash rather than Shares, such cash payment will not reduce the number of Shares available for issuance under the Incentive Plan Share Reserve.

Eligibility and Participation

Eligibility to participate in the Incentive Plan is generally limited to our employees, consultants, directors, and officers or those of any of our affiliates.

Types of Awards under the Incentive Plan

The Incentive Plan authorizes the Administrator to grant awards, individually or collectively, to recipients in any of the following forms, subject to such terms, conditions, and provisions as the Administrator may determine to be necessary or desirable:

- nonqualified stock options (“NSOs”);
- restricted share units (“RSUs”);
- performance share units (“PSUs”);
- director share units (“DSUs”);
- performance cash units (“PCUs”); and
- other equity-based awards.

Term of Awards

The term of each award will be determined by the Administrator and stated in the award agreement. In the case of an option, the term may not exceed 10 years from the grant date or such shorter term as may be provided in the award agreement.

Options

Stock options entitle the option holder to purchase shares at a price established by the Administrator. The Administrator will determine the terms of the options, including the vesting and other conditions that must be satisfied for the vesting and exercisability of such awards.

Exercise Price

The Administrator will determine the exercise price of each option at the date of grant, which price may not be less than 100% of the fair market value of the underlying Shares on the date of grant. The Incentive Plan prohibits the reduction of the exercise price of options without stockholder approval, other than in connection with a change in our capitalization.

Exercise of Options

An option holder may exercise his or her Options by delivering notice of the number of Options that are being exercised accompanied by payment in full of the applicable exercise price, in such form and pursuant to such procedures as we may designate from time to time, and may consist of any consideration and method of payment authorized by the Board and permitted by the award agreement and the Incentive Plan.

Separation from Service

In the event that an Incentive Plan participant’s service with us ceases during the vesting period, any unvested options, RSUs, PSUs, and PCUs held by the participant shall expire and be forfeited immediately; provided, however, that the Administrator shall have the absolute discretion to accelerate the vesting of such awards. In respect of options, except as otherwise provided in an award agreement, vested options must be exercised in accordance with the terms of the Incentive Plan by the earlier of the first anniversary date of the termination of service and the expiry date of the option. In respect of PSUs and PCUs, should the Administrator choose to accelerate vesting of PSUs or PCUs, performance-vesting conditions will be waived. In respect of DSUs, all unvested DSUs will

automatically vest on the first business day following the date the individual ceases to hold any directorship with us or one of our affiliates.

Stock Awards

Stock awards, including RSUs, PSUs, DSUs, and other types of awards deriving their value from the Shares, may be granted under the Incentive Plan. These stock awards may be denominated in Shares or units payable in Shares (e.g., RSUs) and may be settled in cash, Shares, or a combination of cash and Shares. Dividend equivalent rights, which represent a right to receive the equivalent value of dividends paid on Shares, may be granted in connection with DSUs. The Administrator will determine the terms of stock awards, including the vesting and other conditions that must be satisfied for the vesting of such awards.

Tax Withholding

The Administrator may require a recipient to remit and will have the right to deduct or withhold an amount sufficient to satisfy applicable withholding tax requirements with respect to any award granted under the Incentive Plan.

Change in Control

The effect, if any, of certain transactions described in the Incentive Plan constituting a change in control of us on any awards outstanding at the time immediately prior to such change in control will be specifically set forth in the corresponding award agreement, or if no such treatment is specified, then such outstanding awards shall be subject to any agreement of purchase, merger, or reorganization that effects such change in control, which agreement shall provide for treatment of such awards.

Termination and Amendment of the Incentive Plan

The Board or the Committee may amend, suspend, or terminate the Incentive Plan or any award at any time, subject to any required shareholder approval and any required consent from participants to the extent required under the Incentive Plan or by applicable law.

Term of Plan

The Incentive Plan became effective on the date of our admission to, and the listing of shares for trading on, Nasdaq, and will continue in effect until terminated through a resolution by the Board, provided that the termination of the Incentive Plan will not affect awards then outstanding, and the terms and conditions of the Incentive Plan shall continue to apply to such awards.

Retirement Plan and Employee Benefits

We sponsor a 401(k)plan covering substantially all of our employees, including our NEOs. Employees become eligible to participate in the plan upon completing three months of service and attainment of age 21. Eligible employees may elect to make either pretax or Roth contributions to the plan, subject to limitations set forth in the plan and the Code. We may make safe-harbor matching contributions equal to 100% of the first 4% of employees' eligible earnings and an additional 50% on the next 2% of employees' eligible earnings. We may also make discretionary profit-sharing contributions.

Compensation of Directors

The following table sets forth the compensation earned by our directors during the year ended June 30, 2023.

Name	Fees earned or paid in cash ($)	Stock awards ($)		Total ($)
David Salisbury	128,000	106,445	(1)	234,445
Stephen Hunt	70,304	60,887	(2)	131,191
Sen Ming (Jimmy) Lim	60,717	54,607	(3)	115,324
H. Keith Jennings	60,012	59,549	(4)	119,561
Graham Van't Hoff	132,189	27,811	(5)	160,000

(1) 16,035 RSUs
(2) 8,678 RSUs
(3) 7,386 RSUs
(4) 8,676 RSUs, 1,213 DSUs
(5) 8,479 RSUs

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The following table sets forth certain information with respect to beneficial ownership of the Company's Common Stock as of October 27, 2023, by each person, or group of affiliated persons, known to the Company to own beneficially more than 5% of the Company's outstanding Common Stock, each director and director nominee, each named executive officer, and all the executive officers and directors of the Company as a group. Unless otherwise indicated in the footnotes to the table, the address of each such person is care of the Company, 9329 Mariposa Road, Suite 210, Hesperia, California 92344.

Beneficial ownership is determined in accordance with Rule 13d-3 of the Exchange Act. Shares of Common Stock subject to options currently exercisable or exercisable within 60 days of October 27, 2022, are deemed outstanding for purposes of computing the percentage beneficially owned by such holder, but are not deemed outstanding for purposes of computing the percentage beneficially owned by any other person. Except as otherwise indicated, the Company believes that the beneficial owners of the Common Stock listed below, based on information furnished by such owners, have sole investment and voting power with respect to such shares, subject to community property laws where applicable, and that there are no other affiliations among the stockholders listed in the table. The percentage for each beneficial owner is calculated based on (i) the aggregate number of shares reported to be owned by such group or individual and (ii) the aggregate number of shares of Common Stock outstanding as of October 26, 2023 was 44,237,054.

Name	Shares of Common Stock Owned[1]	Right to Acquire Beneficial Ownership in Number of Common Stock[2]	Total Common Stock Beneficially Owned	Percent of Outstanding Common Stock[1][2]
Executive Officers				
Susan Brennan	—	—	—	*
Paul Weibel	—	169,730	169,730	*
Directors				
David Salisbury	17,387	200,000	217,387	*
Stephen Hunt[3]	145,131	—	145,131	*
H. Keith Jennings	6,229	—	6,229	*
Sen Ming (Jimmy) Lim[4]	5,135,189	—	5,135,189	11.61%
Graham van't Hoff	9,591	—	9,591	*
All directors and named executive officers as a group (seven persons)	5,313,527	369,730	5,683,257	12.85%

*Represents beneficial ownership of less than 1% of the outstanding shares of our Common Stock.

(1) Includes shares of Common Stock that may be represented by CDIs.

(2) Includes Common Stock that may be acquired through the exercise of stock options that are currently exercisable or will be exercisable within 60 days of October 26, 2023.

(3) Includes 82,797 shares of our Common Stock held by Mr. Hunt individually, 20,834 shares of our Common Stock held in Mr. Hunt's superannuation fund, and 41,500 shares of our Common Stock held by Minerals and Metals Pty Ltd., a corporation of which Mr. Hunt is the sole stockholder and director.

(4) These shares are owned by Virtova Capital Management Limited. Director Sen Ming (Jimmy) Lim is the sole stockholder of Virtova Capital Management Limited and, as such, may be deemed to be the beneficial owner of the shares held by Virtova Capital Management Limited.

Shares Owned by Certain Beneficial Holders

The amounts and percentages of Common Stock beneficially owned are reported on the basis of regulations of the SEC governing the determination of beneficial ownership of securities. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power," which includes the power to vote or to direct the voting of such security, or "investment power," which includes the power to dispose of or to direct the disposition of such security. A person is also deemed to be a beneficial owner of any securities of which that person has the right to acquire beneficial ownership within 60 days. Under these rules, more than one person may be deemed a beneficial owner of the same securities and a person may be deemed to be a beneficial owner of securities as to which such person has no economic interest.

The following table sets forth the information for each person deemed to beneficially own 5% or more of our outstanding Common Stock, based on information regarding the beneficial ownership of Common Stock available to us as of October 27, 2023. The table

also sets out the names of all persons (of which the Company is aware) who are substantial holders in the Company within the meaning of section 671B of the Corporations Act and the number of Shares in which each substantial holder has an interest.

Name and Address of Beneficial Owner	Number of Shares	Percentage of Outstanding Common Stock[1]
Virtova Capital Management Limited[2] Room 1104, Crawford House, 70 Queen's Road Central Central, Hong Kong, SAR	5,128,206	11.59%
Atlas Precious Metals Inc.[3] 100 King Street, W#1600 Toronto, Ontario, M5X1G5, Canada	4,092,000	9.25%
Mayfair Ventures Pte Ltd[4] 62 Ubi Road 1, 02-01 Oxley Bizhub 2, Singapore, 408734	3,563,954	8.06%
BEP Special Situations IV LLC[5] 300 Crescent Court, Suite 1860 Dallas, TX 75201	3,611,438	8.16%

(1) Includes shares of Common Stock represented by CDIs. Shares of Common Stock that BEP Special Situations IV LLC may acquire through conversion of the Convertible Notes are not deemed outstanding for purposes of computing the percentage beneficially owned by any other person.

(2) Director Sen Ming (Jimmy) Lim is the sole stockholder of Virtova Capital Management Limited and, as such, may be deemed to be the beneficial owner of the shares held by Virtova Capital Management Limited.

(3) Eileen Shipes is the trustee and The Harold Roy Shipes and Eileen Anne Shipes Revocable Trust is the controlling stockholder of Atlas Precious Metals Inc. and, as such, may be deemed to be the beneficial owner of the shares held by Atlas Precious Metals Inc.

(4) Chow Woei Horng is the sole stockholder of Mayfair Ventures Pte Ltd. and, as such, may be deemed to be the beneficial owner of the shares held by Mayfair Ventures Pte Ltd.

(5) BEP Special Situations IV LLC ("BEP SS IV") directly holds the Convertible Notes, which are convertible pursuant to the Note Purchase Agreement into 3,409,091 shares of Common Stock. Bluescape Energy Partners IV GP LLC ("Bluescape GP") is the general partner of Bluescape Energy Recapitalization and Restructuring Fund IV LP., which wholly owns BEP SS IV. As such, Bluescape GP may be deemed to have beneficial ownership of the securities directly held by BEP SS IV. The foregoing information is derived from the Schedule 13G filing of BEP SS IV and Bluescape GP dated August 26, 2022.

Australian Disclosure Requirements

In addition to the Company's primary NASDAQ listing, the Company's Common Stock is also quoted in the form of CDIs on the ASX and trade under the code "5EA". As part of our ASX listing, we are required to comply with certain of the disclosure and other obligations set out in the ASX Listing Rules. The following information is provided in accordance with the requirements of the ASX and the ASX Listing Rules (where that information has not been provided elsewhere in this Annual Report).

Place of Incorporation and Restrictions on the Acquisition of Securities

The Company is incorporated in the State of Delaware in the United States of America and is registered as a foreign company in Australia under the Corporations Act (ARBN 665 137 170). As a foreign company, the Company is not subject to Chapters 6, 6A, 6B or 6C of the Corporations Act (dealing with the acquisition of its shares, including substantial holdings and takeovers).

Under the Delaware General Corporation Law, shares in the Company are generally freely transferable. Transfers may, however, be subject to restrictions imposed by United States federal or state securities laws, by the Company's certificate of incorporation or bylaws, or by an agreement signed with the holders of shares on issue.

The Company's certificate of incorporation and bylaws do not impose any specific restrictions on the transfer of the Company's shares. Transfers of the Company's shares will be made only on the transfer books of the Company or by a transfer agent designated to transfer the Company's shares.

Repurchases of the Company's securities are governed by the safe harbor provisions set forth in Rule 10B-18 of the Securities Exchange Act of 1934. However, provisions of the Delaware General Corporation Law, the Company's certificate of incorporation and the Company's bylaws could make it more difficult to acquire the Company by means of a tender offer (takeover), a proxy contest or otherwise, or to remove incumbent officers and directors of the Company. These provisions could discourage certain types of

coercive takeover practices and takeover bids that the Company's board may consider inadequate and encourage persons seeking to acquire control of the Company to first negotiate with the Board.

Issued Capital

As of July 31, 2023, the Company had 44,218,406 shares of Common Stock on issue, of which:

- 14,017,918 shares of Common Stock were held by 20 stockholders, and quoted on NASDAQ. (Note: The actual number of stockholders is greater than this number and includes holders who are beneficial owners, but whose shares are held in street name by brokers and other nominees. The number of active holders of record also do not include holders whose shares may be held in trust by other entities.); AND
- 30,200,488 shares of Common Stock were held by CHESS Depositary Nominees Pty Ltd (as Depositary Nominee) on behalf of 3,991 CDI holders, representing 302,004,880 CDIs quoted on ASX.

In addition, as of July 31, 2023, the Company had the following unquoted securities on issue which entitle the holder (upon vesting) to be issued Common Stock:

- 4,187,333 unquoted options, held by 25 option holders;
- 11,103 Director Share Units, held by 3 directors of the Company pursuant to the Company's 2022 Equity Compensation Plan;
- 148,248 Restricted Share Units, held by 12 employees and directors of the Company pursuant to the Company's 2022 Equity Compensation Plan;
- 139,184 Performance Share Units, held by 12 employees and directors of the Company pursuant to the Company's 2022 Equity Compensation Plan; and
- 60,000 Convertible Notes held by Bluescape pursuant to the Convertible Note Purchase Agreement.

Voting Rights

Each holder of Common Stock is entitled to one vote per Common Stock held. Holders of CDIs are entitled to receive notice of, and to attend as guests (but not vote at) meetings of stockholders. Holders of CDIs are the beneficial owner of one share of Common Stock for every 10 CDIs held. The Depositary Nominee (or its custodian) is the legal holder of the Common Stock underlying the CDIs.

As the beneficial owners, holders of CDIs may:

- direct the Depositary Nominee (or its custodian) how to vote the Common Stock represented by their CDIs by completing the CDI Voting Instruction Form that accompanies the relevant notice of meeting or proxy statement; or
- appoint themselves (or another person) to be the Depositary Nominee's proxy with respect to the Common Stock represented by their CDIs for the purposes of attending and voting at the meeting by completing the CDI Voting Instruction Form that accompanies the relevant notice of meeting or proxy statement.

Alternatively, holders of CDIs can elect to convert their CDIs into Common Stock and vote those Common Stock at the meeting. Such conversion must be completed prior to the record date fixed by the Company for determining the entitlement of stockholders to attend and vote at the meeting.

Options, Restricted Share Units, Performance Share Units, Director Share Units and Convertible Notes do not carry voting rights.

Distribution of CDI Holders

Below is a distribution schedule of the number of holders of CDI's, at July 31, 2023 and assuming all shares of Common Stock are held as CDIs.

	Number of Holders	Number of CDIs
1-1,000	776	389,941
1,001-5,000	1,205	3,333,190
5,001-10,000	540	4,204,189
10,001-100,000	1,172	41,429,586
100,001 and over	298	252,647,974
	3,991	302,004,880

The number of stockholders and/or CDI holders who hold less than a marketable parcel of securities (where a "marketable parcel" is a parcel of securities worth at least A$500, pursuant to the ASX Operating Rules) was 94, based on the closing price of the Company's common stock and CDIs as of July 31, 2023.

Twenty Largest CDI Holders

Below are details of the 20 largest holders of CDIs, and the number and percentage of issued CDIS held by those holders, as at July 31, 2023 and assuming all shares of Common Stock are held as CDIs.

	Name	Number of CDIs Held[(1)]	Percentage of CDIs
1	Virtova Capital Management Limited	51,282,060	17.0%
2	Mayfair Ventures Pte Ltd	35,639,540	11.8%
3	Citicorp Nominees Pty Limited	19,865,507	6.6%
4	Hsbc Custody Nominees (Australia) Limited	12,244,547	4.1%
5	Hsbc Custody Nominees (Australia) Limited - A/C 2	8,047,103	2.7%
6	J P Morgan Nominees Australia Pty Limited	5,693,178	1.9%
7	Mr Daniel Eddington + Mrs Julie Eddington <Dj Holdings A/C>	5,433,880	1.8%
8	Bring On Retirement Ltd	5,065,479	1.7%
9	Mr Zachary Purton	4,085,000	1.4%
10	Bnp Paribas Nominees Pty Ltd <Ib Au Noms Retailclient Drp>	3,797,968	1.3%
11	Jawaf Enterprises Pty Ltd <Hall Family A/C>	3,575,000	1.2%
12	Bnp Paribas Noms Pty Ltd <Drp>	2,791,286	0.9%
13	Allen Group Holdings Pty Ltd	2,510,000	0.8%
14	E & E Hall Pty Ltd <E & E Hall P/L S/F A/C>	2,318,957	0.8%
15	Northmead Holdings Pty Ltd <The Greenwell Family A/C>	2,000,000	0.7%
16	Mr Aaron Dean Bertolatti <Bertolatti Family A/C>	1,811,000	0.6%
17	Rda Asset Management Limited	1,598,000	0.5%
18	Scor Go Luath Limited	1,594,000	0.5%
19	Viewade Pty Limited <Oliver Super Fund A/C>	1,466,670	0.5%
20	Hylec Investments Pty Limited <Hylec Controls P/L S/F A/C>	1,311,670	0.4%

(1) Including shares of Common Stock represented as though they were held as CDIs (with 10 CDIs representing a beneficial ownership interest in 1 share of Common Stock).

Additional Information

Paul Weibel is the Company's corporate secretary.

Our principal executive office in the United States is 9329 Mariposa Road, Suite 210, Hesperia, California, 92344 (telephone: +1 442 221 0225). Our registered office in the United States is 1209 Orange Street, Wilmington, Delaware, 19801.

Our registered office in Australia is c/o American Pacific Borates Pty Ltd, Level 12, 197 St George's Terrace, Perth WA 6000 (telephone: +61 8 6141 3145).

Registers of our securities are held as follows:

- For CDIs in Australia: Computershare Investor Services Pty Limited, Level 12, 197 St George's Terrace, Perth WA 6000. Investor Enquiries: + 61 8 9323 2000 (within Australia) or +61 3 9415 4000 (outside Australia).
- For Common Stock in the United States: Computershare Trust Company N.A., 250 Royall Street, Canton MA 02021. Telephone: +1 781 575 3100.

There is no current on-market buy-back of the Company's securities.

The Company does not have any restricted securities on issue, or securities subject to voluntary escrow.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The Company's Audit Committee charter requires that the Audit Committee review and approve or disapprove all related person transactions that are required to be disclosed by Item 404 of Regulation S-K. The Company reviews all relationships and transactions reported to it in which the Company and our directors and executive officers or their immediate family members or any person who is known by the Company to be the beneficial owner of more than five percent (5%) of our voting stock are participants to determine whether such persons have a direct or indirect material interest. The Company's management is primarily responsible for the development and implementation of processes and controls to obtain information from the directors and executive officers with respect to related person transactions and for then determining, based on the facts and circumstances, whether the Company or a related person has a direct or indirect material interest in the transaction.

Our Board of Directors has adopted a policy regarding transactions affecting director independence as part of a comprehensive governance program. This policy regarding transactions between us or any of our affiliates and our directors, officers, and employees is set forth in writing in our Corporate Governance Guideline and our Code of Business Conduct. These documents are available on our website. The Board of Directors believes these documents promote the effective functioning of the Board, its committees, and management. Accordingly, they are periodically reviewed and revised, as appropriate.

Since the beginning of our last fiscal year, there have been no transactions, and there currently are no proposed transactions, in which we are to be a participant and in which any related person has or will have a direct or indirect material interest involving the lesser of $120,000 and one percent (1%) of the average of our total assets as of the end of last three completed fiscal years. A related person is any executive officer, director, nominee for director, or holder of 5% or more of our Common Stock, or an immediate family member of any of those persons.

Item 14. Principal Accountant Fees and Services

Fees billed by PricewaterhouseCoopers LLP and BDO USA LLP for the fiscal years ended June 30, 2023 and 2022, respectively, are as follows:

	2023	2022
Audit fees	$ 629,080	$ 472,100
Audit-related fees	—	—
Tax fees	—	14,495
All other fees	2,900	—
Total fees	$ 631,980	$ 486,595

Audit fees for the year ended June 30, 2023 include $629,080 paid to PricewaterhouseCoopers LLP for the audit of the Company's year-end financial statements included in our Annual Report on Form 10-K for the fiscal year ended June 30, 2023, consents, and other items related to SEC matters.

Audit fees for the year ended June 30, 2022 include amounts paid to BDO for the audit of the Company's year-end financial statements included in our Annual Report on Form 10-K for the fiscal year ended June 30, 2022, professional services rendered in connection with certain Form S-1 and S-8 registration statements and other items related to SEC matters. There were no other audit-related fees, tax fees, or any other fees billed by BDO during the year ended June 30, 2022.

Pre-Approval Policies and Procedures

Under the Sarbanes-Oxley Act of 2002, as amended, all audit and non-audit services performed by our auditors must be approved in advanced by our board of directors to assure that such services do not impair the auditors' independence from us. In accordance with its policies and procedures, our board of directors pre-approved the audit services performed by PricewaterhouseCoopers and BDO as of and for the year ended June 30, 2023.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a)(1) and (2) Financial Statements; Financial Statement Schedules

Our consolidated financial statements as of and for the years ended June 30, 2023 and 2022, together with the notes thereto, and the reports of our independent registered public accounting firms PricewaterhouseCoopers, LLP (PCAOB ID 238, Denver, Colorado) dated August 30, 2023 and BDO USA, LLP (PCAOB ID 243, Spokane, Washington) dated September 28, 2022 thereon, are presented in "Item 8. Financial Statements and Supplementary Data" of our Annual Report on Form 10-K filed August 30, 2023.

Financial Statement Schedules

Financial statement schedules listed under SEC rules but not included in this report are omitted because they are not applicable or the required information is provided in the notes to our consolidated financial statements.

Exhibits

(a)(3) Exhibits

The following documents are filed as exhibits hereto:

Exhibit Number	Exhibit Title
2.1#*	Scheme Implementation Agreement dated as of October 11, 2021 between American Pacific Borates Limited and 5E Advanced Materials, Inc. (incorporated by reference to Exhibit 2.1 to the Company's Registration Statement on Form 10-12B filed with the SEC on March 7, 2022)
3.1*	Certificate of Incorporation of 5E Advanced Materials, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Registration Statement on Form 10-12B filed with the SEC on March 7, 2022)
3.2*	Amended and Restated Bylaws of 5E Advanced Materials, Inc. (incorporated by reference to Exhibit 3.2 to the Company's Registration Statement on Form 10-12B filed with the SEC on March 7, 2022)
4.1*	Description of Registrant's Securities
10.1+*	5E Advanced Materials, Inc. 2022 Equity Compensation Plan (incorporated by reference to Exhibit 10.1 to the Company's Registration Statement on Form 10-12B filed with the SEC on March 7, 2022)
10.2*	Form of Indemnification Agreement for Directors and Officers (incorporated by reference to Exhibit 10.2 to the Company's Registration Statement on Form 10-12B filed with the SEC on March 7, 2022)
10.3+*	Brennan Employment Agreement (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on March 21, 2023)
10.4+*	Offer Letter from Fort Cady (California) Corporation to Mr. Weibel
10.5+*	Offer Letter from 5E Advanced Materials, Inc. to Mr. van't Hoff (incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed with the SEC on October 25, 2022)
10.6+*	Promotion Letter from Fort Cady (California) Corporation to Mr. Weibel
10.7*	Letter dated November 4, 2021 by 5E Advanced Materials, Inc. to ASX Limited regarding acknowledgment of CHESS Depositary Nominee (CDN) Function
10.8+*	Offer Letter from 5E Advanced Materials, Inc. to Mr. Jennings (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed with the SEC on October 25, 2022).
10.9+*	Offer Letter from 5E Advanced Materials, Inc. to Mr. Hunt
10.10+*	Offer Letter from 5E Advanced Materials, Inc. to Mr. Lim
10.11+*	Offer Letter from 5E Advanced Materials, Inc. to Mr. Salisbury
10.12*	Convertible Note Purchase Agreement dated August 11, 2022
10.13*	Registration Rights Agreement (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the SEC on August 31, 2022)
10.14+*	Addendum to Offer Letter from Fort Cady (California) Corporation to Mr. Weibel (as amended by Promotion Letter from Fort Cady (California) Corporation to Mr. Weibel)
14.1**	Code of Business Conduct and Ethics
16.1*	Letter from BDO USA, LLP to the SEC, dated October 3, 2022 (incorporated by reference to Exhibit 16.1 to the Company's Current Report on Form 8-K filed with the SEC on October 3, 2022).
21.1*	Subsidiaries of the Company (incorporated by reference to Exhibit 21.1 to the Company's Registration Statement on Form 10-12B filed with the SEC on March 7, 2022)
23.1**	Consent of Barr Engineering Co.
23.2**	Consent of Mike Rockandel Consulting LLC
23.3**	Consent of Louis Fourie, P. Geo., Principal, Terra Modeling Services
23.4**	Consent of Mathew Banta, PH, Principal, Confluence Water Resources LLC
23.5**	Consent of Escalante Geological Services LLC

Exhibit Number	Exhibit Title
23.6**	Consent of Paul Weibel, CPA, Chief Financial Officer, 5E Advanced Materials, Inc.
23.7*	Consent of BDO USA, P.C.
23.8*	Consent of PricewaterhouseCoopers, LLP
31.1**	Certification of the Principal Executive Officer required by Rule 13a-14(a) or Rule 15d-14(a).
31.2**	Certification of the Principal Financial Officer required by Rule 13a-14(a) or Rule 15d-14(a).
32.1*	Certification of the Principal Executive Officer required by Rule 13a-14(b) or Rule 15d-14(b) and 18 U.S.C. 1350.
32.2*	Certification of the Principal Financial Officer required by Rule 13a-14(b) or Rule 15d-14(b) and 18 U.S.C. 1350.
96.1*	Initial Assessment Report (October 2023)
104**	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

\# Schedules have been omitted pursuant to Items 601(a)(5) and 601(b)(2) of Regulation S-K. The Company hereby undertakes to furnish supplemental copies of any of the omitted schedules upon request by the U.S. Securities and Exchange Commission. The Company may request confidential treatment pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended, for any schedules so furnished.

\+ Management contract or compensatory plan, contract or arrangement.

* Previously filed.

** Furnished herewith

Item 16. Form 10–K Summary.

None.

SIGNATURES

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

5E ADVANCED MATERIALS, INC.

By:/s/ Paul Weibel

Paul Weibel
Chief Financial Officer (Principal Financial and Accounting Officer)

Date: October 27, 2023

POWER OF ATTORNEY AND SIGNATURES

We, the undersigned officers and directors of 5E Advanced Materials, Inc. hereby severally constitute and appoint Paul Weibel, our true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution for her or him and in her or his name, place and stead, and in any and all capacities, to sign any and all amendments to this Form 10-K/A, and generally to do all things in our names and on our behalf in such capacities to enable 5E Advanced Materials, Inc. to comply with the provisions of the Securities Exchange Act of 1934, as amended, and all the requirements of the Securities Exchange Commission.

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

Signature	Capacity	Date
/s/ Paul Weibel, Attorney-in-Fact Susan S. Brennan	Chief Executive Officer and Director (Principal Executive Officer)	October 27, 2023
/s/ Paul Weibel Paul Weibel	Chief Financial Officer (Principal Financial and Accounting Officer)	October 27, 2023
/s/ Paul Weibel, Attorney-in-Fact David Salisbury	Chairman of the Board	October 27, 2023
/s/ Paul Weibel, Attorney-in-Fact Stephen Hunt	Director	October 27, 2023
/s/ Paul Weibel, Attorney-in-Fact Sen Ming Lim	Director	October 27, 2023
/s/ Paul Weibel, Attorney-in-Fact H. Keith Jennings	Director	October 27, 2023
/s/ Paul Weibel, Attorney-in-Fact Graham van't Hoff	Director	October 27, 2023

5E Advanced Materials, Inc.
Code of Business Conduct

Introduction

This Code of Business Conduct applies to 5E Advanced Materials, Inc. and its consolidated subsidiaries, together referred to as "our Company."

We expect each employee to use sound judgment to help us maintain appropriate compliance procedures and to carry out our business in compliance with laws and high ethical standards. Each employee of our Company is expected to read and demonstrate personal commitment to the standards set forth in this Code.

Our officers and other supervising employees are expected to be leaders in demonstrating this personal commitment to the standards outlined in this Code and recognizing indications of illegal or improper conduct.

All employees are expected to report appropriately any indications of illegal or improper conduct.

An employee who does not comply with the standards set forth in this Code may be subject to discipline in light of the nature of the violation, including termination of employment.

This Code is not a contract and is not intended as a detailed guide for all situations you may face. You are also expected to comply with our employee handbook and other workplace rules we may from time to time communicate, all of which supplement this Code.

How to Report Your Concerns

- *Where to Direct Questions*. If you have questions about this Code or concerns about any of the matters listed here, please first consider speaking with your immediate manager or supervisor. If you do not wish to communicate with that person on the matter, please feel free to contact any member of our management, or the Company Secretary.

- *Good Faith Concerns Are Protected*. We encourage each of our employees to report any concerns that others in our Company or our agents may have engaged in illegal or unethical conduct relating to our business. We do not discriminate against employees who reasonably believe there has been illegal or unethical conduct and who in good faith report these concerns to us.

- *Federal Law Protects Assistance in Investigations*. Under federal law, our Company may not discharge or otherwise discriminate against an employee for any lawful act by the employee to provide information, or assist, in an investigation of conduct the employee reasonably believes to be a violation of federal securities and other listed laws. This applies to an investigation conducted by us, by any federal agency, or by a member of Congress or its committees. It is also unlawful for any person, knowingly and with intent to retaliate, to interfere with the lawful employment or livelihood of another person for providing to any law enforcement officer any truthful information relating to possible violations of any federal law.

- *False Claims Are Prohibited.* However, it is a violation of our standards for any employee to communicate a report claiming illegal or unethical conduct which the employee knows to be false.

- *Prompt Reporting of Concerns*. We encourage all employees to report promptly all violations of this Code to an appropriate person or persons under the circumstances. We expect all employees to be accountable for adherence to this Code, including the responsibility to report violations.

- *Where to Report Your Concerns*. If you wish to report or discuss any problem concerning our Company or the matters outlined below, please promptly inform your supervising manager, or report the matter to our Company Secretary. If you wish to communicate any matter anonymously, you are free to do so, and we will maintain the confidentiality of your communication to the extent possible under applicable laws. Communications intended to be confidential should be mailed in writing without indicating your name or address to Attention: Company Secretary, 19500 State Hwy 249 Suite 125, Houston, Texas 77070 USA.

- *Audit Committee Available to Hear About Accounting Matters*. In addition to the above, if you have concerns about accounting, internal accounting controls or auditing matters relating to our Company, you are also free to contact the audit committee of our board of directors directly. Inquiries or communications intended to be anonymous should be mailed in writing without indicating your name or address to Attention: Company Secretary, 19500 State Hwy 249 Suite 125, Houston, Texas 77070 USA. If you wish to speak in person to an audit committee member, please contact the Company Secretary who will arrange a meeting.

Our Commitment to Stockholders

We expect our employees to share a commitment to protect our assets and manage our business in the best interests of our stockholders.

- *Accuracy of our records and reporting*. All financial and other business information pertaining to our Company must be accurately recorded, all financial records and transactions must adhere to our system of internal controls and accounting requirements, and no one will enter any false or artificial information in our records or reporting systems. All Company information must be reported honestly and accurately, whether in internal personnel, safety or other records or in information we release to the public or file with government agencies.

- *Disclosure Controls and Procedures*. We are required by SEC rules to maintain effective "disclosure controls and procedures" so that financial and non-financial information we are required to report to the SEC is timely and accurately reported both to our senior management and in the filings we make. All employees are expected, within the scope of their employment duties, to support the effectiveness of our disclosure controls and procedures. To that end, it is our policy to promote the full, fair, accurate, timely and understandable disclosure in reports and documents that we file or furnish with the SEC and otherwise communicate to the public.

- *Financial Code of Ethics for Employees with Financial Reporting Obligations*. Because our Chief Executive Officer, Chief Financial Officer and other members of our finance department have a special role in promoting the fair and timely reporting of our financial results and condition, these individuals are also bound by the following responsibilities. By accepting this Code, each of these individuals further agrees that, within the scope of his or her respective employment positions, he or she will:

    - act with honesty and integrity, avoiding actual or apparent conflicts of interest in personal and professional relationships;

    - promote full, fair, accurate, timely, and understandable disclosure in reports and documents that our Company provides to government agencies and in other public communications;

    - comply with applicable governmental laws, rules and regulations;

    - act in good faith, responsibly, with due care, competence and diligence, without misrepresenting material facts or allowing one's independent judgment to be subordinated;

    - respect the confidentiality of information acquired in the course of one's work except when authorized or otherwise legally obligated to disclose it. Confidential information acquired in the course of one's work will not be used for personal advantage;

- share knowledge and maintain skills important and relevant to the goals of this Code;
- proactively promote ethical behavior among peers, in the work environment and the community;
- achieve responsible use of and control over all Company assets and resources employed by or entrusted to the individual;
- promptly report under the reporting procedures outlined in this Code or, if appropriate, report directly to the chairperson of the audit committee of our board of directors, any conduct that the individual believes to be a violation of law, business ethics or this Code;
- be accountable for adherence to this Code.

- *Prohibition on Improper Influence on Conduct of Audits*. It is against our policy and a violation of SEC rules for any of our directors or officers, or any person acting under their direction, to coerce, manipulate, mislead, or fraudulently influence the independent auditors selected to audit or review our financial statements when the officer, director or other person knew or should have known that the action, if successful, could result in rendering our financial statements materially misleading.

- *Stock Trading and Confidential Information Policy*. The Company's stock trading policy prohibits any employee who is aware of material nonpublic information concerning the Company, or concerning third parties with whom the Company does business, from buying or selling securities of our Company or of those third parties until after the material information has been fully disclosed to the public. Employees must not disclose or "tip" any of this material nonpublic information to family, friends or others outside the Company. The trading restriction on our Company securities would not, however, apply to sales or purchases in accordance with a "trading plan" validly adopted in compliance with applicable SEC Rule 10b5-1.

- *No Selective Disclosure*. In addition, SEC rules also prohibit selective disclosure of material nonpublic information to those outside the Company in most circumstances. Therefore, all employees are expected to assist the Company in keeping all material nonpublic information about the Company strictly confidential unless and until the Company makes an authorized press release or other authorized public communication or filing.

- *Information to the Public*. Our policy is to provide timely public dissemination of material information about our business only through our employees authorized for this purpose. Employees are not under any circumstance to discuss the Company's financial, business or other information with the press (except for those employees expressly authorized for this purpose) or on any internet or other "discussion board," "chat room" or similar forum. Requests from the media, analysts or stockholders about our Company must be forwarded to our Investor Relations team for review by our professional staff having responsibility for these matters.

- *Protection of Company Assets*. Each employee is personally responsible to use our Company's assets only for our lawful, corporate purposes approved by management. All employees should help our Company protect its assets from misuse, theft, damage or other loss. Improper or unauthorized personal use of Company assets is prohibited.

- *Intellectual Property*. Employees should help our Company maintain the value of its intellectual property by using care to keep our trade secrets and other nonpublic information confidential, and limit access to nonpublic information to those authorized to use it in their duties for the Company. If customers or suppliers provide nonpublic information to us in their dealings with us, our employees are expected to protect that information in the same manner as our Company's property.

- *Communications*. Employees are expected to use appropriate judgment and discretion in their email, memos, notes, and other formal and informal communications relating to our business. Communications

relating to our business must avoid inappropriate or derogatory comments about other individuals or companies, unprofessional language, and unauthorized financial, legal or business statements.

- *Retention of Records*. Employees are expected to follow the records retention and destruction policies that we implement and communicate from time to time. It is our Company's policy not to destroy or alter our records or documents (whether in paper form, emails or otherwise) in response to or in anticipation of any legal proceeding or government inquiry or investigation. Federal criminal liability may be imposed on any person who:

  - corruptly alters, destroys, mutilates or conceals a record, document or other object with the intent to impair its availability for use in an official proceeding; or

  - knowingly alters, covers up, falsifies or makes a false entry in any record, document or tangible object with the intent to impede or obstruct the investigation or administration of any matter by a federal government agency or bankruptcy court.

Our Commitment to Customers and Business Partners

We are committed to excellence in service and performance for our customers and building mutually advantageous alliances with our business partners.

- *Customer Relationships*. Our policy is to build lasting relationships with our customers through superior delivery and execution, and honest sales and marketing. We will comply with applicable advertising laws and standards, including a commitment that our advertising and marketing will be truthful, non-deceptive and fair and will be backed up with evidence before advertising claims are made. Our policy also prohibits making false or deceptive statements about our competitors, and giving or accepting kickbacks, bribes, inappropriate gifts and other matters prohibited under the conflict of interest topic in this Code.

- *Protecting Information about Others*. We are committed to treating confidential information of our customers and business partners with at least the care we use to protect our own proprietary or confidential information. All employees are expected to use sound judgment in limiting access to confidential information about our customers and business partners to those individuals in our Company who need to know this information to carry out their jobs.

- *Commitment to Quality*. Our long term reputation and business viability depend upon our continued maintenance of high quality in the products and services we provide. We are committed to deliver our products only in accordance with the documentation, safety, quality control and other procedures we maintain from time to time.

- *Special Concerns with Government Customers*. Special legal and contracting rules usually apply to our dealings with domestic and foreign government agencies. Many national, state or other local government agencies impose bidding or procurement requirements, special billing and accounting rules, and restrictions on subcontractors or agents we may engage. Domestic or foreign laws or regulations may also impose strict limits on any kind of benefits or gifts offered to officials, including limitations on hiring former government officials or their family members. Our employees who deal with domestic or foreign government agencies are expected to know the laws applicable to these business activities, and to use sound judgment to avoid any violations of the letter or spirit of the laws prohibiting corrupt practices in connection with government contracting.

- *Suppliers*. Our contracts with suppliers of products and services to us are to be based exclusively on the best interests of our Company and its business, reflect a fair price for the deliverables provided to us, and documented in accordance with appropriate approval, contracting and internal control procedures.

- *Business with Third Parties*. We expect that our consultants, agents, resellers, distributors, subcontractors and other business partners will adhere to lawful and ethical business practices. It is important to our Company's reputation that we avoid doing business with companies which violate applicable laws or have

reputations which could harm our business. Our policy prohibits engaging agents or other third parties to do indirectly what we as a Company should not do under our own policies outlined in this Code.

Our Commitment to Each Other

We expect each employee to promote a positive working environment for all.

- *Respect for Our Employees*. Our Company's employment decisions will be based on reasons related to our business, such as job performance, individual skills and talents, and other business-related factors. Our Company policy requires adherence to all national, state or other local employment laws. Our Company policy prohibits discrimination in any aspect of employment based on race, color, religion, sex, sexual preference, marital status, national origin, disability or age, within the meaning of applicable laws.

- *Abusive or Harassing Conduct Prohibited*. Our Company policy prohibits abusive or harassing conduct by our employees toward others, such as unwelcome sexual advances, comments based on ethnic, religious or racial aspects, or other non-business, personal comments or conduct which make others uncomfortable in their employment with us. We encourage employees to report harassment or other inappropriate conduct as soon as it occurs.

- *Health and Safety*. We expect all employees to help us to maintain a healthy and safe working environment and to report promptly any unsafe or hazardous conditions or materials, injuries, and accidents connected with our business. Employees must not work under the influence of any substances that would impair the safety of others. All threats or acts of physical violence or intimidation are prohibited.

Competition

We are committed to compete effectively, but lawfully, in our business markets.

- *Compliance with Antitrust Laws*. Our Company and its employees must comply with the antitrust and unfair competition laws of the countries in which our Company engages in business. These laws vary by country and can be complex. Employees having roles which may implicate antitrust laws are responsible for knowing the laws that apply to their business activities, and should speak to the Company Secretary if any questions arise. Generally, these laws prohibit or regulate: attempts to monopolize or otherwise restrain trade, selling products below cost, price fixing or other agreements with competitors that would divide or allocate customers or otherwise harm customers, "tying" arrangements that require a customer who wishes to buy a given product to buy other products or services, artificially maintaining prices, and certain other overly restrictive agreements. Our employees must not exchange nonpublic sales information with competitors.

- *Fair Methods of Competition*. Our Company is committed to competition on a lawful and ethical basis. Our employees must not use improper or illegal means of gaining competitive information that is confidential or proprietary information owned by others. Our employees must not use or disclose confidential or proprietary information which they may have from past employment with other employers.

Conflicts of Interest

We expect all of our employees to avoid allowing their private interests to interfere, or appear to interfere, with the interests of our Company as a whole. It is our policy to promote the ethical handling of actual or apparent conflicts of interest between personal and professional relationships.

- *Generally*. Employees are expected to make or participate in business decisions and actions in the course of their employment with us based on the best interests of our Company as a whole, and not based on personal relationships or benefits. Although some general guidelines are provided in this Code, our employees are expected to apply sound judgment to avoid conflicts of interest that could negatively affect our Company or its business, whether or not we have specific rules for that particular situation. Employees are expected to disclose to us any situations that may involve inappropriate or improper conflicts of

interests affecting them personally or affecting other employees or those with whom we do business, as described under "How to Report Your Concerns."

