

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

FORM 10-K

Annual Report under Section 13 or 15(d) of the Securities
Exchange Act of 1934

For the fiscal year ended December 31, 2023

or

Transition Report under Section 13 or 15(d) of the
Securities Exchange Act of 1934

Commission File Number: 001-36338

22nd Century Group, Inc.

(Exact name of registrant as specified in its charter)

Nevada
(State or other jurisdiction
of incorporation)

98-0468420
(IRS Employer
Identification No.)

321 Farmington Road, Mocksville, North Carolina 27028

(Address of principal executive offices)

(716) 270-1523

(Registrant's telephone number, including area code)

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

Title of Each Class	Trading Symbol	Name of Exchange on Which Registered
Common Stock, \$0.00001 par value	XXII	NASDAQ Capital Market

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

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 15(d) of the Exchange 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 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. Yes No

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 by Rule 12b-2 of the Act). Yes No

The aggregate market value of the registrant's common stock as of June 30, 2023, the last day of the registrant's most recently completed second fiscal quarter, was approximately \$84 million based upon the closing price reported for such date on the Nasdaq Capital Market. On March 25, 2024, the registrant had 55,722,442 shares of common stock issued and outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement for its 2024 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K. Such Proxy Statement will be filed with the Securities and Exchange Commission within 120 days of December 31, 2023.

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Cautionary Note Regarding Forward-Looking Statements and Risk Factor Summary

This Annual Report on Form 10-K contains forward-looking statements concerning our business, operations and financial performance and condition as well as our plans, objectives and expectations for our business operations and financial performance and condition that are subject to risks and uncertainties. All statements other than statements of historical fact included in this Annual Report on Form 10-K are forward-looking statements. You can identify these statements by words such as “aim,” “anticipate,” “assume,” “believe,” “could,” “due,” “estimate,” “expect,” “goal,” “intend,” “may,” “objective,” “plan,” “potential,” “positioned,” “predict,” “should,” “target,” “will,” “would” and other similar expressions that are predictions of or indicate future events and future trends. These forward-looking statements are based on current expectations, estimates, forecasts and projections about our business and the industry in which we operate and our management’s beliefs and assumptions. These statements are not guarantees of future performance or development and involve known and unknown risks, uncertainties and other factors that are in some cases beyond our control. All forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those that we expected, including the following summary of risks related to our business:

- We have had a history of losses and negative cash flows, and we may be unable to achieve and sustain profitability and positive cash flows from operations.
- Our ability to continue as a going concern.
- Our ability to regain compliance with the NASDAQ listing requirements.
- Our competitors generally have, and any future competitors may have, greater financial resources and name recognition than we do, and they may therefore develop products or other technologies similar or superior to ours, or otherwise compete more successfully than we do.
- Our research and development process may not develop marketable products, which would result in loss of our investment into such process.
- The failure of our information systems to function as intended or their penetration by outside parties with the intent to corrupt them could result in business disruption, litigation and regulatory action, and loss of revenue, assets, or personal or confidential data (cybersecurity).
- We may be unsuccessful at commercializing our Very Low Nicotine “VLN” tobacco using the reduced exposure claims authorized by the Food and Drug Administration (“FDA”).
- The manufacturing of tobacco products subjects us to significant governmental regulation and the failure to comply with such regulations could have a material adverse effect on our business and subject us to substantial fines or other regulatory actions.
- We may become subject to litigation related to cigarette smoking and/or exposure to environmental tobacco smoke, or ETS, which could severely impair our results of operations and liquidity.
- The loss of a significant customer for whom we manufacture tobacco products could have an adverse impact on our results of operation.
- Product liability claims, product recalls, or other claims could cause us to incur losses or damage our reputation.
- The FDA could force the removal of our products from the U.S. market.

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- Certain of our proprietary rights have expired or may expire or may not otherwise adequately protect our intellectual property, products and potential products, and if we cannot obtain adequate protection of our intellectual property, products and potential products, we may not be able to successfully market our products and potential products.
- We license certain patent rights from third-party owners. If such owners do not properly maintain or enforce the patents underlying such licenses, our competitive position and business prospects could be harmed.
- Our stock price may be highly volatile and could decline in value.
- We are a named defendant in certain litigation matters, including federal securities class action lawsuits and derivative complaints; if we are unable to resolve these matters favorably, then our business, operating results and financial condition may be adversely affected.
- Future sales of our common stock will result in dilution to our common stockholders.
- We do not expect to declare any dividends on our common stock in the foreseeable future.

For the discussion of these risks and uncertainties and others that could cause actual results to differ materially from those contained in our forward-looking statements, please refer to “Risk Factors” in this Annual Report on Form 10-K. The forward-looking statements included in this Annual Report on Form 10-K are made only as of the date hereof. We undertake no obligation to publicly update or revise any forward-looking statement as a result of new information, future events or otherwise, except as otherwise required by law.

Unless the context otherwise requires, references to the “Company” “we” “us” and “our” refer to 22nd Century Group, Inc., a Nevada corporation, and its direct and indirect subsidiaries.

PART I

Item 1. Business.

Overview

22nd Century Group, Inc. is a tobacco products company with sales and distribution of our own proprietary new reduced nicotine tobacco products authorized as Modified Risk Tobacco Products by the FDA. Additionally, we provide contract manufacturing services for conventional combustible tobacco products for third-party brands.

Our mission in tobacco is dedicated to mitigating the harms of smoking through our proprietary reduced nicotine content (“RNC”) tobacco plants and our Very Low Nicotine, VLN[®] combustible cigarette products. In December 2021, we secured the first and only authorization from the FDA to market a combustible cigarette, our brand VLN[®] as a Modified Risk Tobacco Product (“MRTP”) using certain reduced nicotine exposure claims. In April 2022, the inaugural launch of our proprietary VLN[®] cigarettes commenced through a pilot program in select Circle K stores in and around Chicago, Illinois. Building on the success of the pilot, we initiated a phased rollout strategy in 2023, progressing state by state and region by region to a store footprint spanning more than 5,000 stores in 26 states. Our VLN[®] tobacco products are supported by a substantial intellectual property portfolio comprising issued patents and patent applications related to tobacco plants, and in particular our reduced nicotine tobacco plants.

In addition to continued focus on VLN[®], we renewed our focus on utilizing our tobacco assets to attract additional tobacco business to help fund the growth of VLN[®]. In addition to existing business relationships with multiple tobacco products companies, we will continue to expand the number of brands in our contract manufacturing operations (“CMO”) portfolio in 2024.

GVB Divestiture

On December 22, 2023, we completed the sale of substantially all of the GVB hemp/cannabis business (referred to as the “GVB Divestiture”). As a result, we have classified the results of operations of the hemp/cannabis segment and disposal group as discontinued operations in the Consolidated Statements of Operations for all periods presented. Additionally, the associated assets and liabilities linked to the discontinued operations have been designated as held for sale in the Consolidated Balance Sheet as of December 31, 2023 and 2022, respectively. All results and information presented exclude the hemp/cannabis segment and disposal group unless otherwise noted. For more detailed information regarding the divestiture, please refer to Note 2, titled “Discontinued Operations and Divestiture,” in the Notes to Consolidated Financial Statements, which can be found in Item 15 of this report.

Tobacco Overview

Our unwavering commitment is centered around reducing the effects of nicotine from smoking and smoking cessation. We believe we can achieve this mission through the commercialization of our proprietary RNC tobacco plants and cigarette products, prominently featured in our VLN[®] brand. These products contain 95% less nicotine content compared to conventional tobacco and cigarettes, which are intended to help users smoke less. The urgency of our mission is underscored by alarming statistics – the FDA publicly acknowledged on July 28, 2017, that tobacco use remains the leading cause of preventable disease and death in the United States. The repercussions include over 480,000 deaths annually and an economic toll of nearly \$300 billion in lost productivity and direct health care costs, as reported the U.S. Centers for Disease Control and Prevention (“CDC”).

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Our innovative approach involves utilizing both genetically modified organism (“GMO”) and non-GMO methods to modify and develop proprietary bright, burley, and oriental RNC tobaccos, ensuring they grow with at least 95% less nicotine content. Our SPECTRUM[®] research cigarettes, developed in collaboration with independent researchers, officials from the FDA, the National Institute on Drug Abuse (“NIDA”), which is part of the National Institutes of Health (“NIH”), the National Cancer Institute (“NCI”), and the CDC, have played and continue to play a crucial role in independent clinical studies, with more than 32.8 million variable nicotine research cigarettes provided since 2011. The extensive body of scientific evidenced derived from these studies, published in peer-reviewed journals, including the *New England Journal of Medicine* and the *Journal of the American Medical Association*, supports the potential impact of our RNC tobaccos. Smokers who opt for our RNC cigarettes in clinical studies experienced reductions in smoking (measured in cigarettes per day), nicotine exposure, and dependence, coupled with minimal or no evidence of compensatory smoking or withdrawal and without serious adverse events. A list of ongoing as well as completed and published clinical studies using cigarettes made with our RNC tobaccos may be viewed at <https://www.xxiicentury.com/vln-clinical-studies/published-clinical-studies-on-very-low-nicotine-content-vln-cigarettes>. These studies showed that smokers who used for RNC cigarettes increased their frequency of smoke-free days and doubled their efforts to quit smoking. SPECTRUM[®] research cigarettes persist as a key component in various independent scientific studies, aimed at substantiating the public health advantage acknowledged by the FDA and other entities. This advantage is associated with the FDA’s proposal to establish a national product standard requiring that all cigarettes incorporate “minimally or nonaddictive” levels of nicotine. Notably, our SPECTRUM[®] variable nicotine research cigarettes serve as the precursor to our innovative VLN[®] cigarette products.

Our conviction in the significant global market potential of our proprietary RNC cigarettes, marketed under the brand name VLN[®], is rooted in substantial data. As outlined in a 2021 report by the Foundation for a Smoke Free World, global full nicotine cigarette retail sales reached an estimated 84.1% or \$612 billion of the \$853 billion market for products that contain nicotine. The statistics from the CDC and the World Health Organization (“WHO”) highlight a substantial market, with over 1 billion global adult smokers and 30 million in the U.S.

Despite the prevalence of various nicotine delivery systems, including vaping, our belief is that smokers are actively seeking alternatives to traditional addictive combustible cigarettes. Our confidence is reinforced by consumer perception studies, in which 60% of adult smokers expressed a likelihood to adopt VLN[®] as their preferred choice. Importantly, VLN[®] is currently available in the market for sale, positioning itself as a viable option for smokers seeking reduced harm alternatives.

Our VLN[®] cigarettes are currently available in a large number of top U.S. markets and present a groundbreaking alternative with 95% less nicotine content than conventional cigarettes. Maintaining a familiar combustible product format, VLN[®] replicates the conventional cigarette smoking experience, encompassing sensory and experiential elements such as taste, scent, smell, and the familiar “hand-to-mouth” behavior.

The tobacco in VLN[®] cigarettes is meticulously crafted to contain a targeted 0.5 milligrams of nicotine per gram of tobacco, a threshold recognized by the FDA, based on clinical studies, as “minimally or non-addictive.” We believe the reduced nicotine content of VLN[®] can establish a dissociation between the act of smoking and the rapid introduction of nicotine to the bloodstream, which extensive clinical data indicates helps smokers to smoke less and potentially quit.

The results of numerous completed studies serve as an independent scientific foundation for the FDA’s advanced notice of proposed rule-making (“ANPRM”) on July 28, 2017, which announced FDA’s intention to institute a new rule to require that all combustible cigarettes sold in the United States contain only minimally or non-addictive levels of nicotine, also referred to as the Comprehensive Plan for Tobacco and Nicotine Regulation. Although this proposal has not yet been finalized or adopted by the FDA, the announcement supported our decision to submit and seek modified risk orders under MRTP applications (“MRTPAs”) for our VLN products. On December 23, 2021, we received authorization to market our VLN[®] cigarettes as a Modified Risk Tobacco Product (“MRTP”) using certain modified exposure claims.

We initiated efforts to offer our proprietary VLN[®] cigarettes for domestic sale after receiving the modified risk granted order. Furthermore, we continue to plan to evaluate opportunities to make VLN[®] available for international sale or licensing by third parties.

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Proposed Government Mandates Limiting the Nicotine in Cigarettes.

In a press release dated June 16, 2010, Dr. David Kessler, a former FDA Commissioner, advocated for swift action by the FDA to decrease nicotine levels in cigarettes to non-addictive thresholds. Dr. Kessler emphasized that lowering the stimulus level would consequently diminish cravings, deeming it the “ultimate harm reduction strategy.” Shortly thereafter, in a *Washington Post* article, Dr. Kessler proposed reducing the nicotine content in cigarettes from approximately 10 milligrams to less than 1 milligram. Notably, VLN[®] cigarettes contain between 0.3 to 0.7 mg/g.

In 2015, the WHO Study Group on Tobacco Product Regulation issued an advisory note endorsing a global nicotine reduction strategy, urging limitations on the sale of cigarettes to brands with nicotine content insufficient for addiction development or maintenance. Although the WHO did not specify absolute threshold for addiction, it suggested a likely threshold equal to or possibly less than 0.4 mg/g of dry cigarette tobacco filler. Our proprietary SPECTRUM[®] research cigarettes were cited in the WHO study as meeting this low nicotine level criterion at 0.4 mg/g of cigarette tobacco filler.

The WHO report concluded that establishing a maximum allowable nicotine content for all cigarettes could (i) reduce the initiation of smoking and progression to addiction, (ii) decrease smoking prevalence among addicted smokers through behavioral extinction, and (iii) increase quit rates while reducing relapse rates. Emphasizing population-wide benefits, the report highlighted the potential decrease in combusted tobacco use among current cigarette smokers and the prevention of non-smokers, particularly young people, from developing addiction to cigarettes.

On July 28, 2017, in connection with the ANPRM then-FDA Commissioner Scott Gottlieb, M.D., announced the FDA’s intention to use its authority under the Tobacco Control Act to require that all combustible cigarettes sold in the United States contain only minimally or non-addictive levels of nicotine. We believe this announcement marked a significant step towards reducing the addictive nature of cigarettes.

Following this announcement, on August 16, 2017, FDA Commissioner Scott Gottlieb, M.D., and Mitchell Zeller, J.D., the Director of the FDA’s Center for Tobacco Products (“FDA/CTP”), authored and titled “A Nicotine-Focused Framework of Public Health,” published in *The New England Journal of Medicine*. The article discussed the regulatory tool provided by the Tobacco Control Act, known as a tobacco “product standard,” which could be employed to alter the addictiveness of combustible cigarettes. While the statute prohibited reducing nicotine yields to zero, the FDA asserted its clear authority to otherwise reduce nicotine levels. The conclusion drawn was that a nicotine-limiting standard could render cigarettes minimally or non-addictive, aiding current users in quitting and preventing most future users from developing addiction. The FDA emphasized its commitment to being guided by scientific principles in shaping health policy. This commitment was reiterated in the context of addressing nicotine levels in cigarettes, underlining the importance of evidence-based decision-making.

We believe that recent political changes and perceptions towards nicotine addiction have the potential to be favorable to our business prospects from a policy priority and regulatory standpoint. Under the new leadership at the FDA and Center for Tobacco Products (“CTP”), we believe that the FDA could refocus on implementing its ground-breaking Comprehensive Plan for Tobacco and Nicotine Regulation, and specifically could renew efforts to cap the amount of nicotine in combustible cigarettes to a “minimally or non-addictive” level. We believe that the MRTP authorization and the launch of our VLN[®] cigarettes could serve as a powerful catalyst supporting any such policies.

For example, on January 27, 2022, the FDA posted an update on its FDA Voices site stating that it “remains on track” with its plans to prohibit menthol in combustible tobacco products. The FDA published a proposed tobacco product standard to ban menthol as a characterizing flavor in cigarettes in April 2022. The proposed FDA rule includes a process for firms to request an exemption from the standard for specific products of certain types on a case-by-case basis, indicating “reduced nicotine” as an example of such an exemption. On August 1, 2022, we submitted public comments in support of a tobacco product standard for menthol in cigarettes.

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In June 2022, the FDA announced that the Biden-Harris Administration published plans for future regulatory action that includes the FDA's plans to develop a proposed product standard that would establish a maximum nicotine level to reduce the addictiveness of cigarettes and certain other combusted tobacco products. On June 21, 2022, a proposed rule for a tobacco product standard for nicotine level of certain tobacco products was published in the Spring 2022 Unified Agenda of Regulatory and Deregulatory Actions.

In late October 2022, in coordination with the FDA, the National Institute on Drug Abuse (NIDA), and others, we received an order for 2.8 million variable nicotine cigarettes. We believe our research cigarettes will continue to fuel numerous independent, scientific studies that could evaluate the potential benefits suggested by the FDA and others of implementing a national standard requiring all cigarettes to contain minimally or non-addictive levels of nicotine.

The FDA rule making process continued to advance throughout 2023 on both the proposed menthol ban and the proposed reduced nicotine content standard, but announcement of an FDA proposed rule was delayed multiple times for additional public comment and analysis.

We continue to advance on our reduced nicotine technology as we believe that our next generation, non-GMO plant research is the key to commercializing our reduced nicotine content tobacco and technology in international markets where non-GMO products are preferred or where GMO products are banned. Our patented, non-GMO technology can introduce very low nicotine traits into virtually any variety of tobacco, including bright, burley, and oriental. We have successfully applied our non-GMO technology to bright and burley varieties of tobacco and have initiated commercial growing activities for our non-GMO bright and burley reduced nicotine varieties. We anticipate commercial production of our American blend cigarettes featuring a mix of bright and burley VLN[®] tobacco varieties to begin in 2024. We believe that our RNC tobacco technology and our production and delivery of millions of proprietary variable nicotine research cigarettes since 2011 demonstrates the technical achievability of the FDA's plan to dramatically reduce nicotine in cigarettes.

In the United States, we are focused on working with the FDA on its efforts to reduce nicotine in cigarettes. Outside the United States, we will focus on working with WHO-member countries that desire to utilize our proprietary RNC tobacco to implement the WHO recommendation of limiting the sale of cigarettes to brands with a nicotine content that is not sufficient to lead to development and/or maintenance of addiction.

Modified Risk Tobacco Products (MRTP)

The Family Smoking Prevention and Tobacco Control Act of 2009 ("Tobacco Control Act") granted the FDA authority over the regulation of all tobacco products in the United States. The Tobacco Control Act further establishes procedures for the FDA to regulate the labeling and marketing of so-called MRTP, which includes, among other things tobacco products that may (i) reduce harm or the risk of tobacco-related disease or (ii) reduce or eliminate exposure to a substance. The Tobacco Control Act also includes provisions allowing the submission and authorization of a Premarket Tobacco Product Application ("PMTA") for a new tobacco product, where the PMTA includes scientific data that demonstrates the new tobacco product is appropriate for the protection of public health.

On December 5, 2018, we submitted to the FDA a PMTA and on December 17, 2019, the FDA issued a marketing order in response to our PMTA. While the FDA's marketing order authorized us to market the products in the U.S., it did not allow us to make reduced exposure claims which would indicate that the product contains 95% less nicotine. Marketing such reduced exposure claims requires the FDA to authorize an MRTPA.

Because of this, on December 27, 2018, we submitted to the FDA an MRTPA, seeking FDA authorization to market our reduced nicotine combustible cigarettes with certain reduced exposure claims. In the MRTPA, we requested authorization from the FDA to market our reduced nicotine tobacco cigarettes with certain product labeling claims under the brand name of VLN[®].

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On December 23, 2021, we secured the first and only MRTP designation for a combustible cigarette for VLN[®] King and VLN[®] Menthol King 95% reduced nicotine content cigarettes. The FDA authorized the marketing of VLN[®] with the following reduced exposure claims: “95% less nicotine”, “Helps reduce your nicotine consumption”, and “Greatly reduces your nicotine consumption,”. The FDA also required that any use of these claims be accompanied by the statement that the product “Helps You Smoke Less,” which we consider an evidence-based claim supporting our products.