- *Business Referrals*. No employee of our Company may personally attempt to give or steer our Company's business transactions to companies in which a family relative or personal friend has a financial or other interest.

- *Personal Investments*. Generally, our employees must avoid investments in other companies with which our Company does business if these investments could create the fact or appearance of a conflict of interest. Investing in relatively small positions of publicly traded securities of other companies is generally not prohibited so long as there is no violation of our Company policy relating to trading while in possession of material nonpublic information about other companies.

- *Corporate Opportunities*. Employees must also refrain from purchasing property or otherwise taking for themselves personally a business opportunity that they learn about through their employment with us or use of our Company's information.

- *Prohibited Competition*. Employees may not compete with us during the term of their employment, and may not initiate any steps to compete with us while still employed by our Company.

- *Outside Compensation and Activities*. While employed by us, our employees must not work for or seek or accept personal payments from any customer, supplier, competitor, distributor, reseller or other business partner of our Company, except as approved in writing by an authorized officer or manager of our Company. Trade secrets and other nonpublic know-how and information learned at our Company must not be used in activities outside our Company or in other ways that could harm our business.

- *Outside Board Service*. Employees are required to obtain prior written authorization from our Company for service as a director, general partner, manager, officer or similar position with any privately-held or public business entity or as an appointee to any kind of governmental or quasi-governmental agency or body. Service solely as a director or trustee of nonprofit organizations engaged in charitable activities does not require approval unless that activity could involve improper conflicts of interest. This restriction does not apply to our non-employee directors who disclose their relationships to us.

- *Gifts and Gratuities*. Our employees must not seek or accept gifts or gratuities in the form of services or other items of value from our customers, other business partners or other parties with whom our Company contracts. Our employees must not offer or give anything of value that could be or appear to be a bribe or otherwise illegal payment. These prohibitions do not apply to items of truly nominal value such as generally free promotional items, assuming these items are not otherwise prohibited by applicable law or custom. Employees should never accept anything that would appear to create a conflict of interest. In the unusual situation where refusal to accept a true gift might hurt our business, be sure to consult the appropriate officer or manager of our Company concerning the proper means of resolving the situation.

- *Business Entertainment*. Extending or accepting invitations to reasonable meal, public event and similar business activities incurred for bona fide business purposes are generally acceptable, assuming the costs are not disproportionate to the business purpose and otherwise do not create the fact or appearance of a conflict of interest. Our employees are expected to avoid sponsoring or accepting invitations to highly expensive events funded with corporate funds or personal celebrations such as birthday parties with costs paid with corporate funds at which the business purpose may appear incidental. Attending entertainment events that may appear contrary to professional standards of conduct should be avoided. Government officials should not be invited to entertainment events without first assuring that appropriate management of our Company approves the invitation and confirms that it is not prohibited by law.

- *Travel*. Employees are expected to comply with our Company's travel policies in effect from time to time. We expect that all travel-related expenses must be used, accurately reported and recorded in compliance with these policies. If these expenses are to be paid by a customer or other business partner of ours, or if you wish to pay the expenses of your customer or other business contact, or any representative of a

government agency, travelling to our location, your manager or a Company officer must approve these in advance.

Legal Compliance Generally

We expect our employees to be committed to pro-active compliance with all applicable laws and regulations affecting our Company and its business. In addition to the laws referred to elsewhere in this Code:

- *General Standard of Compliance.* Our employees must comply with all applicable laws and regulations in every location in which we conduct our business. Competitive factors, personal goals, and pressure from supervisors, customers or others will never be an acceptable excuse for violating applicable laws. Our Company is a corporation organized in the State of Delaware and our subsidiaries are organized under various U.S. and applicable non-U.S. laws. U.S. laws often extend to the operations of our Company and its subsidiaries throughout the world, and wherever our employees live. Laws of other countries may also apply outside the borders of those countries. If you encounter a conflict in laws of two or more countries that may apply to our operations, please consult Company legal counsel for help in resolving that conflict.

- *Prohibited Corrupt Practices*. Our Company and employees must comply with the United States Foreign Corrupt Practices Act and other anti-corruption laws that apply wherever we do business. Our employees and agents must not directly or indirectly offer or make a corrupt payment to any domestic or foreign government official, political party or candidate, or employee of any enterprise owned or controlled by a government agency, for the purpose of influencing any official act or inaction, or obtaining, retaining or directing business. Our employees must not engage in any form of fraud, including embezzlement, theft, hiding or misuse of Company assets or falsification of records.

- *Prohibited Political Contributions*. Unless first approved by an executive officer of our Company, none of our employees will contribute in our Company's name or on our Company's behalf, any cash, services or property of any kind for or in support of any political candidate, committee, initiative or activity. No lobbying efforts or contracts will be undertaken in our Company's name or on our Company's behalf without the prior approval of the Board.

- *Prohibited Loans to Executive Officers and Directors*. It is unlawful for our Company, directly or indirectly, to extend or maintain credit, to arrange for the extension of credit, or to renew an extension of credit, in the form of a personal loan to or for any director or executive officer of our Company.

- *Import and Export Restrictions*. Our Company and its employees must comply with applicable restrictions under domestic and foreign laws relating to importing or exporting technology, products, services, or regulated information. Employees engaged in import or export transactions for our Company are expected to know and abide by applicable import/export and similar restrictions.

- *Environmental Laws*. We respect the policies and requirements of domestic and foreign laws aimed at protecting the environment. We expect a commitment from our employees to report appropriately any violations of environmental laws and any exposure to hazardous materials or substances which are not being handled or disposed of properly.

- *Intellectual Property Laws*. We expect our employees to conduct our business and use our business systems and facilities in ways that avoid any violations of copyright, trademark, service mark, patent, trade secret or other intellectual property rights held by third parties.

- *Money Laundering Prevention*. People engaged in certain criminal activities such as illegal drugs and fraud may try to disguise proceeds of their crimes as legitimate funds. Many countries including the United States have enacted laws against money laundering that prohibit businesses from accepting or processing proceeds of criminal activities. Some of these laws require the reporting of defined cash or other suspicious transactions. Our employees responsible for documenting customer transactions should use due care to "know your customer," follow proper procedures for documenting the source and manner of payment, and otherwise help our Company avoid transactions that may involve illegal money laundering.

Our Communities

We respect our employees' involvement in the community, charity and political activities and causes they may choose, so long as these activities do not interfere with job responsibilities to us. No employee may represent that the employee's views or activities represent our Company. Our employees must not engage in any unwanted solicitations or pressure toward other employees relating to charitable, religious or political causes.

Waivers Requested by Our Officers and Directors

This Code applies to our directors and officers as well as to our employees generally. Our directors are expected to abide by the principles of this Code, within the scope of their duties as directors, as if they were employees of our Company. Any waiver of this Code of conduct for any individual director or officer of our Company must be approved, if at all, by our board of directors. Any such waivers granted, as well as substantive amendments to this Code, will be publicly disclosed by appropriate means in compliance with applicable listing standards and SEC rules.

Enforcement

It is our policy to promote and implement prompt and consistent enforcement of this Code, fair treatment for persons reporting questionable behavior, clear and objective standards for compliance, and a fair process by which to determine violations.

We appoint and maintain a compliance officer, who reports to and is overseen by the Board. The principal responsibilities of the compliance officer are to oversee our compliance program, investigate reports of possible violations, and provide periodic reports and evaluations of the effectiveness of this program to the Board.

All reports we receive relating to this Code or other potential violations of law or ethics are sent to the compliance officer. The compliance officer initially screens and evaluates all reports. If the compliance officer has information indicating that it is reasonably possible that a violation has occurred, the compliance officer will (i) conduct an investigation to determine whether a violation actually occurred and (ii) report to the compliance committee a summary of each matter as to which an investigation is to be undertaken and a recommendation as to action, if any, to be taken by management.

In each case in which the Board determines that a violation in fact occurred, the committee will recommend that management implement enforcement action that the committee believes appropriate. Enforcement responses will be measured in the business judgment of the Board based on the nature of the violation, personnel involved, and other circumstances. In each case in which the committee determines that a director or executive officer has committed a violation, an appropriate report of the matter will be made to the full board of directors at the board's next meeting.

While it is not practical to specify in advance detailed consequences for every possible violation, the Board will implement policies under which:

- all directors, officers and other employees are equally responsible for adherence to this Code consistent with the scope of their respective positions with our Company;
- enforcement action will be implemented for violations which the committee determines to have occurred;
- individuals will be subject to discipline if they fail to exercise due care within the scope of their respective positions with our Company to detect and report violations by others; and
- enforcement consequences will vary depending on the nature, severity and willful nature of the violation.

Enforcement consequences may include:

- warnings for inadvertent or non-intentional acts which do not materially harm our Company; and
- enforcement action in response to serious violations, including demotion, compensation reduction, termination of employment, legal action to recover damages incurred by our Company and reporting of illegal conduct to appropriate government agencies.

The Board will meet as often as reasonably needed to review any reports of violations from the compliance officer, and will meet at least annually to review and evaluate reports from the compliance officer concerning the adequacy of this Code and related compliance procedures.

The Board's periodic review will also consider:

- effectiveness of this Code to reduce the prospect of misconduct;
- continued qualifications of the compliance officer or any proposed successor;
- effective communication of this Code and related compliance policies to all employees and new hires via training programs and other communications;
- degree of support for our compliance program from senior management; and
- assessment of the compliance program’s effectiveness in achieving consistent and fair enforcement in response to discovered violations and in preventing future violations.

Adopted December 8, 2021

Exhibit 23.1

CONSENT OF BARR ENGINEERING CO.

To: U.S. Securities and Exchange Commission
Board of Directors of 5E Advanced Materials, Inc.

Re: Annual Report on Form 10-K/A of 5E Advanced Materials, Inc. dated October 27, 2023 ("10-K/A")

Barr Engineering Co. ("Barr"), in connection with the 10-K/A consents to:

(i) The filing and/or incorporation by reference by the Company and use of the Technical Report Summary titled "Initial Assessment Report (October 2023) on 5E Advanced Materials Fort Cady Project" with a revised report date of October 27, 2023 and report date of May 11, 2023 (the "Technical Report Summary") that was prepared in accordance with Subpart 1300 of Regulation S-K promulgated by the SEC, filed as Exhibit 96.1 to the Annual Report on Form 10-K/A;

(ii) The use of and references to our name, including our status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the SEC), in connection with the Form 10-K/A and any such Technical Report Summary; and

(iii) The use of any quotation from, or summarization of, the particular section or sections of the Technical Report Summary in the Form 10-K/A, to the extent it was prepared by us, that we supervised its preparation of and/or that was reviewed and approved by us, that is included or incorporated by reference to the Form 10-K/A.

Barr is responsible for, and this consent pertains to Sections 13, 15 and 18 of the Technical Report Summary.

Neither the whole nor any part of the Initial Assessment Report (October 2023) nor any reference thereto may be included in any other filings with the SEC without the prior written consent of Barr as to the form and context in which it appears.

Dated: October 27, 2023

By: 

Name: Daniel R. Palo, PhD, P. Eng., P.E.
Title: Senior Process Engineer, Barr Engineering Co.

Exhibit 23.2

CONSENT OF MIKE ROCKANDEL CONSULTING LLC

To: U.S. Securities and Exchange Commission
Board of Directors of 5E Advanced Materials, Inc.

Re: Annual Report on Form 10-K/A of 5E Advanced Materials, Inc. dated October 27, 2023 ("10-K/A")

Mike Rockandel Consulting LLC ("MRC"), in connection with the 10-K/A consents to:

(i) The filing and/or incorporation by reference by the Company and use of the Technical Report Summary titled "Initial Assessment Report (October 2023) on 5E Advanced Materials Fort Cady Project" with a revised report date of October 27, 2023 and report date of May 11, 2023 (the "Technical Report Summary") that was prepared in accordance with Subpart 1300 of Regulation S-K promulgated by the SEC, filed as Exhibit 96.1 to the Annual Report on Form 10-K/A;

(ii) The use of and references to our name, including our status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the SEC), in connection with the Form 10-K/A and any such Technical Report Summary; and

(iii) The use of any quotation from, or summarization of, the particular section or sections of the Technical Report Summary in the Form 10-K/A, to the extent it was prepared by us, that we supervised its preparation of and/or that was reviewed and approved by us, that is included or incorporated by reference to the Form 10-K/A.

MRC is responsible for, and this consent pertains to Sections 10.3 and 14 of the Technical Report Summary.

Neither the whole nor any part of the Initial Assessment Report (October 2023) nor any reference thereto may be included in any other filings with the SEC without the prior written consent of MRC as to the form and context in which it appears.

Dated: October 27, 2023

By: _____
Name: Mike Rockandel
Society for Mining, Metallurgy and Exploration (Member No. 4122579)
Title: President, Mike Rockandel Consulting LLC

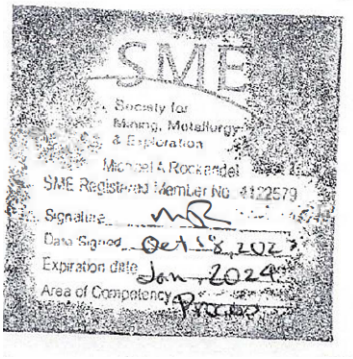


Exhibit 23.3

CONSENT OF TERRA MODELING SOLUTIONS

To: U.S. Securities and Exchange Commission
Board of Directors of 5E Advanced Materials, Inc.

Re: Annual Report on Form 10-K/A of 5E Advanced Materials, Inc. dated October 27, 2023 ("10-K/A")

Terra Modeling Solutions ("TMS"), in connection with the 10-K/A consents to:

(i) The filing and/or incorporation by reference by the Company and use of the Technical Report Summary titled "Initial Assessment Report (October 2023) on 5E Advanced Materials Fort Cady Project" with a revised report date of October 27, 2023 and report date of May 11, 2023 (the "Technical Report Summary") that was prepared in accordance with Subpart 1300 of Regulation S-K promulgated by the SEC, filed as Exhibit 96.1 to the Annual Report on Form 10-K/A;

(ii) The use of and references to our name, including our status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the SEC), in connection with the Form 10-K/A and any such Technical Report Summary; and

(iii) The use of any quotation from, or summarization of, the particular section or sections of the Technical Report Summary in the Form 10-K/A, to the extent it was prepared by us, that we supervised its preparation of and/or that was reviewed and approved by us, that is included or incorporated by reference to the Form 10-K/A.

TMS is responsible for, and this consent pertains to Sections 8, 9, 10, 11 and 12 of the Technical Report Summary.

Neither the whole nor any part of the Initial Assessment Report (October 2023) nor any reference thereto may be included in any other filings with the SEC without the prior written consent of TMS as to the form and context in which it appears.

Dated: October 27, 2023 

By: _____
Name: Louis Fourie, P.Geo.
Title: Principal, Terra Modeling Solutions

Exhibit 23.4

CONSENT OF CONFLUENCE WATER RESOURCES LLC

To: U.S. Securities and Exchange Commission
Board of Directors of 5E Advanced Materials, Inc.

Re: Annual Report on Form 10-K/A of 5E Advanced Materials, Inc. dated October 27, 2023 ("10-K/A")

Confluence Water Resources, LLC ("CWR"), in connection with the 10-K/A consents to:

(i) The filing and/or incorporation by reference by the Company and use of the Technical Report Summary titled "Initial Assessment Report (October 2023) on 5E Advanced Materials Fort Cady Project" with a revised report date of October 27, 2023 and report date of May 11, 2023 (the "Technical Report Summary") that was prepared in accordance with Subpart 1300 of Regulation S-K promulgated by the SEC, filed as Exhibit 96.1 to the Annual Report on Form 10-K/A;

(ii) The use of and references to our name, including our status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the SEC), in connection with the Form 10-K/A and any such Technical Report Summary; and

(iii) The use of any quotation from, or summarization of, the particular section or sections of the Technical Report Summary in the Form 10-K/A, to the extent it was prepared by us, that we supervised its preparation of and/or that was reviewed and approved by us, that is included or incorporated by reference to the Form 10-K/A.

CWR is responsible for, and this consent pertains to Section 7.3 of the Technical Report Summary.

Neither the whole nor any part of the Initial Assessment Report (October 2023) nor any reference thereto may be included in any other filings with the SEC without the prior written consent of CWR as to the form and context in which it appears.

Dated: October 27, 2023

By: 

Name: Mathew Banta, PH
AIH Cert. No. 15-HGW-7004
Title: Principal, Confluence Water Resources LLC

Exhibit 23.5

CONSENT OF ESCALANTE GEOLOGICAL SERVICES LLC

To: U.S. Securities and Exchange Commission
Board of Directors of 5E Advanced Materials, Inc.

Re: Annual Report on Form 10-K/A of 5E Advanced Materials, Inc. dated October 27, 2023 ("10-K/A")

Escalante Geological Services LLC ("Escalante"), in connection with the 10-K/A consents to:

(i) The filing and/or incorporation by reference by the Company and use of the Technical Report Summary titled "Initial Assessment Report (October 2023) on 5E Advanced Materials Fort Cady Project" with a revised report date of October 27, 2023 and report date of May 11, 2023 (the "Technical Report Summary") that was prepared in accordance with Subpart 1300 of Regulation S-K promulgated by the SEC, filed as Exhibit 96.1 to the Annual Report on Form 10-K/A;

(ii) The use of and references to our name, including our status as an expert or "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the SEC), in connection with the Form 10-K/A and any such Technical Report Summary; and

(iii) The use of any quotation from, or summarization of, the particular section or sections of the Technical Report Summary in the Form 10-K/A, to the extent it was prepared by us, that we supervised its preparation of and/or that was reviewed and approved by us, that is included or incorporated by reference to the Form 10-K/A.

Escalante is responsible for, and this consent pertains to Sections 3, 4, 5, 6, 7, 17 and 20 of the Technical Report Summary.

Neither the whole nor any part of the Initial Assessment Report (October 2023) nor any reference thereto may be included in any other filings with the SEC without the prior written consent of Escalante as to the form and context in which it appears.

Dated: October 27, 2023

By: 

Name: Steven Kerr, P.G., C.P.G.
Title: Principal, Escalante Geological Services LLC

Exhibit 23.6

In connection with the Annual Report on Form 10-K/A for the fiscal year ended June 30, 2023 and any amendments thereto (collectively the, "Form 10-K/A" to be filed by 5E Advanced Materials, Inc. (the "Company") with the U.S. Securities and Exchange Commission ("SEC"), the undersigned hereby consents to:

(i) The filing and/or incorporation by reference by the Company and use of the Technical Report Summary titled "Initial Assessment Report (October 2023) on 5E Advanced Materials Fort Cady Project" with a revised report date of October 27, 2023 and report date of May 11, 2023 (the "Technical Report Summary") that was prepared in accordance with Subpart 1300 of Regulation S-K promulgated by the SEC, filed as Exhibit 96.1 to the Annual Report on Form 10-K;

(ii) The use of and references to the undersigned's name as a "qualified person" (as defined in Subpart 1300 of Regulation S-K promulgated by the SEC), in connection with the Form 10-K/A and any such Technical Report Summary; and

(iii) The use of any quotation from, or summarization of, the particular section or sections of the Technical Report Summary in the Form 10-K/A, to the extent it was prepared by the undersigned, that the undersigned supervised its preparation of and/or that was reviewed and approved by the undersigned, that is included or incorporated by reference to the Form 10-K/A.

The undersigned is responsible for, and this consent pertains to Sections 1, 2, 16, 19, 21, 22, 23, 24 and 25 of the Technical Report Summary.

Neither the whole nor any part of the Initial Assessment Report (October 2023) nor any reference thereto may be included in any other filings with the SEC without the prior written consent of the undersigned as to the form and context in which it appears.

By: 

Name: Paul Weibel, CPA (License No. CA 056912)
Title: Chief Financial Officer, 5E Advanced Materials, Inc.

Date: October 27, 2023.

Exhibit 31.1

CERTIFICATION

I, Susan Brennan, certify that:

1. I have reviewed this annual report on Form 10-K/A of 5E Advanced Materials, Inc.;
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;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal controls over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation;
    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b. Any fraud, whether or not material that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: October 27, 2023

/s/ Susan S. Brennan

Susan S. Brennan
Chief Executive Officer and Director
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION

I, Paul Weibel, certify that:

1. I have reviewed this annual report on Form 10-K/A of 5E Advanced Materials, Inc.;
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;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)e)) and internal controls over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation;
    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b. Any fraud, whether or not material that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: October 27, 2023

/s/ Paul Weibel
Paul Weibel
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 96.1

Initial Assessment Report

(October 2023)

5E Advanced Materials Fort Cady Project

Report Date
May 11, 2023

Revised Report Date
October 27, 2023

Report Effective Date
April 1, 2023

List of Qualified Persons

	Section(s)	Date
Louis Fourie, P. Geo., Principal, Terra Modeling Services /s/ Louis Fourie	8, 9, 10, 11, 12	October 27, 2023
Paul Weibel, CPA, 5E Advanced Materials /s/ Paul Weibel	1, 2, 16, 19, 21, 22, 23, 24, 25	October 27, 2023
Dan Palo, P. Eng., P.E., Barr Engineering Co. /s/ Dan Palo	13, 15, 18	October 27, 2023
Steven Kerr, P.G., C.P.G., Principal, Escalante Geological Services LLC /s/ Steven Kerr	3, 4, 5, 6, 7, 17, 20	October 27, 2023
Mike Rockandel, P.E., Mike Rockandel Consulting LLC /s/ Mike Rockandel	10.3, 14	October 27, 2023
Mathew Banta, PH, Confluence Water Resources LLC /s/ Mathew Banta	7.3	October 27, 2023

Table of Contents

List of Figures

List of Tables

Glossary of Terms

Abbreviation	Definition
5E	5E Advanced Materials, Inc.
amsl	Above mean sea level
AOR	Area of Review
APBL	American Pacific Borate & Lithium
BA	Boric acid
B_2O_3	Boron oxide
bgs	Below ground surface
BLM	US Bureau of Land Management
B_2O_3	Boron trioxide (chemical formula)
BMI	Benchmark Mineral Intelligence
C	Celsius
$CaCl_2$	Calcium Chloride (chemical formula)
CAGR	Compound annual growth rate
CEQA	California Environmental Quality Act
cm/sec	Centimeters per second
Duval	Duval Corporation
DXF file	Drawing Interchange Format File
E	East
EIR	Environmental Impact Report (California lead)
EIS	Environmental Impact Statement (BLM lead)
EPA	United States Environmental Protection Agency
F	Fahrenheit
FACE	Financial Assurance Cost Estimate
FCMC	Fort Cady Mineral Corporation
FEL	Front End Loading, a stage gated project management system (with a number to the corresponding stage, eg FEL2)
ft	Foot or Feet
Gal	Gallon(s)
g/l	Gram per liter
Gal/min	Gallons per minute
gpm	gallons per minute
H_2SO_4	Sulfuric acid (chemical formula)
H_3BO_3	Boric acid (chemical formula)
$B(OH)_3$	Boric acid (chemical formula)
HCl	Hydrochloric acid (chemical formula)
ID2	Inverse Distance Squared algorithm
IRR	Internal Rate of Return
ISL	In-Situ Leaching
JORC	Australian Joint Ore Reserves Committee
K	Hydraulic coefficient
k	Thousand
kg	Kilogram
kWh	Kilowatt Hour
Kline	Kline & Company, Inc.
lb(s)	Pound(s) mass
LCE	Lithium carbonate equivalents
Li_2CO_3	Lithium Carbonate
m	Meters(s)

mm	Millimeter(s)
MDAQCD	Mojave Desert Air Quality Control District
MMBTU	Millions of British Thermal Units
MSME	Mountain States Mineral Enterprises Inc.
Mt	Million tons
M	Million
N	North
NAD 83	North American Datum 83 is a unified horizontal or geometric datum providing a spatial reference for mapping purposes
NEPA	National Environmental Policy Act
NN	Nearest neighbor
NPV	Net present value
pH	Potential Hydrogen – a numeric scale to specify the acidity or alkalinity of an aqueous solution
PLS	Pregnant leach solution
Ppm	Parts per million
psi	Pounds per square inch of pressure
QA/QC	Quality Assurance and Quality Control
QP	Qualified Person per SK1300 definition
ROD	The 1994 Record of Decision for the Fort Cady Project was issued after the EIS/EIR evaluations.
S	Storage coefficient
SBC-LUP	San Bernardino County Land Use Services Department
SBM	San Bernardino Meridian
SCE	SoCal Edison
SEC	Securities and Exchange Commission
SOP	Sulphate of Potash
stpa	Short tons per annum
tpy	Tons per year
UIC	Underground Injection Control Class III Area Permit
USDW	Underground source of drinking water
US	United States
US$	United States dollars
UTM	Universal Transverse Mercator coordinate system for mapping
XRF	X-Ray Fluorescence Spectrometry

1 Executive Summary

This report was prepared as an initial assessment Technical Report Summary in accordance with the Securities and Exchange Commission (SEC) S-K regulations (Title 17, Part 229, Items 601 and 1300 through 1305) for 5E Advanced Materials, Inc. and its subsidiary 5E Boron Americas, LLC, (together 5E or the Company) Fort Cady Project (the Project). The Project described herein is part of 5E's strategy to become a globally integrated supplier of boric acid, lithium carbonate and advanced boron derivatives. The Project is in the Mojave Desert, near the town of Newberry Springs, California.

Using the volumes, market inputs, and anticipated operating and capital costs, a detailed economic model was created with a forecasted net present value (NPV) of approximately US$2,410M and internal rate of return (IRR) of 22.6% assuming measured, indicated, and inferred resources are mined (approximately US$829M and 18.7% using only measured and indicated resources). Further details, including key model assumptions, are included in Section 19.

The Project includes private land owned by 5E and an electrical transmission corridor runs through the Project where Southern California Edison has surface and subsurface control to a depth of 500 ft. While this limits surface access to the area within the right-of-way of the transmission lines, mineral rights are owned by 5E, and mineralization remains accessible as the ore body occurs at depths more than 1,000 ft. The Project also includes two unpatented lode claims, and 117 unpatented placer claims from the Bureau of Land Management within the U.S. Department of the Interior. On the southwestern side of the Project, 5E owns the surface area and the State of California owns the mineral rights.

There is a history of exploration and mining of the ore body, beginning in 1964 with the resource discovery and includes production of boric acid and synthetic borates by Duval Corporation (Duval) and Fort Cady Mineral Corporation (FCMC). Geologically, the deposit is bounded by faults on both east and west sides and is the site of prior volcanic activity from the Pisgah Crater. Mineralization occurs in a sequence of lacustrine lakebed sediments ranging in depths from 1,300 ft to 1,500 ft below ground surface.

Exploration drilling has led to a geologic interpretation of the deposit as lacustrine evaporite sediments containing colemanite, a hydrated calcium borate mineral. The deposit also contains appreciable quantities of lithium. Geologic modeling based on drilling and sampling results depicts an elongate deposit of lacustrine evaporite sediments containing colemanite. The deposit is approximately 2.1 mi. long (1.5 mi. long within 5E's mineral holdings) by 0.6 mi. wide and ranging in thickness from 70 to 262 ft. Mineralization has been defined in four distinct horizons defined by changes in lithology and B_2O_3 analyses.

A mineral resource has been estimated and reported using a cut-off grade of 2% B_2O_3. Measured and Indicated resources for the Project total 74.31 million short tons (Mt), containing 5.80 Mt of boric acid and 0.141 Mt of lithium carbonate equivalent. An inferred resource total 96.9 Mt containing 8.17 Mt of boric acid and 0.166 Mt of lithium carbonate equivalent. There are currently no mineral reserves (as defined).

The accuracy of resource and reserve estimates is, in part, a function of the quality and quantity of available data and of engineering and geological interpretation and judgment. Given the data available at the time this report was prepared, the estimates presented herein are considered reasonable. However, they should be accepted with the understanding that additional data and analysis available after the date of the estimates may necessitate revision. These revisions may be material. There is no guarantee that all or any part of the estimated resources or reserves will be recoverable.

The colemanite resource is to be mined via in-situ leaching (ISL) using a hydrochloric acid solution. The leachate will be processed in the commercial-scale facility to initially produce 90,000 short tons per annum (kstpa) of boric acid along with lithium carbonate and gypsum co-products. A Class 5 or FEL-1 level engineering estimate for the phase 1 plant was developed with input from several major EPC firms. A small-scale facility is currently being constructed on site to confirm key assumptions for mining of the orebody and subsequent optimization of process design.

Global boric acid demand remains robust across established markets and future-facing industries while supply continues to be tight across the industry operating network. A supply deficit is expected to continue to materially worsen in the

future and lead to elevated pricing. The overall lithium market, based on well documented market studies, is projected to experience large structural supply deficits through 2040.

Capital cost expectations were determined to be $373M for the first stage, 90,000 stpa boric acid plant (inclusive of coproduct processing) based on thorough review of multiple third-party EPC firm estimates. This estimate includes a 25% contingency. Later expansion phases have been scaled from this figure. Operating costs are built upon detailed process material balances and escalated recent historical pricing of raw materials and utilities.

Operation of the SSF will improve accuracy and optimize operational expenditures as well as sustaining capital estimates based on demonstration of ISL and processing of the resulting brine. Progression to Front End Loading stage 2 Process Design Package (FEL2) engineering will further define the accuracy and optimization of the capital cost estimates for the chemical processing plant and some additional exploration and in-fill drilling can reclassify the inferred resource to measured and indicated resource. Once the SSF is operational, samples of boric acid, lithium carbonate, and gypsum will be utilized to secure bankable offtake agreements for commercialization. Once these steps are completed, the Company is well positioned to update this initial assessment to a prefeasibility study.

2 Introduction

2.1 Registrant for Whom the Technical Report was Prepared

This report was prepared as an initial assessment level Technical Report Summary in accordance with the Securities and Exchange Commission S-K regulations Title 17, Part 229, Items 601 and 1300 through 1305 for 5E Advanced Materials, Inc. and its subsidiary 5E Boron Americas, LLC. The report was prepared by Company management and Qualified Persons (QPs) from third-party independent companies Barr Engineering Co. (Barr), Mike Rockandel Consulting LLC (MRC), Escalante Geological Services LLC (Escalante), Terra Modeling Services (TMS), and Confluence Water Resources LLC (CWR).

2.2 Terms of Reference and Purpose of the Report

The quality of information, conclusions, and estimates contained herein is based on the following:

a) information available at the time of preparation and

b) assumptions, conditions, and qualifications set forth in this report.

This Technical Report Summary is based on initial assessment level engineering. This report is intended for use by 5E Advanced Materials, Inc. and its subsidiary 5E Boron Americas, LLC, subject to the terms and conditions of its agreements with Barr Engineering Co., Mike Rockandel Consulting LLC, Escalante Geological Services LLC, Terra Modeling Services, and Confluence Water Resources LLC and relevant securities legislation. Barr, MRC, Escalante, TMS, and CWR permit 5E to file this report as a Technical Report Summary with the U.S. securities regulatory authorities pursuant to the SEC S-K regulations, more specifically Title 17, Subpart 229.60, Item 601b96 – Technical Report Summary and Title 17, Subpart 229.1300 – Disclosure by Registrants Engaged in Mining Operations. Except for the purposes specified under U.S. securities law, any other uses of this report by any third party are at that party's sole risk. The responsibility for this disclosure remains with the Company.

The purpose of this Technical Report Summary is to report mineral resources, and inform parties with potential financial interests in 5E and the Project.

2.3 Sources of Information

This report is based in part on external consultant's expertise and their technical reports, internal Company technical reports, previous technical reports, maps, published government reports, company letters and memoranda, and public information cited throughout this report and listed in Section 25.

Reliance upon information provided by the registrant is listed in Section 25 when applicable.

2.4 Details of Inspection

Barr, MRC, Escalante, TMS, and CWR have visited the property, inspected core samples, reviewed relevant intellectual property and reports, and have extensive knowledge of the Project.

2.5 Report Version Update

The user of this document should ensure that this is the most recent Technical Report Summary for the property. This Technical Report Summary is an update of a previously filed Technical Report Summary filed pursuant to 17 CFR §§ 229.1300 through 229.1305 subpart 229.1300 of Regulation S-K. The previously filed Technical Report Summary has a report date of February 7, 2022 and effective date of October 15, 2021.

2.6 Units of Measure

The U.S. System for weights and units has been used throughout this report. Tons are reported in short tons of 2,000 pounds (lb), drilling and resource model dimensions and map scales are in feet (ft). When included, metric tons are referred to as tonnes or mt. All currency is in U.S. dollars (US$) unless otherwise stated.

2.7 Mineral Resource and Mineral Reserve Definition

The terms “mineral resource” and “mineral reserves” as used in this Technical Report Summary have the following definitions below.

2.7.1 Mineral Resources

17 CFR § 229.1300 defines a “mineral resource” as a concentration or occurrence of 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. A mineral resource is a reasonable estimate of mineralization, considering relevant factors such as cut-off grade, likely mining dimensions, location, or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.

A “measured mineral resource” is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve.

An “indicated mineral resource” is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.

An “inferred mineral resource” is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource considered when assessing the economic viability of a mining project must be presented along with economic viability excluding inferred resources and may not be converted to a mineral reserve.

2.7.2 Mineral Reserves

17 CFR § 229.1300 defines a “mineral reserve” as an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted. A “proven mineral reserve” is the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource. A “probable mineral reserve” is the economically mineable part of an indicated and, in some cases, a measured mineral resource.

2.8 Qualified Persons

This report was compiled by 5E and its management, with contributions from Barr Engineering Co., Mike Rockandell Consulting LLC, Escalante Geological Services LLC, Terra Modeling Services, and Confluence Water Resources LLC. Barr Engineering Co., Mike Rockandell Consulting LLC, Escalante Geological Services LLC, Terra Modeling Services, and Confluence Water Resources LLC are third-party firms comprising mining experts in accordance with 17 CFR § 229.1302b1. 5E has determined that the third-party firms and internal management listed as qualified persons meet the qualifications specified under the definition of a qualified person in 17 CFR § 229.1300.

Terra Modeling Service prepared the following sections of the report:

Sections 8, 9, 10, 11, 12

Barr Engineering Co. prepared the following sections of the report:

Sections 13, 15, 16, 18

Escalante Geological Services LLC prepared the following sections of the report:

Sections 3, 4, 5, 6, 7, 17, 20

Mike Rockandel Consulting LLC prepared the following sections of the report:

Sections 10.3, 14

Confluence Water Resources LLC prepared the following sections of the report:

Section 7.3

The following members of 5E management prepared the following sections of the report:

- Paul Weibel, CPA and Chief Financial Officer
  Sections 1, 2, 19, 21, 22, 23, 24, 25

Section 16 Market Studies and Contracts was prepared by 5E. The company engaged Kline and Company, Inc. (Kline) to perform a preliminary market study and pricing forecast for boric acid. Kline was also engaged to perform a preliminary market study and provide historical pricing for gypsum. The company engaged Benchmark Minerals Intelligence (BMI) to perform pricing forecast for lithium carbonate. Forward pricing forecasts obtained from Kline and Company, Inc. and Benchmark Mineral Intelligence were utilized as part of the financial model outlined in Section 19, Economic Analysis, as well as the flat pricing forecast for gypsum. Kline and BMI were not engaged as Qualified Persons; however, 5E has obtained permission to refer to the work they have provided and cite accordingly.

3 Property Description and Location

3.1 Property Location

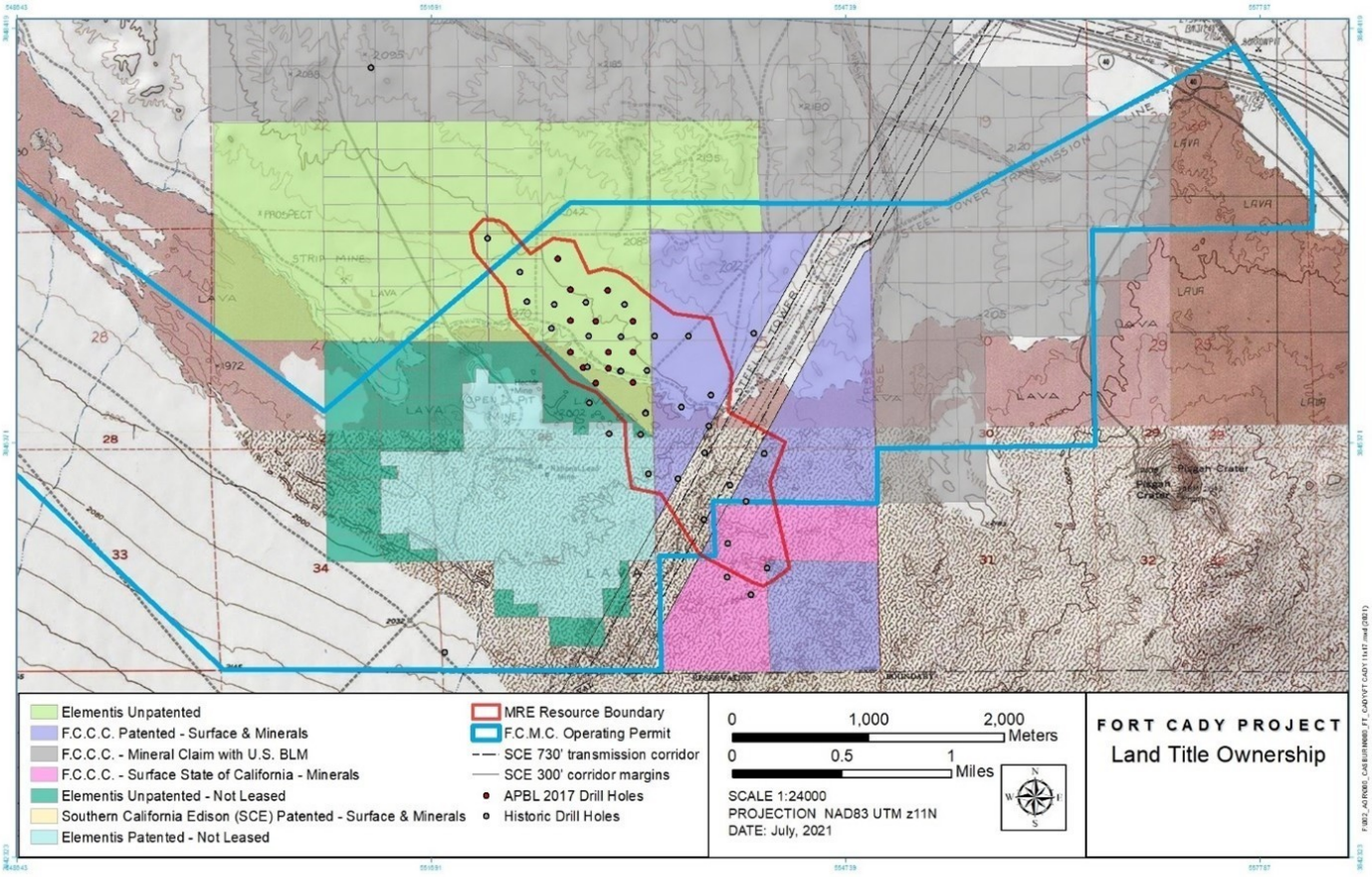
The Project is in the Mojave Desert region in the high desert of San Bernardino County, California. Figure3.1 outlines a map where the Project lies approximately 118 mi northeast of Los Angeles, approximately 36 mi east of Barstow and approximately 17 mi east of Newberry Springs. The approximate center of the Project area is N34°45’25.20”, W116°25’02.02”. The Project is in a similar geological setting as Rio Tinto’s U.S. Borax operations in Boron, CA, and Searles Valley Minerals Operations in Trona, CA, situated approximately 75 mi west-northwest and 90 mi northwest of the Project, respectively.

Figure 3.1 General Location Map

3.2 Area of Property

Figure 3.2 shows the 5E property and adjacent properties, further discussed in Section 17.

Figure 3.2 Property Ownership



3.3 Mineral Title

5E owns fee simple (private) lands in Sections 25 and 36, T 8 N, R 5 E, SBM. An electrical transmission corridor, operated by Southern California Edison (SCE), tracts from the northeast to the southwest through the fee lands with SCE having surface and subsurface control to a depth of 500 ft, affecting approximately 91 acres of surface lands in the two sections. While this limits surface access to the land, mineralization remains accessible as the ore body occurs at depths more than 1,000 ft (~ 300 m.)

5E currently holds two 2 unpatented lode claims and 117 unpatented placer claims with the Bureau of Land Management within the U.S. Department of the Interior. Both lode claims were originally filed by Duval Corporation in 1978. Placer claims were filed between October 29, 2016, and February 24, 2017. A review of the US Bureau of Land Management (BLM) Mineral & Land Record System, the Mineral Land Record System (MLRS) database shows claim status as filed with next assessment fees due annually on September 1.

Lastly, in Section 36, T8N, R5E, 272 acres of land in Section 36 are split estate, with the surface estate owned by 5E and the mineral estate is owned by the State of California. These lands are available to 5E through a mineral lease from the California State Lands Commission. The remaining lands are owned by 5E, with the minerals underlying the transmission line available subsurface.

3.4 Mineral Rights

5E holds the rights to the mineral estate underlying Sections 25 and 36, except for the portion of the mineral estate held by the State of California in Section 36.

3.5 Incumbrances

5E maintains financial assurance bonds for reclamation and closure for current and planned operations at the Project. Additional information on reclamation and closure liabilities is included in Section 17. The amount of bonds and certificate of deposits posted with the applicable agency is present in Table 3.1.