In previous years, we contracted with farmers to grow considerable quantities of RNC tobacco in anticipation of FDA authorization of our MRTP and subsequent commercial launch of VLN[®] cigarettes. In January 2022, at our manufacturing facility in North Carolina, we produced the first cartons of our VLN[®] reduced nicotine cigarettes, destined for commercial sale. In April 2022, we launched VLN[®] cigarettes in the U.S. market. We believe that the commercialization of VLN[®] cigarettes will create further opportunities for us to license our proprietary technology tobaccos and the VLN[®] brand.

VLN[®] Commercialization Plan

In April 2022, we initiated VLN[®] sales in more than 150 Circle K stores in the Chicago metro area through a pilot launch. After the pilot concluded and given the positive results, we made the decision to further deepen our reach in the state of Illinois and launch VLN[®] in Colorado to more than 3,000 potential locations across the state with our network of retailers and distribution partners, including Eagle Rock Distributing Company and Creager Mercantile.

The pilot enabled us to refine our VLN[®] rollout strategy and helped us develop our VLN[®] sales launch blueprint, an efficient, reproducible sales plan that focuses our resources to achieve the greatest returns. In November 2022, we announced that we intend to expand our VLN[®] launch to Arizona, New Mexico, and Utah, and announced plans to expand into up to 18 U.S. states over the following 12 months. In January 2023 we announced distribution partnerships with Core-Mark International and Eby-Brown Company, two of the largest convenience store distributors in the U.S., providing access to retailers in virtually every key U.S. market.

By concentrating and going deeper into select geographies and markets with high cigarette volume and large adult smoker populations, we believe we can capture greater market share effectively. We also plan to target states where there is a tax exemption for MRTP. As of March 1, 2024, we have secured regulatory authorizations to sell VLN[®] in 48 states and the District of Columbia. At year-end 2023, our phased rollout strategy, progressing state by state and region by region, had placed VLN into a store footprint spanning more than 5,000 stores in 26 states.

Tobacco Master Settlement Agreement

In September 2013, we entered into a Membership Interest Purchase Agreement (the “NASCO Acquisition”) to purchase all the issued and outstanding membership interests of NASCO, a federally licensed tobacco product manufacturer and subsequent participating manufacturer under the Master Settlement Agreement (“MSA”). The MSA is an accord reached in November 1998 between the State Attorneys General of 46 states, five U.S. territories, the District of Columbia and the five largest tobacco companies in the United States concerning the advertising, marketing and promotion of tobacco products. The MSA also set standards for, and imposes restrictions on, the sale and marketing of cigarettes by participating cigarette manufacturers. On August 29, 2014, we entered into an Amended Adherence Agreement with the 46 Settling States under the MSA pursuant to which the Company was approved to acquire NASCO and become a subsequent participating manufacturer under the MSA. On that same date, we closed the NASCO Acquisition and became a subsequent participating manufacturer under the MSA. NASCO has since been our wholly-owned subsidiary.

Tobacco Manufacturing

We lease our cigarette manufacturing facility and warehouse located in Mocksville, North Carolina. In 2013, we purchased certain (i) cigarette manufacturing equipment, and (ii) equipment parts, factory items, office furniture and fixtures, vehicles and computers from the bankruptcy estate of PTM Technologies, Inc. for approximately \$3.2 million.

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The facility was primarily in a pre-manufacturing stage during 2014 as we sought approval during that time for us to become a subsequent participating manufacturer under the MSA. On August 29, 2014, we became a subsequent participating manufacturer under the MSA. Since 2015, we have manufactured and sold our SPECTRUM® variable nicotine research cigarettes, as well as third-party filtered cigar brands and MSA-compliant cigarette brands, at our factory in North Carolina.

The strategic acquisition of our factory has allowed us to become vertically integrated so that we can control production priorities/timing and maintain the required high quality of our products, including our SPECTRUM® research cigarettes and our MRTP-designated VLN® brand cigarettes featuring 95% less nicotine than the top 100 leading brands sold in the United States. In January 2022, our cigarette manufacturing facility began production of VLN® King and VLN® Menthol King cigarettes. With high-speed manufacturing capabilities we continue to attract additional CMO business to absorb our manufacturing overhead and help keep our unit cost profile low.

In 2023, we leased additional warehouse space in Winston-Salem, North Carolina. This bonded and temperature conditioned space will further support VLN® growth and provide additional distribution opportunities for customers.

Tobacco Sources of Raw Materials

We obtain our reduced nicotine tobacco leaf from third party-growers, primarily in multiple states in the United States who are under direct contracts with us. These contracts prohibit the transfer of our proprietary tobaccos, seeds and plant materials to any other party. We purchase conventional tobacco destined for contract manufacturing operations through third parties.

Research & Development (R&D) & Intellectual Property (IP)

Tobacco R&D

Since our inception, most of our research and development (“R&D”) efforts have been outsourced to highly qualified groups in their respective fields. Since 1998, we have had multiple R&D agreements with North Carolina State University (“NCSU”) and others resulting in exclusive worldwide licenses to various patented technologies. We have utilized the same model employed by many public-sector research organizations, which entails obtaining an exclusive option or license agreement to any invention arising out of our funded research. In all such cases, we fund and control all patent filings as the exclusive licensee. This model of contracting with public-sector researchers has enabled us to control R&D costs while achieving our desired results, including obtaining exclusive intellectual property rights relating to our outsourced R&D.

On June 22, 2018, we entered into an amendment to our existing license agreement with NCSU under which we exclusively licensed several bright and burley tobacco plant lines with Very Low Nicotine Content that are not genetically modified (non-GMO) plants. The amendment provided for us to pay NCSU a total exclusive license fee of \$1.2 million. We will also pay running royalties to NCSU based on a portion of the net sales revenue received by us from sales of products that contain any portions of the plant materials that have been received by us from NCSU.

On October 22, 2018, we entered into a license agreement with the University of Kentucky (“UK”) to license on a non-exclusive basis a next-generation very low nicotine content burley tobacco plant lines that are not genetically modified (non-GMO) plants. The UK license agreement provided for us to pay UK a total license fee of \$1.2 million. We will also pay running royalties to UK based on a portion of the net sales revenue received from sales of products that contain any portions of the plant materials that have been received from UK.

On December 1, 2021, we relocated our laboratory from Buffalo, New York to Rockville, Maryland, where we were conducting our own proprietary research and development activities in tobacco. In February 2024, we relocated our laboratory activities to our Mocksville, NC manufacturing facility. This reduces the fixed cost of our research and development activities, plus provides us an advantage with the proximity to our factory and NCSU.

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In 2022, our R&D collaboration with NCSU delivered the proof of concept and field data for a new gene combination (non-GMO) to reduce nicotine below 95%. This unique gene combination enables the production of a better-quality leaf and an increase in yield. In January 2022, a utility patent to protect the new combination was filed. Our exclusive NCSU collaboration also yielded proof of concept and field data for Oriental lines with a 90-95% nicotine reduction. These results will give us the option in the future to produce VLN cigarettes that comprise burley, oriental, and bright tobacco thus improving overall quality. In addition, this year we extended our VLN production field trial to include new burley and flue-cured VLN (non-GMO).

We are currently developing new versions of our RNC cigarettes utilizing these non-GMO tobacco lines for future commercialization in the U.S. and globally.

Tobacco IP

Our intellectual property enables us to alter the level of nicotine and other nicotinic alkaloids in tobacco plants through genetic engineering and modern plant breeding. The basic techniques include, but are not limited to, those that are used in the production of genetically modified and gene-edited varieties of other crops, which are also known as “biotech crops.”

We have extensive patent protection and exclusive rights covering tobacco plants with altered nicotine content produced by modifying the expression of genes that control the biosynthesis of nicotine in the tobacco plant. Our patent families related to nicotine biosynthesis are expected to expire between 2026 and 2043, with certain extensions of terms in the U.S. applications resulting from patent term adjustments at the U.S. Patent and Trademark Office (a “patent family” is a set of patent applications and patents, filed in various countries, that relate to at least one common earlier application).

Plant variety protection (“PVP”) certificates are issued in the United States by the U.S. Department of Agriculture. A PVP certificate prevents anyone other than the owner/licensee from planting, propagating, selling, importing, or exporting a plant variety for twenty (20) years in the U.S. and, generally, for twenty (20) years in other member countries of the International Union for the Protection of New Varieties of Plants, known as UPOV, an international treaty concerning plant breeders’ rights. There are currently more than 70 countries that are members of UPOV. Our current RNC tobaccos are protected by our patent portfolio.

In addition to our patents, patent applications, and PVP certificates, we own various registered trademarks in the United States and around the world. In November 2023, we signed an additional reduced nicotine content technology license with NCSU, providing additional modes of efficiently producing reduced nicotine content tobacco plants and extending our IP portfolio. This license will provide exclusive rights to the technology until 2042.

Government Regulation

The development, testing, manufacturing, and marketing of our products and potential products are subject to extensive regulation by governmental authorities in the United States and throughout the world.

FDA Regulation of Tobacco Products

The Family Smoking Prevention and Tobacco Control Act (“Tobacco Control Act”) amended the Federal Food, Drug, and Cosmetic Act (“FDCA”) to provide the FDA with broad authority to regulate the manufacture, quality control, advertising, promotion, labeling, packaging, storage, distribution, recordkeeping, premarket authorization, post-authorization monitoring and post-authorization reporting of tobacco products, including our tobacco products. Among its authorities, the FDA requires that manufacturers of tobacco products first introduced or modified after February 15, 2007, undergo premarket review and obtain premarket authorization prior to commercialization. While the Tobacco Control Act prohibits the FDA from banning cigarettes outright, or mandating that nicotine levels be reduced to zero, it does allow the FDA to require the reduction of nicotine or other compounds in tobacco and cigarette smoke. The FDA has authority to restrict marketing and advertising, impose regulations on packaging, mandate warnings and disclosure of flavors or other ingredients, prohibit the sale of tobacco products with certain flavors or other characteristics, limit or prohibit the sale of tobacco products by certain retail establishments and the sale of tobacco products in certain packaging sizes, and seek to hold retailers and distributors responsible for the adverse health effects associated with both smoking and exposure to environmental tobacco smoke. In 2009, the Tobacco Control Act also banned all sales in the United States of cigarettes with flavored tobacco (other than menthol). As of June 2010, all cigarette companies were required to cease use of the terms “low tar,” “light” and “ultra light” in describing cigarettes sold in the United States.

The Tobacco Control Act, its implementing regulations and its 2016 deeming regulations establish broad FDA regulatory authority over all tobacco products and, among other provisions:

- impose restrictions on the advertising, promotion, sale and distribution of tobacco products;
- establish pre-market review pathways for new and modified tobacco products;
- prohibit any express or implied claims that a tobacco product is or may be less harmful than other tobacco products without FDA authorization;
- authorize the FDA to impose tobacco product standards that are appropriate for the protection of the public health; and
- equip the FDA with a variety of investigatory and enforcement tools, including the authority to inspect product manufacturing and other facilities.

The Tobacco Control Act requires manufacturers of tobacco products to, among, other things, provide FDA with a list of ingredients added to tobacco products in the manufacturing process and register any establishment engaged in the manufacture, preparation, or processing of a tobacco product. The manufacture of products is subject to strict quality control, testing and record-keeping requirements, and continuing obligations regarding the submission of safety reports and other post-market information. The FDA has several investigatory and enforcement tools available to it, including document requests and other required information submissions, facility inspections, examinations and investigations, injunction proceedings, monetary penalties, product withdrawal and recall orders, and product seizures.

The Tobacco Control Act also authorizes FDA to promulgate regulations requiring that the methods used in, and the facilities and controls used for, the manufacture, preproduction design validation, packing, and storage of a tobacco product conform to current good manufacturing practice (“CGMP”). On March 8, 2023, FDA issued a proposed rule to promulgate such regulations. The proposed rule, if finalized, would establish requirements for manufacturers of finished and bulk tobacco products on the methods used in, and the facilities and controls used for, the manufacture, pre-production design validation, packing, and storage of tobacco product.

Regulation of Menthol Cigarettes

In April 2022, the FDA announced proposed product standards to prohibit menthol as a characterizing flavor in cigarettes) and prohibit all characterizing flavors (other than tobacco) in cigars. In January 2023, the Semi-Annual Agenda for Fall 2022 was released in the US. Here, the Department of Health and Human Services (HHS), stated that it intended to issue a final rule on Menthol in Cigarettes. This product standard, if enacted, would prohibit menthol as a characterizing flavor in cigarettes. Although this proposed rule was expected to be finalized in August 2023, its implementation has been delayed. There has been increasing activity on the state and local levels with respect to scrutiny of menthol and flavored tobacco products. For example, in 2022, the State of California banned tobacco retailers from selling most flavored and menthol tobacco products, including VLN[®] Menthol King. The state of Massachusetts has similar laws prohibiting the sale of flavored tobacco sales, including menthol cigarettes.

Premarket Tobacco Product Application (PMTA)

Certain of our products, including our low nicotine cigarettes, are marketed in the United States pursuant to a PMTA. Under Section 910(b) of the FDCA, a PMTA can be submitted for any new tobacco product seeking a marketing order to enable commercialization of a new tobacco product in the United States. For FDA to grant such an order, the PMTA must enable the FDA to determine that: (1) permitting the marketing of the new tobacco product would be appropriate for the protection of the public health; (2) the methods used in, or the facilities and controls used for, the manufacture, processing, or packing of the product conform to the requirements of Section 906(e) of the FD&C Act (21 U.S.C. 387f(e)); (3) the product labeling is not false or misleading in any particular; and (4) the product complies with any applicable product standard in effect under section 907 of the FDCA or that there is adequate information to justify a deviation from such standard. In determining whether to authorize a PMTA, FDA considers, among other things:

- risks and benefits to the population as a whole, including people who would use the proposed new tobacco product as well as nonusers;
- whether people who currently use any tobacco product would be more or less likely to stop using such products if the proposed new tobacco product were available;
- whether people who currently do not use any tobacco products would be more or less likely to begin using tobacco products if the new product were available; and
- the methods, facilities, and controls used to manufacture, process, and pack the new tobacco product.

Once a PMTA is submitted FDA conducts an initial acceptance review to determine whether the product falls under CTP jurisdiction and to confirm that the statutory and regulatory requirements of an application are met based upon the criteria set forth in the Tobacco Control Act. The FDA endeavors to complete its acceptance review within 21 to 60 days of receipt. If the application does not appear to contain the required information (except for product samples), the FDA may refuse to accept the application for review, and in either case, will notify the applicant. Once accepted for further review, the FDA makes a threshold determination of whether the application contains enough information to permit a substantive review, referred to as “filing,” and may refuse to file any application that does not include sufficient information. Once filed, the FDA intends to complete its review of a PMTA within 180 days of receipt, however the FDA’s review period may be paused or even restarted in response to new information from the applicant, and as such, FDA’s review may take significantly longer than expected. After the FDA completes its review of a PMTA, the FDA may issue a marketing denial order letter, or issue a marketing granted order letter. A marketing granted order becomes effective on the date it is issued in response to a PMTA and permits the new tobacco product to be legally marketed in the United States.

A marketing order may include restrictions on the sale and distribution of the product, including restrictions on the access to, and the advertising and promotion of, the tobacco product, and unique requirements for record-keeping and post market reporting, among other things. Holders of authorized PMTAs are, among other things, required to submit detailed periodic and annual reports to the FDA within specified timelines, and are further required to submit reports for serious and unexpected adverse events associated with the product. Once granted the FDA may suspend or withdraw any marketing order on various grounds, such as a determination that the continued marketing of the tobacco product is no longer appropriate for the protection of public health, or where the PMTA holder has failed to comply with applicable post-market requirements.

Modified Risk Tobacco Products (MRTP)

Certain of our products, including our VLN® cigarettes, are marketed in the United States as MRTPs. MRTPs are tobacco products that are sold or distributed for use to reduce harm, or the risk of tobacco-related disease associated with commercially marketed tobacco products. Before an MRTP can be introduced or delivered into interstate commerce in the United States, the FDA must issue a either a “risk modification order” or “exposure modification order” pursuant to the Tobacco Control Act. An order permitting the sale of an MRTP, if granted by the FDA, enables the applicant to utilize certain claims with respect to a single, specific product, not an entire class of tobacco products.

To obtain a risk modification order under the FDCA, an applicant must demonstrate that the product, as it is actually used by consumers, will: (i) significantly reduce harm and the risk of tobacco-related disease to individual tobacco users; and (ii) benefit the health of the population as a whole; taking into account both users of tobacco products and persons who do not currently use tobacco products. To obtain an exposure modification order under the FDCA, an applicant must demonstrate that:

- such an order would be appropriate to promote the public health;
- any aspect of the label, labeling, and advertising for the product that would cause the product to be a modified risk tobacco product is limited to an explicit or implicit representation that the tobacco product or its smoke does not contain or is free of a substance or contains a reduced level of a substance, or presents a reduced exposure to a substance in tobacco smoke;
- scientific evidence is not available and, using the best available scientific methods, cannot be made available without conducting long-term epidemiological studies for an application to meet the standards for obtaining a risk modification order; and
- the scientific evidence that is available without conducting long-term epidemiological studies demonstrates that a measurable and substantial reduction in morbidity or mortality among individual tobacco users is reasonably likely in subsequent studies.

Furthermore, for FDA to issue an exposure modification order, FDA must find, among other things, that the applicant has demonstrated that the magnitude of overall reductions in exposure to the substance specified in the application is substantial, that such substance is harmful, that the product as actually used exposes consumers to the specified reduced level of the substance or substances, and will not expose them to higher levels of other harmful substances similar marketed products, unless such increases are minimal and the reasonably likely overall impact of use of the product remains a substantial and measurable reduction in overall morbidity and mortality among individual tobacco users. Notably the FDA also requires the applicant to demonstrate, through testing of actual consumer perception, that consumers will not be misled into believing that the product is or has been demonstrated to be less harmful or presents less of a risk of disease than other commercially marketed tobacco products.

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Similar to its review of PMTAs, once an MRTPA is submitted FDA conducts an initial acceptance review to determine whether the product falls under CTP jurisdiction and to confirm that the statutory and regulatory requirements of an application are met based upon the criteria set forth in the Tobacco Control Act. If the application does not appear to contain the required information, the FDA may refuse to accept the application for review. If and when the MRTP is accepted for further review, the FDA conducts a preliminary scientific review to ensure the application contains the information required for MRTPAs under the FDCA, a process referred to as “filing,” and the FDA may refuse to file any application that does not include the required information. Once filed, the FDA intends to complete its review of the PMTA within 360 days of receipt, however the FDA’s review may take significantly longer. As part of its substantive review, the FDA is required to send the application to the Tobacco Products Scientific Advisory Committee (“TPSAC”) and ask the TPSAC to report its recommendations on the application to the FDA within 60 days. After the FDA completes its review of the MRTPA, including the views expressed by the TPSAC, the FDA may issue a modified risk order letter, or issue a no modified risk order letter. If the FDA grants a risk modification order, the applicant must submit protocols for required post market surveillance for FDA concurrence within 30 days after receiving notice that they are required to conduct such surveillance. If the FDA grants an exposure modification order, the applicant must agree to conduct post market surveillance and studies in accordance with a protocol approved by the FDA. In either case, an FDA order permitting marketing of an MRTP is valid only for the fixed time period specified in the order and is not permanent, and such period may not be longer than five years. To continue marketing an MRTP after the set term, the company must submit a new MRTPA for FDA to determine that the product still satisfies the requirements set forth in the Tobacco Control Act.

Environmental Regulations

We are subject to a variety of federal, state and local environmental laws and regulations. We have developed specific programs across our business units for ensuring high standards of environmental compliance, including, standard operating practices and procedures at our manufacturing facility as well as at our research and development centers. We believe that our manufacturing facility complies with all federal, state, and local environmental regulations, including the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act.