Table 3.1 Current Financial Assurance Obligations

Regulatory Authority	Regulatory Obligation	Instrument	Instrument US$
United State Environmental Protection Agency	Groundwater restoration Groundwater monitoring Plugging and abandonment of AOR wells	Bond SU1166406	$ 1,514,385
County of San Bernardino	Reclamation and Closure	Certificate of deposits	$ 308,457

3.5.1 Remediation Liabilities

5E has submitted a Final Reclamation and Closure Plan to the Lahanton Regional Water Quality Control Board for closure of ponds constructed on the property in the 1980's. The bonding for closure of these ponds is included in the certificate of deposits with San Bernardino County and upon closure of the ponds, the bond will be reduced and a portion of the deposited amount returned to the company.

3.6 Other Significant Risk Factors

The mineral resource estimate (Section 11), excludes BLM land where Elementis Specialties, Inc (Elementis) has active placer claims. 5E previously leased those claims from Elementis, but the lease expired March 31, 2023. The Elementis claims were previously included in the mineral resource estimate; however, due to the expiration of the lease, the resources attributable to the Elementis lease have been removed in the mineral resource estimate provided by this report.

An exploration program to expand the resource is possible in Section 36 on the southeastern portion of the mineralization; however, this would require a mineral lease to be filed and executed with the California State Lands Commission for the State of California held mineral estate.

3.7 Royalties

There are no royalties associated with privately held lands in Section 25 and 36.

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

4.1 Topography, Elevation, and Vegetation

The Project area is located on a gentle pediment with elevations ranging from approximately 1,970 ft above mean sea level (amsl) to approximately 2,185 ft amsl. Basalt lava flows cover most of the higher elevations or hilltops with flat ground and drainages covered in pale, gray-brown, silty soils. Basalt lava flows become more dominant south of the Project area with the Lava Bed Mountains located a few miles south of the Project area. The Project area's vegetation is dominated by burro weed, creosote, cactus, and scattered grasses.

4.2 Accessibility and Transportation to the Property

Access to the Project is via U.S. Interstate 40 (I-40), eastbound from Barstow to the Hector Road exit. From the exit, travel south to Route 66, then east approximately 1 mile to County Road 20796 (CR20796). Travel south on CR20796 for 2.2 mi to the unnamed dirt access road bearing east for another 1.1 mi to the Project.

The BNSF Railroad main line from Chicago to Los Angeles runs parallel to I-40. A BNSF rail loadout is in Newberry Springs. There are potential options to develop rail access closer to the Project.

San Bernardino County operates six general aviation airports with the closest airport to the Project being the Barstow-Daggett Airport located approximately 23 mi west of the Project off Route 66. Commercial flight service is available through five airports in the greater Los Angeles area and in Las Vegas, NV. A dedicated cargo service airport is located approximately 65 mi southwest of the Project.

4.3 Climate and Length of Operating Season

The Project is accessible year-round, located in the western Mojave Desert with arid, hot, dry, and sunny summers of low humidity and temperate winters. Based upon climate data from the nearby town of Newberry Springs, the climate over the past 30 years indicates average monthly high temperatures ranging from 55°F in December to 98.2°F in July. Monthly low temperatures range from 40.1°F in December to 74.3°F in August. Extremes range from a record low of 7°F to a record high of 117°F. Maximum temperatures in summer frequently exceed 100°F while cold spells in winter with temperatures below 20°F may occur but seldom last for more than a few days. Average rainfall is generally less than 10 inches per year with most precipitation occurring in the winter and spring.

4.4 Infrastructure Availability and Sources

5E continues to develop operating infrastructure for the Project in support of extraction and processing activities. A manned gate is located on the Project access road and provides required site-specific safety briefings and monitors personnel entry and exit to the site. Personnel are predominantly sourced from the surrounding area including Barstow, CA and Victorville, CA.

The BNSF Railroad main line from Las Vegas, NV to Los Angeles, CA runs parallel to I-40. A rail loadout is located approximately 1.2 mi north of the National Trails Highway on a road that bears north and located 0.4 mi west of CR20796. San Bernardino County operates six general aviation airports with the closest airport to the Project being the Barstow-Daggett Airport located approximately 23 miles west of the Project on the National Trails Highway. Commercial flight service is available through five airports in the greater Los Angeles area and in Las Vegas, NV. A dedicated cargo service airport is located approximately 65 miles southwest of the Project.

Construction of the small-scale facility was performed by a construction contractor with additional local resources supporting contracting, construction materials, energy sources, employees, and housing. The Project has good access to I-40 which connects it to numerous sizable communities between Barstow, CA and the greater Los Angeles area offering excellent access to transportation, construction materials, labor, and housing. The Project currently has limited electrical service that is sufficient for mine office and storage facilities on site but will require upgrade for plant and wellfield facilities. The small-scale facility will operate on liquid natural gas and 5E is currently exploring options for upgrading electrical services to the Project. An electrical transmission corridor operated by SCE extends northeastward through the eastern part of the Project. The Project has two water wells located nearby to support in-situ leaching operations. Currently there is no natural gas connected to the Project, but 5E is negotiating services with two suppliers in the region with three natural gas transmission pipelines running along Interstate 40 near the Project.

The plant site currently has a 1,600 ft^2 mine office building, a control room, storage buildings, an analytical laboratory, an approximately 20-acre production facility called the small-scale facility, and an intended gypsum storage area occupying 17 acres. Gypsum is a byproduct of past pilot plant production and is intended to be a future byproduct that can be sold to the regional market.

5 History

Discovery of the Project borate deposit occurred in 1964 when Congdon and Carey Minerals Exploration Company found several zones of colemanite, a calcium borate mineral, between the depths of 1,330 ft to 1,570 ft (405m to 487m) below ground surface (bgs) in Section 26, TSN, R5E. Simon Hydro-Search, 1993.

5.1 Prior Ownership and Ownership Changes

In September 1977, Duval initiated land acquisition and exploration activities near Hector, California. By March 1981, Duval had completed 34 exploration holes (DHB holes), plus one 1 potential water well. After evaluation of the exploration holes, Duval considered several mining methods. Subsequent studies and tests performed by Duval indicated that in-situ mining technology was feasible. Duval commenced limited testing and pilot-scale solution mining operations in June 1981 per the Mining and Land Reclamation Plan, Fort Cady Project, 2019.

Mountain States Mineral Enterprises, Inc. (MSME) purchased the project from Duval in 1985 and, in 1986, conducted an additional series of tests. MSME eventually sold the project to Fort Cady Mineral Corporation in 1989. FCMC began the permitting process, which resulted in a 1994 Record of Decision (ROD) from the BLM and approval from San Bernardino County, the California lead agency.

5.2 Exploration and Development Results of Previous Owners

Duval commenced limited-scale solution mining tests in June 1981. Between 1981 and 2001, subsequent owners drilled an additional 17 wells, which were used for a series of injection testing and pilot-scale operations. In July 1986, tests were conducted by MSME, where dilute hydrochloric acid solution was injected into the ore body. The acid dissolved the colemanite and was then withdrawn from the same well.

The first phase of pilot plant operations was conducted between 1987 and 1988. Approximately 550 tons (500 tonnes) of boric acid were produced. The test results were positive; thus, the Project was viewed as commercially viable. In preparation for the permitting process, feasibility studies, detailed engineering and test works were completed with FCMC receiving the required permits for a commercial-scale operation. Final state and local approvals for commercial-scale solution mining and processing was attained in 1994.

A second phase of pilot plant operations occurred between 1996 and 2001, during which approximately 2,200 tons of a synthetic colemanite product, marketed as CadyCal 100, were produced. Commercial- scale operations were not commissioned due to low product prices and other priorities of the controlling entity. For many years, boron was used in traditional applications such as cleaning supplies and ceramics, which never formulated in a strong pull-side demand investment thesis where pricing justified further development of the Project. However, a group of Australian investors, through extensive due diligence identified green shoots that the market dynamics were fundamentally beginning to change.

5.3 American Pacific Borates Share Exchange of Atlas Precious Metals

In 2017, a group of Australian investors identified the Project and formed the investment thesis that the boron market had similar dynamics to the lithium market a decade earlier. Like the lithium market ten years prior, the market was dominated by a few companies with a compelling pull-side demand growth story fueled by future-facing applications targeting decarbonization and critical materials. Prior to lithium-ion batteries and electric vehicles, lithium was used in traditional everyday applications like boron's use in recent years. As a result of the investment thesis that boron is the next lithium, the group of Australian investors formed American Pacific Borates and Lithium Ltd (APBL) and issued shares to Atlas Precious Metals in exchange for the Fort Cady (California) Corporation, the entity holding the mineral and property rights of the Project. In 2017, APBL underwent an initial public offering on the Australian Stock Exchange and progressed exploration and development of the Project. In September 2021, APBL created a subsidiary, 5E, through a corporate reorganization which placed 5E at the top of the corporate structure. Upon 5E becoming the parent company of the organization, in March 2022 5E direct listed on the Nasdaq and became an SEC issuer. Shortly before becoming an SEC issuer, 5E Boron Americas, LLC was designated as Critical Infrastructure by the Department of Homeland Security Cybersecurity and Infrastructure Security Agency.

5.4 Historic Production

Limited historic production data, provided to 5E by previous operators, is summarized in Table 5.1 through Table 5.4. Little other information is available for these tests, the results could not be independently verified.

Table 5.1 Duval Testing Results

Test No.	Volume Injected Gal	Injection Rate Gal/min	Pump Pressure PSI	Acid %	Volume Recovered Gal	Recovery Rate Gal/min	Average Concentration HBO3 %	Maximum Concentration HBO3 %
1	680	1.5	150	16% HCl	700	1.0-2.0	0.3	
	1,500	2	275	5% H_2SO_4	1,500	1.0-2.0	0.5	1.5
	1,400	1.5-2.0	150	5% H_2SO_4	2,000	1.0-2.0	1.5	4.6
	1,500	2	275	23% H_2SO_4	1,500	1.0-2.0	1.0	4.0
2	2,250	2	300	8% H_2SO_4	2,000	1.5-2.0	1.5	4.0
3	5,358	2-2.5	275	6.9% H_2SO_4	28,927	1.0-1.5	3.0	6.9
	6,597	2-2.5	275	17.5% HCl			3.0	6.9
4	19,311	2-2.5	230-275	6.2% HCl & 2.4% H_2SO_4	67,995	1.0-1.5	3.0	6.5
5	20,615	2	290	16% HCL	112,637	1.0-1.5	2.5	5.2
6	21,569	20	275	1.6% HCl	63,460	1.0-1.5	1.1	1.7

Table 5.2 Mountain States Testing Injection Summary

	Date				Gallons		Pounds		Theoretical HBO3	
Series	From	To	Test Nos.	Wells SMT	Series	∑	HCl	CO2	Series	∑
1	8/4/1986	8/23/1986	1-3	6 & 9	67,972	67,972	23,286	—	59,540	59,540
2	11/4/1986	11/10/1986	4-7	6	45,489	113,461	15,500	—	39,431	98,971
3	12/9/1986	12/18/1986	8-11	6	53,023	166,484	15,398	—	39,173	138,144
4	6/18/1986	6/27/1987	12-15	9	47,640	214,124	—	4,313	18,184	156,328
Total					**214,124**	**214,124**	**54,184**	**4,313**	**156,328**	**156,328**

Table 5.3 Mountain States Testing Recovery Summary

	Date				Gallons		Pounds BA		% BA in Solution, by Surge Tank			Theoretical BA	
Series	From	To	Test Nos.	Wells SMT	Series	∑	Series	∑	High	End	Avg	Series	∑
1	8/7/1986	10/17/1986	1-3	6 & 9	128,438	128,438	32,608	32,608	3.84	1.56	2.50	54.77	54.77
2	11/5/1986	11/13/1986	4-7	6	51,636	180,074	21,223	53,831	5.74	4.05	4.68	53.83	54.39
3	12/10/1986	1/13/1987	8-11	6	99,889	279,963	33,386	87,217	5.59	1.93	4.18	85.23	63.14
4	6/9/1987	7/0/1987	12-15	9	86,595	366,558	18,973	106,190	3.55	1.81	2.60	104.34	67.93
Total					**366,558**	**366,558**	**106,190**	**106,190**			**3.79**		**67.93**

In 2017, 5E completed an exploration drilling program to validate previous exploration efforts and expand mineral resources. Post drilling, an Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC) mineral resource estimate was prepared by Terra Modelling Services. TMS updated the JORC mineral resource estimate in December 2018. The 2018 JORC mineral resource estimate identified 4.63 million tonnes of measured resource, 2.24 million tonnes of indicated resource, and 7.07 million tonnes of inferred resource using a B_2O_3 cut-off grade of 5%.

Table 5.4 Fort Cady Mineral Corporation Production Summary

		Flow to Plant									
Date	Total Minutes	Gallons	Gal/min	pH	Free Acid g/l	Boric Acid %	Chloride g/l	Sulfate g/l	Boric Acid tons	B_2O_3 tons	CadyCal 100 tons
Jan-01	7,215	258,556	35.8	5.83		2.33	12.54	3.76	15	9	20
Feb-01	7,785	331,886	42.6	2.54	0.35	2.36	12.13	4.94	25	14	33
Mar-01	10,470	422,922	40.4	2.41	0.23	1.90	15.84	3.23	34	19	45
Apr-01	10,290	393,824	38.3	1.86	2.60	5.43	42.11	8.18	41	23	53
May-01	7,560	296,000	39.2	2.02	2.67	5.77	44.77	8.70	31	17	40
Jun-01	3,375	120,928	35.8	0.67	1.35	3.12	27.84	5.30	12	7	16
Jul-01	2,385	77,157	32.4	1.19	0.31	2.00	12.74	2.60	7	4	9
Aug-01	3,300	142,207	43.1	4.04	0.07	3.84	19.60	3.08	15	8	19
Sep-01	4,875	247,901	50.9	2.77	0.12	3.44	23.21	3.68	21	12	28
Oct-01	10,035	478,723	47.7	2.03	0.35	3.00	15.54	4.60	37	1	49
Nov-01	9,270	371,171	40.0	1.99	0.16	2.39	14.15	4.02	23	13	30
Dec-01	12,525	353,885	28.3	1.83	0.17	2.52	14.94	2.58	29	16	38
01-Total	89,085	3,495,160	39.2	2.44	0.73	3.19	21.37	4.74	291	164	381
00-Total	87,255	3,142,413	36.0	2.14	0.25	2.70	12.42	2.54	279	157	366
99-Total	92,820	2,475,770	26.7	1.59	0.48	2.82	10.13	6.84	201	113	263
98-Total	111,468	2,715,319	24.4	1.24	0.91	2.85	7.78	10.19	217	122	284
97-Total	109,040	2,692,940	24.7	0.99	1.84	3.10	3.52	13.00	252	142	329
96-Total	101,212	2,711,044	26.8	1.33	1.32	3.01	2.96	5.76	244	137	319

6 Geological Setting, Mineralization and Deposit

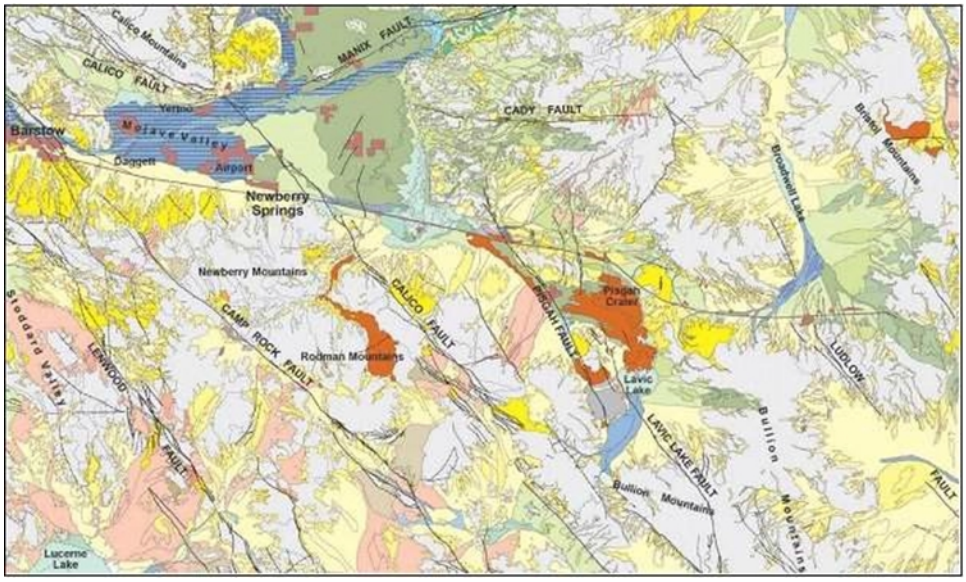
6.1 Regional Setting

The Project area is in the western Mojave Desert and is part of the Basin and Range Physiographic Province. The region is characterized by narrow faulted mountain ranges and flat valleys and basins, the result of tectonic extension that began approximately 17 million years ago. The Project lies within the Hector Basin of the Barstow Trough and is bounded on the southwest by the San Andreas fault zone and the Transverse Ranges, on the north by the Garlock fault zone, and on the east by the Death Valley and Granite Mountain infrastructure faults. Numerous faults of various orientations are found within the area with various orientations though the predominant trend is to the northwest.

The Barstow Trough, a structural depression, extends northwesterly from Barstow toward Randsburg and to east-southeast toward Bristol. It is characterized by thick successions of Cenozoic sediments, including borate-bearing lacustrine deposits, with abundant volcanism along the trough flanks. The northwest-southeast trending trough initially formed during Oligocene through Miocene times. As the basin was filled with sediments and the adjacent highland areas were reduced by erosion, the areas receiving sediments expanded, and playa lakes, characterized by fine-grained clastic and evaporitic chemical deposition, formed in the low areas at the center of the basins.

Exposures of fine-grained lacustrine sediments and tuffs, possibly Pliocene in age, are found throughout the Project area. Younger alluvium occurs in washes and overlying the older lacustrine lakebed sediments. Much of the Project area is covered by recent olivine basalt flows from Pisgah Crater, which is located approximately two mi east of the site as shown in Figure 6.1 and Figure 6.2. Thick fine-grained, predominantly lacustrine lakebed mudstones appear to have been uplifted, forming a block of lacustrine sediments interpreted to be floored by an andesitic lava flow.

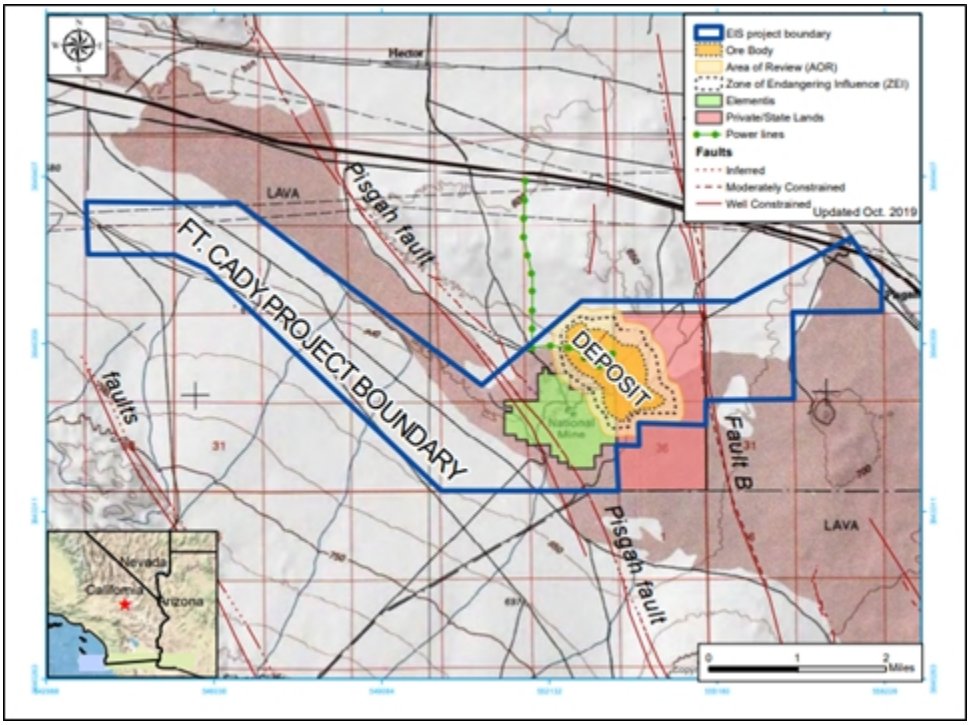
Figure 6.1 Surface Geology in the Newberry Springs Area



There are three prominent geologic features in the Project area (Figure 6.2):

- Pisgah Fault, which transects the southwest portion of the Project area west of the ore body;
- Pisgah Crater lava flow located approximately 2 mi east of the site: and
- Fault B, located east of the deposit.

Figure 6.2 Topographic Map with Faults and Infrastructure



The Pisgah Fault is a right-lateral slip fault that exhibits at least 250 ft of vertical separation at the Project. The east side of the fault is up-thrown relative to the west side. Fault B is located east of the ore body and also exhibits at least 250 ft of vertical separation; however, at Fault B, the east side is down dropped relative to the west side. The uplifted zone

containing the borate ore body the Wedge is situated within a thick area of fine-grained, predominantly lacustrine lakebed mudstones, east of the Pisgah Fault and west of Fault B.

6.1.1 Mineralization

Mineralization occurs in a sequence of lacustrine lakebed sediments ranging in depths from 1,300 ft to 1,500 ft bgs. The mineralization is hosted by a sequence of mudstones, evaporites and tuffs, consisting of variable amounts of colemanite, calcium borate $2CaO \bullet 3B_2O_3 \bullet 5H_2O$, and lithium. Colemanite and lithium are the target minerals. Colemanite is a secondary alteration mineral formed from borax and ulexite. Colemanite is associated with thinly laminated siltstone, clay and gypsum beds containing an average of 9% calcite, 35% anhydrite plus 10% celestite ($SrSO_4$) per Wilkinson & Krier, 1985. In addition to colemanite and celestite, elevated levels of lithium have been found through chemical analyses of drill samples.

X-ray diffraction analysis of core samples from the deposit indicates the presence of the evaporite minerals anhydrite, colemanite, celestite, and calcite. The mineralogy of the detrital sediments include quartz, illite, feldspars, clinoptilolite, and zeolite. The deposit underlies massive clay beds which appear to encapsulate the evaporite ore body on all sides as well as above and below the deposit. This enclosed setting makes the deposit an ideal candidate for in-situ mining technology affording excellent containment of the leachate solution.

6.2 Mineral Deposit

Boron is believed to have been sourced from regional thermal waters which flowed from hot springs during times of active volcanism. These hot springs vented into the Hector Basin when it contained a large desert lake. Borates were precipitated as the thermal waters entered the lake and cooled or as the lake waters evaporated and became saturated with boron. Colemanite, being the least soluble mineral, would evaporate on the receding margins of the lake. The evaporite-rich sequence forms a consistent zone in which the borate-rich colemanite zone transgresses higher in the section relative to stratigraphic marker beds.

Based on drilling results, the deposit is elliptical in shape, with the long axis trending N40°W to N50°W. extending over an area of about 606-acres at an average depth of approximately 1,300 ft to 1,500 ft bgs. Beds within the colemanite deposit strike roughly N45°W and dip about 10° or less to the southwest. Using an isoline of 5% B_2O_3, mineralization has an approximate width of 2,800 ft and a length of 11,150 ft with thickness ranging from 70 to 262 ft exclusive of barren interbeds.

The western margin of mineralization appears to be roughly linear, paralleling the Pisgah Fault which lies approximately 1 mi to the west (Figure6.2). Duval geologists consider this boundary to be controlled by facies change from evaporite rich mudstones to carbonate-rich lake beds, because of syn-depositional faulting. The northeast and northwest boundaries of the deposit are controlled by facies changes to more clastic material, reducing both the overall evaporite content and the concentration of colemanite within the evaporites. The southeast end of the deposit is open-ended and additional drilling is necessary to define the southeastern limits of borate deposition per Wilkinson & Krier, 1985.

6.3 Stratigraphic Column

Drilling of the deposit by Duval in the late 1970's and early 1980's defined the following lithological sequence (Figure 6.3 and Figure 6.4). Four major units have been identified:

- Unit 1: is characterized by a 490 to 655 ft thick sequence of red-brown mudstones with minor sandstone, zeolitized tuff, limestone, and rarely hectorite clay beds. Unit 1 is located immediately below the alluvium and surface basaltic lavas.
- Unit 2: is a green-grey mudstone that contains minor anhydrite, limestone, and zeolitized tuffs. Unit 2 has a thickness ranging from 330 to 490 ft and is interpreted as lacustrine beds.
- Unit 3: is a 245-to-490-foot thick evaporite section which consists of rhythmic laminations of anhydrite, clay, calcite, and gypsum. Unit 3 contains the colemanite mineralization. Thin beds of air fall tuff are found in the

unit which provide time continuous markers for interpretation of the sedimentation history. These tuffs have variably been altered to zeolites or clays. Anhydrite is the dominant evaporite mineral, and the ore deposit itself is made up mostly of an intergrowth of anhydrite, colemanite, celestite, and calcite with minor amounts of gypsum and howlite.

- Unit 4: is characterized by clastic sediments made up of red and grey-green mudstones and siltstones, with locally abundant anhydrite and limestone. The unit is approximately 160 ft thick and rests directly on an irregular surface of andesitic lava flows. Where drilling has intersected this boundary, it has been noted that an intervening sandstone or conglomerate composed mostly of coarse volcanic debris is usually present.

Figure 6.3 Long-section and Cross-section through the Fort Cady Deposit

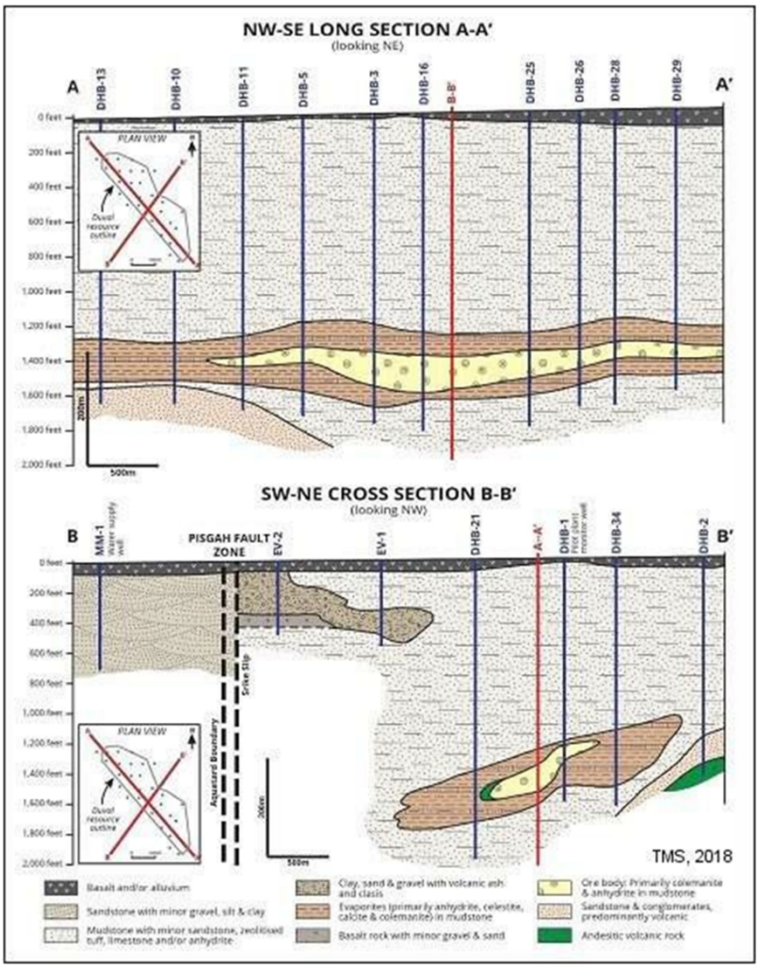
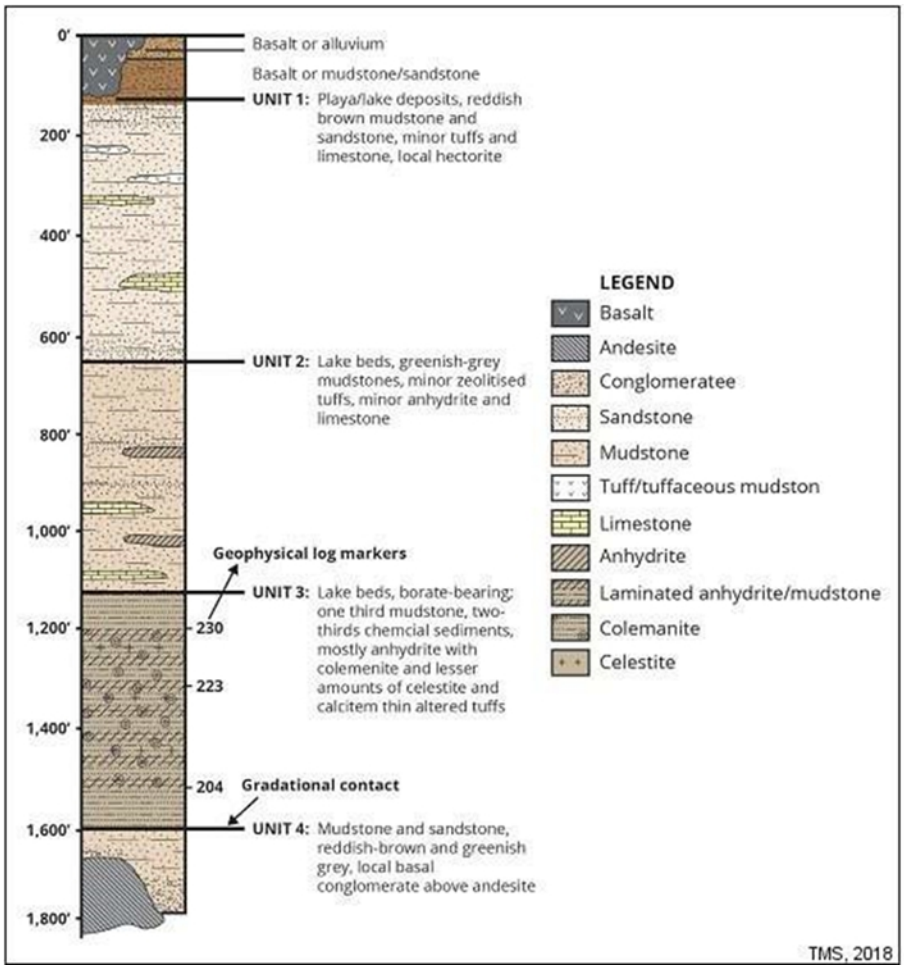


Figure 6.4 Generalized Lithological Column for the Fort Cady Deposit



7 Exploration

7.1 Non-drilling exploration

Non-drilling exploration has not been deemed appropriate for this deposit.

7.2 Drilling

7.2.1 Historic Drilling

As part of their exploration program, Duval completed 35 drill holes between 1979 and 1981. The DHB holes were drilled using a combination of rotary drilling through the overburden followed by core drilling through the evaporite sequence. DHB-32 was drilled as a water well southeast of the Project. Geologic logs of rotary cuttings and core were completed for all holes followed by geochemical analyses of the core. Duval paid particular attention in logging to identifying marker beds ash tuffs for correlation. In addition to geologic logging, down-hole geophysics were completed on 25 holes for gamma ray and neutron. A few holes had additional geophysical logs completed for compensated density, deviation, induction, elastic properties, and caliper.

In 1981 and 1982, after the exploration program, Duval drilled five solution mining test (SMT) wells which were used in injection/recovery tests. Like previous drilling, the wells were rotary drilled through the overburden and cored through the evaporite sequence. Following coring, a 5.5-inch casing was set through the cored interval. All SMT wells were logged, and analytical samples are available from the cored intervals of SMT-1, SMT-2, and SMT-3. Gamma ray and neutron logs were collected from all SMT wells. Caliper, compensated density, and induction logs were run on several,

but not all the SMT wells. Three additional SMT wells were established in 1992 and 1993 (SMT-92 & 93 Holes) and these three wells were rotary drilled to full depth and no geologic samples were collected.

FCMC completed two drilling campaigns during their participation in the Project. Additional P-Series holes were completed between 1987 and 1996 as rotary holes for injection/recovery test wells. Cuttings were sampled for analysis at 5-foot intervals for holes P-1, P-2, and P-3. A ten-foot sampling interval was used for sampling on P-4. No geologic samples were collected for holes P-5, P-6, and P-7. FCMC completed three S-Series wells in 1990. All three wells were rotary drilled and no geologic sampling was performed. FCMC completed down-hole geophysics on all the P and S-series wells. Historic drilling completed by Duval and FCMC is summarized in Table 7.1.

Table 7.1 Historic Drilling Summary

	UTM 83-11 m				Rotary Interval ft		Cored Interval ft		
Drill Hole ID	Easting	Northing	Collar Elev. ft	Depth ft	From	To	From	To	No. of Samples
DHB-01	553,336	3,846,154	2,004	1,623	—	1,090	1,090	1,623	187
DHB-02	554,062	3,846,179	2,033	1,679	—	955	955	1,443	—
DHB-03	553,089	3,845,899	1,980	1,773	—	940	940	1,773	214
DHB-04	552,855	3,845,669	1,981	1,708	—	1,194	1,194	1,708	178
DHB-05	552,848	3,846,153	1,978	1,730	—	1,043	1,043	1,730	179
DHB-06	553,115	3,846,386	2,008	1,616	—	1,040	1,040	1,616	125
DHB-07	553,736	3,845,492	2,000	1,735	—	1,063	1,063	1,735	181
DHB-08	552,575	3,846,214	1,966	1,809	—	1,072	1,072	1,809	186
DHB-09	552,391	3,846,408	1,967	1,750	—	1,137	1,137	1,750	138
DHB-10	552,349	3,846,631	1,980	1,655	—	1,148	1,148	1,655	86
DHB-11	552,599	3,846,390	1,976	1,671	—	1,150	1,150	1,671	86
DHB-12	552,824	3,846,402	1,993	1,625	—	1,130	1,130	1,625	85
DHB-13	552,104	3,846,877	1,978	1,661	-	1,140	1,140	1,661	70
DHB-14	553,089	3,846,151	1,987	1,631	—	1,105	1,105	1,631	80
DHB-15	553,580	3,846,158	2,013	1,609	—	1,177	1,177	1,609	51
DHB-16	553,263	3,845,595	1,985	1,845	—	1,193	1,193	1,845	138
DHB-17	552,843	3,845,925	1,982	1,804	—	1,178	1,178	1,804	151
DHB-18	553,238	3,845,431	1,978	1,880	—	1,212	1,212	1,878	106
DHB-19	554,141	3,845,287	2,034	1,460	—	1,060	1,060	1,460	74
DHB-20	553,006	3,845,437	1,998	1,671	—	1,207	1,207	1,671	—
DHB-21	553,292	3,845,143	2,011	1,752	—	1,118	1,118	1,828	39
DHB-22	553,275	3,845,902	1,988	1,711	—	1,196	1,196	1,711	135
DHB-23	553,508	3,845,110	2,021	1,857	—	1,208	1,208	1,857	114
DHB-24	553,523	3,845,637	1,994	1,780	—	1,202	1,202	1,780	119
DHB-25	553,699	3,845,297	2,021	1,818	—	1,248	1,248	1,818	152
DHB-26	553,891	3,845,056	2,050	1,702	—	1,106	1,106	1,702	106
DHB-27	553,698	3,844,803	2,043	1,795	—	1,228	1,228	1,795	95
DHB-28	554,004	3,844,943	2,053	1,690	—	1,185	1,185	1,690	115
DHB-29	554,164	3,844,454	2,040	1,610	—	1,203	1,203	1,610	101
DHB-30	553,873	3,844,630	2,050	1,720	—	1,250	1,250	1,720	83
DHB-31	553,865	3,844,381	2,037	1,460	—	1,195	1,195	1,625	41
DHB-32	551,770	3,843,845	2,045	870	—	870	—	—	—
DHB-33	554,045	3,844,254	2,043	1,601	—	1,124	1,124	1,860	80
DHB-34	553,746	3,845,722	2,116	1,525	—	1,150	1,150	1,620	79
DHB-35	551,249	3,848,166	2,068	1,449	—	1,194	1,194	1,459	—
P1	553,093	3,845,908	1,984	1,500	—	1,500	—	—	20
P2	553,094	3,845,969	1,984	1,510	—	1,510	—	—	21
P3	553,033	3,845,902	1,981	1,510	—	1,510	—	—	18
P4	553,033	3,845,935	1,977	1,510	—	1,510	—	—	34
P5	553,193	3,845,874	1,985	1,547	—	1,547	—	—	—
P6	553,209	3,845,946	1,989	1,525	—	1,525	—	—	—
P7	553,217	3,846,023	1,992	1,475	—	1,475	—	—	—
SMT-1	553,323	3,846,144	2,004	1,315	—	1,235	1,235	1,315	59
SMT-2	553,310	3,846,135	2,004	1,679	—	1,234	1,234	1,316	55
SMT-3	553,211	3,845,897	1,988	1,679	—	1,325	1,325	1,518	69
SMT-6	553,210	3,845,934	1,988	1,450	—	1,341	1,341	1,450	—
SMT-9	553,194	3,845,837	1,985	1,497	—	1,341	1,341	1,497	—

This data, along with company drilling discussed in Section 7.2.2 and subsequent analysis discussed in Section 8, form the basis and confirmations for the geologic model.

7.2.2 Company Drilling

After acquisition of the Project in May 2017, American Pacific Borates and Lithium, Ltd, a predecessor entity to 5E, completed 14 drill holes, which confirmed previous drilling results and expanded the Mineral Resource Estimate. Table 7.2 provides a summary of the 2017 drilling program. A cross-section through the deposit is also displayed in Figure 7.1. Drilling through the overburden sequence was completed using rotary air blast drilling. This was followed by drilling a 2.5-inch core through the evaporite sequence. All drill holes were completed vertically with no greater than five degrees of deviation.

Table 7.2 2017 APBL Drilling Summary and IR-01-01

	UTM 83-11 m				Rotary Interval ft		Cored Interval ft		
Drill Hole ID	Easting	Northing	Collar Elev. ft	Depth ft	From	To	From	To	No. of Samples
17FTCBL-01	552,638	3,846,716	2,006	1,569	—	1,204	1,204	1,569	82
17FTCBL-02	552,711	3,846,490	1,997	1,509	—	1,208	1,208	1,509	107
17FTCBL-03	552,981	3,846,485	2,019	1,459	—	1,153	1,153	1,459	91
17FTCBL-04	552,695	3,846,268	1,978	1,738	—	1,266	1,266	1,738	162
17FTCBL-05	552,930	3,846,267	1,995	1,589	—	1,237	1,237	1,589	150
17FTCBL-06	553,145	3,846,260	2,002	1,502	—	1,189	1,189	1,502	83
17FTCBL-07	552,772	3,846,041	1,977	1,775	—	1,196	1,196	1,775	207
17FTCBL-08	552,972	3,846,042	1,984	1,625	—	1,202	1,202	1,625	153
17FTCBL-09	553,179	3,846,037	1,992	1,560	—	1,169	1,169	1,560	120
17FTCBL-10	552,831	3,845,939	1,989	1,647	—	1,208	1,208	1,647	176
17FTCBL-11	553,078	3,845,899	1,983	1,778	—	1,332	1,332	1,778	155
17FTCBL-12	552,963	3,845,801	1,973	1,750	—	1,281	1,281	1,750	212
17FTCBL-13	553,153	3,845,818	1,992	1,769	—	1,313	1,313	1,769	155
17FTCBL-14	553,270	3,845,608	1,987	1,845	—	1,328	1,328	1,845	260
IR-01-01	553,472	3,845,807	1,991	1,551	—	1,112	1,112	1,991	135

Core logging was completed on all drill holes and included lithological and geotechnical logging. Downhole geophysical logs included Gam Ray, Induction, and standard caliper, and were completed on all drill holes from surface to total depth except for 17FTCBL009 where adverse hole conditions resulted in only partial geophysical logging. All core is logged and photographed according to industry standard procedures. An example of core photos is shown in Figure 7.2.

A geotechnical drill hole, APBL023, was also completed in 2017. This well was cored for its entire length and a geologic log was completed to define mineralized horizons. No splitting or analytical samples were collected from this hole to preserve the core for subsequent geotechnical testing.

The QP considers the drilling program by APBL to be of sufficient quality to support a Mineral Resource Estimate.

Figure 7.1 Cross-section Through the Fort Cady Deposit

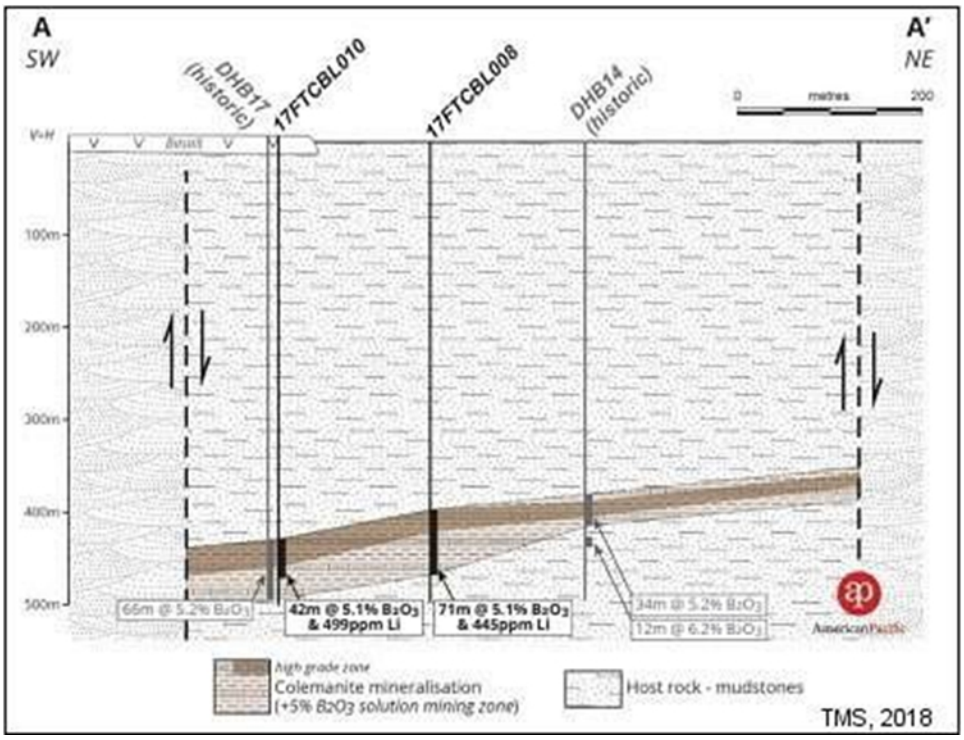


Figure 7.2 Core Photo, 17FTCBL-014

7.3 Hydrogeology

7.3.1 Hydraulic Setting

The Project deposit is in the California Hydrologic Unit Basin 12 Lavic Valley, sub-basin 180902081303. There is no name associated with the sub-basin and it is located north and west of the Lavic Lake and town of Lavic hydrologic sub basins. Basin 180902081303 is approximately 39,657 acres (160.48 square kilometers) in area and extends from the Rodman Mountains south and west of the Project in a north direction towards Highway 40, terminating at a topographical divide at the highway. The basin is bound to the south and east by the Pisgah Crater and Lavic Lake Volcanic Field.