In addition, any new products introduced by us are subject to a comprehensive environmental assessment by an independent third-party expert, including an assessment of how such products may create environmental risks. For our PMTA product, the FDA prepared a programmatic environmental assessment (PEA), based on our submitted data in accordance with the Council on Environmental Quality’s regulations (40 CFR 1500-1508) implementing the National Environmental Policy Act (NEPA) and FDA’s NEPA regulations (21 CFR 25.40). The PEA concluded that the marketing orders would have no significant impact and that environmental impact statements would not be required.

Excise Taxes

Tobacco products are subject to substantial excise taxes in the U.S. and other countries. Significant increases in tobacco-related taxes or fees have been proposed or enacted and are likely to continue to be proposed or enacted at the federal, state and local levels within the U.S. and other countries. The frequency and magnitude of excise tax increases can be influenced by various factors, including the composition of executive and legislative bodies. Federal, state and local cigarette excise taxes have increased substantially over the past two decades. Tax increases have an adverse impact on sales of tobacco products.

Competition

Although our products are not approved as smoking cessation aids, we believe that our RNC tobacco cigarettes may compete with FDA-approved smoking cessation aids. In the market for FDA-approved smoking cessation aids, principal competitors would include Pfizer Inc., GlaxoSmithKline plc, Perrigo Company plc, Novartis International AG, and Nicovum AB, a subsidiary of Reynolds American Inc. The industry consists of major domestic and international companies, most of which have existing relationships in the markets into which we plan to sell, as well as financial, technical, marketing, sales, manufacturing, scaling capacity, distribution and other resources, and name recognition substantially greater than ours. We are also aware that several domestic cigarette companies and other research groups are working to research and grow reduced nicotine tobacco and have filed patent applications.

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Cigarette and filtered cigar companies compete primarily on the basis of product quality, brand recognition, brand loyalty, taste, innovation, packaging, service, marketing, advertising, retail shelf space, and price. Cigarette sales can be significantly influenced by weak economic conditions, erosion of consumer confidence, competitors' introduction of low-price products or innovative products, higher taxes, higher absolute prices and larger gaps between price categories, and product regulation that diminishes the ability to differentiate tobacco products. Domestic cigarette competitors included Philip Morris USA Inc., Reynolds American Inc., ITG Brands, and Vector Group Ltd. International competitors included Philip Morris International Inc., British American Tobacco, JT International SA, Imperial Brands plc, and regional and local tobacco companies; and in some instances, government-owned tobacco enterprises such as the China National Tobacco Corporation.

Human Capital Resources

As of December 31, 2023, we had 64 employees. All employees are located in the United States. Our human capital resource objectives are designed to attract, and retain, highly motivated and well-qualified employees. We believe that we offer a competitive compensation package and have also worked diligently to provide a flexible and safe work environment.

Corporate Information

22nd Century Group, Inc. was incorporated under the laws of the State of Nevada on September 12, 2005 under the name Touchstone Mining Limited. On January 25, 2011, we entered into a reverse merger transaction with 22nd Century Limited, LLC, which we refer to herein as the "merger." Upon the closing of the merger, 22nd Century Limited, LLC became our wholly-owned subsidiary. After the merger, we succeeded to the business of 22nd Century Limited, LLC as our sole line of business.

22nd Century Limited, LLC was originally formed as a New York limited liability company on February 20, 1998 as 21st Century Limited, LLC and subsequently merged with a newly-formed Delaware limited liability company, 22nd Century Limited, LLC, on November 29, 1999.

We are a Nevada corporation, and our corporate headquarters is located at 321 Farmington Road, Mocksville, North Carolina 27028. Our telephone number is (716) 270-1523. Our internet address is www.xxiicentury.com. All of our filings with the Securities and Exchange Commission, including our Annual Reports on Form 10-K, our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K can be accessed free of charge through our website promptly after filing; however, in the event that the website is inaccessible, we will provide paper copies of our most recent Annual Report on Form 10-K, the most recent Quarterly Report on Form 10-Q, Current Reports filed or furnished on Form 8-K, and all related amendments, excluding exhibits, free of charge upon request. These filings are also accessible on the SEC's website at www.sec.gov. We do not incorporate the information on our website into this Annual Report on Form 10-K and our web site address is included as an inactive textual reference only.

Item 1A. Risk Factors

You should carefully consider the risk factors set forth below and in other reports that we file from time to time with the Securities and Exchange Commission and the other information in this Annual Report on Form 10-K. The matters discussed in the risk factors, and additional risks and uncertainties not currently known to us or that we currently deem immaterial, could have a material adverse effect on our business, financial condition, results of operation and future growth prospects and could cause the trading price of our common stock to decline.

Risks Related to Our Business and Operations

We have a history of losses, and we expect to incur significant expenses and continuing losses for the foreseeable future and there is substantial doubt regarding our ability to continue as a going concern.

We have incurred significant losses and negative cash flows from operations since inception and expect to incur additional losses until such time that we can generate significant revenue and profit in our tobacco business, which casts substantial doubt regarding our ability to continue as a going concern. As of March 25, 2024, we had cash and cash equivalents of approximately \$2.2 million.

Doubts about our ability to continue as a going concern have and could continue to negatively impact our relationships with our commercial partners and our ability, as part of our cost-cutting measures, to obtain, maintain, restructure and/or terminate agreements with them, or negatively impact our negotiating leverage with such parties, which could have a material adverse effect on our business, financial condition and results of operations or result in litigation. Furthermore, any loss of key personnel, employee attrition or material erosion of employee morale arising out of doubts about our ability to operate as a going concern could have a material adverse effect on our ability to effectively conduct our business, and could impair our ability to execute our business plan, thereby having a material adverse effect on our business, financial condition and results of operations.

We need additional funding to execute our business plan and to continue operations even with the proceeds from recent warrant inducement and exchange concluded in February 2024. We continue to seek and evaluate opportunities to raise additional funds through the issuance of our securities, asset sales, and through arrangements with strategic partners. If capital is not available to us when, and in the amounts needed, we could be required to liquidate our inventory and assets, cease or curtail operations, or seek protection under applicable bankruptcy laws or similar state proceedings. There can be no assurance that we will be able to raise the capital we need to continue our operations. Without additional capital, we will be unable to continue our operations in the future.

We may be unable to comply with the covenants in our senior secured debentures.

Our senior secured debentures contain customary representations, warranties and covenants including among other things and subject to certain exceptions, covenants that restrict us from incurring additional indebtedness, creating or permitting liens on assets, making or holding any investments, repaying outstanding indebtedness, paying dividends or distributions and entering into transactions with affiliates. We are also required to maintain certain quarterly revenue targets.

As a result of these covenants, our ability to respond to changes in business and economic conditions and engage in beneficial transactions, including to obtain additional financing as needed, may be restricted. Furthermore, our failure to comply with the covenants could result in a default under such agreements, which could permit the debt holders to accelerate our obligation to repay the debt. Although we recently received a waiver with respect to our compliance with such covenants, there is no assurance that we will be able to secure a similar waiver for the failure to comply with any future covenants. If any of our debt is accelerated, we likely would not have sufficient funds available to repay it. Substantially all of our assets, including intellectual property, are collateralized under the debentures. If such debt is accelerated, we could be required to liquidate our inventory, cease or curtail operations, or seek protection under applicable bankruptcy laws or similar state proceedings.

Additionally, the senior secured debentures may be converted into shares of the Company's common stock on the earlier of (i) June 30, 2024 and (ii) the public announcement of a Fundamental Transaction (as defined in the senior secured debentures). If the senior secured debentures are converted into common stock in whole or in part, the existing stockholders could incur significant dilution in their relative percentage ownership. The prospect of this possible dilution may also impact the price of our common stock.

We could continue to incur restructuring and impairment charges as we continue to pursue a cost cutting initiative and pursue strategic alternatives.

We continue to evaluate opportunities to optimize the cost structure of our operations in order to implement a cost savings initiative. The actions driven from these opportunities could result in significant charges which could adversely affect our financial condition and results of operations. Future actions could result in restructuring and related charges, including but not limited to impairments and employee termination costs and costs associated with terminating contracts that could be significant. We have incurred significant impairment charges for long-lived assets, including goodwill and intangible assets, which are subject to periodic impairment analysis and review, and remain subject to the potential for additional charges. Identifying and assessing whether impairment indicators exist, or if events or changes in circumstances have occurred, including market conditions, operating results, competition and general economic conditions, requires significant judgment. Any of the above future actions could result in charges that could have an adverse effect on our financial condition and results of operations. The cost-cutting initiatives have led, and may continue to lead, to legal claims by service providers and other third-parties. Any resulting litigation could be costly and time consuming and an unfavorable outcome could have a significant adverse effect on our business.

Our competitors generally have, and any future competitors may have, greater financial resources and name recognition than we do, and they may therefore develop products or other technologies similar or superior to ours, or otherwise compete more successfully than we do.

We are competing with large tobacco companies and large pharmaceutical companies that have greater resources than us. The tobacco industry consists of major domestic and international companies, most of which have existing relationships in the markets in which we plan to sell, as well as financial, technical, research and development, marketing, sales, manufacturing, scaling capacity, distribution, lobbying and other resources and name recognition substantially greater than ours. In addition, we expect new competitors will enter the markets for similar tobacco products in the future and the nature and extent of this market entrance cannot be quantified at this time.

Potential customers may choose to do business with more established competitors because of their perception that our competitors are more stable, can scale operations more quickly, have greater manufacturing capacity, have robust marketing and sale programs and lend greater credibility to governmental regulators and others. In addition, large companies have the ability to provide entry-level pricing for premium products in order to make us less competitive. If we are unable to compete successfully against larger companies with more financial resources and name recognition, our business and prospects would be materially adversely affected.

Our competitors may develop products that are less expensive, safer or otherwise more appealing, which may diminish or eliminate the commercial success of our VLN[®] cigarettes or any other potential products that we may commercialize.

If our competitors develop very low nicotine tobacco without infringing on our intellectual property or other products that are less expensive, safer or otherwise more appealing than our RNC cigarettes or any of our other potential products, or that reach the market before ours, we may not achieve commercial success. Currently, there are numerous companies developing products for which they may submit MRTPAs, working to develop low nicotine tobacco and other tobacco alternative products to provide products that are potentially safer for human consumption or to otherwise assist consumers to cease or begin to switch from smoking. If one of such competitors develops a cigarette that is safe for human consumption, a safer alternative for nicotine that is widely accepted, superior low nicotine tobacco or

otherwise develops a superior quitting method, it could render our RNC tobacco and cigarettes obsolete, which would have a material adverse impact on our business and operations and our ability to achieve profitability.