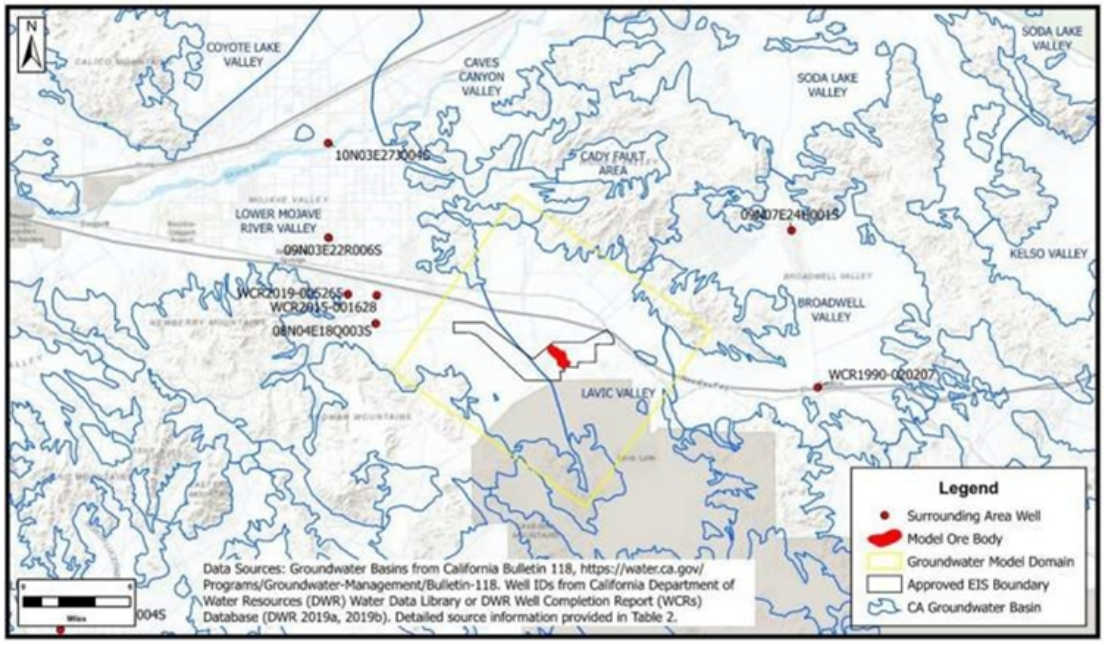
The Fort Cady Mountains bind Basin 12 to the north and the Rodman Mountains and Lava Bed Mountains bind Basin 12 to the south of the Project. Groundwater flow in the Lavic Valley basin is poorly defined, and outflow is interpreted to occur to the east of Broadwell Valley, with no localized groundwater discharge such as evapotranspiration or discharge to springs or a river.

The mineral deposit is bounded to the west by the Pisgah Fault and to the east by subordinate faults to include Fault B. *See UIC permit application and Confluence Water Resources CWR, 2019 Fault B Program Results, Technical Report*.

The nearest industrial well, owned by Candeo Lava Products, is located 3.5 miles east of the Project ore body. No other water wells are known to exist within the vicinity of the Project. Water level measurements from the Candeo Lava Products well were not available for this study but are greater than 96 ft bgs based on the CWR investigation in 2018. The next closest water well is located north and west of the Project at the Desert Oasis Highway Rest Stop. The well provides non-potable water to the rest stop facilities. This well is located approximately 7-miles northwest of the Project. Depth to water from the Rest Stop Well, Well 1807, was measured by CWR to be 54.75 ft bgs, approximate elevation of 1,758 ft amsl.

The location of the nearest known industrial groundwater wells in the region surrounding the Project are provided in Figure 7.3.

Figure 7.3 Project Area Groundwater Basins and Surrounding Area Wells, Fort Cady Project, San Bernardino, CA



Private domestic wells are associated with rural residences located greater than 6.5 miles west of the Project on the eastern edge of the town of Newberry Springs. Irrigation wells are located further west, the closest of which is approximately 10 miles west of the Project. The Pisgah Fault separates these residential and irrigation wells from the Project area, such that they are not within the same regional groundwater flow system and are not hydraulically connected.

The Project is located within a closed basin, although rarely present in the vicinity of the Project, surface water flows in a northwesterly direction past the Project area from the Rodman Mountains and the Pisgah Crater topographic divide. There are no springs or streams in the vicinity of the Project. There are no perineal surface water features in the vicinity of the ore body. Surface water-related features are seasonal, and ephemeral based on meteorological events. These features consist of unnamed dry washes that may carry water during heavy storm events. These washes generally drain west through the Project area toward the Troy Lake playa in Newberry Springs.

7.3.2 Project Area Wells

The orebody is "wedged" between the Pisgah Fault and Fault B. The static depths to groundwater in the vicinity of the orebody generally range between 240 and 350 ft bgs. The depths to groundwater in the wedge are generally shallower at wells collared at lower elevations and deeper at wells collared at higher topography. The groundwater elevation in the wedge ranges from between approximately 1,681 ft amsl at AOR-7A to 1,763 ft amsl at AOR-3A.

The groundwater elevation outside the wedge, west of the Pisgah Fault in the quaternary alluvial fan sediments of the Lower Mojave River Valley Groundwater Basin is approximately 1,785 ft amsl as measured in Project wells MWW-1, MWW-S1, and MWW-2.

The difference in groundwater elevation between Project wells presents a steepening of gradient from west to east across the Pisgah Fault. There is approximately a 20-foot water level differential on the east and west sides of the Pisgah Fault, which is regionally recognized as a barrier to groundwater flow and forms a groundwater basin boundary.

Groundwater in the vicinity of Fault B at Project wells TW-1, PW-1, and PW-2, is found at depths of approximately 350 to 390 ft bgs in coarser alluvial sediments to the east of Fault B (PW-1 and PW-2) and a mix of alluvial and fine playa sediments to the west of Fault B (TW-1).

No Underground Source of Drinking Water (USDW) aquifer has been encountered in the Wedge for at least 1,700 ft bgs. Monitoring wells drilled in 2021 by 5E as part of permit compliance did not encounter groundwater above the Unit 4 sediments with exception of a perched expression of groundwater localized to fine sand lenses underlaying surficial basalt above the contact with Unit 1. The results of the Shallow Groundwater Characterization Program, CWR, June 2022, *Shallow Groundwater Characterization Report on Mining Block 2 Near Pisgah Fault*, indicated that the expression of groundwater encountered during drilling of Series 7 wells is of low yield, of poor quality and likely of low storage.

The recharge originates from precipitation occurring in the Lava Bed Mountains, and drainage from Sunshine Peak, located southwest of the Project. The upgradient precipitation drains into the shallow alluvium southwest of the Pisgah Fault. The shallow groundwater flows in a northeast direction through unconsolidated alluvial sediments, then drains under the basalt flow at a gradient of 0.002 into cemented sandstone and mudstone, where it is compartmentalized within the lithology influence by the fault. Interpretation of chip logs for all Series 7 and Series 3 wells, and the WSW and WMW wells, indicate the shallow cemented sandstone is not uniform and decreases in depth to the east of the Project, where the mudstone is encountered higher in most wellbores. Likely, a result of pre-basalt flow topography and/or offset from faulting.

Since shallow groundwater was not encountered or observed through drilling of the Series 3 monitor wells, the Pisgah Fault is interpreted as being a strong influence on flow dynamics of the shallow groundwater system and plausibly influences the groundwater quality in Block 2. The lateral extent of the shallow groundwater system is anticipated to be confined to within the area underlying the surface basalt near the Series 7 wells and the extent of the Pisgah Fault zone northwest of the Project.

The Pisgah Fault is not the source of the shallow groundwater but compartmentalizes its lateral extent to within the western portions of the Project area. The results of the shallow groundwater characterization program do not support the existence of an USDW aquifer based on extremely low permeability, low yield, poor quality, and compartmentalization characteristics.

Below Unit 4 is andesite. Groundwater was encountered in the andesite in MW-3B. CWR, March 12, 2023, CWR Technical Memorandum, *Results of OW-3A and MW-3B Hydraulic Testing, Fort Cady California Project*, describe the results of groundwater testing between Unit 4 and the underlying andesite.

Proven water resources have been deemed acceptable through Phase 2 of the Project, with alternatives discussed in Section 18.

7.3.3 Hydraulic Properties

Testing for hydraulic properties of the colemanite and evaporates/mudstones containing the colemanite have occurred on several occasions. Beginning in 1980, Duval retained Core Laboratories, Inc. to conduct injectivity tests on one-inch cores from SMT-1. The samples were extracted with toluene, leached of salts with cool methanol, and dried in a controlled humidity oven. Permeability to air and Boyle's Law porosity were determined for each sample. The injectivity tests were performed at the reservoir temperature of (Simulated) formation water which flowed through the core until equilibrium occurred and a minimum of three pore volumes had been injected. The permeability of water was determined by the equipment. Sulfuric acid and hydrochloric acid solutions were injected through the core samples after which permeability to acid solutions was determined. While detailed information on the testing procedures conducted by Core Labs is available, detailed quality assurance and quality control (QA/QC) procedures are not available. Initial permeability was found to range from 1.35×10^{-9} to 2.9×10^{-10} cm/sec in 1990, after In-Situ, Inc. (In-Situ) conducted a multiple well constant rate injection test to determine direction tendencies of hydraulic properties of the mineral deposit.

In-Situ also investigated the effects of previous injection/recovery testing. Using a Badger flow meter, a HEREMIT data logger, and pressure transmitters, water-level responses were measured in the injection well and six nearby observation wells. In-Situ used the Cooper and Jacob method to analyze data from each well and applied the Papadopulos Method to determine directional permeability. In-Situ's work confirmed earlier work that permeability and transmissivity of the deposit are low.

Hydro-Engineering, 1996, summarized some of the testing and provided interpretations of prior testing conducted in 1981 and 1990. The mineralized sequence of rock transmissivity is estimated at 10 gal/day/ft, or 1.3 ft^2/day. Assuming the colemanite mineralized sequence occurs over an approximate 300 ft thickness, then the native hydraulic conductivity (K) over this thickness is estimated at 4.5×10^{-3} ft/day. This K value is of a similar magnitude as estimated by Simon Hydro-Search 1993 of 8.2 x 10-3 to 2.2×10^{-2} ft/day K converted from millidarcy units. The storage coefficient (S) of the ore body was estimated by Hydro-Engineering 1996 at 2.5×10^{-6}.

Increases in transmissivity, hydraulic conductivity and storage coefficient will occur as colemanite is dissolved from the formation. Hydro-Engineering, 1996, estimated the end-point permeability of the ore body formation after colemanite dissolution would be approximately 30 times higher, and a long-term storage coefficient may be approximately 1.1×10^{-5}. The end-point hydraulic properties are still low because much of the formation is evaporites, anhydrite, and claystone that will not be dissolved. The end-point porosity of the ore body formation after mining is predicted to be 15%. Core Laboratories, 1981, based on the colemanite content within the sediments and laboratory core analyses.

Injection and pumping tests were conducted in 1981 by Duval, 1986-1987 by MSME, and between 1996-2001 by FCMC. Injection was conducted at 150-300 psi pressures in the 1982 testing, with injection flow rates mostly of 1.5-2.5 gallons-per-minute (gpm), indicative of the hydraulically tight nature of the claystone hosting the deposit. In the 1986-1987 testing, rates of 1.3 to 5.3 gpm were observed over testing periods lasting from 6 to 71 days. The mudstone and claystone sediments above and below the ore body evaporites are also understood to be of very low transmissivity. Pump test results, CWR, 2019, provided an estimate of the hydraulic conductivity in the 10^{-5} range.

In 2018, CWR was retained by 5E to characterize hydrology east of Fault B, approximately 3,500 ft east of the colemanite deposit. CWR found a significant groundwater resource east of Fault B and that the fault is a barrier to groundwater flow. Stable isotope analytical results were compared against Nevada Meteoric Water Lines appropriate for desert terrains and found that the aquifer east of Fault B and the aquifer west of the Pisgah Fault have different origins and the

limited groundwater found between the two faults is of a different origin than both aquifers. Recovery rates from wells between the two faults, which includes the colemanite deposit, are less than one gpm as would be expected in mudstones and claystone with very limited groundwater present.

The results of the testing in OW-3A, a newly installed monitor well, indicate the contact between Units 2 and 4 is of extremely low permeability, with hydraulic conductivity of approximately 4.3 x 10^{-5} feet/day. The results of testing in MW-3B indicate the permeability of the underlying andesite is several orders of magnitude higher, approximately 8.9 x 10^{-2} feet/day, CWR, March 12, 2023, CWR Technical Memorandum, *Results of OW-3A and MW-3B Hydraulic Testing, Fort Cady California Project.*

Based on the hydraulic conductivities derived from recovery rates from MW-3 and OW-3A wells, and the static water levels from Series 3 wells, CWR believes Unit 4 can be classified as an aquitard or partly leaking confining layer to underlying groundwater in the andesite. Unit 4 does not meet the qualifications to be considered a USDW and inhibits vertical migration of fluids by virtue of its low permeability and confining properties.

8 Sample Preparation, Analysis and Security

8.1 Sampling Method and Approach

Between September 2017 and October 2017, APBL completed 14 holes for 23,111 ft as part of a confirmatory resource drilling program. Assay results from all 14 drill holes were used in the mineral resource estimate. There are 2,113 samples from the 2017 drilling program representing 1,713 ft of core. In conjunction with the 2017 drilling program, 29 historical drill holes completed by Duval and four holes completed by FCMC have been utilized in the mineral resource estimate. There are 3,672 samples from the historic drilling representing a cumulative total 10,831.3 ft of core. The QA/QC procedures for the historic drilling are unknown though the work products compiled during the historic drilling suggests it was carried out by competent geologists following procedures considered standard practice at that time.

Discussions held with Pamela A.K. Wilkinson, who was an exploration geologist for Duval at the time of drilling and sampling, indicate that Duval had internal quality control and quality assurance procedures in place to ensure that assay results were accurate. Duval utilized their Tucson, West Texas Culberson Mine or New Mexico Duval Potash Mine laboratories for analytical work carried out at the Project. Geochemical analyses were carried out using X-Ray Fluorescence Spectrometry (XRF). XRF results were reportedly checked against logging and assay data.

Entire core sequences were sampled. Sample intervals were determined at the time of logging based on changes in lithology, mineralogy, and bedding. Sample intervals range from 0.2 to 6.6 ft with an overall average sample length of 2.66 ft. Following determination of sampling intervals, the core was split in half using a core splitter. One half of the core is used for the analytical sample with the remaining half core being returned to the core box for archiving. Samples are then placed into labeled plastic sample bags along with a pre-numbered sample tag. A companion sample tag is placed back in the core box marking the interval sampled. Samples were dispatched by commercial carrier to the Saskatchewan Research Council (SRC) for geochemical analysis. SRC has been accredited by the Standards Council of Canada and conforms with the requirements of ISO/IEC 17025.2005.

8.2 Sample Preparation, Analysis and Security

Upon receipt of samples from APBL, SRC would complete an inventory of samples received, completing chain of custody documentation, and providing a ledger system to APBL tracking samples received and steps in process for sample preparation and analysis. Core samples are dried in their original sample bags, then jaw crushed. A subsample is split out using a sample riffler. The subsample is then pulverized with a jaw and ring grinding mill. The grinding mill is cleaned between each sample using steel wool and compressed air or by using silica sand. The resulting pulp sample is then transferred to a barcode labeled plastic vial for analysis.

All samples underwent a multi-element Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES), using a multi-acid digestion for Ag, Al_2O_3, Ba, Be, CaO, Cd, Ce, Cr, Cu, Dy, Er, Eu, Fe_2O_3, Ga, Gd, Hf, Ho, K_2O, La, Li, MgO, MnO,

Mo, Na_2O, Nb, Nd, Ni, P_2O_5, Pb, Pr, Sc, Sm, Sn, Sr, Ta, Tb, Th, TiO_2, U, V, W, Y, Yb, Zn, and Zr. Boron was also analyzed by ICP-OES but undergoes a separate digestion where an aliquot of the sample is fused in a mixture of $NaO_2/NaCO_3$ in a muffle oven, then dissolved in deionized water, prior to analysis. Major oxides Al_2O_3, CaO, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5 and TiO_2 are reported in weight percent. Minor, trace, and rare earth elements are reported in parts per million (ppm). The detection limit for B is 2 ppm and 1 ppm for Li.

For the 2017 drilling program, a total of 2,118 core samples and 415 control samples were submitted for multi-element analysis to SRC. APBL submitted control samples in the form of certified standards, blanks and coarse duplicates bags with sample identification supplied by APBL for SRC to make duplicate samples. In addition to these control samples, SRC also submitted their own internal control samples in the form of standards and pulp duplicates. A summary of all the QA/QC control samples submitted to SRC is shown in Table 8.1.

Table 8.1 Summary of QA/QC Control Samples

Submitted By	Drilling Type	Number of Holes	Meters Drilled	Standards	Blanks	Coarse Duplicates	Pulp Duplicates	Total Frequency	Primary Samples	Total
APBL	Rotary	14	4,692.10	—	—	—	—	—	—	—
	Diamond Tail	—	—	—	—	—	—	—	—	—
	Tail	14	2,353.70	144	135	136	—	—	2,118	2,533
	Total	14	7,045.80	144	135	136	—	—	2,118	2,533
		Frequency		6.80%	6.40%	6.40%	—	19.60%	83.60%	100%
SRC	SRC Internal QAQC			151			82			
		Frequency		7.10%			3.90%	11.00%		

Certified standards SRM 1835 and SRM 97b, prepared by the National Institute of Standards and Technology, were submitted as part of the APBL QA/QC procedures, the results of which are shown graphically on Figure 8.1 and Figure 8.2. Standard deviations shown are for the SRC assays. No two standards in any single batch submission were more than two standard deviations from the analyzed mean, implying an acceptable level of precision of SRC instrumentation.

Figure 8.1 Assay Results of Standard SRM1835

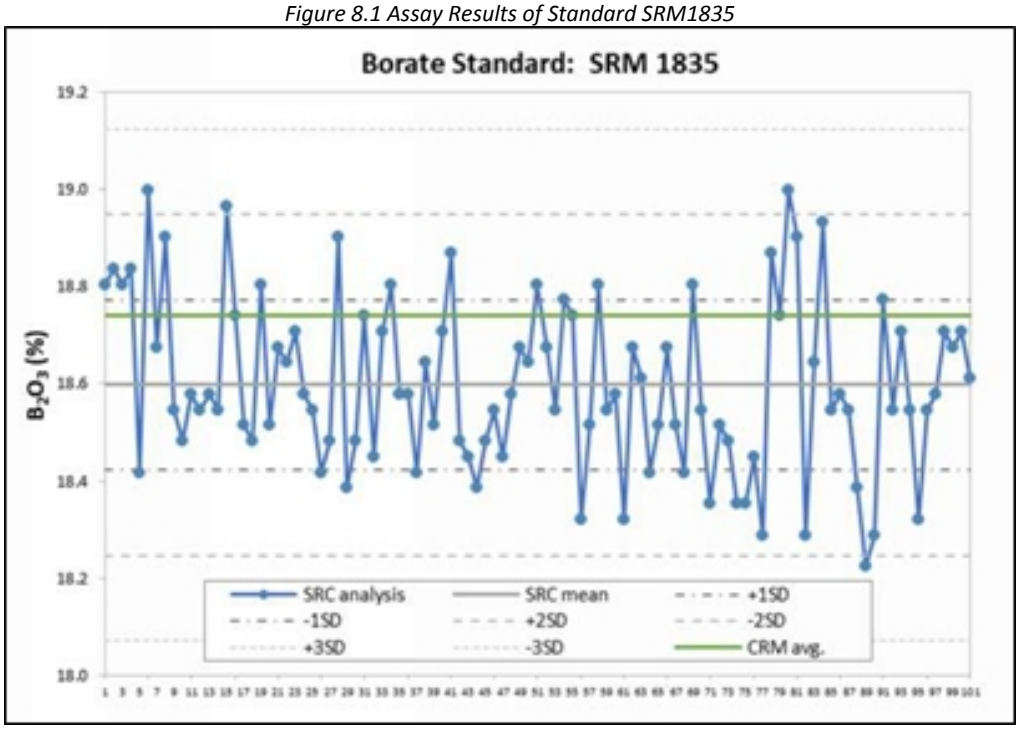
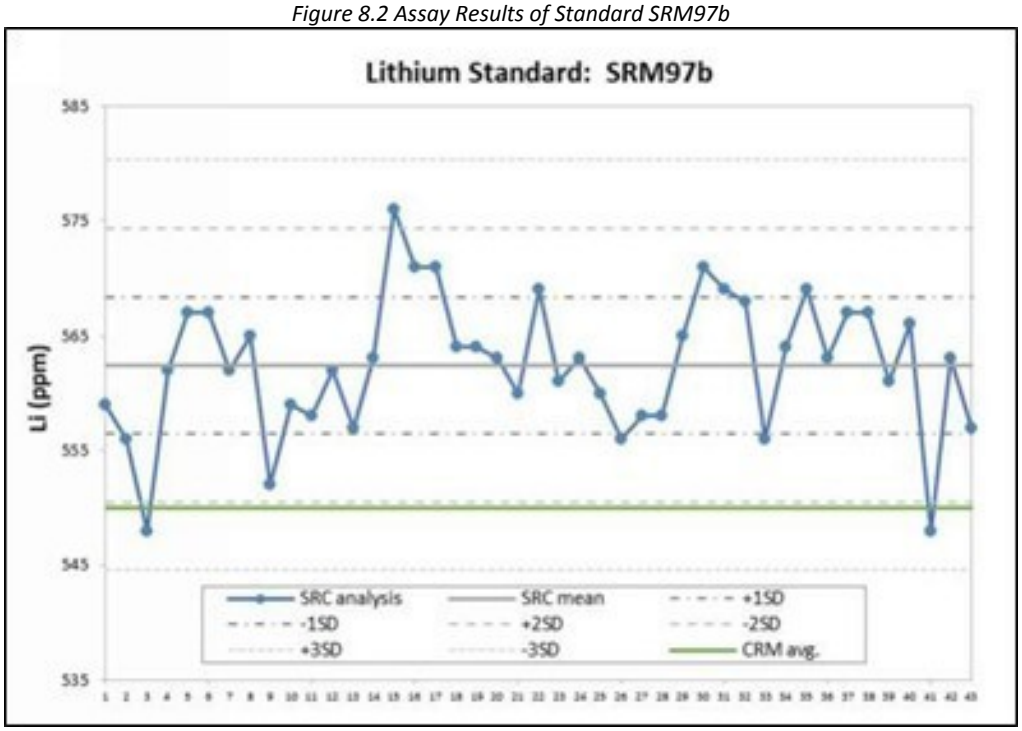


Figure 8.2 Assay Results of Standard SRM97b



SRC assayed two different standards, CAR110/BSM and CAR110/BSH, for its own QC protocol. CAR110/BSM is designated as a “medium boron standard.” CAR110/BSH is designated as a “high boron standard.” Figure 8.3 and Figure 8.4 display the analytical results for the certified standards. The analytical precision for analysis of both CAR110/BSM and CAR110/BSH is also reasonable, with no two standards in any single batch submission being more than two standard deviations from the analyzed mean.

Figure 8.3 Assay Results for SRC Standard CAR110/BSM

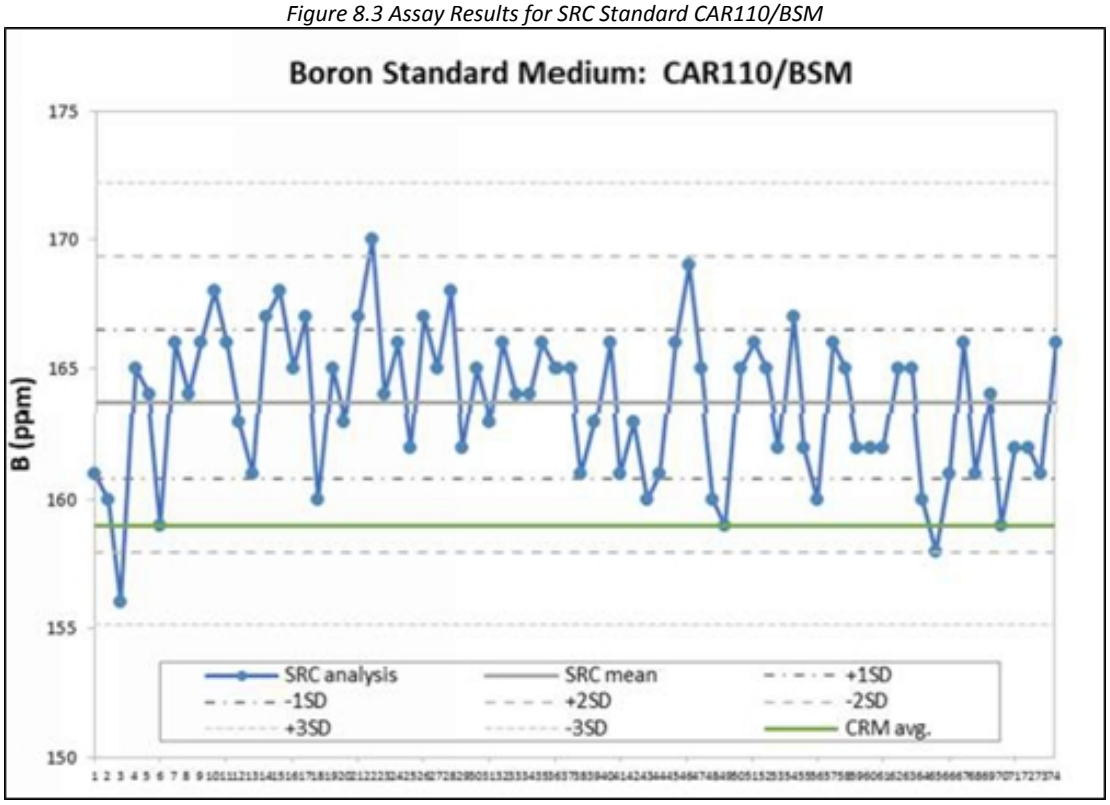
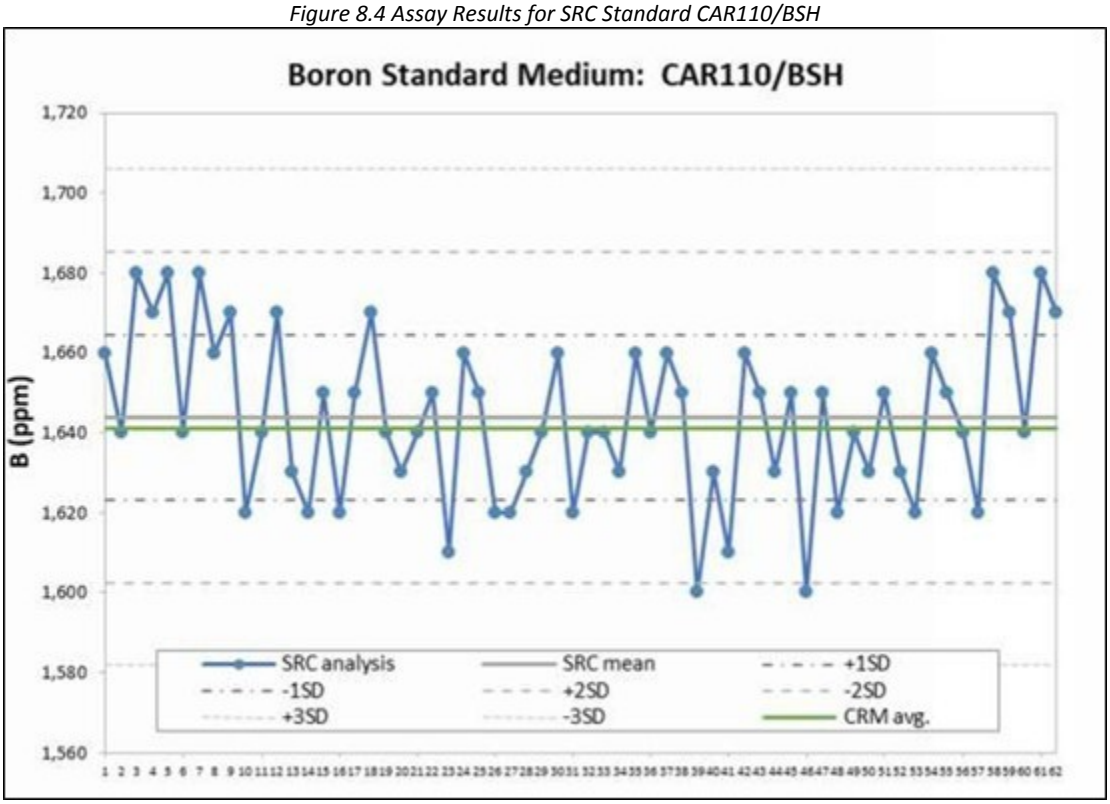


Figure 8.4 Assay Results for SRC Standard CAR110/BSH



Blank samples inserted by APBL consisted of non-mineralized marble. One hundred and thirty-five blank samples were submitted, all of which had assay results of less than 73 ppm B. The level of boron detected in the blanks is likely sourced from pharmaceutical borosilicate glass used during sample digestion. These boron concentrations are

considered immaterial in relation to the boron levels detected in the colemanite mineralization and do not appear to represent carryover contamination from sample preparation. Lithium levels in the blank samples are also at acceptable levels with many assays <15 ppm Li. The four highest Li levels in the blanks immediately followed samples that contained relatively high Li concentrations. Overall, the concentration of the primary elements of interest B and Li in the blanks are at levels considered to be acceptable, implying a reasonable performance for sample preparation. The results of the blanks for B and Li are plotted in Figure 8.5 and Figure 8.6.

Figure 8.5 Sample Blank Assay Results for Boron

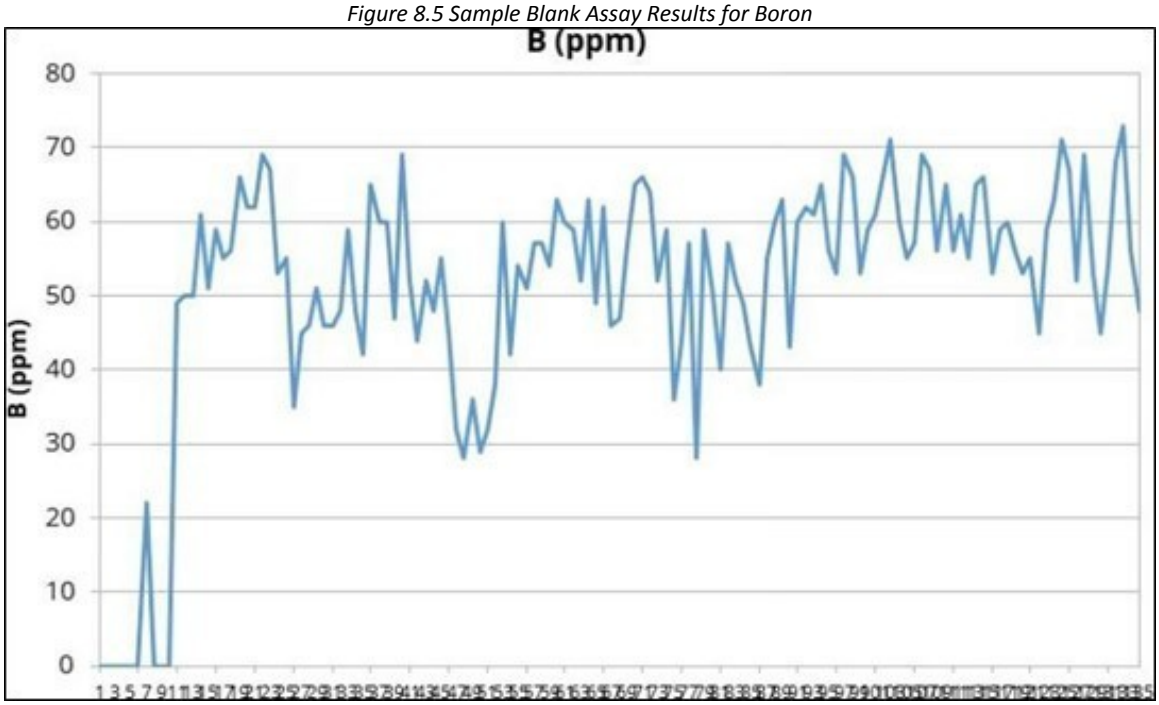
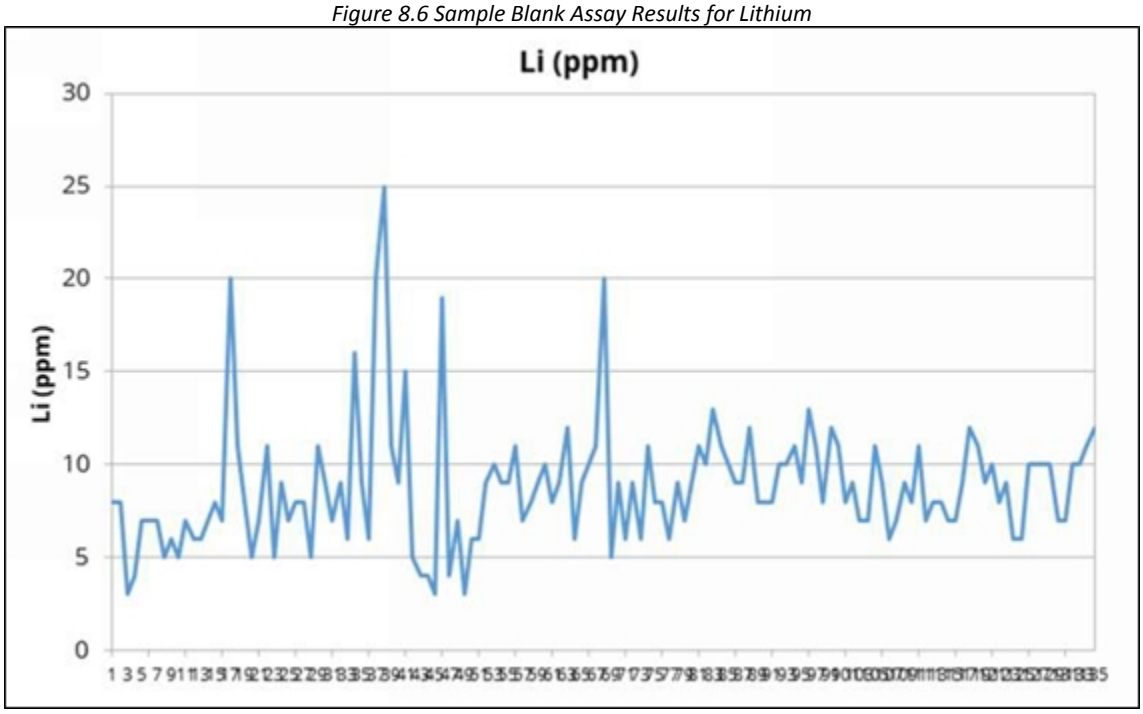


Figure 8.6 Sample Blank Assay Results for Lithium



A total of 136 duplicate samples were submitted to the SRC. APBL commissioned SRC to compose coarse duplicate samples using a Boyd rotary splitter. Figure 8.7 and Figure 8.8 show the assay results of duplicate samples for B and Li. As can be seen from the regressions, there is a good correlation between original and duplicate samples.

Figure 8.7 Duplicate Sample Results for Boron

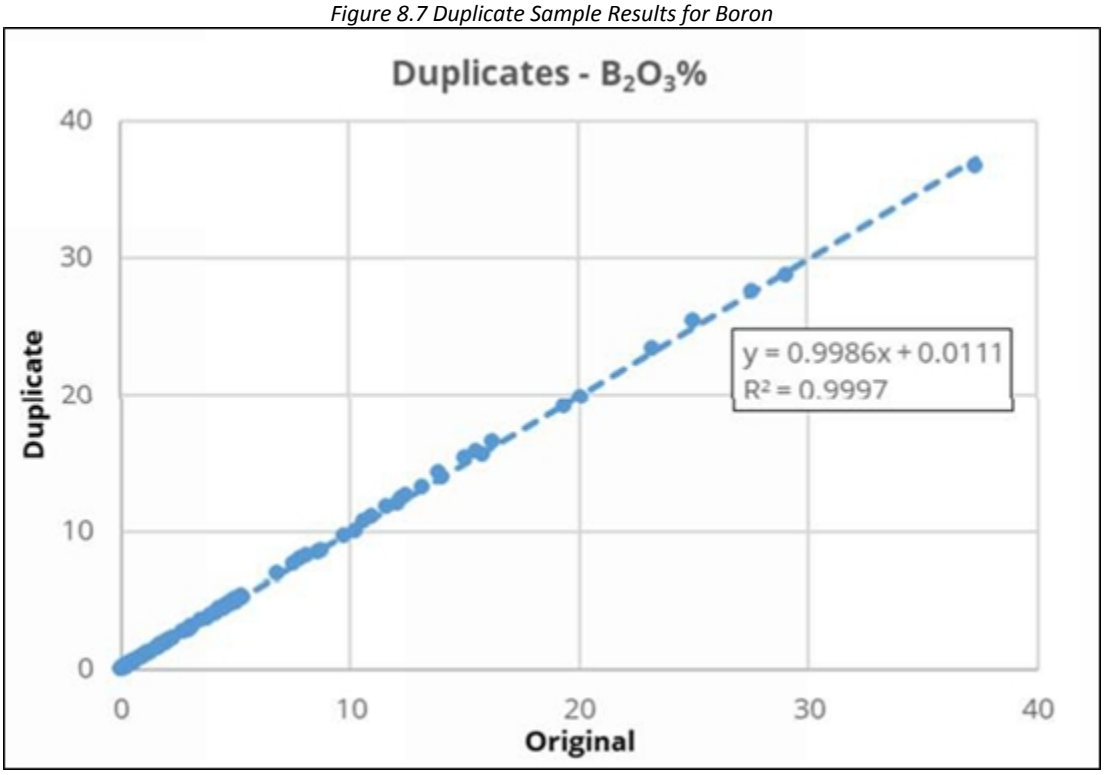


Figure 8.8 Duplicate Sample Results for Lithium

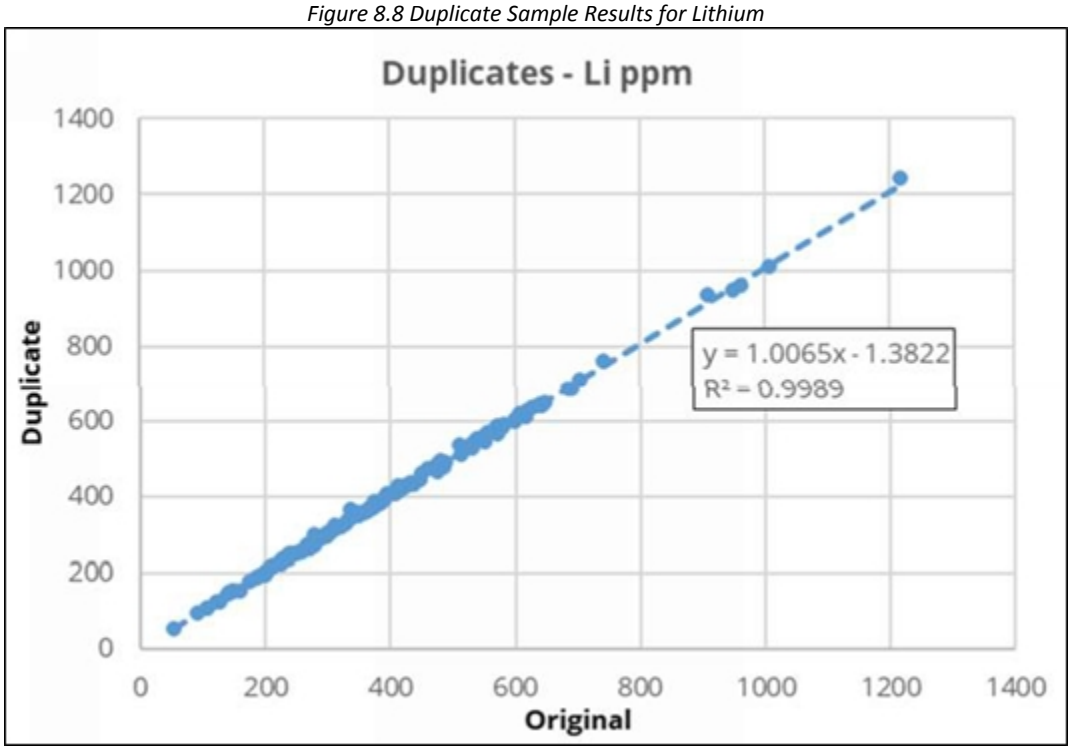


Figure 8.9 displays a HARD half absolute relative difference plot for the duplicates. This highlights reasonable precision for the duplicates. Regression and HARD results were also plotted for pulp duplicates assayed in SRC's own QC protocol shown in Figure 8.10 and Figure 8.11. These also show a reasonable level of precision.

Figure 8.9 HARD Diagram for APBL Duplicate Samples

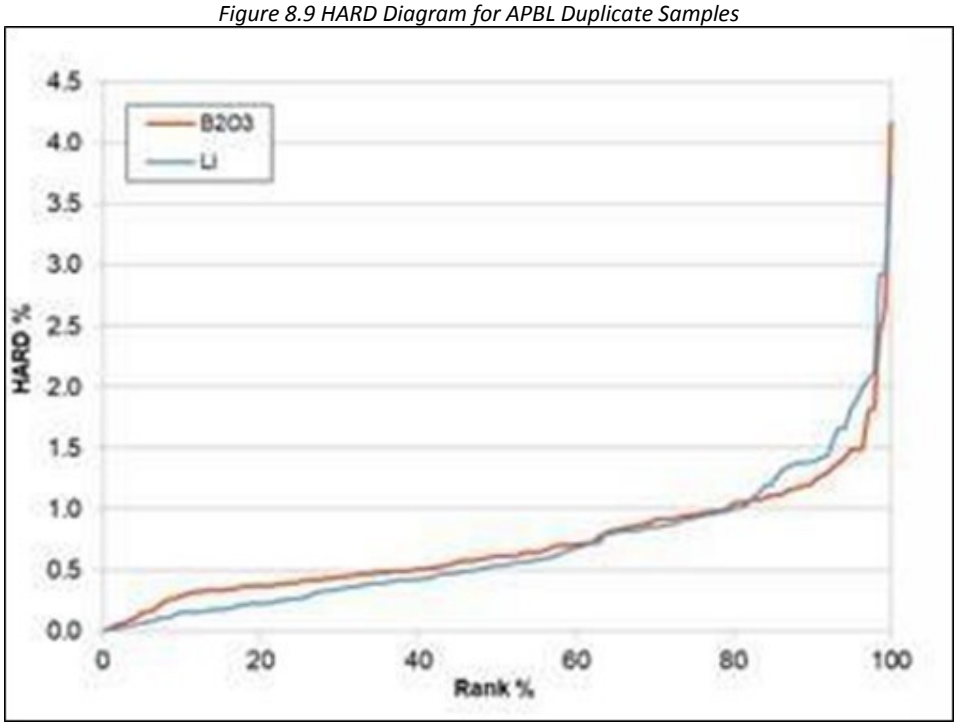


Figure 8.10 SRC Duplicate Results

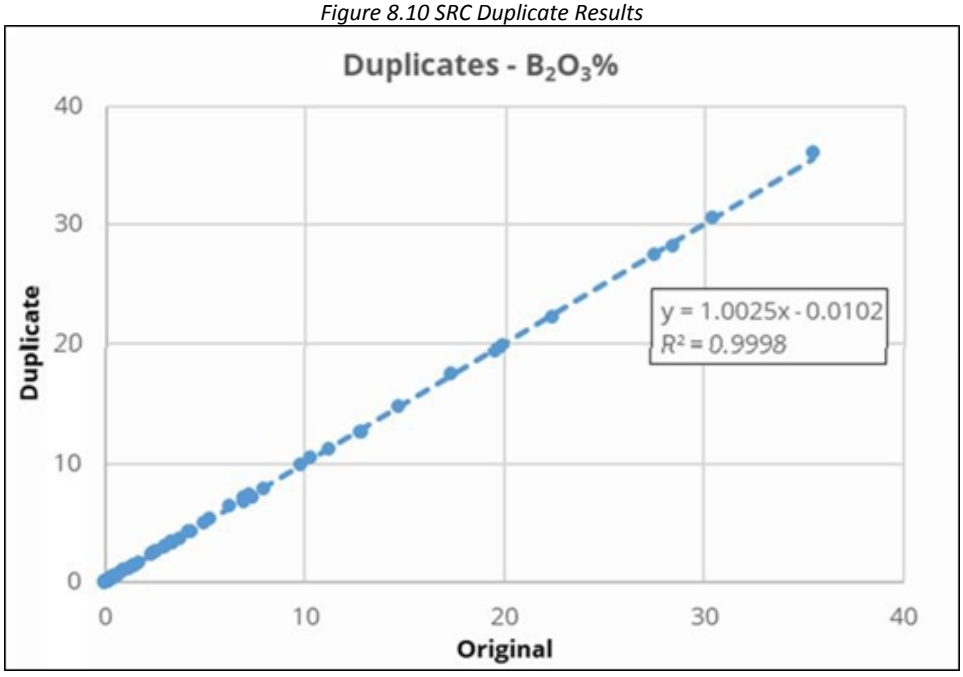
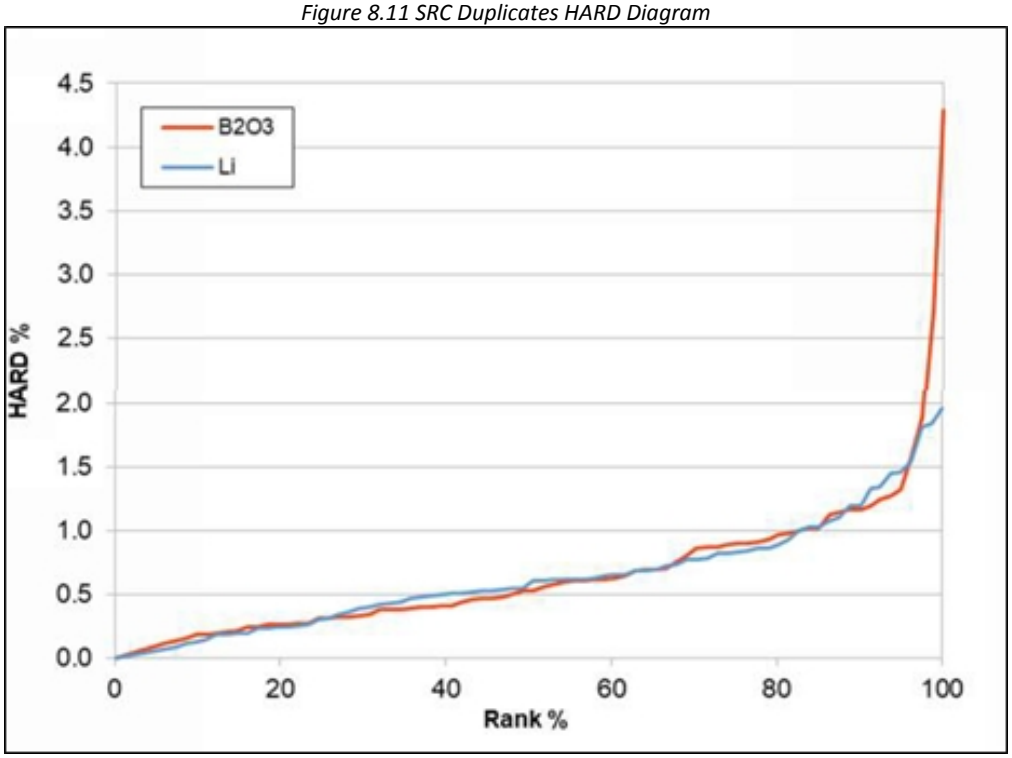


Figure 8.11 SRC Duplicates HARD Diagram



The QP believes reasonable care has been taken to collect and dispatch samples for analysis. The QA/QC program has shown the analyses are viable with a minimum of dispersion or contamination errors. The QP considers the sampling program to be of sufficient quality to support a mineral resource estimate.

9 Data Verification

9.1 Data Verification Procedures

During a site visit, the QP examined the core for five of the 2017 drill holes completed by 5E. Core has been safely stored in a designated storage building near the mine site office and is in good condition. The QP examined the core and compared the core to the geologic logs and sample interval records and found good agreement with the log descriptions and with no discrepancies with sample intervals.

The QP has done a visual check of drilling locations through Google Earth. Drill sites from the 2017 drilling program are still visible in imagery. Older sites completed by Duval and FCMC are not discernible on imagery.

Historic drilling location records were originally recorded in California State Plane coordinates or in metes and bounds. The QP checked historic drilling location data to ensure these records had been properly converted to Universal Transverse Mercator (UTM) coordinates, the coordinate system used in the 2017 drilling program. All historic location data has been properly converted to the current UTM coordinate system.

The QP received drilling records, sample intervals, and assay results in excel workbook files that were used as input for the drill hole database. Through a variety of data checks drill hole information was evaluated for duplicate entries, incorrect intervals, lengths, or distance values less than or equal to zero, out-of-sequence intervals and intervals or distances greater than the reported drill hole length. Historical drill hole records were also checked against relevant Duval and FCMC data sets. A review comparing original field logs and assay reports showed the data to have been transcribed accurately into the Excel files.

9.2 Data Limitations or Failures

The QP did not identify any data limitations or failures.

9.3 Data Adequacy

The QP believes adequate care has been taken in preserving and transcribing the historic data to digital format and 2017 drill hole data accurately corresponds back to the sample ledger and assay certificates. The QP believes that the data used is adequate and suitable for a mineral resource estimate.

10 Mineral Processing and Metallurgical Testing

10.1 Metallurgical Testing

Representative samples were collected and submitted for assay by Duval and APBL. The data is discussed below.

10.2 Representative Samples

Between September 2017 and October 2017, APBL completed 14 holes for 23,111 ft as part of a confirmatory resource drilling program. Assay results from all 14 drill holes were used in the mineral resource estimate. There are 2,113 samples from the 2017 drilling program representing 1,713 ft of core. In conjunction with the 2017 drilling program, 29 historical drill holes completed by Duval and four holes completed by FCMC have been utilized in the mineral resource estimate. There are 3,672 samples from the historic drilling representing a cumulative total 10,831.3 ft of core. The QA/QC procedures for the historic drilling are unknown though the work products compiled during the historic drilling suggests it was carried out by competent geologists following procedures considered standard practice at that time.

10.3 Testing Laboratory

Discussions held with Pamela A.K. Wilkinson, Lead Exploration Geologist at Fort Cady for Duval, indicate that Duval followed internal quality control and quality assurance procedures in place to ensure that assay results were accurate. Duval utilized their Tucson, West Texas Culberson Mine or New Mexico Duval Potash Mine laboratories for analytical work carried out at the Project. Geochemical analyses were carried out using X-Ray Fluorescence Spectrometry. XRF results were reportedly checked against logging and assay data.

In 2019, Swenson Technology, Inc. was engaged to perform crystallization tests, and Hazen Research, Inc. (Hazen) was engaged to perform solvent extraction tests. These tests demonstrated 92% BA recovery that was considered adequate to advance the Project to the design and construction of a 9,000 stpa demonstration plant. A change in corporate strategy resulted in the termination of the demonstration plant at that time.

In August 2021, 5E selected crystallization over solvent extraction as the primary BA recovery method, upgrade route and engaged Aquatech to produce equipment-specific modeling and to supply crystallization and evaporation equipment for a 2,000 stpa small-scale facility. PLC leachate samples used for this testing were from a small quantity of concentrated material obtained from the deposit.

In 2021, 5E engaged Agapito Associates and Hazen to produce solid core leaching tests from representative core samples obtained from the 2017 drilling program. Hazen's analytical facilities are certified by the National Institute of Standards and Technology and by the U.S. Environmental Protection Agency. Cores were selected by TMS from across the ore body to represent average boric acid and calcite, and 20 core samples were leach tested to estimate mine PLS content. Based on the chemical composition data obtained from these tests, additional equipment testing was planned along with process plant modeling.

With the data obtained from Aquatech and Agapito, 5E engaged Hargrove & Associates (Hargrove) to provide a process design for the small-scale facility. Detailed engineering for the small-scale facility was performed by Hargrove and Millcreek Engineering (Millcreek). The small-scale facility is awaiting final authorization to inject acid and once operational, the facility should provide many of the necessary parameters required for commercial design.

In July 2022, 5E engaged Ardent Technologies (Ardent) to perform test work and process modeling. Ardent's efforts were largely focused on gypsum processing, impurity removal, boric acid crystallization, de-watering, and lithium recovery. The Ardent work used synthetic solutions, which could have an impact on validity of samples.

10.4 Relevant Results

Assay results were used in the resource estimation model, discussed in Section 11.

10.5 Adequacy of Data

The QP believes adequate protocols were followed in the collection of core and submittal to acceptable metallurgical testing laboratories.

11 Mineral Resource Estimates

In December of 2018, Mr. Louis Fourie of TMS completed an updated JORC resource report for the Project. That report identified a Measured plus Indicated mineral resource estimate of 52.7 million tonnes (Mt) containing an average grade of 6.02% B_2O_3 and 367 ppm of Li. This was followed in 2021 by a revised initial assessment report (SK-1300) which utilized and verified the previous reporting, as there were no significant exploration activities undertaken on the Project between 2018 and 2021, although changes in the Mineral holdings did occur, and the mineral Resource was subsequently updated. Since 2021, there have been 13 additional wells drilled as part of a monitoring well and testing program. One well, IR2-01-01, was cored and assayed at the Saskatchewan Research Council (SRC), following the same methodologies as before. The data from this drill hole was quality assessed, and subsequently added to this Resource update, which has also been modified with changes in the mineral holdings as described in Section 3, as well as cut-off grade as described in Section 11.4 below.

11.1 Key Assumptions

Key assumptions used in the economic assessment include:

- ISL mining operation delivering 7% boric acid in solution (head grade) to an above ground processing plant;
- Operating costs of $686 per ton of boric acid produced;
- 92% conversion of boric acid in solution to saleable boric acid powder (recovery rate);
- 81.9% recovery of in-situ boron (extraction ratio), based upon a Hazen Research analytical report; and
- Sales price of boric acid based on a forward-looking model from regression of historical pricing.

A detailed financial model using a discount rate of 8% delivered a positive net present value to support the cut-off grade and more broadly the resulting mineral resource estimation.

11.2 QP's Estimate of Resource

11.2.1 Resource Database

The database used for resource estimate includes 34 holes completed by Duval, three holes completed by FCMC, and 15 holes completed by APBL/5E for a cumulative total of 52 drill holes and a cumulative sampled length of 82,994 ft (25,296.7 m). Table 11.1 summarizes the drilling database. The database has been updated with the data from hole IR2-01-01 and is current as of April 1, 2023. Drilling coordinates in the database are in UTM NAD 83-11, and depths and elevations are reported in meters. Borate is listed as weight percent (%) B_2O_3 and Li as ppm. The drilling database contains 5,920 analytical values for B_2O_3 and 5,082 analytical values for Li.

Core recovery for the 2017 drilling program ranged from 93% to 100% with an overall average of 97.60%. Core recovery records for earlier drilling conducted by Duval and FCMC are not available, but based on missing intervals in the drilling database, core recovery likely exceeded 90% in the core drilling.

The QP has completed a thorough review and verification of the drilling database and found the database to be sufficient for resource modeling.

Table 11.1 Summary of Drilling Database

Hole ID	Cumulative Core Length (m)	Cumulative Sample Length (m)	B2O3 Analyses	Li Analyses
APBL-01	111.13	88.90	82	82
APBL-02	91.74	87.74	107	107
APBL-03	93.11	92.80	91	91
APBL-04	143.77	142.71	162	162
APBL-05	107.35	104.76	150	150
APBL-06	95.34	90.47	83	83
APBL-07	176.27	166.09	207	207
APBL-08	128.96	127.20	153	153
APBL-09	119.33	118.51	120	120
APBL-10	133.81	126.50	176	176
APBL-11	135.72	134.79	155	155
APBL-12	142.77	138.42	212	212
APBL-13	138.99	136.75	155	155
APBL-14	157.43	156.99	260	260
DHB-01	162.49	158.41	184	184
DHB-03	212.90	212.12	213	213
DHB-05	207.26	207.26	179	179
DHB-06	175.57	155.42	124	124
DHB-07	204.83	204.06	179	179
DHB-08	224.63	224.63	186	186
DHB-09	170.69	170.69	138	138
DHB-10	139.08	81.79	86	86
DHB-11	112.90	73.28	86	86
DHB-12	120.67	74.04	85	-
DHB-13	102.57	61.17	70	70
DHB-14	117.63	75.71	80	-
DHB-15	125.70	56.18	51	51
DHB-16	145.48	122.62	138	138
DHB-17	141.25	104.49	151	151
DHB-18	139.48	92.32	105	105
DHB-19	106.68	59.40	74	74
DHB-21	26.33	25.93	39	39
DHB-22	135.94	101.81	135	135
DHB-23	136.24	100.80	114	114
DHB-24	146.00	120.00	119	119
DHB-25	173.74	134.87	152	152
DHB-26	121.37	81.99	106	106
DHB-27	132.71	67.07	95	95
DHB-28	128.62	80.07	115	115
DHB-29	120.64	75.28	101	101
DHB-30	137.53	68.49	83	83
DHB-31	49.00	57.36	41	-
DHB-33	111.19	92.17	80	-
DHB-34	68.76	87.47	79	-
P1	60.96	60.96	20	-
P2	54.87	64.01	21	-
P3	54.87	54.87	18	-
P4	83.82	54.87	34	-
SMT-1	23.77	23.25	57	57
SMT-2	103.57	24.14	55	-
SMT-3	512.00	24.35	69	-
IR-2-01-01	137.59	119.57	135	135
Total	**6,905.05**	**5,365.55**	**5,910**	**5,328**

11.2.2 Geologic Model

TMS developed a gridded geologic model of the Project using Vulcan™ software. The mineralization does not correlate to lithological markers as the entire sequence is predominantly lacustrine mudstone. However, detailed examination of the analytical results reveals distinct mineralized horizons. The deposit was delineated based on these patterns of mineralization into four mineralized horizons, two non- mineralized or weakly mineralized interbeds and two non-mineralized horizons bounding the deposit. These horizons are listed in Table 11.2.

Table 11.2 Modelled Horizons

Horizon	Abbreviation	Thickness Range (m)	Average Thickness (m)	Composite B2O3 Range (wt.%)	Composited Li Range (ppm)
Overburden	OBN	317.0 - 507.7	381.8	NA	NA
Upper Mineralized Horizon	UMH	0.1 - 12.5	4.3	0.87 - 14.45	99 - 588
Upper Interbed	UI	0.1 - 16.7	6.7	0.5 - 4.1	108 - 623
Major Mineralized Horizon	MMH	0.7 - 69.4	27.4	2.6 - 17.6	98 - 550
Medial Interbed*	MIB	6.5 - 5.2	9.7	0.3 - 1.9	386 - 492
Intermediate Mineralized Horizon	IMH	1.8 - 58.3	22.5	0.7 - 12.0	23 - 534
Lower Mineralized Horizon	LMH	0.0 -53.9	19.7	0.2 - 5.7	91 - 534
Lower Sandstone*	LSS	0.1 - 58.6	15.6	NA	NA

*** Horizon not fully penetrated, NA: Not Applicable**

The grid model was constructed across the deposit area, with a grid cell size of 25 m x 25 m. Grids represent the bounding elevation surfaces of key horizons, thicknesses, and analytical grades. Mineral horizon grids were interpolated using an Inverse Distance Squared (ID2) algorithm. Mineralization is spatially defined by a resource boundary using 150 m. from the last intersection of mineralization in a drill hole. Grids are masked to the outside of the resource boundary.

11.2.3 Grade Estimation & Resource Classification

Using composites for each mineralized horizon, variograph was successful for B_2O_3 grades for the Major Mineralized Horizon (MMH), Intermediate Mineralized Horizon (IMH), and the Lower Mineralized Horizon (LMH) and are summarized in Table 11.3. Variogram modelling was unsuccessful for the Upper Mineralized Horizon and with Li in all horizons. Grids representing B_2O_3 grades for the MMH, IMH, and LMH were constructed using Ordinary Kriging using the constructed variograms. ID2 interpolation was used with all remaining grade grids using the same spatial limits established with the horizon grids.

Table 11.3 Modelled Variograms

Horizon	Type	Nugget	First Structure	Second Structure
MMH	Spherical, omnidirectional	—	200.0	400
IMH	Spherical, omnidirectional	0.2	180.0	450
LMH	Spherical, omnidirectional	0.2	530.0	—

Based on the variogram above, the deposit was classified as follows:

- Measured Resource Category: based on a maximum spacing between mineralized drill holes for each horizon of 200m, limited to drill holes drilled by APBL and 5E.
- Indicated Resources Category: based on a maximum spacing between mineralized drill holes for each horizon of 400m, limited to drill holes drilled by APBL and 5E.
- Inferred Resources Category: based on a maximum spacing between mineralized drill holes for each horizon of 800m.

Drilling and sampling density is sufficient that no further limits on classification are required.

11.3 Model Validation

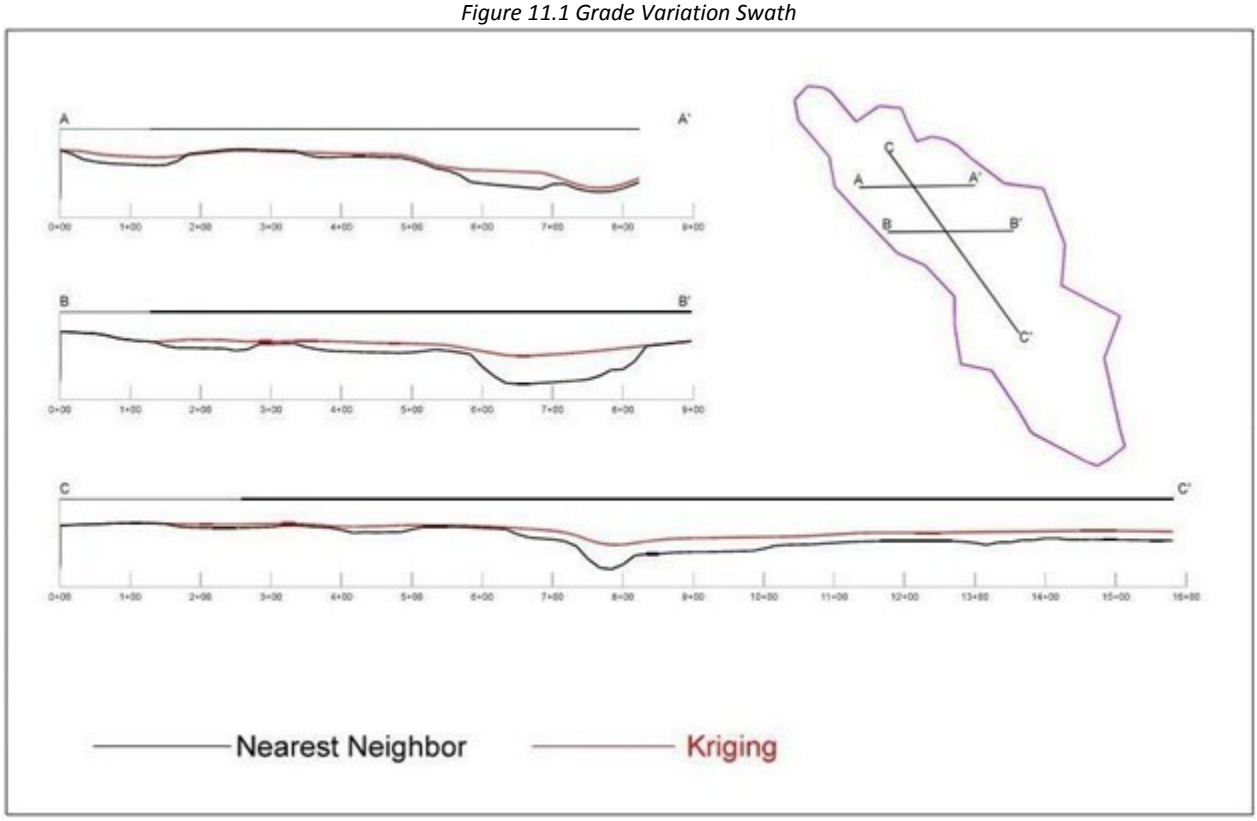
The modelling methodology and outcome was thoroughly vetted as follows:

The QP for the previous report loaded the resource database and grids provided by TMS into Carlson Mining®, a geology and mine planning software that competes directly with Vulcan. The audit and validation of the gridded model consisted of the following steps:

1. Drilling data was loaded into Carlson Mining to compare drill hole postings with the provided grids representing the top and bottom surfaces for each mineralized horizon. This comparison was done using a grid inspector tool in Carlson Mining that enables simultaneous viewing of drill hole data along with grid values at each drilling location. The QP found the resulting comparisons to be satisfactory. This step was repeated comparing drill hole composite grades from drill hole data with grids representing the grades of B_2O_3 and Li for each mineralized horizon. While there are some fluctuations with grid values generated by kriging and ID2, these fluctuations are small and within expected ranges.
2. The gridded model was evaluated using a series of swath plots. A swath plot is a graphical display of the grade distribution derived from a series of bands, or swaths, generated as sections through the deposit. Grade variations from the ordinary kriging model are compared to nearest neighbor(NN) searches on drill hole composites. On a local scale, the NN search does not provide reliable estimations of grade but on a much larger scale, it represents an unbiased estimation of the grade distribution based on the underlying data. If the model estimation completed by ordinary kriging is unbiased, the grade trends may show local fluctuations on a swath plot, but the overall trend should be like the NN distribution of grade. Three swath plots are shown in Figure 11.1
3. Finally, the QP completed a separate estimate in Carlson Mining following the parameters used by TMS to the defined resource boundary. This separate resource estimate was within 3.6% of the TMS estimate. The QP considers the difference negligible considering the comparison uses two different modelling software packages.

The QP for this report has examined the updated model, which contains one additional core hole, and is confident that it conforms to the necessary standard.

Figure 11.1 Grade Variation Swath



11.3.1 Density Measurements

The 2017 drilling program included the collection of 777 density measurements from core samples. Density determinations were made using the weight in air/weight in water method. The weighted average bulk density determined from the 381 samples collected through the mineralized horizons is 2.18 g/cm^3. and has been used as the bulk density in resource estimation.

11.4 Cut-off Grade

A 5.0% B_2O_3 cut-off grade was previously established by Duval and was carried forth by TMS in their JORC resource reporting, as well as by Millcreek for the previous initial assessment. In the previous initial assessment, the QP indicated that the then- cut-off grade is conservative and that effective recovery along with detailed economic analysis will be needed for reserve estimation.

An in-depth assessment of cut-off grade was undertaken in 2022 and 2023, incorporating the result of leaching tests, mining and processing costs, and commodity pricing. Elevated boric acid pricing has allowed for a re-evaluation of grade cutoff and the ability to address lower grade areas in the orebody. This assessment is based on assumptions in the financial model detailed in Section 19 and as discussed below.

Sales pricing has risen over the past several years and is currently tracking in the upper $1,400's per short ton as of May 2022. For this evaluation, current pricing was used along with price forecasting based on work with Kline. Current spot pricing for lithium carbonate, provided by Benchmark Mineral Intelligence, was also used in the model. See Section 16 below.

Cutoff can be derived using the above assumptions and current spot pricing as detailed with a regression equation fit to the financial model data at multiple cash cost points, per Equation 1:

Equation 1 Cutoff Grade Calculation

$$Cutoff\ grade, \% = 100 \times 10^{\left[\frac{\log\left(^{regression\ coef.1}/_{boric\ acid\ spot\ price}\right)}{regression\ coef.2}\right]}$$

The result of this exercise is a 2.0% financially viable driven grade cutoff, where our costs are near the current spot sales price for boric acid. The geologic model used the 2% B_2O_3 cutoff which has a Boric Acid equivalent cutoff of 3.55% boric acid ($H_3BO_{3)}$.

11.5 Classification into Measured, Indicated and Inferred

Results of the mineral resource estimation are shown in Table 11.4. The resource estimate contains a combined 74.31 million short tons of Measured plus Indicated resources with an average grade of 4.15% B_2O_3 and 356 ppm Li, using a 2% cut-off grade for B_2O_3. The mineral resource estimate also identifies 96.90 million short tons of Inferred resources under mineral control by 5E with an average grade of 4.75% B_2O_3 and 321 ppm Li.

It is noted that these numbers are substantially different to previous reports, which is ascribed to the change in cut-off grade as detailed in Section 11.4 and Section 3.6.

Regulation S-K 1300 requires a current economic assessment to be completed which provides a reasonable basis for establishing the prospects of economic extraction of the mineral resource estimation.

Table 11.4 Fort Cady Project Mineral Resource Estimate, April 1, 2023*

Measured Resource	Horizon	Tonnage (MST)	B_2O_3 (wt%)	H_3BO_3 (wt%)	Lithium (ppm)	B_2O_3 (MST)	H_3BO_3 (MST)	LCE (MST)
5E Land Patented, surface & minerals	UMH	1.37	4.58	8.14	308	0.06	0.11	0.002
	MMH	12.26	6.26	11.12	409	0.77	1.36	0.027
	IMH	8.86	5.25	9.33	386	0.47	0.83	0.018
	LMH	8.46	2.30	4.09	261	0.19	0.35	0.012
Total Measured Resource		30.95	4.81	8.55	357	1.49	2.65	0.059

Indicated Resource	Horizon	Tonnage (MST)	B_2O_3 (wt%)	H_3BO_3 (wt%)	Lithium (ppm)	B_2O_3 (MST)	H_3BO_3 (MST)	LCE (MST)
5E Land Patented, surface & minerals	UMH	1.72	3.95	7.02	314	0.07	0.12	0.003
	MMH	20.21	5.50	9.77	368	1.11	1.97	0.040
	IMH	13.48	3.02	5.36	371	0.41	0.72	0.027
	LMH	7.94	2.36	4.19	302	0.19	0.33	0.013
Total Indicated Resource		43.35	4.09	7.27	355	1.77	3.15	0.082
Total Measured + Indicated Resource		74.31	4.15	7.37	356	3.26	5.80	0.141

Inferred Resource	Horizon	Tonnage (MST)	B_2O_3 (wt%)	H_3BO_3 (wt%)	Lithium (ppm)	B_2O_3 (MST)	H_3BO_3 (MST)	LCE (MST)
5E Land Patented, surface & minerals	UMH	4.98	3.21	5.70	303	0.16	0.28	0.008
	MMH	37.60	6.08	10.80	295	2.29	4.06	0.059
	IMH	13.88	2.59	4.60	346	0.36	0.64	0.026
	LMH	7.07	2.13	3.79	267	0.15	0.27	0.010
5E surface, State of California minerals	UMH	4.86	3.75	6.66	311	0.18	0.32	0.008
	MMH	16.93	6.73	11.95	366	1.14	2.02	0.033
	IMH	9.24	2.43	4.32	365	0.22	0.40	0.018
5E Land Patented, surface & minerals, SE	UMH	0.42	4.02	7.14	287	0.02	0.03	0.001
	MMH	1.18	5.38	9.56	339	0.06	0.11	0.002
	IMH	0.74	2.45	4.35	331	0.02	0.03	0.001
Total Inferred Resource		96.90	4.75	8.43	321	4.60	8.17	0.166

*** Using a 2% B_2O_3 cut-off grade, and no Lithium cut-off grade**

11.6 Uncertainties

The QP is not aware of any known environmental, permitting, legal, title, taxation, socio- economic, marketing, or other relevant factors or uncertainties that could affect the mineral resource estimate.

The accuracy of resource and reserve estimates is, in part, a function of the quality and quantity of available data and of engineering and geological interpretation and judgment. Given the data available at the time this report was prepared, the estimates presented herein are considered reasonable. However, they should be accepted with the understanding that additional data and analysis available after the date of the estimates may necessitate revision. These revisions may be material. There is no guarantee that all or any part of the estimated resources or reserves will be recoverable.

11.7 Individual Grade for Each Commodity

Included with Section 11.5.

11.8 Disclose Required Future Work

Currently, the resource estimate includes an inferred resource which has been established using historical drillings from Duval. It is recommended that 5E drill an additional six to ten exploration and in-fill holes in Section 25 and 36 on the southeastern side of the resource to convert the inferred resource to measured and indicated.

12 Mineral Reserve Estimates

There are currently no mineral reserve estimates to report. Construction is currently in progress for the small-scale facility and operation of the small-scale facility with further refined capital and operating estimates will provide the necessary parameters for determining the mineral reserve estimate.

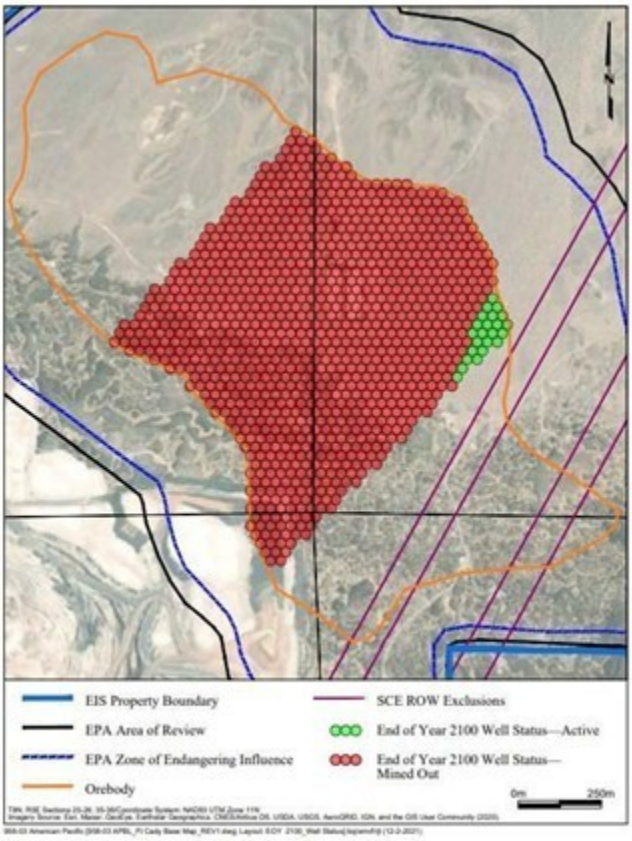
13 Mining Methods

The Project will be employing ISL as its mining method to recover boric acid and lithium carbonate from the mineralized horizons. Depth and grade of the deposit precludes conventional mining techniques as effective methods for economical extraction of ore. With ISL mining, there is no stripping of waste rock or underground development required for the Project. Mine development steps include constructing injection/recovery wells, installing pumping or airlifting extraction equipment on wells, and piping to transport leach solutions to the wellfield and PLS to the chemical plant for processing. Mining fleet and machinery are not required for the Project.

The process designed by both 5E and Hargrove assumed an initial production rate of 90,000 stpa boric acid. This production rate should correspond to 640-650 gallons/min of PLS to the processing plant, assuming a head grade of 7% boric acid in the PLS, and 92% yield of boric acid in the processing plant.

Preliminary work completed by Agapito calls for the installation of 100-ft spaced injection/recovery wells using push-pull mechanics. These wells are to operate each as injection and recovery wells where leach solution is pumped into the well and, after a prescribed residence time, is retrieved from the same well for processing. This method will be used until dissolution of the colemanite in the deposit progresses to where conduit flow is established between wells. Once conduit flow is established, well control will be adjusted to short circuiting to optimize recovery.

Figure 13.1 Block 2 Mining Sequence Example



For the mine design, the mineral resource area has been subdivided into three blocks for development. Block 1 comprises the northern third of the resource area, Block 2 occupies the central portion of the resource area, and Block 3 comprises the southern third of the mineral resource area. The mine design calls for developing Block 2, the central region, first as it is centrally located. Figure13.1 projects well development and provides an example of current and previous land holdings.

Mine recovery rate of 81.9% is applied to account for losses for leaching solution not reaching and reacting with the ore body, as well as for non-recoverable saturated solution underground. This is based on studies conducted by APBL, Hazen, and MSME.

At this time a hydrological model has been built for the Project deposit and is in the process of being updated for the comings recent step-rate testing, along with the installation of monitoring wells. Pump tests on the monitoring wells have been employed as a tool to locate any additional faults that could impact the mine design. Geophysical surveys of the deposit are planned for 2023 to further enhance clarity on stratigraphic and structural controls of the deposit for the mine design.

13.1 Solution Mining (In-Situ Leaching, ISL)

5E will mine colemanite and Li salts via ISL by injecting an acid solution via a series of wells into the mineralized horizons. The acid solution reacts with the colemanite forming a PLS containing H_3BO_3. There are various ways of developing the wellfield for in-situ solution mining, including “push-pull” where wells function as both injection and recovery wells; line drive; and multiple spot patterns. In addition to the vertical wells, directional drilling for well development is also being evaluated as a potential option for the Project. Wellfield development and pattern layout will ultimately depend on the hydrogeologic model and the cost benefit analysis of various patterns and options.

The recovery of colemanite will occur via injection of a HCl solution into the deposit through the wells. The injection fluid will remain in the formation to react until sufficient contact time with the colemanite is achieved, and it can then be extracted from the wells. The concentration of HCl in the injection solution is one of the key control variables for the mining process. Higher concentrations of HCl promote reaction with the colemanite, while excessive HCl will increase the reaction with minor impurities such as aluminum, magnesium, iron, anhydrides, and calcite.

14 Processing and Recovery Methods

14.1 Mineral Characteristics

Colemanite, $2CaO \bullet 3B_2O_3 \bullet 5H_2O$, is a hydrated, calcium borate mineral with 50% B_2O_3 by weight and is found in evaporite deposits of alkaline lacustrine environments. The mineral is semi-hard with a Mohs hardness of 4.5 and forms as discreet monoclinic, prismatic crystals or masses. Colemanite typically forms as a translucent colorless, white, or gray crystal with a vitreous luster. Colemanite is insoluble in water but soluble in HCl and sulfuric acid (H_2SO_4).

ISL is the proposed extraction technique for the Fort Cady deposit and depends on the following hydrologic characteristics: void spaces and porosity, permeability, ore zone thickness, transmissivity, storage coefficient, water table or piezometric surface, and hydraulic gradient (Bartlett, Solution Mining, 1998) as well as reaction and extraction method efficiencies.

In 2021, 5E engaged Hargrove to lead a modified process design for the small-scale facility and the commercial plant. Detailed engineering for the small-scale facility was performed by Hargrove and Millcreek. The design package was turned over to a contractor for the construction of the small-scale facility which started in summer 2022. Once operational, the small-scale facility should provide many of the necessary parameters that will lead into an optimized design of the commercial processing plant for initial production of 90,000 stpa boric acid and targets approximately 1,000 – 1,200 stpa lithium carbonate.

14.2 Processing

Mineral processing and metallurgical testing are ongoing for the Project. 5E has considered the following methods of extraction of boric acid from PLS:

- Evaporative concentration of PLS to produce a crude BA crystal that is re-dissolved and filtered to remove insoluble impurities (largely gypsum), followed by a cooling crystallization, de-watering, and washing to produce refined BA, which is then dried and stored for shipment;
- Following pH adjustment, extraction and concentration of lithium chloride via direct lithium extraction, purification, and conversion to lithium carbonate; and
- Removal of impurities by precipitation or concentrative evaporation targeting species that include calcium, magnesium, aluminum, iron, potassium, and sodium; and.
- Regeneration of hydrochloric acid via reactions of calcium chloride in the PLS with sulfuric acid, creating calcium sulfate (gypsum) and hydrochloric acid.

APBL explored an alternative processing design using solvent extraction. The benefits of solvent extraction are its ability to process a significantly lower PLS grade (3-4% BA) and reduced CAPEX and OPEX compared to evaporative crystallization. The final choice between SX and evaporative crystallization awaits PLS results from the small-scale facility and subsequent comparison of the alternative processes.

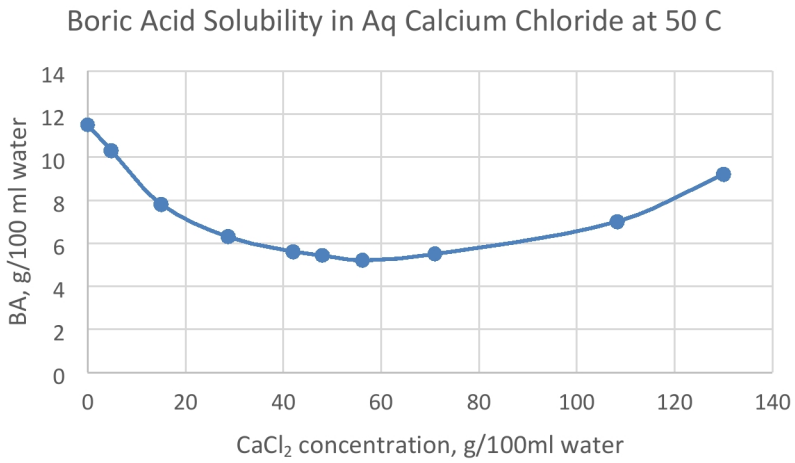
14.2.1 Basis for Boric Acid (BA) Head Grade

As stated in Section 11.1 Key Assumptions, it is the opinion of the QP that 5E may achieve a boric acid head grade of 7% weight in the PLS. The drivers assume to achieve this rate are two-fold: (1) regenerated acid used as mine water injection fluid which will contain, in addition to 5% weight hydrochloric acid, approximately 1.25% weight recycled boric

acid, and (2) previous studies have shown that boric acid head grade by weight of a range of 5%-6% is possible in PLS when using 5% weight HCl.

Crystallization studies have shown that approximately 80% of BA will crystallize in the presence of concentrated calcium chloride ($CaCL_2$), the primary co-product from ISL of colemanite with dilute HCl. Below is the solubility curve anticipated in the BA crystallizer at a temperature of 50C. The ratio of $CaCl_2$ to BA in solution exiting the crystallizer is 8.73 to 1 versus an incoming ratio of 1.7 to 1 in the PLS. This indicates that approximately 20% of the BA will remain soluble and in solution. Boric acid that remains in solution will be transferred to the gypsum reactor where $CaCl_2$ reacts with sulfuric acid to form gypsum and HCl. Here the BA will remain in solution during the gypsum reaction. After the gypsum is filtered, the regenerated HCl stream containing soluble BA will be reused for mine water injection and the anticipated concentration of BA in that stream is 1.25% weight.