Our competitors may render our technologies obsolete by advances in existing technological approaches or the development of new or different approaches, potentially eliminating the advantages that we believe we derive from our research approach and proprietary technologies.

Our competitors may:

- develop and market similar or new products that are less expensive, safer, or otherwise more appealing than our products;
- develop similar or new technologies and products that render our products obsolete;
- operate larger research and development programs or have substantially greater financial resources than we do;
- have greater success in recruiting skilled technical and scientific workers from the limited pool of available talent;
- more effectively negotiate third-party licenses and strategic relationships;
- commercialize competing products before we or our partners can launch our products;
- be more effective in marketing and creating brand awareness of their products than we are;
- develop tobacco with superior traits to ours;
- initiate or withstand substantial price competition more successfully than we can; and/or
- take advantage of acquisition or other opportunities more readily than we can.

Our research and development process may not develop marketable products cost-effectively or at all, which would result in loss of our investment into such process.

We do not know whether our research and development process will result in marketable products. Even if we develop marketable products, we may not be able to obtain the necessary marketing authorizations for these potential products or our anticipated time of bringing these potential products to the market may be substantially delayed. The development of new products is costly, time-consuming, and has no guarantee of success. Any such delays or the inability to effectively develop new products in a cost-effective manner, or at all, would have a material adverse effect on our business and a loss of our financial resources.

We have in the past invested in other companies and may do so in the future, which may divert our management's attention, result in additional dilution to our stockholders, and consume resources that are necessary to sustain our business or result in losses.

We may acquire or invest in complementary solutions, services, technologies, or businesses in the future. We may also enter into relationships with other businesses to expand our intellectual property portfolio, which could involve preferred or exclusive licenses or investments in other companies. Negotiating these transactions can be time-consuming, difficult and expensive, and our ability to complete these transactions may often be subject to conditions or approvals that are beyond our control. Consequently, these transactions, even if undertaken and announced, may not close or may not yield the benefits that we expect. Many of our acquisitions in the past have not yielded the results or synergies that we anticipated. In addition, we may only be able to conduct limited due diligence on an acquired company's operations. Following an acquisition, we may be subject to liabilities arising from an acquired company's past or present operations and these liabilities may be greater than the warranty and indemnity limitations that we negotiate. Any liability that is greater than these warranty and indemnity limitations could have a negative impact on our financial condition.

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Acquisitions may also disrupt our business, divert our resources, and require significant management attention that would otherwise be available for the development of our business. Moreover, the anticipated benefits of any acquisition, investment, or business relationship may not be realized or we may be exposed to unknown liabilities, including litigation against the companies that we may acquire.

The failure of our information systems to function as intended or their penetration by outside parties with the intent to corrupt them could result in business disruption, litigation and regulatory action, and loss of revenue, assets, or personal or confidential data (cybersecurity).

We use information systems to help manage business processes, collect and interpret business data and communicate internally and externally with employees, suppliers, customers and others. Some of these information systems are managed by third-party service providers. We have backup systems and business continuity plans in place, and we take care to protect our systems and data from unauthorized access. However, a failure of our systems to function as intended, or penetration of our systems by outside parties intent on extracting or corrupting information or otherwise disrupting business processes, could interrupt our business and place us at a competitive disadvantage, result in a loss of revenue, assets or personal or other sensitive data, litigation and regulatory action, cause damage to our reputation and that of our brands and result in significant remediation and other costs. Any cybersecurity incident could cause substantial harm to our business and result in regulatory action, fines, and/or substantial costs.

Business interruptions, whether caused by natural disaster, terrorism, economic downturns, global pandemics or other events, could negatively impact our business.

A natural disaster (such as an earthquake, hurricane, fire, or flood), pandemics, widespread power outage or internet failure or hack, or an act of terrorism could cause substantial delays in our operations, damage or destroy our equipment or facilities, and cause us to incur additional expenses and lose revenue. The insurance we maintain against natural disasters may not be adequate to cover our losses in any particular case, which would require us to expend significant resources to replace any destroyed assets, thereby materially and adversely affecting our financial condition and prospects. Other global incidents could have a similar effect of disrupting our business to the extent they reach and impact the areas in which we operate, the availability of inventory we need, the customers we serve, the partners on whom we rely for products or services or the employees who operate our businesses. For example, another pandemic or comparable health concern could disrupt our supply chain for tobacco, as well as negatively impact employee productivity, including affecting the availability of employees reporting for work. Any business interruption caused by such unforeseen events could have a material adverse impact on our business and operations.

Our prior operations in the hemp/cannabis space could have a material adverse effect on our business, financial condition, and results of operations.

We previously operated in the cannabis space. The hemp plant and the marijuana plant are both part of the same cannabis genus of plant, except that hemp, by definition, has not more than 0.3% THC content and is legal under the federal 2018 Farm Bill and certain state laws, but the same plant with a higher THC content is defined as marijuana, which is legal under certain state laws, is not legal under federal law. The similarities between these plants can cause confusion, and our previous activities with legal hemp may be incorrectly perceived as us having been involved in federally illegal marijuana. Also, despite growing support for the marijuana industry and legalization of marijuana in certain U.S. states, many individuals and businesses remain opposed to the marijuana industry. Any negativity resulting from our prior cannabis operations could result in a loss of current or future business. It could also adversely affect the public's perception of us and lead to reluctance by new parties to do business with us or to own our common stock. We cannot assure you that additional business partners, including but not limited to financial institutions, banking institutions and customers, will not attempt to end or curtail their relationships with us. Any such negative press or cessation of business could have a material adverse effect on our business, financial condition, and results of operations.

Risks Related to the Tobacco Industry

We may be unsuccessful in our efforts to commercialize our RNC tobacco using the reduced exposure claims authorized by the FDA.

While the FDA issued an exposure modification order in connection with our MRTPA and we have been commercializing our VLN[®] cigarettes in select markets across the United States, there are no guarantees regarding the commercial viability of our RNC tobacco cigarettes. To date, there has never been a comparable product sold in the marketplace and we have only commercialized the cigarettes on a limited basis. We have obtained an exposure modification order for our VLN[®] cigarettes, which enables us to make certain claims regarding the reduction of nicotine within these products. Specifically, we are permitted to market the products with the claims “95% less nicotine,” “helps reduce your nicotine consumption,” and “greatly reduces your nicotine consumption,” and we are required to use the claim “helps you smoke less” in connection with the other authorized claims; we may not market our VLN cigarettes for claims that have not been authorized pursuant to an FDA order. Although we believe these claims have the potential to increase our product sales, these products may never achieve consumer acceptance at levels that make the product commercially viable for profitable sales. In addition, the process of commercializing such product and creating consumer awareness could take longer and cost more than we expect.

In addition, even if we believe that certain legislative or regulatory changes may increase product demand, such as the proposals that FDA has historically made with respect to requiring minimally or non-addictive levels of nicotine in all cigarettes sold in the U.S., there can be no assurance that such regulations, if implemented, would increase or create demand for our RNC cigarettes.

The commercial success of our RNC tobacco cigarettes will depend on a number of factors, including, but not limited to our ability to:

- achieve, maintain and grow market identify of, acceptance of, and demand for, such products;
- successfully create consumer awareness of such products;
- market the product with the phrase “*Helps You Smoke Less*” and any other required warnings or statements;
- maintain, manage or scale the necessary sales, marketing, manufacturing and other capabilities and infrastructure that are required to successfully commercialize such products;
- grow or otherwise maintain an adequate supply of RNC tobacco;
- maintain and extend intellectual property protection for such products;
- comply with applicable legal and regulatory requirements, including FDA and MSA regulations or requirements with respect to product advertising and our obligations in connection with our PMTAs and MRTPs;
- competitively price our products;
- compete with other similar products or new technologies (if any);
- obtain cost-effective distribution outlets; and
- effectively sell our products into established markets where there is substantial market dominance by large tobacco enterprises.

If we are unsuccessful in commercializing our RNC tobacco cigarettes, or such commercialization takes longer or costs more than we currently expect, our financial results, business and future prospects would be materially adversely effected.

We have limited experience marketing and selling Modified Exposure Cigarettes and our working capital and inventory estimates based on demand expectations may be incorrect, which could harm our operating results and financial condition.

While members of management and our board of directors are experienced in the selling of conventional cigarette and other consumer products, we have limited experience in introducing a new low nicotine category for selling our VLN cigarettes pursuant to an exposure modification order. As we work to commercialize one or more of our products for sale, including our VLN cigarettes, we base our working capital and inventory decisions on management's estimates of future demand. If demand for such potential new products does not increase as quickly as we have estimated, our inventory costs, demands on working capital, expenses could increase, and our business and operating results could suffer. Alternatively, if we experience sales that exceed our estimates, our working capital and inventory needs may be higher than those currently anticipated. Since our RNC tobacco is not widely available and must be grown specifically for our potential products, any shortage in such tobacco could prevent us from increasing sales to meet demand and any surplus could result in inventory obsolescence and become a total loss.

Our inability to incorrectly estimate demand for future products could negatively harm our operating results and financial condition.

The manufacturing and sale of tobacco products subjects us to significant governmental regulation and the failure to comply with such regulations could have a material adverse effect on our business and subject us to substantial fines or other regulatory actions.

Companies that manufacture and/or sell tobacco products face significant governmental regulation, especially in the United States pursuant to the Tobacco Control Act, including but not limited to efforts aimed at reducing the incidence of tobacco use, restricting marketing and advertising, imposing regulations on packaging, mandating warnings and disclosure of flavors or other ingredients, prohibiting the sale of tobacco products with certain flavors or other characteristics, requiring compliance with certain environmental standards, limiting or prohibiting the sale of tobacco products by certain retail establishments and the sale of tobacco products in certain packaging sizes, and seeking to hold retailers and distributors responsible for the adverse health effects associated with both smoking and exposure to environmental tobacco smoke.