Figure 14.1 Solubility Curve for Boric Acid Crystallizer



In 1986, MSME conducted multiple acid injections to determine boric acid production capability using HCl as the injection fluid. Below is a summary of the production results from some of these tests. In the testing, MSME also injected water which doesn't extract boric acid; therefore, the concentrations have been adjusted to account for the dilution from water injection on boric acid concentration in the resulting PLS. 5E will utilize 5% HCl as its injection fluid without further water dilution. The BA concentration has been adjusted to account for different acid concentrations deployed by MSME during their testing.

Table 14.1 MSME Testing Results – Contribution of BA in Head Grade from the Reaction of HCl with Colemanite

Series No	Cycle Nos	Injection	Leach solution injected (gals)	Volume excl water (gals)	% BA in PLS	%BA adj for water dilution	% BA adj for HCl conc
1	1-3	4% HCl	67,972	67,972	2.57%	N/A	3.22%
2	4-7	5.5% HCl	45,489	39,431	4.68%	6.34%	5.76%
3	8-11	5.5% HCl	53,023	32,576	3.72%	6.05%	5.50%

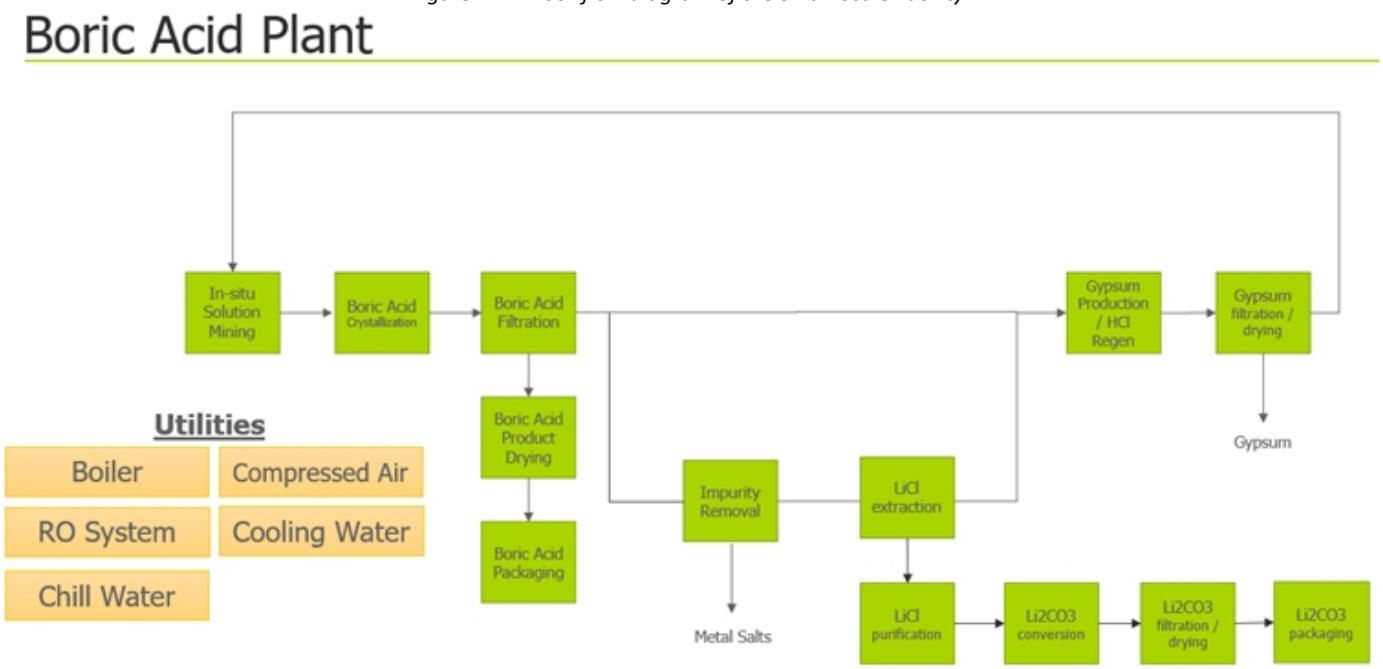
The QP is of the opinion that 5E has performed relevant testing and process engineering for the Project based on the available information. Once operational, the small-scale facility should provide most of the remaining key data to proceed with final plant design and pre-feasibility or feasibility economic analysis for the Project.

14.3 Operations

5E has selected crystallization as the method for recovering and purifying boric acid. The 5E processing plant is designed to operate continuously based on an on-stream time of 87% to produce 90,000 stpa of boric acid. At the assume PLS grade (7% BA) and recoveries, the plant will require 640 – 650 gal/min of PLS. Other inputs for the process based on a

production rate of 90,000 stpa are 102,000 stpa of 97% sulfuric acid (H_2SO_4), 13,000 stpa of 35% HCl, 340 gpm of water, 15 MW of electric power, and 300 MM BTU/hr of natural gas. The plant will employ approximately 133 people at these production rates. The block flow diagram for the process is included below in Figure 14.2.

Figure 14.2 Block flow diagram of the Small-Scale Facility



PLS that enters the plant will contain water, approximately 7% H_3BO_3, some unreacted HCl, and calcium chloride ($CaCl_2$), along with other metal salts from the mining operation Gypsum will co-crystallize with BA and will contaminate the initial crude crystal. No other components are expected to crystallize. The crystals will be dissolved and re-crystallized to produce the final high purity BA. Recognized crystallizer vendors have provided their proposals and selected materials of construction based on the process inputs provided by 5E. The evaporative crystallizers will remove a majority of the water and HCl as vapor, which will be condensed and recycled to the mine. The BA crystals will advance to de-watering, drying and packaging.

After crystallization, the resulting boric acid slurry contains boric acid crystals, dissolved $CaCl_2$, trace metal salts, and trace hydrochloric acid. This slurry is de-watered and washed on a vacuum belt filter or pusher centrifuge producing an H_3BO_3 wet cake and an aqueous stream containing dissolved BA, $CaCl_2$, trace metal salts including lithium, and trace HCl. The BA is then dried either in rotary or fluid-bed dryer and loaded into customer-specific packaging including 25-kg bags, 1-ton flexible international bulk containers, and bulk trucks.

A portion of the HCl-containing filtrates will be neutralized with lime to increase the pH. The remaining HCl is converted to $CaCl_2$.Trace metal salts are also precipitated at this higher pH. These metal salts are filtered out utilizing a filter press. Soluble impurities such as KCl, and NaCl will concentrate in the PLS and will be controlled either by a salt evaporator (zero liquid discharge, ZLD) or by losses to the cavity and wash losses in the gypsum and metal hydroxide.

The filtrate from the filter press contains dissolved lithium chloride and $CaCl_2$. The lithium chloride can be extracted and converted to lithium carbonate (Li_2CO_3). Lithium carbonate is expected to be made available for qualification and testing during operation of the small-scale facility. 5E has been in discussion with interested parties for lithium supply and continues to remain engaged and prepared to provide samples as they are available.

The remaining aqueous stream is converted to HCl and gypsum via a reaction with H_2SO_4. Gypsum has a low solubility and precipitates out. The resulting gypsum and aqueous HCl slurry are first fed to a centrifuge and the crude gypsum wet cake is reslurried and filtered on a vacuum belt filter or possibly recentrifuged. The regenerated, aqueous HCl from

the centrifuge is recycled to the mining operation. Gypsum wet cake from the belt filter is dried for sale as bulk byproduct.

In addition to H_3BO_3 and gypsum, lithium carbonate could also be produced as production volumes of H_3BO_3 increase. Sulfate of Potash (SOP) has previously been evaluated as a possible co-product. SOP is produced from a reaction between potash and H_2SO_4. This reaction also produces HCl which would be used for the mining operation. The reaction between potash and H_2SO_4 is commonly referred to as the Mannheim Process and utilizes a furnace which can be purchased from vendors specializing in SOP equipment. The SOP process would generate excess 35% HCl which would be marketed.

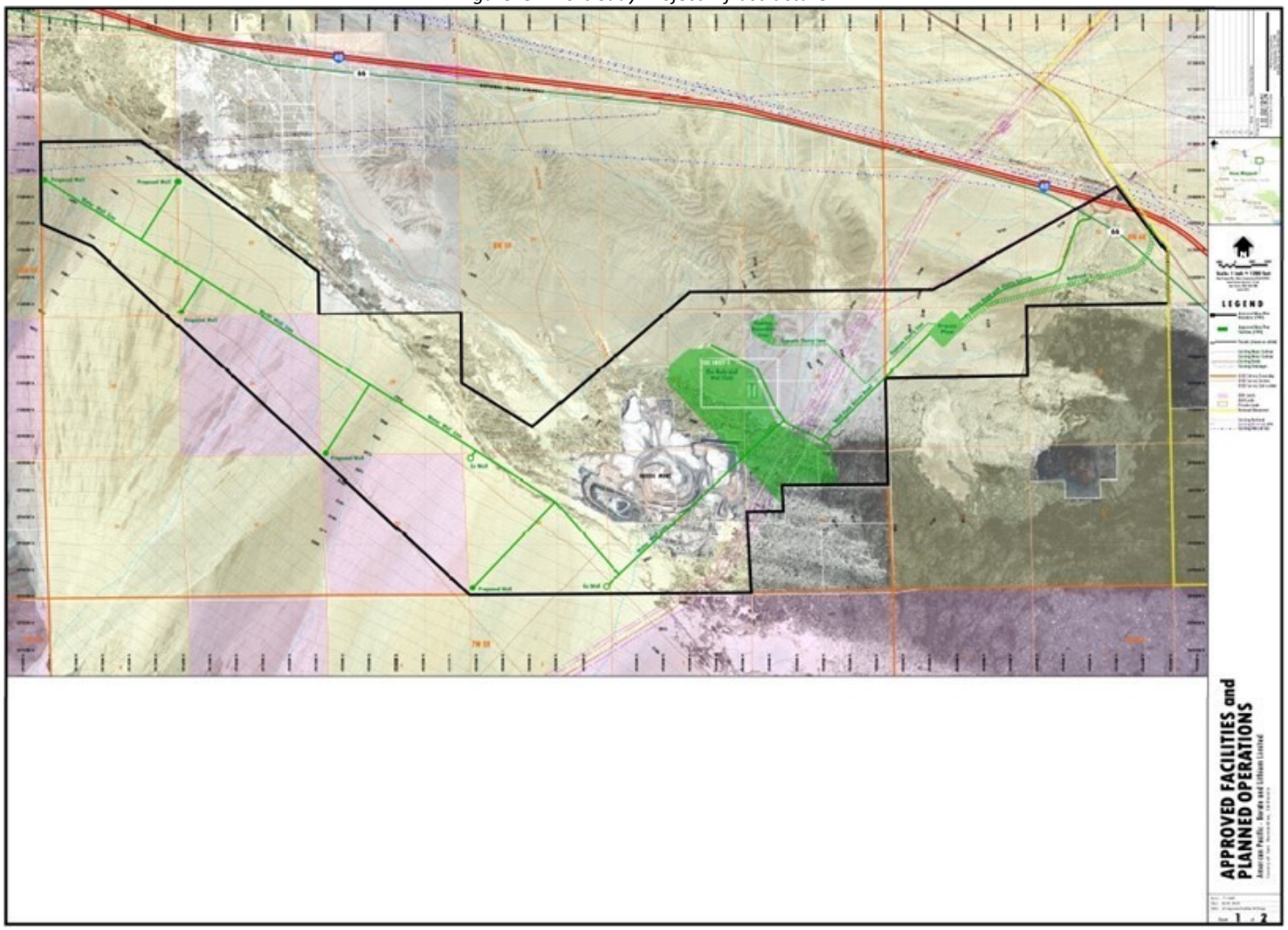
The QP is of the opinion that boron can be recovered from the Fort Cady resource through the means described above. Several key assumptions underlie this process design, assumptions that 5E has plans to vet as the Project progresses—especially through data to be obtained from the small-scale facility. The key assumptions include BA concentration in the PLS and the orebody ratio of extracted colemanite to calcite, both of which will have an impact on overall operations and production cost. Operation of the small-scale facility that is awaiting authorization to inject approval is essential to providing wellfield PLS and operational data.

15 Infrastructure

15.1 Access and Local Communities

The Project is located near Interstate-40 along with nearby access to rail and a natural gas transmission line. Currently, the Project receives electrical power from a 12kV powerline. Figure 15.1 shows general infrastructure needs for the Project.

Figure15.1 Fort Cady Project Infrastructure



15.2 Site Facilities and Infrastructure

Infrastructure required for the Project is expected to consist of the following:

- Natural gas – 5E will require a natural gas pipeline tied into the nearby transmission pipeline for the processing plant. Discussions are ongoing.
- Electrical power upgrade– an economic trade-off study is currently being conducted to evaluate co-generation, an upgraded powerline to the Project, and alternative renewable energy sources (solar PV, geothermal, or a combination of the two).
- Rail – connection to a rail spur adjacent to our EIS boundary is being considered for rail loading. In conjunction, a truck-to-rail transloading operation is being evaluated at another, existing rail spur location located 15 miles from the Project and would be implemented as part of Phase II expansion.
- Roads – Plant access roads will require upgrades and some roads may require paving. New access roads are also being considered.
- Water – 5E currently has adequate water resources for Phase 1 and Phase 2 of the Project. Wells and pipelines will be expanded to accommodate these phases. For volumes beyond 270,000 stpa, alternate heat removal methods (such as air cooling) are planned to avoid increased water consumption until proved water resources are identified.
- Material storage – storage for materials products and consumables will need to be built near the plant site including a stacking system for gypsum. Off-site storage and distribution are being explored with potential partners.

15.3 Security

The Project currently has a 24-hour security service with gates at entrances to the Project area. 5E plans to construct a fence around the property.

15.4 Communications

The Project currently utilizes Starlink for internet services, which is fully functional. For larger operations, 5E is considering a dedicated fiber line to site or a dedicated cell tower amongst other potential options. Additionally, a strong cell phone signal is available.

15.5 Logistics Requirements and Off-site Infrastructure

15.5.1 Rail

Rail is not currently used by the Project; however, the BNSF rail is situated next to the Project and is being assessed for logistical requirements. Several transloading and rail service providers have also been contacted for potential off-site loading to rail transport.

15.5.2 Port and Logistics

The Port of Los Angeles, Long Beach, and San Diego are all within a half-day drive from the Project on major highways. 5E has a truck scale on-site that can weigh deliveries to and from ports or rail.

15.5.3 Off-site storage and distribution

Storage and distribution locations off-site are being explored and discussions have been initiated with several potential providers. These costs are included as operating costs in the financial model in Sections 18 and 19.

16 Market Studies and Contracts

This section was completed with reference to multiple third-party market reports, including market studies by Global Market Insights (GMI), titled “Global Boron Minerals and Chemicals Market Report 2021-2027", Kline and Company, Inc. titled “Specialty Boron Products and Associated Applications” dated June 17, 2022, and a supplemental Kline study titled “Boric Acid Price Forecasting Model” dated November 2, 2022, with data updated in March 2023. Kline also conducted a market study focused on the US gypsum market dated January 24, 2023. For the lithium market, 5E obtained forward pricing and relevant market data from Benchmark Mineral Intelligence. Finally, 5E incorporated information obtained through consultation with industry experts, discussions with current end-use customers, and other publicly available sources to complete this section.

16.1 General Market Overview

Initially, 5E recognizes three primary products that can be recovered from ISL at the Project deposit: boric acid, lithium carbonate, and gypsum. 5E had done some preliminary work on production of SOP; however, SOP production could be considered for Phase 3. Previous process design work included using the Mannheim process to produce SOP from muriate of potash (KCl) as a method of acid generation for ISL. The current boric acid flowsheet has a high level of recyclability of HCl and therefore the Mannheim process has been deferred to later stages of the Project, if necessary.

16.2 Borates

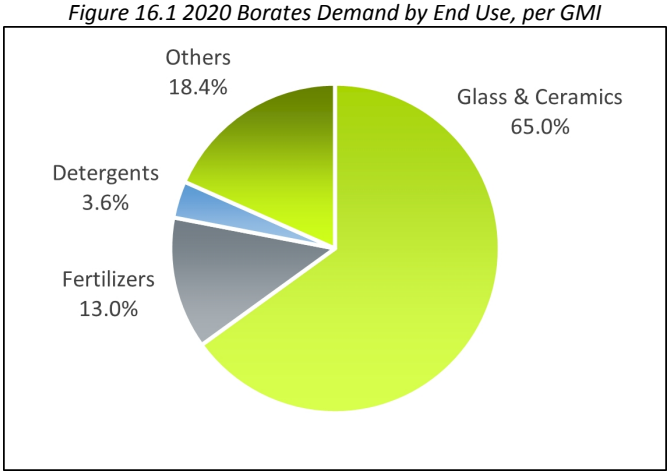
16.2.1 Market Overview

Per Kline, the global boron market was estimated to be valued at US$4.6 billion annually and consisted of approximately 4.6M stpa of boric acid equivalents in 2021.According to Global Market Insights, boron minerals and chemicals demand growth has had a compound annual growth rate (CAGR) of about 4% from 2016 through 2020. Kline estimates global demand for boric acid, specifically, will be 5.9% CAGR from 2021 through 2031 driven by traditional demand growth coupled with new applications.

Traditional applications for boron include borosilicate glass and textile fiberglass, insulation, ceramics, specialty fertilizers and biocides for the agricultural industry, detergents, fire retardants, and wood preservatives (Figure 16.1). New applications for boron include its use for:

- permanent magnets used in electric vehicles and re-chargeable electrical/battery equipment,
- semi-conductors and electronics,
- green energy/decarbonization in wind turbines, nuclear energy, and solar cells, and
- military vehicles and armor.

Figure 16.1 2020 Borates Demand by End Use, per GMI



Many existing, and future facing applications require boron specialty materials, high-value products that have few options for substitution. As a result, demand growth is expected to remain strong for borates into the foreseeable future.

16.2.2 Historical Pricing

Sodium borates and refined borates, which as defined by Kline includes boric acid and boron oxide, accounts for approximately 75% of all borate products by volume, with the other 25% represented by minerals and specialty products. Average pricing for borax and refined borates was $678 per short ton in 2021. Per Kline, Chinese boric acid market prices averaged $656 per short ton from 2013 until Q2 2021. Due to several factors including increased demand, production declines, temporary disruptions, and ongoing COVID logistic impacts, Chinese market pricing increased 60% to an average of $1,050 per short ton over the next 18 months through the end of 2022.

Large volume customers typically negotiate supply agreements for multiple years at price discounts versus spot pricing and it is not uncommon for contracts historically to range from three to five years. More recently, however, it has been reported that suppliers have been less willing to commit volume and pricing for more than one or two years, and in some cases requiring price adjustments on a quarterly or semi-annual basis due to market tightness, robust demand, and rising prices.

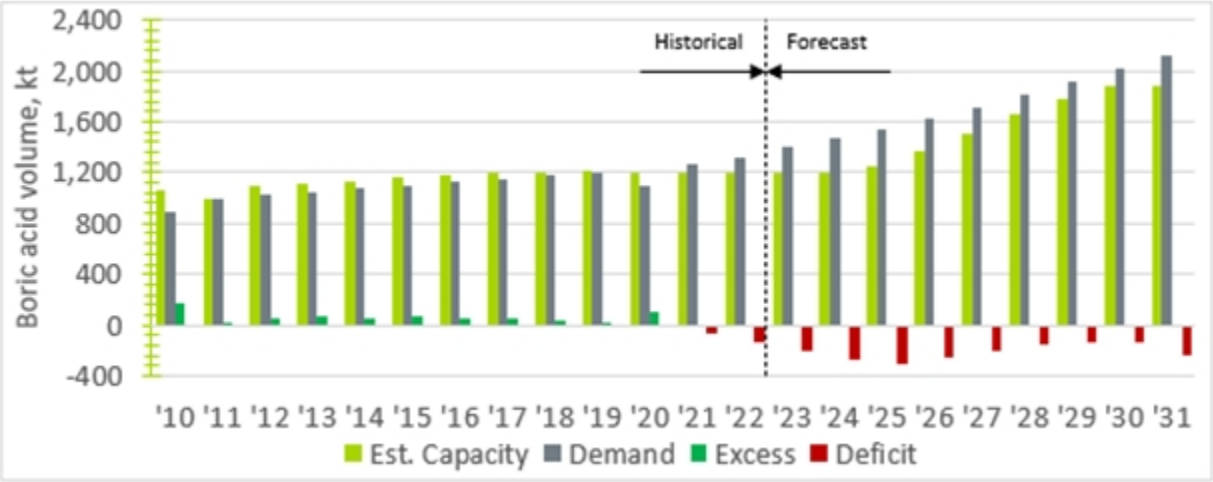
16.2.3 Market Balance

The global boron market is dominated by two companies: Eti Maden, a Government-Owned Turkish entity; and US Borax, a subsidiary of Rio Tinto. Together, this duo supplies approximately 80-85% of the global boron market. Eti Maden alone supplies over 60% of the world market and Eti Maden appears to be the only producer with meaningful reserves capable of bringing on additional boron supply capacity.

The concentration of the boron market reflects the rarity of economically viable borate deposits and there are only four main regions with large scale borate deposits: Anatolia Turkey, California USA, Central Andes South America, and Tibet Central Asia. Turkey has circa 73% of the world's total boron reserves. While a handful of boric acid projects have been announced globally, most remain in early stages of development, face permitting and/or social resistance, or have a mineralization that has not been produced commercially. This leaves 5E's Project as one of the only permitted boron resources with a proven commercially viable mineralization (calcium-based) that is likely to add meaningful supply in the next five to seven years.

Per Kline and publicly available disclosures, Rio Tinto Borates appears to have been operating at full capacity with approximately one million stpa of boric acid equivalent production. Kline's model of capacity and demand projections, show overall expected demand for boric acid increasing at a CAGR of 5.4% from 2022 through 2031. Overall capacity increases for the same period are projected at a 5.1% CAGR, which is in-line with recent public disclosures and market research. Given that the market is already nearly balanced and existing suppliers have not demonstrated an ability to immediately ramp up capacity, a systemic market deficit is expected through the next decade, driving pricing higher as projected in Figure 16.4. As the world focuses on decarbonization, food security, and security of strategic and critical minerals, this is putting further pricing pressured as depicted below . Figure 16.2 represents the projected shortfall in supply. 5E believes this information bolsters the commercial case for the entrance of new market supply into the market and the US and Asia are 5E's primary markets.

Figure 16.2 Kline projected market capacity vs demand, thousands of tonnes (kt)



The above supply-side analysis presumes moderate expansion at existing suppliers, 5E's anticipated supply per schedule, and one additional major boric acid supplier entering the market per their publicly stated timeline. Demand-side analysis was built based on bottom-up analysis of expected and/or published end market expansion, moderated with the end market value in use as price pressures build on lower value applications. With existing market tightness, tailwinds for pricing exist as customers seek new supply sources outside of the existing oligopolistic market.

Kline's analysis of the substitutability of boric acid in end uses concluded that most large volume applications have low or no risk of substitutability. Specifically, boric acid provides unique functionality in applications such as specialty glass, boron steel, and permanent magnets that have limited, and in many cases, higher cost alternatives such as rare earth elements, or would require significant investment to reformulate. 5E management agrees with Kline that the likelihood of material levels of substitution of boric acid in major end use applications is low. Additionally, concerns for moderately substitutable applications have been identified as primarily other borate containing molecules (i.e., colemanite mineral), which are also expected to be tight in a declining mine supply scenario as anticipated for the next decade.

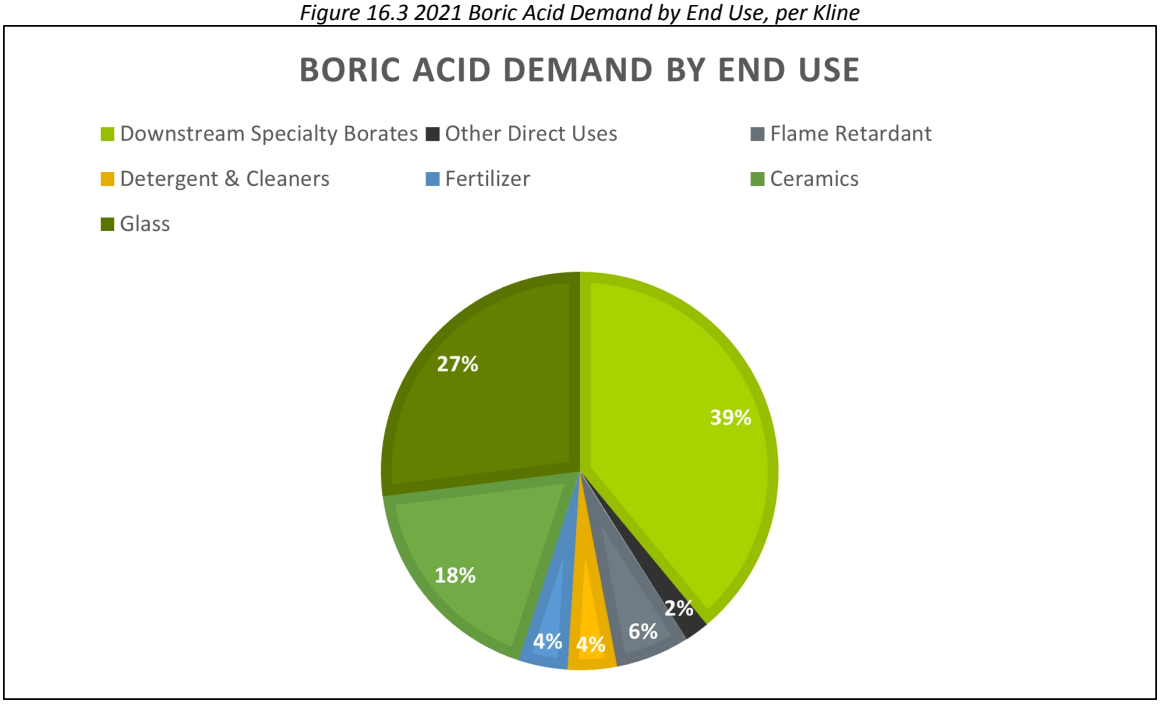
16.2.4 Market Costs

Expected operating cost for boric acid production is difficult to ascertain due to few producers publishing this information. One major producer is a state-owned entity that does not disclose operating costs publicly, and the other major producer combines all borate products into a single reported number in their annual report which is not an accurate measure for boric acid alone. However, overall borate operating costs have increased from this producer as indicated in these annual reports. 5E expected costs are given in Section 18.2.

16.2.5 Boric Acid Market

Boric acid is used in several industries and applications with varying levels of complexity. Customers range in size and quantity from large volume direct users to a fragmented group of smaller volume users who typically purchase through distributors. Applications vary from commodity to specialty, and many are considered high value-in-use where pricing is less critical than the unique functionality provided by boric acid and where substitution for other raw materials, if possible, has already occurred. In general, boron is a key enabling material for decarbonization, electrification, food sustainability, and national defense, which reinforces the pull-side demand thematic driving price below. Specifically, boric acid is used in the market segments identified in Figure 16.3 and is the primary component in several downstream specialty boron derivatives, making it the preferred source of boron for many quality-conscious customers over boron ores such as colemanite or ulexite due to better boron content delivery and superior product performance.

Figure 16.3 2021 Boric Acid Demand by End Use, per Kline

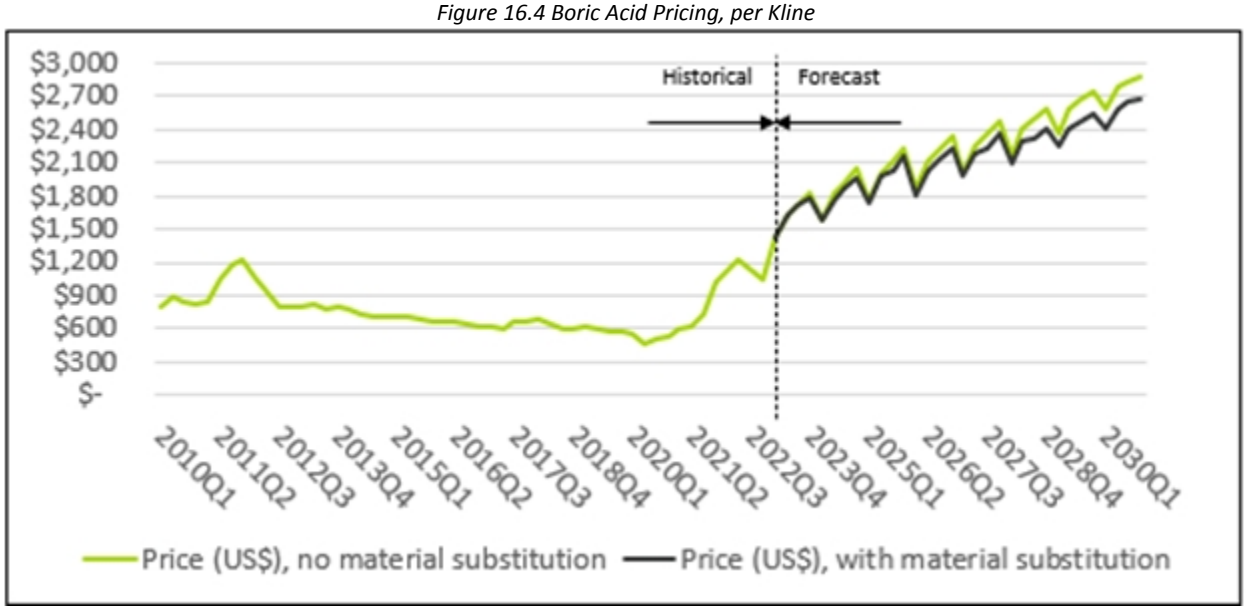


Packaging typically consists of large flexible international bulk containers and 25-kg bags, delivered on wood pallets by truck, or bulk shipments delivered by ocean liner or railcar, which typically get repacked closer to customer locations. The end market segments are located across the globe as the points of consumption are dictated by operating plants from various customers. Logistics and demand growth play a major role where incumbent suppliers have elected to focus their sales efforts, which are primarily based in Asia. Bulk ocean shipments are more economical than truck or railcars across the U.S. or ocean freight to Europe. As a result, some regions have seen significant supply concentration down to one primary supplier, creating customer interest in another industry participant for security in supply of boric acid. In addition, several government initiatives in the U.S. and EU have sought to stabilize supply chains and, in many cases, onshore the production of critical and strategic materials.

These two catalysts are expected to create a subset of customers who are willing to pay a scarcity premium to ensure availability of boric acid supply and minimize exposure to state-owned entities and Chinese producers of critical downstream boron derivatives. 5E is in preliminary discussions with several end-use customers and distributors globally to allocate upcoming available capacity and establish terms and conditions for supply of boric acid.

Due to this opaqueness and complexity of the boric acid market, along with the duopoly nature of supply, there is no standard price index to reference. Forecasting boric acid pricing is highly governed by demand, value-in-use and resulting capacity utilization across the boric acid network. Kline developed a pricing forecast model (Figure 16.4) that considered historical pricing data along with several other factors such as capacity utilization, supply, demand, product substitutability, and key raw material input costs, which projects Chinese boric acid pricing to approach ~US$2,900/st by end of 2030.

Figure 16.4 Boric Acid Pricing, per Kline



16.2.6 Boric Acid Specifications

Boric acid expected technical grade specifications are as follows:

- Chemical Specification:
  - Analyte Guarantee
  - B_2O_3%: 56.25 – 56.5
  - Equivalent H_3BO_3%: 99.9 – 100.9
  - SO_4 ppm: ≤250
  - Cl ppm: ≤10
  - Fe ppm: ≤5
- Sieve Specification
  - U.S. Sieve Mesh Size mm % Retained Guarantee
  - No. 20, 0.850 mm ≤2.0%

16.3 Lithium

16.3.1 Market Overview

Lithium (Li) is a soft, silver-white alkali metal in its native form and has a wide range of energy storage and industrial applications. Lithium is the lightest of all metals and it has highly attractive physical properties including heat capacity, charge density and low thermal expansion. These properties enable high-performance end use applications such as lithium-ion batteries, polymers, and ceramics, among others. Lithium is rarely consumed in its pure form and is typically used in either base compounds lithium carbonate or carbide or higher-performance compounds lithium hydroxide. The rise in portable electronics, energy storage devices and other end use applications has led to significant advancements in lithium-based battery technologies and wide- scale adoption. High-end lithium compounds are commonly found in electric vehicles, specialty greases, pharmaceuticals, and other aerospace applications, and are expected to see dramatic market share gains within these spaces. There is significant expected demand growth for lithium, primarily driven by growing demand for lithium-ion batteries in electric vehicles and portable devices.

Base lithium compounds are produced through the extraction and processing of either brine or hard rock. After extraction from brine, the materials are further processed into higher concentration compounds such as lithium carbonate. Lithium carbonate is primarily used in energy storage, glass, and ceramic applications. Lithium carbonate is also used as feedstock for lithium hydroxide and specialty lithium compounds. Lithium carbonate is white in color, odorless, and its use in energy storage systems is generally limited to portable electronic devices and EV applications that require lower density, though conversion of lithium carbonate to lithium hydroxide could support high-performance end use applications such as lithium-ion batteries, polymers, and ceramics, among others.

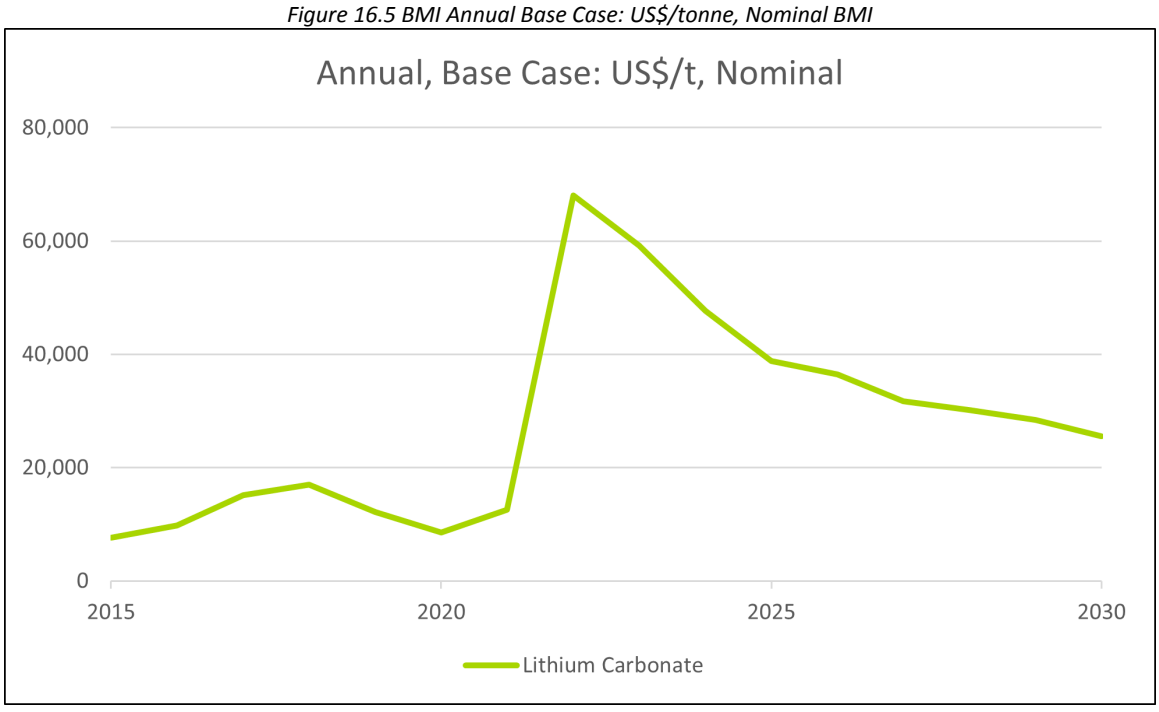
According to BMI, three companies account for approximately 56% of global lithium supply: SQM 24%, Albemarle 20% and Tianqi Lithium 12%. Multiple estimates exist for lithium demand growth, with BMI forecasting lithium carbonate equivalents (LCE) to exceed 1.3 M metric tonnes by 2025, and 2.6 M metric tonnes LCEs by 2030.

16.3.2 Historical Pricing

By 2017, prices had been propelled through successive multi-year highs from strong demand from the Li-ion battery industry set against a backdrop of uncertainty over future supply. This attracted significant attention to the Li sector and incentivized investment into exploration, mining, and processing capacity. Prices for all Li products subsequently fell as production at operations in China, Australia, Canada, and Chile ramped-up, and as a swath of greenfield projects mitigated fears of future supply shortages.

According to BMI, average annual battery-grade lithium carbonate prices in 2016 were US$9,752 per metric tonne. Lithium carbonate prices rose to US$16,979 per metric tonne by the end of 2018, before retreating below US$10,000 per metric tonne in 2020. At the start of 2021, lithium carbonate equivalent spot prices began to steadily increase reaching unprecedented highs of ~US$68,000 per metric tonne in 2022.

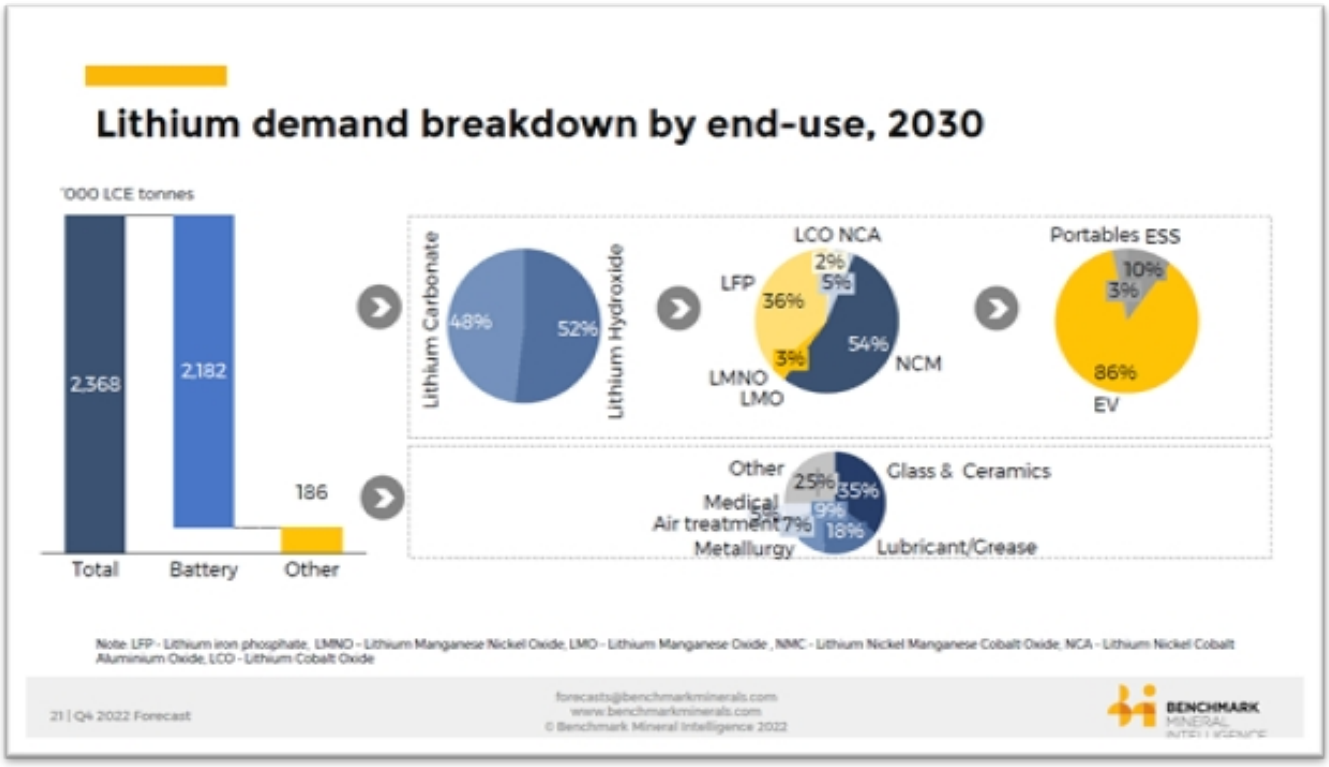
Figure 16.5 BMI Annual Base Case: US$/tonne, Nominal BMI



16.3.3 Market Balance

Per BMI, 2022 supply is estimated at 635kt LCE, 3% of which is from recycling. Supply is forecast to grow to 2,359kt LCE by 2032, 12% of which will be from recycling. Total adjusted lithium demand in 2023 is set to increase to 907kt LCE, up from 712kt LCE in 2022. Demand is set to grow to 2 million tonnes LCE by 2028. Further upward demand adjustments could be expected in the medium-long term in the North American market due to effects from the Inflation Reduction Act. Europe's growth will be driven by emission legislation changes which set new targets in 2030 and effectively ban internal combustion engine sales by 2035. Supply response remains limited in the short term. A balanced market is possible in 2025, depending on the success of various planned projects. However, it should be noted that demand estimates are conservative, and with higher supply, higher demand is likely to be supported. By 2030, BMI provides the breakdown of lithium demand being heavily consumed by batteries, representing over 92% of the total, with non-battery applications making up the balance, primarily in glass and ceramics, and lubricants/grease a shown in Figure 16.

Figure 16.6 Global demand for lithium, LCE basis, per BMI



16.3.4 Market Cost

Lithium carbonate cost curves are well-documented by BMI, with costs ranging from $3,000 to $9,000/MT-LCE for established brine processors and from $6,500 to $40,000/MT-LCE for operating spodumene processors, with non-integrated spodumene making up the higher end of the curve. Operating costs for lithium obtained from mica such as pegmatite and lepidolite average around $23,000/MT-LCE.

16.3.5 Lithium Carbonate Market

Per BMI "Lithium Forecast | Q4 2022", prices are expected to continue softening in Q1 of 2023 due to negative demand events in China, but strong underlying fundamentals should see a return to upwards trajectory throughout the rest of 2023. Strong prices are expected throughout 2024. From 2025, prices are expected to ease owing to the possibility of a balanced market, but this is highly dependent on the success of several new projects, many of which must prove technology capable of extraction from non-traditional resources and have the necessary permitting and financing.

16.3.6 Lithium Carbonate Specifications

Lithium carbonate specifications will be confirmed as the recovery process is tested in in the small-scale facility and qualified with customers, but specifications are expected to meet or exceed both technical and/or battery grade requirements.

16.4 Gypsum

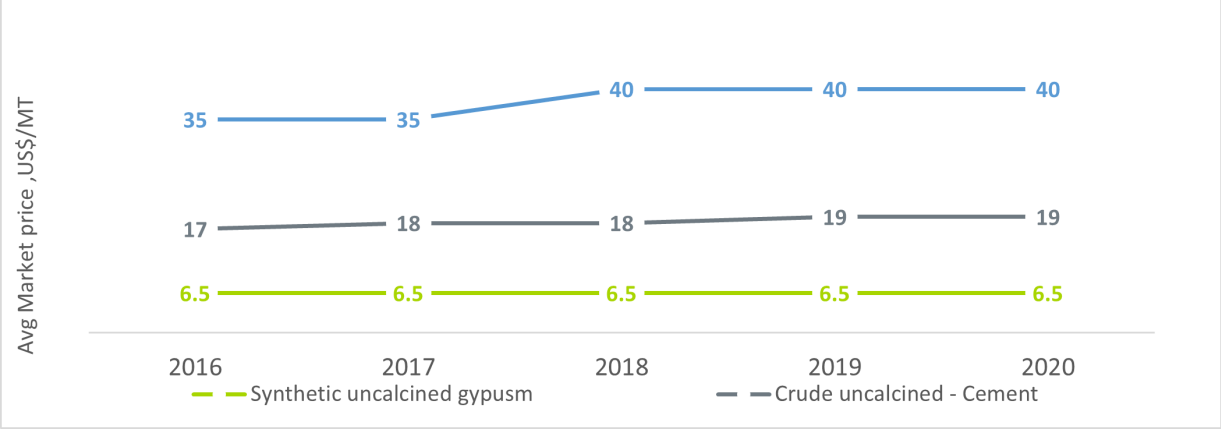
16.4.1 Market Overview

Gypsum is one of the most used minerals in the world. In the U.S., most gypsum is used for manufacturing drywall and plaster for residential and commercial construction. Other common uses include as an additive to concrete, soil conditioning, and as a food/dietary additive.

16.4.2 Historical Pricing

According to Kline's "Gypsum USA Market Study", mined or crude gypsum prices have ranged from US$17/MT to US$40/MT between 2016 and 2020, depending on the application, with a 10-15% increase observed over that time as shown in Figure 16.7. Demand for gypsum depends principally on construction industry activity, which accounts for just over half of demand and has grown at a 2.2% CAGR over the past 5 years through 2021. In recent years, mined crude gypsum has competed with synthetic gypsum. Synthetic gypsum production, however, is decreasing as more coal-fired stations are shut down or retired in favor of natural gas and renewable energy sources.

Figure 16.7 Average market price for uncalcined gypsum by grade and application, per Kline

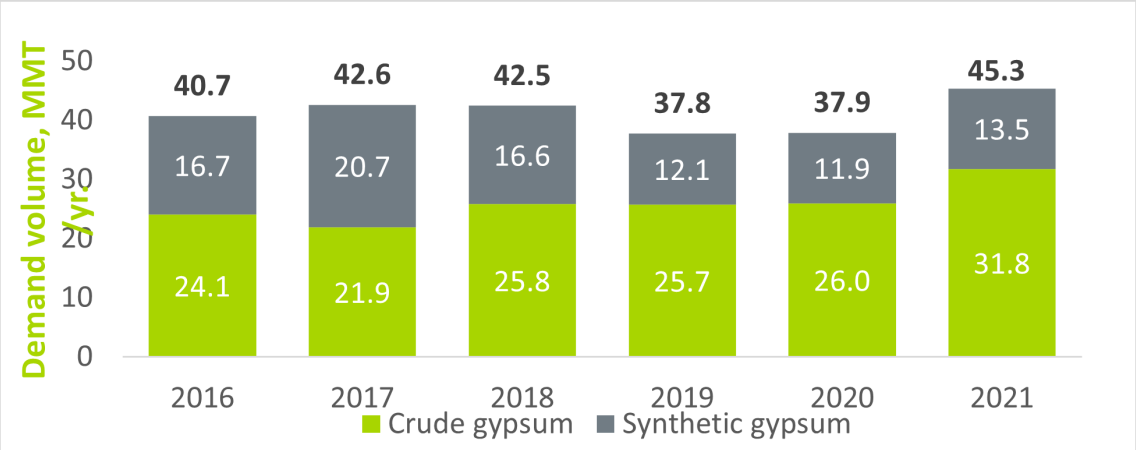


16.4.3 Market Imbalance

According to the United States Geologic Survey, in 2021, the United States was the leading producer of mined crude gypsum with 23 million tons, followed by Iran at 16 million tons and China at 13 million tons. Mined crude gypsum is currently mined in 16 states by 52 companies. Over the past five years, U.S. imports of gypsum have ranged from 4.8 to 6.9 million tons. A significant amount of produced gypsum in the U.S. comes from synthetic sources, primarily fly ash gypsum produced as a byproduct of reducing emissions in coal-fired power plants.

Approximately one third to one half of demand in the market is synthetic gypsum. The reduction in this stream, as coal fired power plants ramp down production, is likely to provide sufficient space to market synthetic gypsum from 5E. The Project is located near significant agricultural demand and several wallboard manufacturers are expected to provide an outlet for this coproduct.

Figure 16.8 Gypsum USA Demand by Source, Million Metric Tonnes 2016-21, per Kline



16.4.4 Market Costs

Gypsum cost curves are not available at this time, but a significant portion of the market (approximately 50%) is produced as a byproduct of sulfur removal from coal-fired power plant emissions, commonly referred to as fly-ash gypsum. Due to a large stream coming from a process where the intent is emissions control, rather than product creation, gypsum competitive costs are assumed to be almost immaterial.

16.4.5 Gypsum Market

As indicated above, byproduct gypsum created as part of the boric acid purification process is expected to be placed into the agricultural, cement, and wallboard markets. 5E has been in discussions with several nearby and local partners for gypsum supply. Market pricing for gypsum has traded in a narrow range since 2016, and no significant changes in this range are expected.

16.4.6 Gypsum Specifications

Final gypsum specifications are not confirmed at this time but will be confirmed during small-scale facility operation and upon qualification with customers in various end-markets.

16.5 Conclusions

Boric acid is a versatile product with hundreds of end-use applications that are critical to food security, national defense, decarbonization, electrification, and consumer consumption, among others. Due to increased demand for existing applications and new projected demand from future-facing technologies, combined with two major suppliers operating at, or near capacity, supply of boric acid, and many downstream derivatives that require boric acid as feedstock, has been in tight supply, resulting in higher prices over the past 18 months. With existing suppliers unlikely, or unable, to

add meaningful capacity, and only six new boric acid projects identified, of which only 5E is substantially permitted, the supply-demand deficit is expected to continue or worsen over the remainder of the decade. As a result, pricing will likely remain elevated and continue to rise. As a US-based producer, 5E is positioned to secure both domestic and strategic global supply chains for boric acid and other key boron derivatives that require boric acid. With the addition of lithium carbonate as a by-product of boric acid production, 5E would likely become one of a few US suppliers from mine-to-product for this critical material.

16.6 Contracts

5E is engaged in discussions with several direct end-users as well as distributors for supply of boric acid, lithium carbonate, and gypsum. 5E also has multiple signed non-binding letters-of-intent and/or proposal letters with terms agreed in principle which could result in definitive offtake agreements for multi-year supply. For boric acid specifically, these customers and distributors represent multiple end-use applications including specialty glass, insulation, defense, agriculture, and others, as well multiple geographic regions. Upon operation of the small-scale facility, 5E can supply future customers with product samples for qualification, with the intent to secure contracts for most of the available phased capacity, while reserving a portion for spot market and upside for contract customers. Regarding lithium carbonate, due to the expected volume, 5E expects to have a minimal number of contract accounts for a majority of the available capacity, for long duration supply. It is possible that a small percentage will be reserved for spot market opportunities in either the industrial or battery grade segments. Gypsum discussions are in the early stages and will likely focus on customers within a certain geographical radius to minimize overall delivered costs.

17 Environmental Studies, Permitting, and Closure

17.1 Environmental Requirements for Solution Mining

Due to the depth and characteristics of both the ore body and overburden, in the 1980's the decision was made to recover the ore via solution mining. The Project ore body is an ideal candidate for solution mining as there are no associated USDW aquifers in the vicinity. Additionally, solution mining does not generate either waste rock or tailings; therefore, there are no waste or tailings permits.

17.2 Environmental Study Results

The Project is located on both public and private lands. The public lands are managed by the BLM under the National Environmental Policy Act (NEPA). The private lands are administered by San Bernardino County Land Use Planning (SBC – LUP) under the California Environmental Quality Act (CEQA).

A Plan of Operations (PoO) was submitted in 1990, which triggered the NEPA/CEQA review process. Based upon the activities described in the PoO, under the NEPA regulations, BLM determined that an Environmental Impact Statement (EIS) was required and under CEQA, and the SBC – LUP determined that an Environmental Impact Report (EIR) was required. Under a Memorandum of Understanding (MOU), the two agencies completed a joint EIS and EIR, respectively.

The EIS/EIR process follows clearly defined requirements for public participation and studies, such as threatened and endangered species, cultural resources, light, noise, and impacts to local communities. The studies were completed, as was the public participation process. Additional studies are currently not required.

In 1994, the EIS/EIR process resulted in the issuance of a ROD from the BLM and the Mining and Reclamation Permit from the SBC – LUP, see below.

17.3 Required Permits and Status

5E currently has the following permits in place:

1. The Mojave Desert Air Quality Control District (MDAQCD) has issued Authorization to Construct (ATC) permits for up to 270,000 tons per year (tpy) boric acid and 80,000 tpy SOP. Prior to commencement of operations for any permitted piece of equipment, the ATC will be replaced with an Operating Permit (OP). The permits

have been renewed annually. Any modifications to or replacement of process equipment may require a modification to the existing permit. All modifications must meet National Ambient Air Quality Standards (NAAQS) and MDAQCD requirements.

There is no reclamation or closure requirement under MDAQCD.

2. The Lahontan Regional Water Quality Control Board (LRWQCB) issued the current Order Permit in 1988. The Permit includes all existing surface impoundments. 5E remains compliant with the permit by complying with the monitoring requirements and submitting quarterly reports. A Final Permanent Closure Plan has been submitted to LRWQCB for closure of the existing impoundments.

There is a reclamation and closure requirement by LRWQCB. The bond amount to close the ponds is included in the SBC – LUP Financial Assurance Cost Estimate (FACE). This is currently a cash bond.

3. The LRWQCB also issued a Notice of Non-applicability (NONA), verifying that the Project does not require a stormwater permit for either construction or operations. The NONA was issued as the Project is in a closed basin with no stormwater discharge.

There is no reclamation or bonding requirement associated with the NONA.

4. SBC- LUP issued the Mining and Reclamation Permit in 1994, based upon the 1990 PoO and subsequent EIR. The PoO was amended, and the permit was modified in 2019 to address changes such as relocation of the process plant, elimination of a highway rail crossing and additional rights to water. The Project is not located within a water district with adjudicated water rights. Therefore, water rights are granted by SBC - LUP through the Mining and Reclamation Permit. The Mining and Reclamation Permit includes Condition of Approval requirements for engineering and planning, as well as requirements to eliminate impacts to desert tortoises. 5E will be modifying the PoO to 270,000 tpy, which will require a modification to the Mining and Reclamation Plan.

5E has submitted and maintains a cash bond with the California State Mining and Reclamation Agency, as administered by SBC – LUP. The FACE is updated annually. The FACE includes demolition of all existing structures, regrading, and revegetation of all disturbance on private lands. This bond also includes plugging and abandonment of all wells located outside the U.S Environmental Protection Agency (EPA) UIC purview.

5. The BLM issued a ROD in 1994, establishing the EIS boundary (Figure 3.2). The ROD authorizes mining borates at a rate of 90,000 tpy. The ROD also has requirements for company activities to eliminate adverse impacts to desert tortoises and cultural resources.

5E has submitted and maintains a cash bond with the BLM for grading and reclamation of disturbance on public lands.

6. The EPA retains primacy for Class 3 solution mining Underground Injection Control UIC permits in the State of California. EPA issued the UIC permit for the Project in August 2020. The permit defines the Area of Review (AOR) boundary. All subsurface solution mining activities, including monitoring wells, are located within the AOR boundary.

Per the permit conditions, 5E has installed five 5 upgradient and four 4 downgradient monitor wells for the initial mining block. The required Well Completion Reports were submitted to EPA in September 2022 and are under their review.

Analytical information was used to develop the permit required Alert Level Report, which establishes alert levels for each monitor well. This report was submitted to EPA in October 2022 and is under EPA review.

The first four 4 Injection/Recovery I/R wells have been installed and the required Well Completion Reports were submitted to the EPA in September 2022 and are under their review.

The UIC permit also required 5E to plug and abandon all existing open historic wells located within the AOR boundary. This was completed and all required reports were submitted to EPA in October 2022 and are under review.

Upon completion and review of the above referenced submittals, 5E will receive authorization to inject water, required to complete the final tests of the I/R wells. After which 5E will receive authorization to inject acid, which is the start of mining.

5E has submitted and maintains a surety bond with the EPA for plugging and abandonment of all wells within the AOR boundary.

7. Additional environmental permitting that will likely be required for the Project includes:

    a) The California Unified Control Act/Agency (CUPA) has primacy over EPA's Tier II reporting requirements. The Hazardous Material Business Plan (HMBP) has been submitted for construction related activities and will be updated with processing related chemicals that are expected to be utilized to operate the small-scale facility.

    b) An EPA ID has been requested. The facility will be a very small generator of EPA hazardous waste. California considers petroleum products to be hazardous waste. Therefore, the EPA ID number is issued by the State of California Department of Toxic Substances Control.

    c) Given the MDAQCD permit allows for 270,000 tpy of boric acid production, any increase above this limit will require utilization of established alternative energy technologies or a permit modification.

18 Capital and Operating Costs

Capital and operating costs are incurred and reported in US dollars and are estimated at an initial assessment level with an accuracy of approximately +/-50%.

18.1 Capital Cost Estimates

Capital cost estimates are broken out into phases based on production and segmented into capital for the chemical plant to process boric acid, lithium carbonate and gypsum, and mining capital to mine PLS for chemical plant processing. Capital expended for the small-scale facilitys excluded as that is expected to become operational in 2023. Table 18.1 below outlines the phases, production trains, and production quantity. Trains have the capacity to produce 100,000 stpa with a nominal capacity of 90,000 stpa.

Table 18.1 Production Phases and Quantity

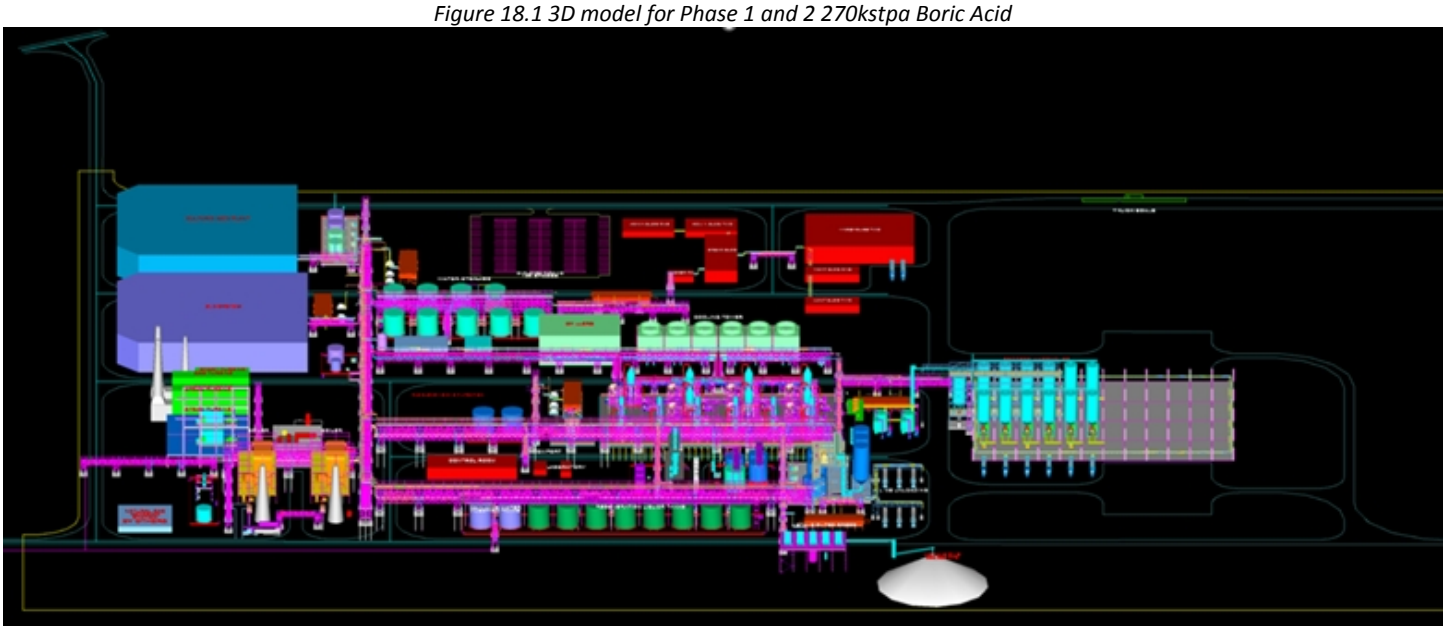
Phase	Trains	Production Quantity
Phase 1	One	90,000 short tons
Phase 2	Two	180,000 short tons
Phase 3	Two	180,000 short tons
Total	Five	450,000 short tons

The chemical processing plant will leverage the basic flowsheet of Figure 14.1. Costs estimated by 5E primarily relate to engineering, procurement of equipment, installation, construction, commissioning, and startup. Major items of equipment include crystallization units, boiler, boric acid filters and dryer, lined carbon steel or fiberglass storage tanks, gypsum reactors, lithium extraction unit, lithium carbonate reactor, water purification and cooling circuits, other utility equipment (RO unit, air compressors), and packaging equipment.

Table 18.2 Estimate of initial capital costs for each phase

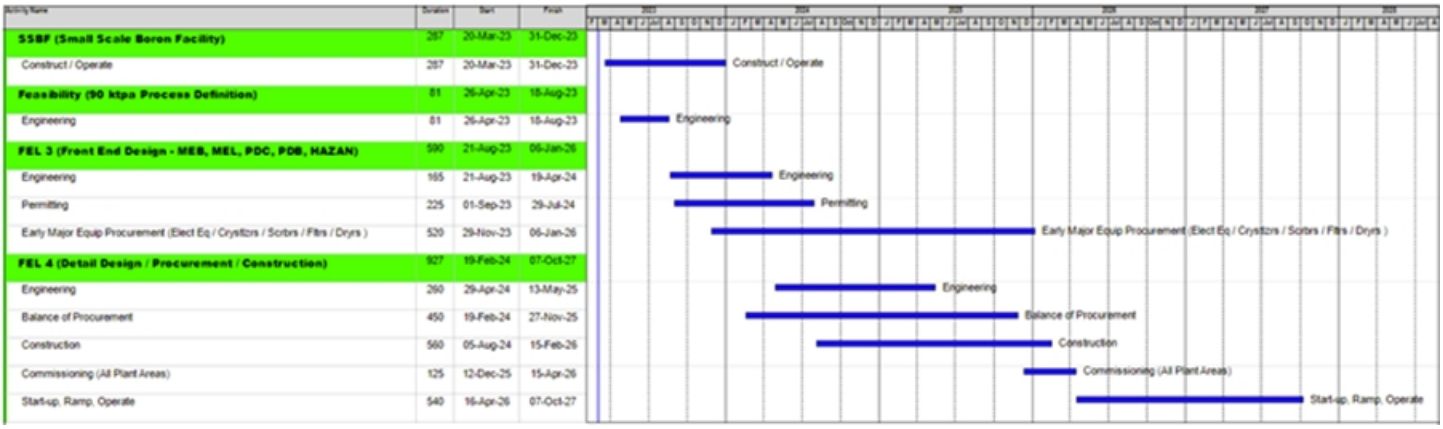
Amount in US$ (millions)	Phase 1	Phase 2	Phase 3	Total
Processing Plant (BA + Li_2CO_3)	$ 160	$ 246	$ 246	$ 652
OSBL + non-process areas	16	5	15	36
Utilities (elect, SZ, air, water, septic)	22	33	183	238
Wellfield (wells, piping, equip)	21	48	48	117
TOTAL DIRECT COSTS	$ 219	$ 332	$ 492	$ 1,043
Engineering	$ 24	$ 30	$ 45	$ 99
Construction	45	68	74	187
TOTAL INDIRECT COSTS	$ 69	$ 98	$ 119	$ 286
CONTINGENCY (25%)	$ 72	$ 108	$ 153	$ 333
Owner's Costs	13	15	19	47
TOTAL CAPITAL REQUIRED	$ 373	$ 553	$ 783	$ 1,709

Figure 18.1 3D model for Phase 1 and 2 270kstpa Boric Acid



Below in Figure 18.2 is the indicative engineering and construction schedule for Phase 1 of the commercial processing plant.

Figure 18.2 Engineering and Construction Schedule - Phase 1



18.1.1 Mining Capital Cost

The operation is an owner operated mining operation. A third-party contractor will perform drilling of the in-situ injection recovery well field. Table 18.3 below outlines the quantity of injection recovery wells for each phase and mining capital cost associated with each phase. The cost for the wellfield in each phase includes the following – drill pad construction, 3rd party drilling, downhole material (casing, production tubing, and cement), above ground process equipment tanks, booster pumps, area scrubbers, compressors, clarifiers, monitoring wells, and headers to and from the processing plant.

Table 18.3 Mining Capital Cost Estimate US $000's

Phase	Quantity of Wells	Capital Cost[2] US$000's
Phase 1	28 [1]	34,860
Phase 2	64	79,680
Phase 3	64	79,680
Total		194,220

[1] Excludes four injection-recovery wells that have been incurred as part of the small-scale facility.
[2] Includes direct costs, indirect costs associated with wellfield and contingency of 25%

18.1.2 Other Sustaining Capital

Sustaining capital includes replenishment of injection recovery wells. In the late 1980's, MSME drilled injection recovery wells at a spacing interval of 100 feet and mined PLS containing boron in solution. 5E has designed the wellfield with 65-70 foot radii (130-140 foot overall spacing) to achieve recovery rate estimates. Based on the work performed by MSME and 5E estimates, each 90kstpa incremental production of boric acid will require 32 injection recovery wells at an average useful life of five years. Replenishment wells are expected to cost $981k per well. This cost is the average per-well cost from Table 18.3 ($1.245M average) less the cost of the area headers to and from the processing plant as well as the monitoring wells needed in each phased expansion. Table 18.4 outlines the quantity of injection recovery wells estimated to replenish the wellfield as well as the sustaining capital associated with the replenishment over the life of mine.

Table 18.4 Sustaining Capital Wells and Total for each phase

Category	Quantity of Wells	Total US$000's
Phase 1	160	156,960
Phase 2	282	276,642
Phase 3	243	238,383
Total	685	671,985

18.1.3 Closure Costs

Closure costs are captured as a capital expenditure incurred during the final year of mine operation in the financial model. End of life closure costs include reclamation requirements per our EPA UIC permit for the injection recovery wells and there currently is an actual per well closure cost of $115,491 per well. Closure costs are factored and multiplied by the quantity of wells as well as the closure cost of each well today. Post closure costs include remediation for surface disturbance per the requirements with San Bernardino County and assume a cost of 10% of initial capital factored. Table 18.5 outlines reclamation and closure costs for the life of mine.

Table 18.5 Closure Cost Estimates

Category	Total US$000's
End of Life Closure Costs	243,983
Post Closure Costs	195,586
Total	439,569

18.1.4 Basis for Capital Cost Estimates

The mining capital estimates were based on actual equipment purchased, actual costs derived from the injection recovery wells for the small-scale facility, and third-party quotes. The quantity of wells estimated to provide the chemical plant with PLS to produce boric acid and lithium carbonate was derived from historical data from MSME.

Mining equipment, initial wells, and sustaining capital cost estimates were based on the following:

- All injection recovery wells were based on new casing, production tubing, screens, and well heads.
- Costs for drilling, auxiliary, and overhead were based on third-party estimates.
- Mining capital is factored in our financial model at 3% per year to account for inflation.
- A 25% contingency was included in mining capital.
- Each well will have its own system of above-ground piping, a storage tank and booster pump with secondary containment, as well as all instrumentation for automated control.
- Every 8 wells will have a vent gas manifold, an area scrubber system (scrubber column, scrubber tank, circulating pump, instrumentation, and vent stack), a collective sampling manifold and an area safety shower/eye wash system.

The chemical plant capital estimates were based on actual equipment purchased, construction, and engineering for the small-scale facility. Additionally, 5E obtained third-party estimates for sized equipment, construction, and engineering of Phase 1. Phase 2 and Phase 3 were estimated based on a factored analysis. The following assumptions derived our chemical processing plant capital estimate:

- The equipment and construction estimate were derived by third-party vendors who provided priced equipment lists and construction estimates which were assessed by 5E.
- Owner's costs – capitalized internal labor was incorporated at current rates with a forecast to build upon 5E's existing team necessary to effectively manage a third-party EPC firm during detailed engineering and construction.
- A 25% contingency and assumed 3% inflation escalation based on total estimated capital costs was included in the financial model.
- The estimate excludes inventory and working capital costs for initial commissioning and startup of the facility. These are included in the financial model.
- For phase 2, additional infrastructure is needed to handle the increased volume of incoming materials and finished product. To minimize capital, 5E has engaged with third parties interested in providing a rail spur

and operating the rail at a fixed rate cost. Therefore, the capital required for a rail spur to the site for bulk shipments of raw materials, gypsum and boric acid was not included. An estimated cost of $30 per ton of boric acid produced was included in the financial model to cover the 3rd party operating cost of the rail facility and pay back their capital investment.

- For phase 3, additional utility expenditure is required to convert an evaporative cooling loop to an air-cooled refrigeration cooling loop to conserve water. Additional electricity costs would also be required as this is a larger energy demand and were also included in the financial model.
- For Phase 1, it is assumed to use 100% shore power. For Phase 2 and 3, 5E is evaluating the options between shore power, natural gas driven co-gen, and renewable energy (solar PV and geothermal). All capital for additional power is assumed off balance sheet, so no savings on electricity or natural gas for steam are reflected in the model.
- Sulfuric acid costs in operational expenditures reflect bulk delivery. Any site production of sulfuric acid is assumed to be by a 3rd party and, therefore, not reflected in the capital estimate.

Closure costs and post closure cost estimates were sourced from the most recent financial assurance estimates provided by third parties as part of on-going permit obligations.

18.2 Operating Cost Estimates

Operating costs have been forecasted based on a material balance informed by historical work from MSME, lab-based analysis of 5E's core samples, and process development performed by 5E as well as its engineering partners. Operating costs are segregated as variable operating costs and fixed operating costs in the financial model. Variable operating costs include packaging, materials such as hydrochloric acid, sulfuric acid, lime, and soda ash as well as utilities such as natural gas and electricity. Fixed operating costs include administrative labor, operating labor, general and administrative overhead, offsite storage, repair labor, repair materials, depreciation as well as taxes and insurance. Freight is assumed to be ex-works and paid by buyers as part of negotiated agreements.
As with capital costs, operating costs are captured in US dollars and are estimated at an initial assessment level with an accuracy of approximately +/- 50%.

18.2.1 Variable Operating Cost

Variable operating costs are derived from a material balance with the following assumptions:

- 56% Calcite-to-Colemanite ratio driving gypsum production volumes and sulfuric acid consumption. This ratio is consistent with geological analysis of core samples pulled from the ore body,
- 99% HCl conversion rate,
- 95% HCl efficiency rate with 5% HCl lost in the process, and
- 7% boric acid concentration in the PLS.

Variable materials and pricing for boric acid and lithium carbonate as components of operating cost are shown in Table 18.6. Cost figures include estimated freight to 5E. Pricing for raw materials is based on historical costs over the last 12-24 months.

Table 18.6 Variable materials cost

Material	Units	Cost US$/short ton
HCl 36% solution basis	365 lb. /short ton H_3BO_3	160
Sulfuric acid	2,273 lb. /short ton H_3BO_3	133
Lime	491 lb. /short ton H_3BO_3	237
Soda Ash	1,691 kg /short ton Li_2CO_3	227

The basis for packaging and shipping included the following:

- $18 per short ton of boric acid.
- $18 per short ton of lithium carbonate.
- $30 per short ton boric acid for receiving of incoming bulk materials and shipping of bulk boric acid and gypsum orders via rail.
- $36 per short ton of lithium carbonate for freight.

The basis for utilities included the following:

- Steam generation via a conventional boiler requiring 25 MMBTU natural gas per short ton of boric acid with a head grade of 7%, $6.37 per MMBTU
- Phase 1 and 2 → 0.14 kWh electricity per short ton of boric acid, $0.12 per kWh
- Phase 3 → 0.26 kWh electricity per short ton of boric acid, $0.12 per kWh, reflecting the higher demand from an air-cooled refrigeration cycle

18.2.2 Fixed Operating Cost

Fixed operating cost includes the following:

- Operating labor
- Site administrative labor
- Site general overhead
- Off-site storage
- Repair labor and materials
- Taxes and insurance
- Depreciation

Operating labor was derived from a principle first plan of operations with 113 people required for phase 1, 217 people for Phase 2, and 280 people for Phase 3. Cost per person was estimated to start at $100,000 per person (including benefits) and is escalated throughout the financial model. Site administrative labor was forecasted at 28 employees for phase 1, 44 employees for Phase 2, and 50 employees for Phase 3, earning $120,000 per year and site general overhead was forecasted at $300,000 per quarter in the financial model. The basis for fixed overhead was derived by the current overhead rate of spend for 5E which is approximately $150,000 per quarter and this is assumed to double during Phase 1. Off-site storage is expected to be required with 6,425 pallets stored per quarter at a rate of $16 per pallet. Repair labor and maintenance is estimated to be 2.50% of cumulative capital including sustaining capital. Taxes and insurance are assumed to be 1.5% of cumulative capital including sustaining capital. Depreciation assumes a 10-year useful life for initial capital as well as additional phases of the chemical plant and a 5-year useful life for sustaining capital based on additional wells.

18.2.3 Other Operating Costs / Credits

Other operating costs include costs and credits associated with the material balance and process flow sheet which include a byproduct credit for lithium carbonate and costs associated with metals precipitation waste. Gypsum is assumed to be a net neutral cost and sold in the market at cost. Table 18.7 provides the breakdown of units and cost associated with other operating costs and Figure 19.2 provides the total operating costs and credits over life of mine.

Table 18.7 Other operating costs

Material	Units	Cost US$
Metals precipitation waste	517 lb. /short ton H_3BO_3	$ 45
Gypsum	3,990 lb. /short ton H_3BO_3	—

18.2.4 Basis for Operating Cost Estimates

Operating assumptions were based on the following assumptions:

- Phase 1 begins operating in the quarter ending June 30, 2026.
- Phase 2 begins operating in the quarter ending December 31, 2028.
- Phase 3 begins operating in the quarter ending June 30, 2031.
- Each phase begins operating with an 80% production ramp up profile in its first quarter of operation.
- Operating costs are escalated for inflation throughout the life of the financial model.
- Input costs use historical pricing over the last 12-24 months, with an escalation of 3% for inflation applied as appropriate.

Operating cost per short ton for book and cash values through the first ten years of operation are displayed in Table 18.8.

Table 18.8 Operating cost per short ton

US$	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035
Book cost	1,785	1,095	1,222	1,163	1,151	1,330	1,418	1,450	1,485	1,529
Cash Cost	1,273 [1]	686	813	785	793	939	994	1,022	1,049	1,079

[1]FY 2026 includes ramp up of Phase 1 and only six months of operation.

19 Economic Analysis

19.1 General Description

5E prepared a cash flow model to evaluate the Project's resources. This model was prepared on an annual basis from the resource effective date to the exhaustion of mineral resources. This section presents the main assumptions used in the cash flow model and the resulting indicative economics. The model results are presented in U.S. dollars US$, unless otherwise stated.

This assessment of economic analysis is preliminary in nature, and it includes depletion of inferred mineral resources in the financial model. Inferred mineral resources are considered too speculative geologically to have modifying factors applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that this economic assessment will be realized. As such, the economic analysis discloses with equal prominence, the results of the economic analysis excluding inferred mineral resources in addition to the results that include inferred mineral resources and 100% of the inferred resource was used in the economic analysis at a mining ratio of 81.9%.

All results in this section are presented on a 100% basis. As with the capital and operating forecasts, the economic analysis is inherently a forward-looking exercise. These estimates rely upon a range of assumptions and forecasts that are subject to change depending upon macroeconomic conditions, operating strategy and new data collected through operation of the small-scale facility.

19.2 Basic Model Parameters

Key criteria used in the analysis are presented throughout this section. Basic model parameters are summarized in Table 19.1.

Table 19.1 Basic Model Parameters

Description	Value
Time Zero Start Date	July 1, 2023
Mine Life	30 years with partial first year using Measured, Indicated and Inferred Resource. 15 years with partial first year using Measured and Indicated Resource.
Chemical Plant Start-up	Calendar year 2026
Discount Rate	8%

All costs incurred prior to the model's start date are considered sunk costs. The potential impact of these costs on the economics of the operation is not evaluated. This includes contributions to depreciation, the small-scale facility, and working capital as these items are assumed to have a zero balance at model start. The selected discount rate is 8%.

19.3 External Factors

19.3.1 Pricing

Modeled prices are based on the prices developed in the Market Studies and Contracts section of this report Section 16. The prices are modeled as:

- Boric Acid: $1,726 per short ton when production is forecasted to commence in the quarter ending June 30, 2026
- Technical Grade Lithium Carbonate: $30,316 per short ton when production is forecasted to commence in the quarter ending June 30, 2026

All products produced by the operation are modeled based on independent pricing forecasts as described in Section 16 and have been escalated in the financial model at the point where an independent price is no longer available. Modeled pricing for boric acid includes a 5% and 10% discount to pricing reflected in Section 16 for negotiated freight ex-works as well as discounts to spot price as part of long term negotiated supply agreements.

Benchmark Mineral Intelligence pricing forecast was utilized for pricing lithium carbonate in the financial model. Benchmark provides a battery-grade lithium carbonate forecast. Analyses of lithium carbonate samples produced from synthetic PLS (pregnant leach solution) in the lab indicate that 5E will be capable of producing battery grade lithium carbonate. However, for the purposes of this economic assessment, it is assumed that technical grade lithium carbonate will be produced and sold. Historical pricing has demonstrated an approximate $3,000 per metric tonne discount between battery-grade and technical-grade lithium carbonate. As such, the financial model utilized this discount for financial modeling purposes.

19.3.2 Taxes and Royalties

As modeled, the operation is subject to a combined 27.98% federal and state income tax rate. This tax rate is derived from 5E Boron Americas LLC tax rate as of June 30, 2023, the most recent fiscal year end. The model does not include any tax loss carryforwards and no existing depreciation pools are accounted for in the model. Any application of tax loss carryforwards would reduce the tax burden of the operation. Depreciation for the capital for phase 1, 2 and 3 is subject to depreciation over a 10-year period and sustaining capital is subject to depreciation over a 5-year period. There are no royalties to account for currently. The Project is being evaluated as a standalone entity for this initial assessment without a corporate structure. As such, tax calculations presented here may differ significantly from the actuals incurred by 5E.

19.3.3 Working Capital

The assumptions used for working capital in this analysis are as follows:

- Raw Material Inventory: 15 days
- Product Inventory: 30 days

- Accounts Receivable: 30 days
- Accounts Payable: 30 days

19.4 Technical Factors

19.4.1 Mining and Production Profile

The modeled mining profile was developed by 5E. The details of the mining profile are presented previously in this report. No modifications were made to the profile for use in the economic model. The modeled profile is presented in Figure 19.1 and Figure 19.2.

Figure 19.1 Resource Extraction Profile

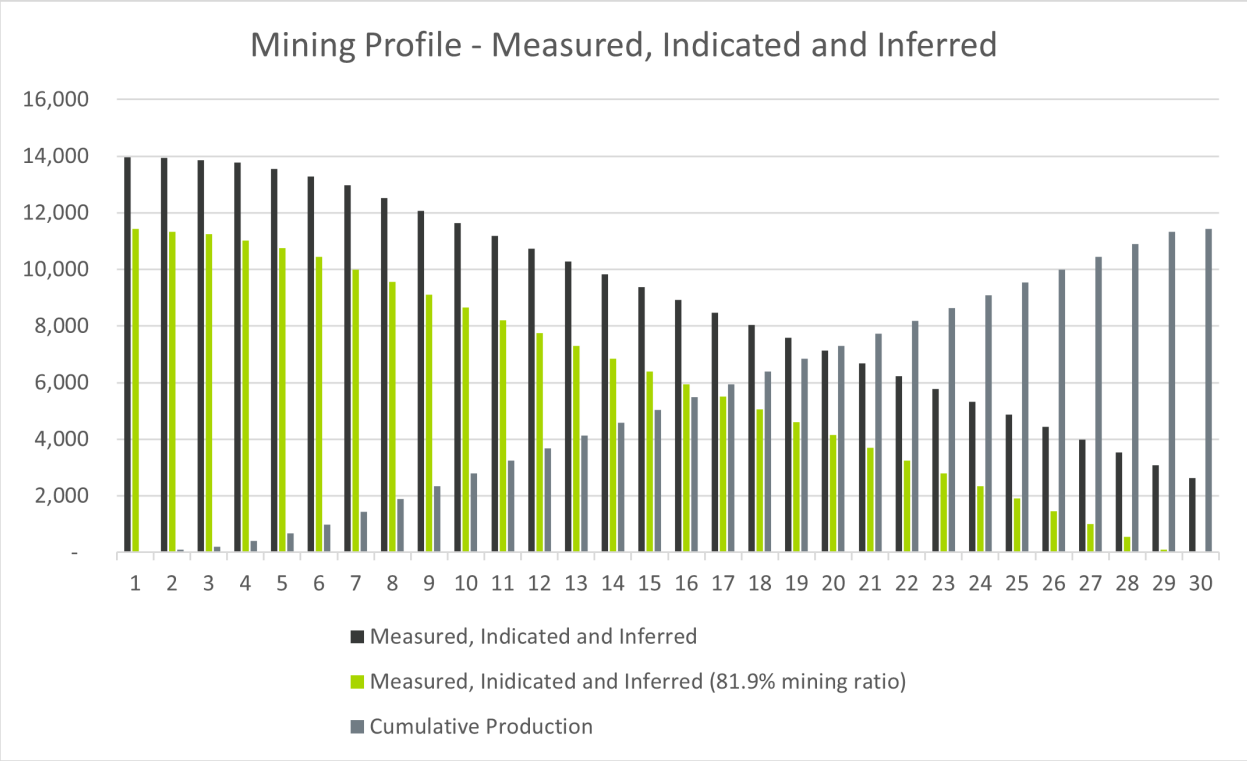
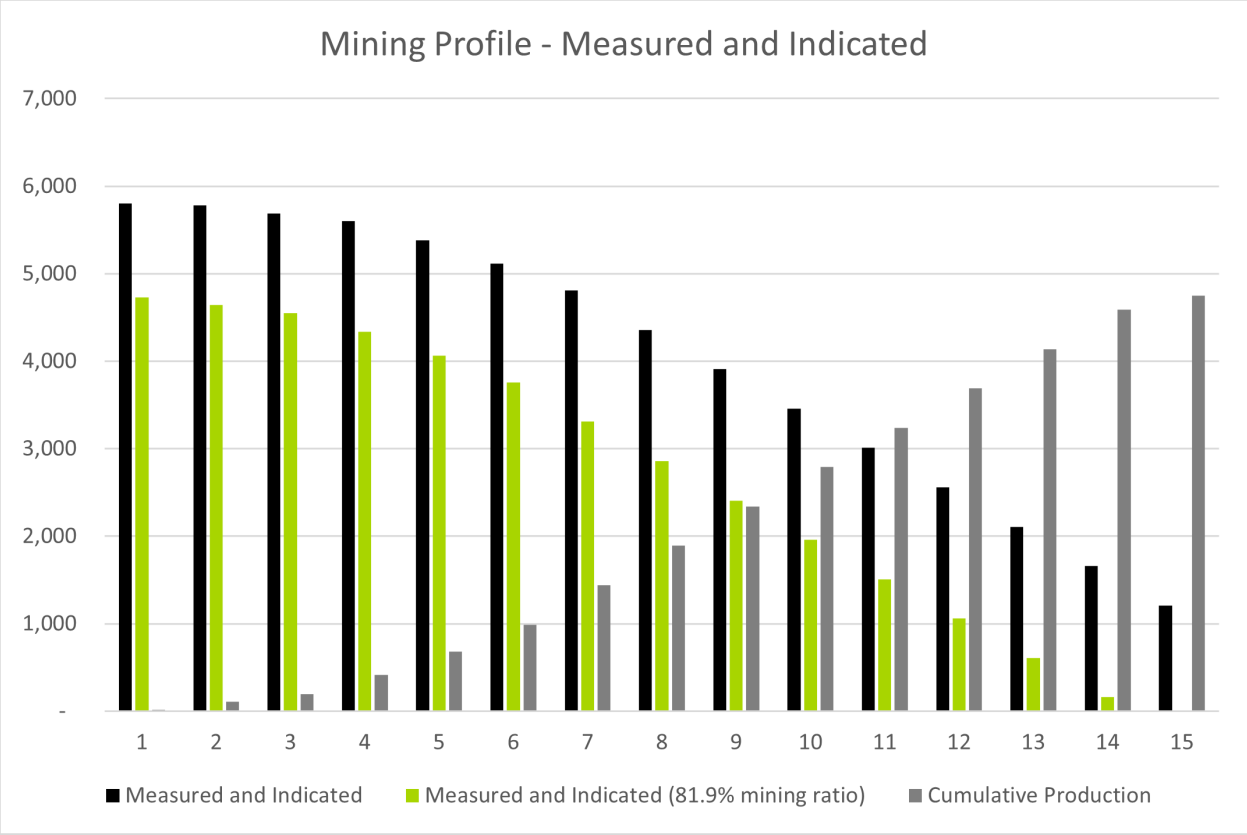


Figure 19.2 Resource Extraction Profile – M & I Only



A summary of the modeled life of mine profile is presented in Table 19.2 Life of Mine Summary.