The Tobacco Control Act requires manufacturers of tobacco products to, among other things, provide the FDA with a list of ingredients added to tobacco products in the manufacturing process and register any establishment engaged in the manufacture, preparation, or processing of a tobacco product. The manufacture of products is subject to strict quality control, testing and record-keeping requirements, and continuing obligations regarding the submission of safety reports and other post-market information. The Tobacco Control Act also authorizes the FDA to promulgate regulations requiring that the methods used in, and the facilities and controls used for, the manufacture, preproduction design validation, packing, and storage of a tobacco product conform to current good manufacturing practice ("CGMP"). On March 8, 2023, the FDA issued a proposed rule to promulgate such CGMP regulations. The proposed rule, if finalized, would establish requirements for manufacturers of finished and bulk tobacco products on the methods used in, and the facilities and controls used for, the manufacture, pre-production design validation, packing, and storage of tobacco product.

We cannot guarantee that our current manufacturing facility or any other manufacturing will successfully complete FDA inspections and/or similar inspections in foreign, or that future CGMP regulations will not also negatively affect the cost or sustainability of our manufacturing facility. Our failure to comply with applicable manufacturing regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or withdrawal of marketing orders, seizures or recalls, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect our financial position. In addition, we and our customers for whom we manufacture tobacco products also face significant governmental regulation, including efforts aimed at reducing the incidence of tobacco use. We also cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. Actions by the FDA and other foreign, federal, state or local governments or agencies may impact the adult tobacco consumer acceptability of or access to tobacco products (for example, through product standards proposed by the FDA for nicotine and flavors including menthol), delay or prevent the launch of new or modified tobacco products or products with reduced exposure claims,

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require the recall or other removal of tobacco products from the marketplace, impose additional manufacturing, labeling or packing requirements, interrupt manufacturing or otherwise significantly increase the cost of doing business. Any one or more of these actions may have a material adverse impact on us or the business of our customers for whom we make tobacco products, which could have a negative impact on our results of operations.

For example, the Tobacco Control Act requires the FDA to issue new cigarette health warnings that would include a color graphic component depicting the negative health consequences of smoking. In March 2020, the FDA published a final rule fulfilling this statutory requirement. The final rule, entitled “Required Warnings for Cigarette Packages and Advertisements,” specifies the 11 new textual warning label statements and accompanying color graphics that manufacturers would have to include with cigarette packaging and advertisements. On December 7, 2022, the U.S. District Court for the Eastern District of Texas vacated the final rule, and the case is currently pending before the U.S. Court of Appeals for the Fifth Circuit.

It is possible that significant regulatory developments will take place over the next few years across global markets, driven principally by the World Health Organization’s Framework Convention on Tobacco Control (“FCTC”). The FCTC is the first international public health treaty on tobacco, and its objective is to establish a global agenda for tobacco regulation with the purpose of reducing initiation of tobacco use and encouraging cessation. In addition, the FCTC has led to increased efforts by tobacco control advocates and public health organizations to reduce the appeal of tobacco products. Our operating results could be significantly affected by any significant increase in the cost of complying with new regulatory requirements.

Compliance with current and future regulations regarding tobacco could have a material impact on our business and operations and could result in fines, government actions to restrict or prevent sales of products, as well as result in substantial costs and expenses.

We may become subject to litigation related to cigarette smoking and/or exposure to environmental tobacco smoke, or ETS, which could severely impair our results of operations and liquidity.

Although we are not currently subject to legal proceedings related to cigarette smoking or ETS, we may become subject to litigation related to the sale of our Modified Exposure Cigarettes or other tobacco products we sell or manufacture in the future. Legal proceedings covering a wide range of matters related to tobacco use are pending or threatened in various U.S. and foreign jurisdictions. Various types of claims are raised in these proceedings, including product liability, consumer protection, antitrust, tax, contraband shipments, patent infringement, employment matters, claims for contribution, and claims of competitors and distributors.

Litigation is subject to uncertainty, and it is possible that there could be adverse developments in pending cases. An unfavorable outcome or settlement of pending tobacco related litigation could encourage the commencement of additional litigation. The variability in pleadings, together with the actual experience of management in litigating claims, demonstrates that the monetary relief that may be specified in a lawsuit bears little relevance to the ultimate outcome.

Damages claimed in some tobacco-related litigations are significant and, in certain cases, range into the billions of dollars. We anticipate that new cases will continue to be filed. The FCTC encourages litigation against tobacco product manufacturers. It is possible that our results of operations, cash flows, or financial position could be materially affected by an unfavorable outcome or settlement of litigation.

Our production facility (NASCO) is integral to our tobacco business and adverse changes or developments affecting our facility may have an adverse impact on our business.

Our production facility is integral to our tobacco business. Adverse changes or developments affecting this facility, including, but not limited to, disease or infestation of our raw materials, a fire, an explosion, a serious injury or fatality, a power failure, a natural disaster, an epidemic, pandemic or other public health crisis, or a material failure of our security infrastructure, could reduce or require us to entirely suspend operations.

A significant failure of our site security measures and other facility requirements, including failure to comply with applicable regulatory requirements, could have an impact on our ability to continue operating under our facility licenses and our prospects of renewing our licenses, and could also result in a suspension or revocation of these licenses.

The loss of a significant customer for whom we manufacture tobacco products could have an adverse impact on our results of operation.

Currently, a significant portion of our revenues (and corresponding accounts receivable) from manufacturing tobacco products are derived from a small number of large customers, and we do not have agreements with such customers requiring them to purchase a minimum amount of products from us or guaranteeing any minimum future purchase amounts from us. Such customers may, at any time, delay or decrease their level of purchases from us or cease doing business with us altogether. Since many of our manufacturing costs are fixed, if sales to such customers cease or are reduced, we may not obtain sufficient purchase orders from other customers necessary to offset any such losses or reductions, which could have a negative impact on our results of operations.

Product liability claims, product recalls, or other claims could cause us to incur losses or damage our reputation.

The risk of product liability claims, product recalls, and associated adverse publicity, is inherent in the development, manufacturing, marketing, and sale of tobacco products. Any product recall or lawsuit seeking significant monetary damages may have a material adverse effect on our business and financial condition. A successful product liability claim against us could require us to pay a substantial monetary award. Though we currently have no pending product liability claims against us, we cannot assure you that such claims will not be made in the future and any such claim could cause us to incur substantial losses or damage our reputation.

Cigarettes are subject to substantial taxes. Significant increases in cigarette-related taxes have been proposed or enacted and are likely to continue to be proposed or enacted in numerous jurisdictions. These tax increases may affect the sales of our potential products and our third-parties customers' tobacco products manufactured at our factory, which could result in decreased sales and profitability of our manufacturing business.

Tax regimes, including excise taxes, sales taxes, and import duties, can disproportionately affect the retail price of manufactured cigarettes versus other tobacco products, or disproportionately affect the relative retail price of our Modified Exposure Cigarettes versus lower-priced cigarette brands manufactured by our competitors. Increases in cigarette taxes are expected to continue to have an adverse impact on sales of cigarettes resulting in (i) lower consumption levels, (ii) a shift in sales from manufactured cigarettes to other tobacco products or to lower-price cigarette categories, (iii) a shift from local sales to legal cross-border purchases of lower price products, and (iv) illicit products such as contraband and counterfeit.

Government mandated prices or taxes, production control programs, shifts in crops driven by economic conditions, climatic or adverse weather patterns may increase the cost or reduce the quality and/or supply of the tobacco and other agricultural products used to manufacture our products.

We depend on a small number of independent tobacco farmers to grow our specialty proprietary tobaccos with specific nicotine contents for our products. As with other agricultural commodities, the price of tobacco leaf can be influenced by imbalances in supply and demand, and crop quality can be influenced by variations in weather patterns, diseases, and pests. This risk is greater for us, as there would be no alternative supply of RNC tobacco in the event that one of our growers experiences a material adverse event with respect to a particular RNC tobacco crop or the quantity or quality was not as we anticipated, and we would not be able to supply leaf for our VLN[®] cigarettes.

We must also compete with other tobacco companies for contract production with independent tobacco farmers. Tobacco production in certain countries is subject to a variety of controls, including government mandated prices and production control programs. Changes in the patterns of demand for agricultural products could cause farmers to plant less tobacco. Any significant change in tobacco leaf prices or taxes, quality and quantity could affect our profitability and our business.

We distribute and sell our products outside of the U.S., which subjects us to other regulatory risks.

In addition to the authorization to market and sell our RNC tobacco cigarettes using modified risk claims in the U.S., we continue to seek governmental authorizations required to market our RNC tobacco cigarettes and our other products in other countries. Marketing of our products is not permitted in certain countries until we have obtained required authorizations or exemptions in these individual countries. The regulatory review process varies from country to country, and authorization by foreign governmental authorities is unpredictable, uncertain, and generally expensive. Our ability to market our potential products could be substantially limited due to delays in receipt of, or failure to receive, the necessary authorizations or exemptions. We anticipate commencing the applications required in some or all of these countries in the future. Failure to obtain necessary regulatory authorizations or exemptions could impair our ability to generate revenue from international sources.

We may become subject to governmental investigations on a range of matters.

Tobacco companies are often subject to investigations, including allegations of contraband shipments of cigarettes, allegations of unlawful pricing activities within certain markets, allegations of underpayment of custom duties and/or excise taxes, and allegations of false and misleading usage of descriptors such as “lights” and “ultra-lights.” We cannot predict the outcome of any investigations to which we may become subject, but we may be materially affected by an unfavorable outcome of potential future investigations.

Our business model inherently loses customers.

Our VLN[®] cigarette is designed to help people smoke less and eventually quit smoking completely. If our product is successful, we will lose customers as a result. A significant loss in VLN[®] customers, or our inability to add new VLN[®] customers faster than we lose customers, could prevent our VLN[®] business from growing and have a material negative impact on the results of our operations.

We may be unsuccessful in anticipating changes in adult consumer preferences, responding to changes in consumer purchase behavior or managing through difficult competitive and economic conditions, which could have an adverse effect on business.