Table 19.2 Life of Mine Summary

Description	Unit	Value – M, I, & I	Value – M & I
Life of mine	Years	30	15
Resource – Boric Acid	Short Tons	13.9 M	5.8 M
Quantity Boric Acid Produced	Short Tons	11.4 M	4.7 M
Modeled Extraction Ratio		81.90%	

19.4.2 Operating Costs

Operating costs modeled in US dollars can be categorized as variable, fixed and other operating costs credits. A summary of operating costs over the life of operation is presented in Figure 19.3 and Figure 19.4.

Figure 19.3 Operating costs over the life of the mine

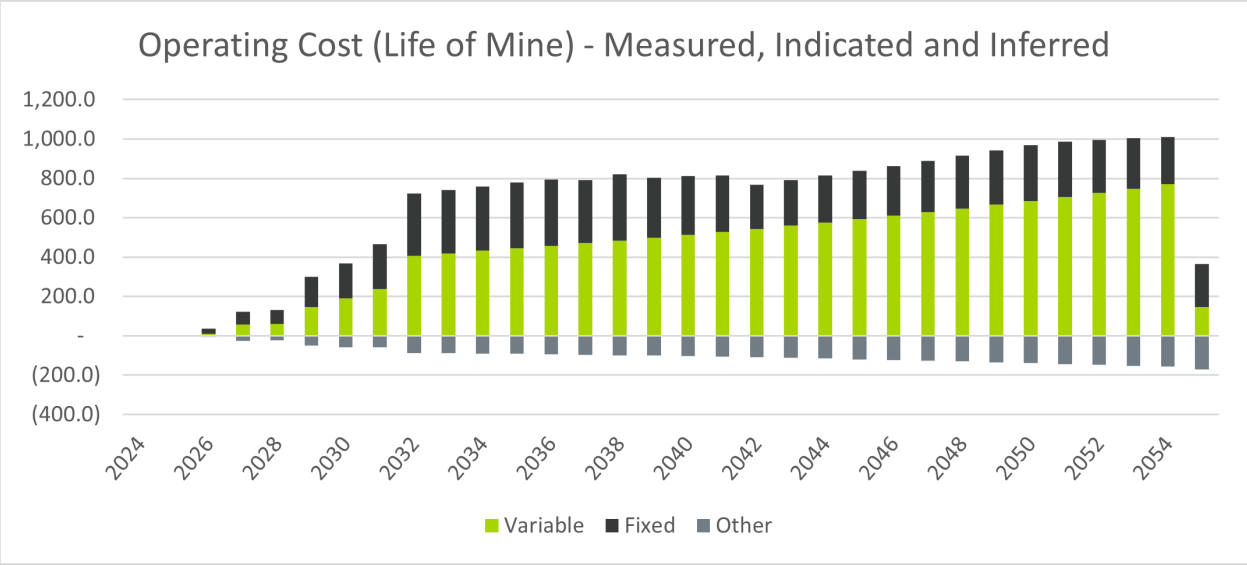
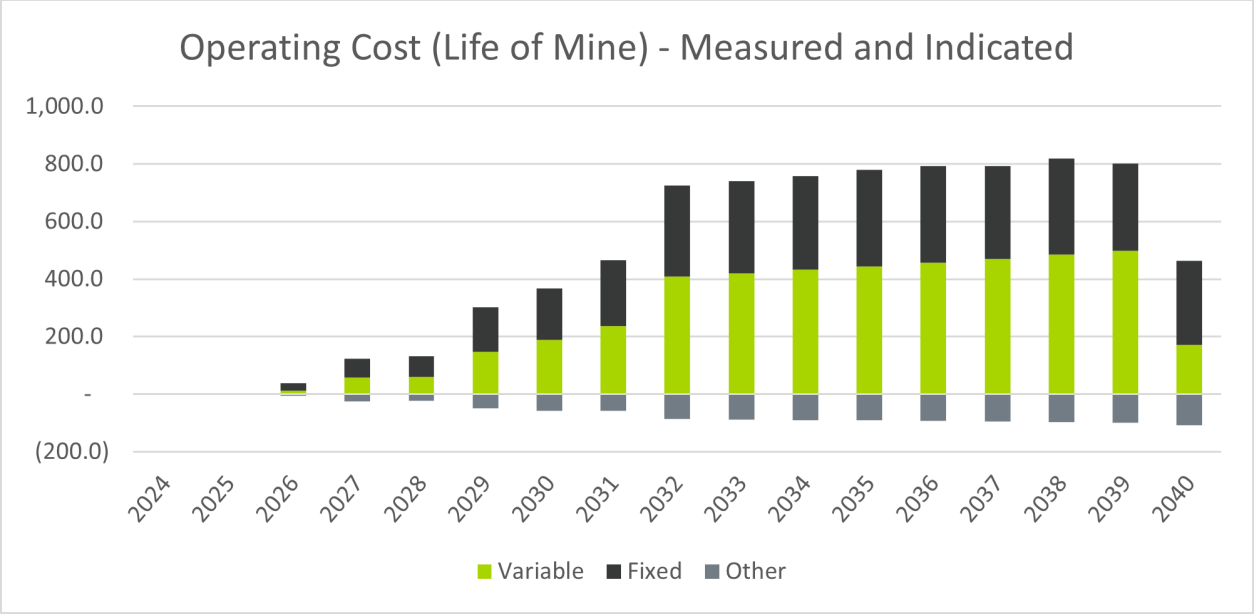


Figure 19.4 Operating costs over the life of the mine - M & I Only



19.4.3 Variable Costs

Total variable operating costs over the life of mine are provided in Table 19.3 and Table 19.4.

Table 19.3 Variable operating cost over life of mine

Variable operating cost (M, I & I):	Total US$000's
Materials	$ 5,122,600
Rail logistics	343,262
Utilities	8,500,885
Total	$ 13,966,747

Table 19.4 Variable operating cost over life of mine - M & I only

Variable operating cost (M & I):	Total US$000's
Materials	$ 1,669,189
Rail logistics	142,464
Utilities	2,679,745
Total	$ 4,491,398

19.4.4 Fixed Costs

Table 19.5 Total fixed operating cost over life of mine

Fixed operating cost (M, I & I):	Total US$000's
Administrative labor	$ 255,647
Operating labor	1,267,227
General and administrative overhead	61,785
Offsite storage	273,073
Repair labor and materials	1,597,117
Taxes and insurance	969,322
Depreciation	3,034,156
Total	$ 7,458,327

Table 19.6 Total fixed operating cost over life of mine - M & I only

Fixed operating cost (M & I):	Total US$000's
Administrative labor	$ 93,334
Operating labor	449,511
General and administrative overhead	24,896
Offsite storage	88,980
Repair labor and materials	564,529
Taxes and insurance	349,768
Depreciation	2,041,066
Total	$ 3,612,084

19.4.5 Other operating costs / credits

Table 19.7 Total other operating costs / credits over life of mine

Other operating cost / credit (M, I & I)	Total US$000's
Lithium carbonate	$ (3,280,668)
Metals precipitation waste	233,670
Gypsum	-
Total	$ (3,046,998)

Table 19.8 Total other operating costs / credits over life of mine - M & I only

Other operating cost / credit (M & I)	Total US$000's
Lithium carbonate	$ (1,144,954)
Metals precipitation waste	76,141
Gypsum	-
Total	$ (1,068,813)

19.4.6 Capital Costs

Capital is modeled on an annual basis and is used in the model as developed in previous sections with 25% contingency included to each phase and to sustaining capital. Closure costs are modeled as capital and are captured as a one-time payment in the final year of the model. The modeled capital profile is presented in Figure 19.5 and Figure 19.6.

Figure 19.5 Capital profile of the mine

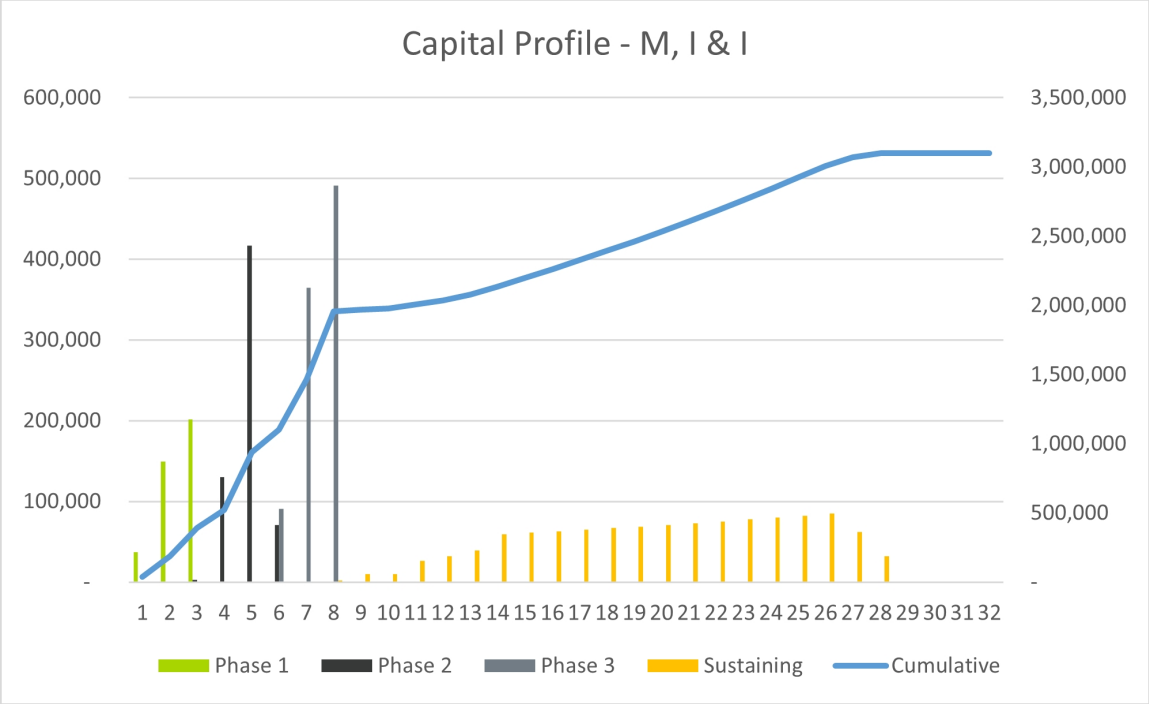
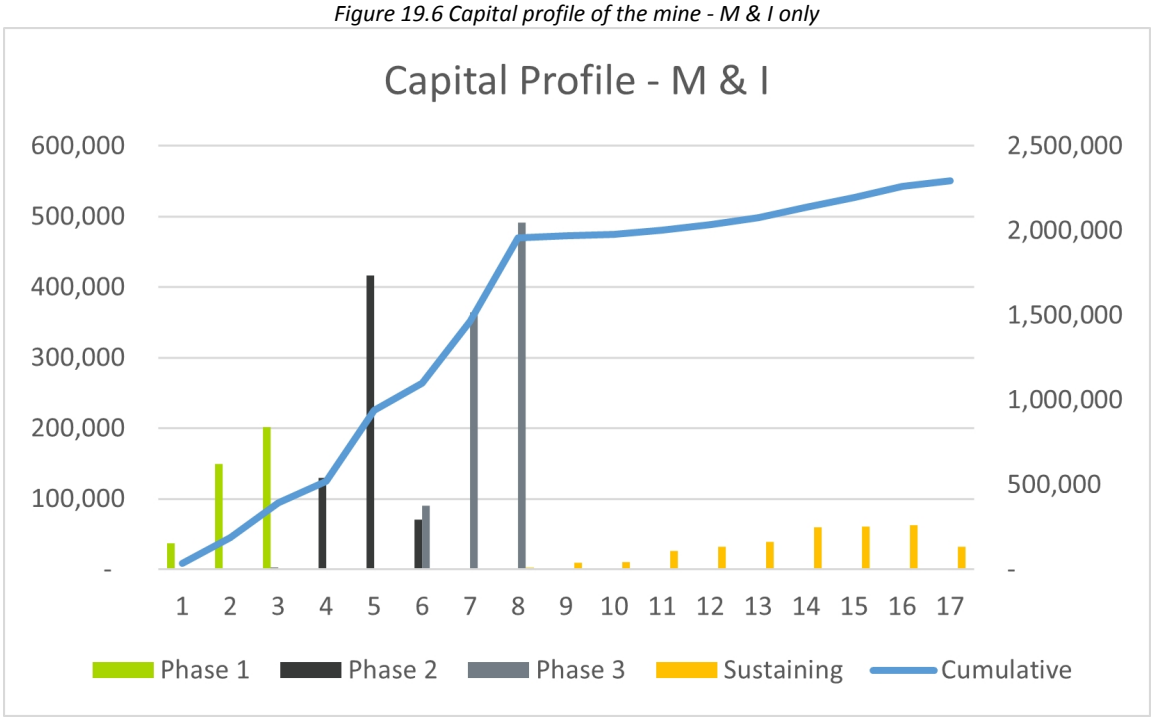


Figure 19.6 Capital profile of the mine - M & I only



19.4.7 Results

The economic analysis metrics are prepared on an annual after-tax basis in U.S. dollars. The results of analysis are presented in Table 19.9 and Table 19.10 Results of economic analysis - M & I only. Annual project after tax cash flow is presented in Figure 19.7 and Figure 19.8.

Figure 19.7 Cash flow projection

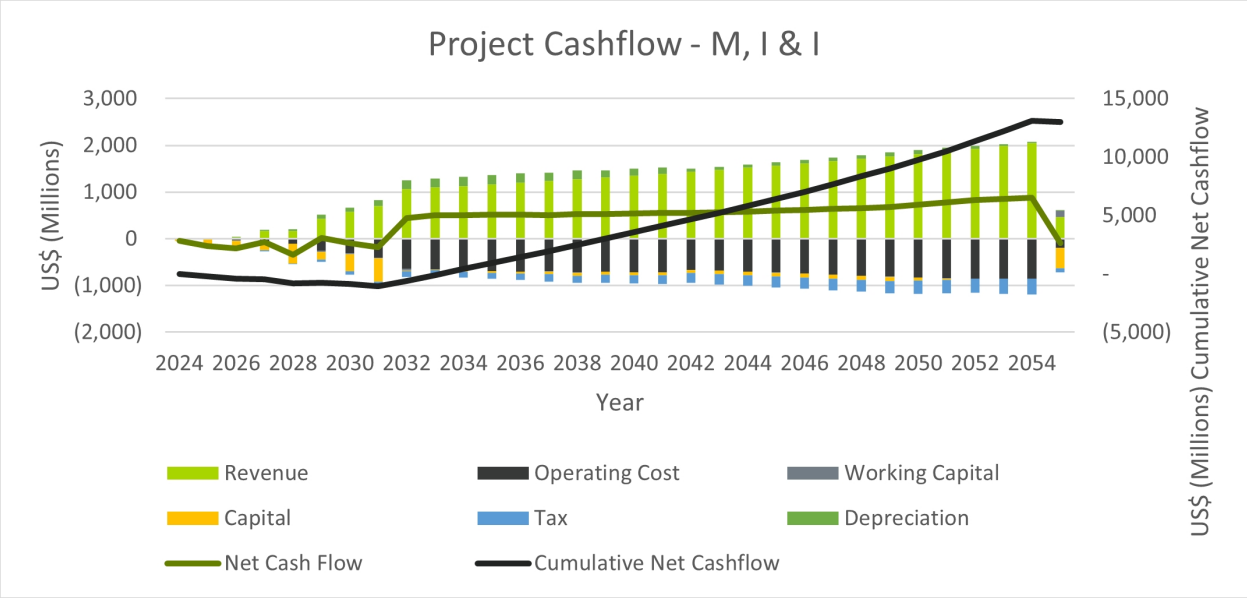


Figure 19.8 Cash flow projection - M & I only

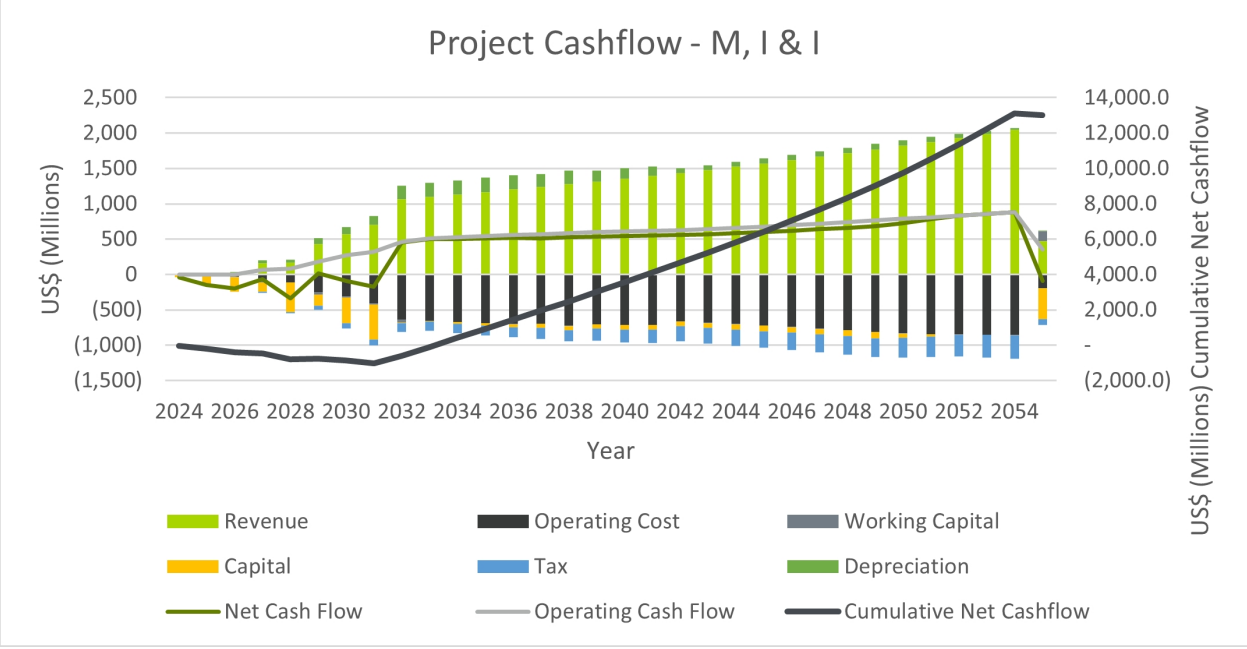


Table 19.9 Results of economic analysis

Life of Mine Cashflow (M, I & I)	Units	Value
Total Revenue	US$ Million	37,248.3
Operating Expenses	US$ Million	18,378.1
Operating Margin Ratio	%	50.7
Capital Outlay	US$ Million	3,541.2
Taxes Paid	US$ Million	5,280.9
Depreciation	US$ Million	3,034.2
Free Cash Flow	US$ Million	13,006.6
NPV @ 8%	US$ Million	2,410.3
IRR	%	22.6
Payback	Years	10.5

Table 19.10 Results of economic analysis - M & I only

Life of Mine Cashflow (M & I)	Units	Value
Total Revenue	US$ Million	12,055.7
Operating Expenses	US$ Million	7,034.7
Operating Margin Ratio	%	41.6
Capital Outlay	US$ Million	2,544.4
Taxes Paid	US$ Million	1,405.9
Depreciation	US$ Million	2,041.1
Free Cash Flow	US$ Million	3,035.7
NPV @ 8%	US$ Million	829.4
IRR	%	18.7
Payback	Years	10.5

The following table presents the income statement and financial metrics for the first full-year each phase is at full-run rates.

Table 19.11 Results of economic analysis - by Phase

M, I & I and M & I	Units	2027 (Phase 1)	2030 (Phase 2)	2032 (Phase 3)
Revenue US$	US$	162.9	575.1	1,069.3
Operating costs US$	US$	98.5	310.8	637.9
Operating margin US$	US$	64.4	264.3	431.4
Cash costs	US$ per short ton	686	793	994
EBITDA US$	US$	101.2	360.9	621.9
EBITDA Margin	%	62.1	62.8	58.2

19.4.8 Sensitivity Analysis

Sensitivity analysis for the financial model was performed based on changes to product recoveries (all products and coproducts included), operating costs (variable manufacturing costs), capital cost, pricing for lithium carbonate, pricing for boric acid, pricing for gypsum, and labor (fixed manufacturing costs). Using a ±10% change for each variable, NPV_8 is plotted in real dollars for comparison and arranged in order of total variability. Figure 19.5 shows 5E base-case NPV_8 changes based on measured, indicated, and inferred resources while Figure 19.6 provides NPV_8 changes based only on measured and inferred resources.

Figure 19.9 Sensitivity Analysis Base Case - Measured, Indicated, and Inferred

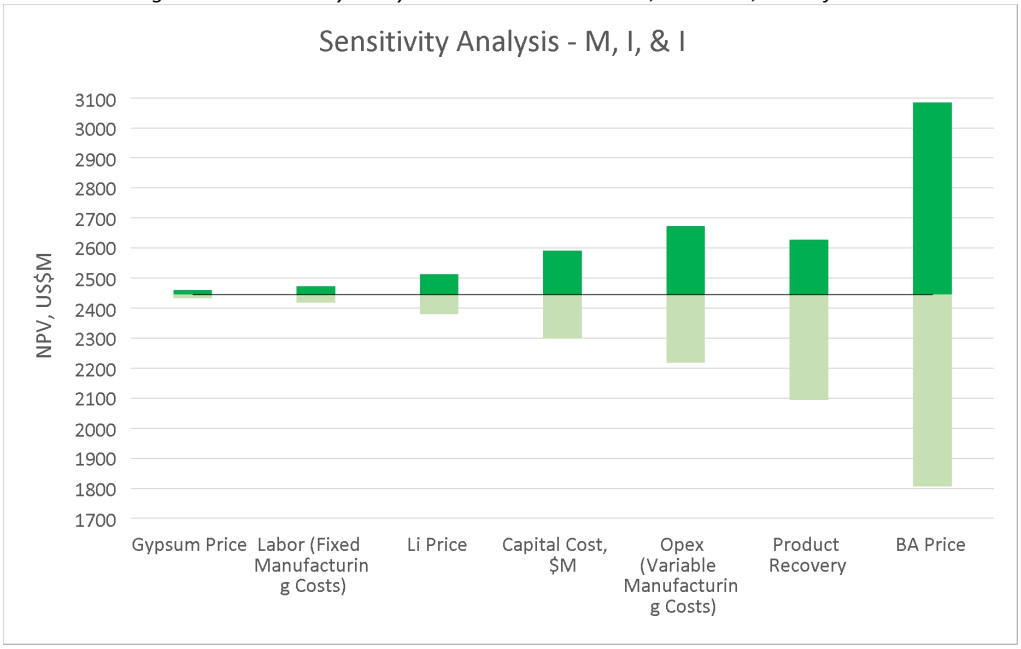
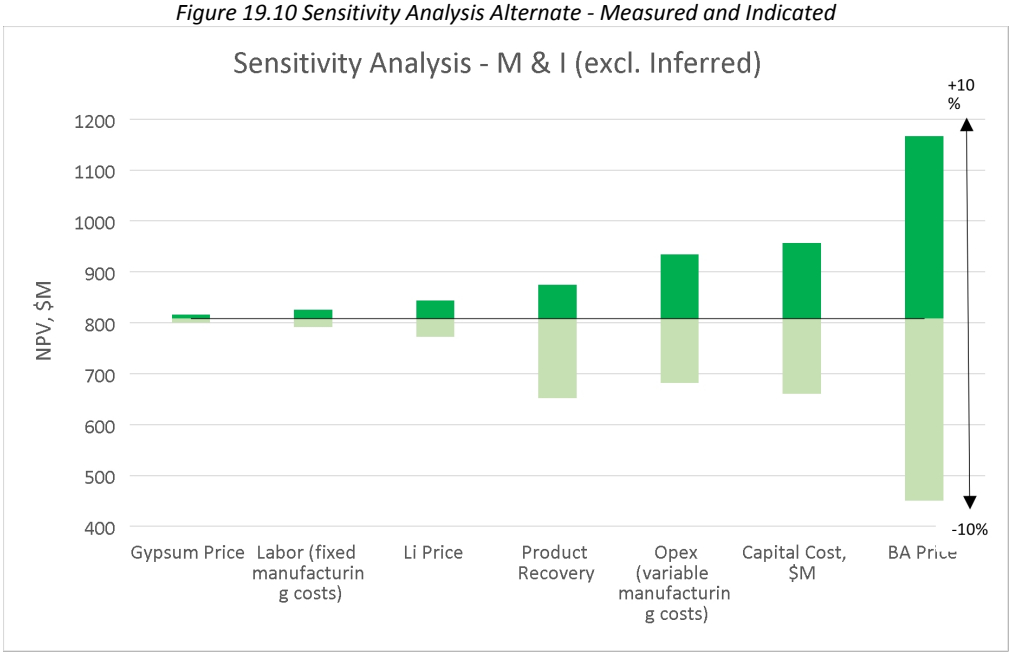


Figure 19.10 Sensitivity Analysis Alternate - Measured and Indicated



19.4.9 Cash Flow Snapshot

The annual cashflow, expressed in million U.S. dollars, is presented in Figure 19.11 and Figure 19.12.

Figure19.11 Summary of annual cash flow, US$ millions

Fiscal Year	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Income																	
Revenue	37,248.3	-	-	31.1	162.9	171.4	430.7	575.1	705.4	1,069.3	1,101.3	1,134.4	1,168.4	1,203.5	1,239.6	1,276.7	1,315.0
Operational Expenditure																	
Variable	(13,966.7)	-	-	(11.3)	(58.0)	(59.6)	(147.2)	(189.3)	(237.3)	(408.1)	(420.0)	(432.2)	(444.7)	(457.7)	(471.0)	(484.7	(498.9
Fixed	(7,458.3)	(0.7)	(1.7)	(25.8)	(65.9)	(72.3)	(154.1)	(178.6)	(228.4)	(316.1)	(320.0)	(325.8)	(335.0)	(335.6)	(320.9)	(335.2	(303.4
Other operating / (credit)	3,047.0	(0.0)	(0.1)	4.9	25.3	22.0	50.2	57.1	58.5	86.3	87.5	89.5	91.6	93.7	95.8	98.0	100.3
Total	(18,378.1)	(0.7)	(1.8)	(32.1)	(98.6)	(109.9)	(251.1)	(310.8)	(407.1)	(637.9)	(652.4)	(668.4)	(688.2)	(699.6)	(696.1)	(721.8	(702.0
Working Capital Costs	(75.7)	(0.1)	(0.1)	(5.3)	(17.0)	(1.0)	(32.4)	(15.4)	(15.7)	(41.8)	(3.3)	(3.6)	(3.9)	(3.3)	(2.0)	(4.6	(0.8
Capital Costs																	
Phase 1	(388.9)	(37.3)	(149.8)	(201.8)	-	-	-	-	-	-	-	-	-	-	-	-	-
Phase 2	(620.4)	-	-	(2.9)	(129.9)	(417.0)	(70.5)	-	-	-	-	-	-	-	-	-	-
Phase 3	(946.5)	-	-	-	-	-	(90.8)	(364.6)	(491.1)	-	-	-	-	-	-	-	-
Sustaining capital	(1,145.8)	-	-	-	-	-	-	-	(2.4)	(9.9)	(10.2)	(26.4)	(32.6)	(39.6)	(59.6)	(61.4	(63.2
Reclamation	(439.6)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	(3,541.2)	(37.3)	(149.8)	(204.7)	(129.9)	(417.0)	(161.3)	(364.6)	(493.5)	(9.9)	(10.2)	(26.4)	(32.6)	(39.6)	(59.6)	(61.4	(63.2
Cashflow Before Tax	15,253.3	(38.0)	(151.7)	(211.1)	(82.5)	(356.6)	(14.2)	(115.7)	(211.0)	379.6	435.4	436.0	443.7	461.0	481.9	488.9	549.0
Tax Paid	(5,280.9)	-	-	-	(18.0)	(17.2)	(50.2)	(73.9)	(83.5)	(120.7)	(125.6)	(130.4)	(134.4)	(141.0)	(152.1)	(155.3	(171.5
Depreciation	3,034.2	-	-	9.2	36.8	36.8	81.7	96.6	119.8	190.6	192.6	196.3	202.7	200.3	182.0	192.1	156.1
Net Cashflow	13,006.6	(38.0)	(151.7)	(201.9)	(63.7)	(337.0)	17.3	(93.0)	(174.7)	449.4	502.4	501.9	512.0	520.3	511.8	525.7	533.6

Figure 19.11 Summary of annual cash flow, US$ millions (continued)

Fiscal Year	Total	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055
Income																	
Revenue	37,248.3	1,354.5	1,395.1	1,437.0	1,480.1	1,524.5	1,570.2	1,617.3	1,665.9	1,715.8	1,767.3	1,820.3	1,874.9	1,931.2	1,989.1	2,048.8	471.5
Operational Expenditure																	
Variable	(13,966.7)	(513.4)	(528.4)	(543.9)	(559.8)	(576.2)	(593.0)	(610.4)	(628.3)	(646.8)	(665.8)	(685.3)	(705.5)	(726.3)	(747.6)	(769.7)	(146.5)
Fixed	(7,458.3)	(299.3)	(287.1)	(225.3)	(232.1)	(239.0)	(246.1)	(253.5)	(261.1)	(268.9)	(276.9)	(282.4)	(281.0)	(269.5)	(255.8)	(241.8)	(219.1)
Other operating / (credit)	3,047.0	102.6	105.3	108.6	112.0	115.5	119.1	122.7	126.5	130.5	134.5	138.7	142.9	147.3	151.9	156.6	171.6
Total	(18,378.1)	(710.1)	(710.1)	(660.6)	(679.8)	(699.7)	(720.1)	(741.2)	(762.9)	(785.2)	(808.2)	(829.1)	(843.6)	(848.4)	(851.6)	(854.9)	(194.0)
Working Capital Costs	(75.7)	(3.3)	(2.8)	1.2	(4.6)	(4.8)	(4.9)	(5.1)	(5.2)	(5.4)	(5.5)	(5.5)	(5.1)	(4.4)	(4.4)	(4.5)	138.9
Capital Costs																	
Phase 1	(388.9)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phase 2	(620.4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phase 3	(946.5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sustaining capital	(1,145.8)	(65.1)	(67.1)	(69.1)	(71.1)	(73.3)	(75.5)	(77.7)	(80.1)	(82.5)	(84.9)	(62.1)	(32.0)	-	-	-	-
Reclamation	(439.6)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(439.6)
Total	(3,541.2)	(65.1)	(67.1)	(69.1)	(71.1)	(73.3)	(75.5)	(77.7)	(80.1)	(82.5)	(84.9)	(62.1)	(32.0)	-	-	-	(439.6)
Cashflow Before Tax	15,253.3	576.0	615.2	708.6	724.5	746.7	769.7	793.3	817.7	842.8	868.6	923.6	994.3	1,078.4	1,133.1	1,189.3	(23.1)
Tax Paid	(5,280.9)	(180.3)	(191.7)	(217.2)	(223.9)	(230.8)	(237.9)	(245.1)	(252.7)	(260.4)	(268.4)	(277.3)	(288.6)	(303.0)	(318.3)	(334.0)	(77.6)
Depreciation	3,034.2	147.6	130.8	64.4	66.4	68.4	70.4	72.5	74.7	77.0	79.3	79.1	73.0	58.3	42.0	25.2	11.5
Net Cashflow	13,006.6	543.2	554.3	555.8	566.9	584.3	602.3	620.7	639.8	659.3	679.5	725.4	778.7	833.7	856.8	880.5	(89.2)

Figure 19.12 Summary of annual cash flow, US$ millions - M & I only

Fiscal Year	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
Income																		
Revenue	12,055.7	-	-	31.1	162.9	171.4	430.7	575.1	705.4	1,069.3	1,101.3	1,134.4	1,168.4	1,203.5	1,239.6	1,276.7	1,315.0	470.9
Operational Expenditure																		
Variable	(4,491.4)	-	-	(11.3)	(58.0)	(59.6)	(147.2)	(189.3)	(237.3)	(408.1)	(420.0)	(432.2)	(444.7)	(457.7)	(471.0)	(484.7)	(498.9)	(171.5)
Fixed	(3,612.1)	(0.7)	(1.7)	(25.8)	(65.9)	(72.3)	(154.1)	(178.6)	(228.4)	(316.1)	(320.0)	(325.8)	(335.0)	(335.6)	(320.9)	(335.2)	(303.4)	(292.7)
Other operating / (credit)	1,068.8	(0.0)	(0.1)	4.9	25.3	22.0	50.2	57.1	58.5	86.3	87.5	89.5	91.6	93.7	95.8	98.0	100.3	108.0
Total	(7,034.7)	(0.7)	(1.8)	(32.1)	(98.6)	(109.9)	(251.1)	(310.8)	(407.1)	(637.9)	(652.4)	(668.4)	(688.2)	(699.6)	(696.1)	(721.8)	(702.0)	(356.2)
Working Capital Costs	(76.1)	(0.1)	(0.1)	(5.3)	(17.0)	(1.0)	(32.4)	(15.4)	(15.7)	(41.8)	(3.3)	(3.6)	(3.9)	(3.3)	(2.0)	(4.6)	(0.8)	74.3
Capital Costs																		
Phase 1	(388.9)	(37.3)	(149.8)	(201.8)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phase 2	(620.4)	-	-	(2.9)	(129.9)	(417.0)	(70.5)	-	-	-	-	-	-	-	-	-	-	-
Phase 3	(946.5)	-	-	-	-	-	(90.8)	(364.6)	(491.1)	-	-	-	-	-	-	-	-	-
Sustaining capital	(337.9)	-	-	-	-	-	-	-	(2.4)	(9.9)	(10.2)	(26.4)	(32.6)	(39.6)	(59.6)	(61.4)	(63.2)	(32.6)
Reclamation	(250.6)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(250.6)
Total	(2,544.4)	(37.3)	(149.8)	(204.7)	(129.9)	(417.0)	(161.3)	(364.6)	(493.5)	(9.9)	(10.2)	(26.4)	(32.6)	(39.6)	(59.6)	(61.4)	(63.2)	(283.2)
Cashflow Before Tax	2,400.5	(38.0)	(151.7)	(211.1)	(82.5)	(356.6)	(14.2)	(115.7)	(211.0)	379.6	435.4	436.0	443.7	461.0	481.9	488.9	549.0	(94.1)
Tax Paid	(1,405.9)	-	-	-	(18.0)	(17.2)	(50.2)	(73.9)	(83.4)	(120.7)	(125.6)	(130.4)	(134.4)	(141.0)	(152.1)	(155.3)	(171.5)	(32.1)
Depreciation	2,041.1	-	-	9.2	36.8	36.8	81.7	96.6	119.8	190.6	192.6	196.3	202.7	200.3	182.0	192.1	156.1	147.6
Net Cashflow	3,035.7	(38.0)	(151.7)	(201.9)	(63.7)	(337.0)	17.3	(93.0)	(174.7)	449.4	502.4	501.9	512.0	520.3	511.8	525.7	533.6	21.3

20 Adjacent Properties

Elementis operates their hectorite mine adjacent to the west side of the Project. The mine produces hectorite, a specialty clay mineral used in ceramics, cosmetics, and other specialties requiring high viscosity or high thermal stability. While the mine is adjacent to the Project it produces a product that does not compete with 5E.

Land status around the Project area includes the following:

- To the west are the patented and unpatented lands of the Elementis hectorite mine as well as public lands managed by the U.S. Department of Interior, Bureau of Land Management. Both Elementis and BLM land are included within the EIS boundary.
- BLM land is to the north and east of the Project.
- Lands south of the Project area are part of the U.S. Marine Corps Twentynine Palms Marine Base. Figure 3.2 Property Ownership shows the mineral tenure for the Project.

21 Other Relevant Data and Information

There is currently no other relevant information or data to present.

22 Interpretation and Conclusions

5E has an established mineral holding through ownership of fee lands and unpatented placer and lode claims. The property has undergone prior exploration primarily conducted in the 1980's along with more recent drilling conducted in 2017 which validated previous exploration and expanded known mineral occurrences. Drilling completed on the Project is sufficient for the delineation of a mineral resource estimate.

Exploration drilling has led to a geologic interpretation of the deposit as lacustrine evaporite sediments containing colemanite, a hydrated calcium borate mineral. The deposit also contains appreciable quantities of lithium. Geologic modeling based on drilling and sampling results depicts an elongate deposit of lacustrine evaporite sediments containing colemanite. The deposit is approximately 2.1 mi. long by 0.6 mi. wide, and ranges in thickness from 70 to 262 ft. with mineralization that has been defined in four distinct horizons defined by changes in lithology and B_2O_3 analyses.

A mineral resource has been estimated and reported using a cut-off grade of 2% B_2O_3. Measured and Indicated resources for the Project are 74.31 Mt, containing 5.80 Mt of boric acid and 0.141 Mt of lithium carbonate equivalent. Inferred resources for the Project total 96.9 Mt, containing 8.17 Mt of boric acid and 0.166 Mt of lithium carbonate equivalent. There are no mineral reserves currently identified. Much of the interpretation and mineral resource estimations were derived through a gridded model created from drilling and sampling data using Vulcan modeling software. Additional review and estimations of the model were conducted using Carlson Mining software. The details of the methodology are described in the text of this report.

Exploration to date has focused on an approximate 1,000 acres located in the east-central portion of 5E's mineral holding. Future exploration efforts will address mineral potential across other portions of the Project area. There is potential upside in resource by conducting additional drilling to the southeast in Section 36, along trend with resources identified in this report.

There are reasonable prospects for economic extraction for the mineral resource estimated and presented in this initial assessment. 5E has been diligent in validating the work completed by the previous operators and further expanding the size and classification assurance of the deposit. Current and previous evaluations of mining methods indicate a deposit well suited for ISL solution mining as a preferred method for economic extraction. Metallurgical testing and process engineering indicate the economic potential as well. 5E is currently commissioning its small-scale facility, and operation will lead to detailed engineering for Phase 1 of the Project.

In conclusion, operation of the SSF will improve accuracy and optimize operational expenditures as well as sustaining capital estimates. Progression to FEL2 engineering will further define the accuracy and optimization of the capital cost estimates for the chemical processing plant and some additional exploration and in-fill drilling can reclassify the inferred resource to measured and indicated resource. Once the SSF is operational, samples of boric acid, lithium carbonate, and gypsum will be utilized to secure bankable offtake agreements for commercialization. Once these steps are completed, the Company is well positioned to update this initial assessment to a prefeasibility study.

23 Recommendations

It is the recommendations of the QP's to perform the following that will further benefit the operation:

- Geochemistry: Completion of a long-term leach test with associated thin section minerology evaluation which will provide characterization, determine chemical variability, and aid in process feed chemistry. Estimate of $200,000.
- Geophysics: Additional geophysics (seismic, resistivity, gamma) and interpretation to determine 2D and 3D faults to assess risk and complexity of the deposit. Estimate of $500,000 to $1,500,000.
- Exploration and in-fill drilling: Drill six to ten holes in Section 25 and 36 to expand inferred resource and reclassify existing inferred resource to measured and indicated. Estimate of $750,000 to $2,000,000.
- Water expansion: Drill additional wells to further establish storativity east of Fault B and west of the Pisgah fault. Estimate of $3,500,000 (included in the capital estimate in section 18).
- Small-scale facility: Receive authorization to inject acid and begin operation of the small-scale facility to obtain key data for the mine and surface facilities, including:
    - Well operational scheme, production rate, PLS grade and heat balance;
    - PLS characteristics under recycle conditions to accurately assess dissolution of colemanite, other acid-soluble minerals, and lithium chloride;
    - Representative process solutions to determine appropriate materials of construction;
    - Process evaluations specific to the crystallization unit, recovery and purity for BA, gypsum, and lithium and HCl regeneration/recycle;
    - Key site parameters, including water balance, waste generation, energy use, and environmental emissions.

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25 Reliance on Information Provided by the Registration

5E has provided the external QP's with a variety of materials for the preparation of this report. These materials include the following:

- Drilling records from the 2017 drilling program completed by APBL, which includes drilling locations, drill logs, sampling records, analytical results/certificates, geophysical logs, and core photos.
- Drilling records from Duval and FCMC, which include drill logs, sampling records, analytical results/certificates, and geophysical logs.
- Historical drilling maps and testing records.
- Third-party laboratory reports related to process test work based on synthetic brine.
- Commodity pricing forecasts by Kline and Benchmark.
- Historic solution mine information from MSME and Duval.