In the tobacco industry, we are subject to intense competition and changes in adult consumer preferences. To be successful, we must:

- anticipate and respond to new and evolving adult consumer preferences;
- develop, manufacture, market and distribute new and innovative products that appeal to adult consumers (including, where appropriate, through arrangements with, or investments in, third parties);
- improve productivity; and
- protect or enhance margins through cost savings and price increases.

The willingness of adult consumers to purchase premium consumer tobacco products, such as our RNC cigarettes, depends in part on economic conditions. In periods of economic uncertainty, adult consumers may purchase more discount brands and/or, in the case of tobacco products, consider lower-priced tobacco products, which could have a material adverse effect on the business and profitability.

We may be unsuccessful in developing and commercializing adjacent products or processes, including innovative tobacco products that may reduce the health risks associated with certain other tobacco products and that appeal to adult tobacco consumers.

Some innovative tobacco products may reduce the health risks associated with certain other tobacco products, while continuing to offer adult tobacco consumers products that meet their taste expectations and evolving preferences. Examples include tobacco-containing and nicotine-containing products that reduce or eliminate exposure to cigarette smoke and/or constituents identified by public health authorities as harmful, such as electronically heated tobacco products, oral nicotine pouches, and e-vapor products. We may not succeed in our efforts to develop and commercialize any adjacent products.

Further, we cannot predict whether regulators, including the FDA, will permit the marketing or sale of any particular innovative products (including products with claims of reduced risk to adult consumers), the speed with which they may make such determinations or whether regulators will impose an unduly burdensome regulatory framework on such products. In addition, the FDA could, for a variety of reasons, determine that innovative products currently on the market, or those that have previously received authorization, including with a claim of reduced exposure, are not appropriate for the public health and the FDA could require such products be taken off the market. We also cannot predict whether any products will appeal to adult tobacco consumers or whether adult tobacco consumers' purchasing decisions would be affected by reduced-risk claims on such products if permitted. Adverse developments on any of these matters could negatively impact the commercial viability of such products.

If we do not succeed in our efforts to develop and commercialize innovative tobacco products or to obtain or maintain regulatory authorizations for the marketing or sale of products, including for the use of claims of reduced exposure, but one or more of our competitors does succeed, we may be at a competitive disadvantage, which could have an adverse effect on our ability to commercialize our products.

An extended disruption at a facility or in service by a supplier, distributor or distribution chain service provider could have a material adverse effect on our business.

We face risks inherent in reliance on one manufacturing facility and a small number of key suppliers, distributors and distribution chain service providers. A pandemic (including COVID-19), natural or man-made disaster or other disruption that affects the manufacturing operations, the operations of any key supplier, distributor or distribution chain service provider or any other disruption in the supply or distribution of goods or services (including a key supplier's inability to comply with government regulations or unwillingness to supply goods or services to a tobacco company) could have a material adverse effect on our business.

The FDA could force the removal of our products from the U.S. market.

The FDA has broad authority over the regulation of tobacco products. The FDA could, among other things, force us to remove from the U.S. market our RNC tobacco cigarettes even after the FDA authorization on December 17, 2019 of our PMTA for us to market our RNC tobacco cigarettes, or the authorization of our MRTP application on December 23, 2021, to enable us to use certain modified exposure claims with respect to our VLN® cigarettes. In addition, the exposure modification order that enables us to market our VLN® cigarettes as MRTPs was granted for a period of five years, which is the maximum duration for a marketing granted order for such products under the Family Smoking Prevention & Tobacco Control Act (PUBLIC LAW 111-31—JUNE 22, 2009). Consequently, we will need to reapply to FDA under a new MRTP application to extend the FDA's exposure modification order beyond December 23, 2026. The MRTP authorization process is a complex, substantial and lengthy regulatory undertaking. The FDA may or may not grant continued authorization of these product claims, including based on FDA's assessment of whether the product application(s) satisfy the statutory requirements for such an order, and whether we have adequately complied with the conditions imposed on us in connection with the FDA's exposure modification order, such as requirements relating to recordkeeping, reporting and post-market studies. Any action by the FDA to remove our products from the U.S. market, including the termination or non-renewal of the exposure modification orders for our VLN® cigarettes would have a material adverse impact on our business.

A ban on menthol or flavored tobacco products could have a material adverse impact on our business.

On April 27, 2022, the FDA proposed new rules to prohibit menthol as a characterizing flavor in cigarettes and prohibit all characterizing flavors (other than tobacco) in cigars. There has been increasing activity on the state and local levels with respect to scrutiny of menthol and flavored tobacco products, including a recent law passed by the State of California prohibiting tobacco retailers from selling most flavored and menthol tobacco products, including VLN® Menthol King. If these proposed rules are finalized and implemented, if new rules are proposed or if additional states or governments pass laws similar to the State of California, we could be negatively impacted through decreased sales, a requirement to remove non-compliant tobacco products from the marketplace, associated interruptions in manufacturing or business disruptions. In addition, although we believe that our VLN® Menthol King reduced nicotine cigarettes will be exempted from FDA's menthol ban on cigarettes, there is no guarantee that they will be exempted by the FDA or any other state or local government. Accordingly, the implementation of these proposed or new laws or rules may have a material adverse impact on our results of operations.

Risks Related to Intellectual Property

Certain of our proprietary rights have expired or may expire or may not otherwise adequately protect our intellectual property, products and potential products, and if we cannot obtain adequate protection of our intellectual property, products and potential products, we may not be able to successfully market our products and potential products.

Our commercial success will depend, in part, on obtaining and maintaining intellectual property protection for our technologies, products, and potential products. We will only be able to protect our technologies, products, and potential products from unauthorized use by third parties to the extent that valid and enforceable patents cover them, or to the extent that other market exclusionary rights apply.

The patent positions of life sciences companies, like ours, can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved. No consistent policy regarding the breadth of claims allowed in such companies' patents has emerged to date in the United States. The general patent environment outside the United States also involves significant uncertainty. Accordingly, we cannot predict the breadth of claims that may be allowed or that the scope of these patent rights could provide a sufficient degree of future protection that could permit us to gain or keep our competitive advantage with respect to these products and technology. Additionally, life science companies like ours are often dependent on creating a pipeline of products. We may not be able to develop additional potential products or proprietary technologies that produce commercially viable products or that are themselves patentable.

Our issued patents may be subject to challenge and potential invalidation by third parties and our competitors may develop processes to achieve similar results without infringing on our patents. Changes in either the patent laws or in the interpretations of patent laws in the United States, or in other countries, may diminish the value of our intellectual property. In addition, others may independently develop similar or alternative products and technologies that may be outside the scope of our intellectual property. Should third parties develop alternative methods of regulating nicotine in tobacco or obtain patent rights to similar products or technology without infringing on our intellectual property rights, this may have an adverse effect on our business.

The expiration of a portion of the QPT patent family in 2018 may provide third parties with the freedom to target the QPT gene in the tobacco plant. This could result in experiments to try to reduce nicotine levels in tobacco plants to levels that may satisfy the planned new nicotine reduction regulations coming from the FDA. There can be no assurance about whether any third-parties will or will not be successful in such efforts, how long or short in time such efforts will entail and/or if such efforts will or will not infringe other genes and other intellectual property on which we have continuing patent protection that would need to be used, in combination with QPT, to result in RNC tobacco. If independent researchers or our competitors are able to successfully reduce nicotine levels in tobacco plants without violating our patent protections, our ability to license our technology would be negatively impacted and we would likely face increased competition.

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We also rely on license agreements and trade secrets to protect our technology, products, and potential products, especially where we do not believe patent protection is appropriate or obtainable. Trade secrets, however, are difficult to protect. While we believe that we use reasonable efforts to protect our trade secrets, our own, our licensees' or our strategic partners' employees, consultants, contractors or advisors may unintentionally or willfully disclose our information to competitors. We seek to protect this information, in part, through the use of non-disclosure and confidentiality agreements with employees, consultants, advisors, and others. These agreements may be breached, and we may not have adequate remedies for a breach. In addition, we cannot ensure that those agreements will provide adequate protection for our trade secrets, know-how, or other proprietary information, or prevent their unauthorized use or disclosure.

To the extent that consultants or key employees apply technological information independently developed by them or by others to our products and potential products, disputes may arise as to the proprietary rights of the information, which may not be resolved in our favor. Key employees are required to assign all intellectual property rights in their discoveries to us. However, these key employees may terminate their relationship with us, and we cannot preclude them indefinitely from dealing with our competitors. If our trade secrets become known to competitors with greater experience and financial resources, the competitors may copy or use our trade secrets and other proprietary information in the advancement of their products, methods, or technologies. If we were to prosecute a claim that a third party had illegally obtained and was using our trade secrets, it could be expensive and time consuming and the outcome could be unpredictable. In addition, courts outside the United States are sometimes less willing to protect trade secrets than courts in the United States. Moreover, if our competitors independently develop equivalent knowledge, we would lack any contractual claim to this information, and our business could be harmed.

The ability to commercialize our existing and potential products will depend on our ability to sell such products without infringing the patent or proprietary rights of third parties. If we are sued for infringing intellectual property rights of third parties, such litigation could be costly and time consuming and an unfavorable outcome could have a significant adverse effect on our business.

The ability to commercialize our potential products will depend on our ability to sell such products without infringing the patents or other proprietary rights of third parties. Third-party intellectual property rights in our field are complicated, and third-party intellectual property rights in these fields are continuously evolving. While we have conducted searches for such third-party intellectual property rights, we have not performed specific searches for third-party intellectual property rights that may raise freedom-to-operate issues, and we have not obtained legal opinions regarding commercialization of our potential products. As such, there may be existing patents that may affect our ability to commercialize our potential products.

In addition, because patent applications are published up to 18 months after their filing, and because patent applications can take several years to issue, there may be currently pending third-party patent applications and freedom-to-operate issues that are unknown to us, which may later result in issued patents.

If a third-party claims that we infringe on its patents or other proprietary rights, we could face a number of issues that could seriously harm our competitive position, including:

- infringement claims that, with or without merit, can be costly and time consuming to litigate, can delay regulatory authorization processes, and can divert management's attention from our core business strategy;
- substantial damages for past infringement which we may have to pay if a court determines that our products or technologies infringe upon a competitor's patent or other proprietary rights;
- a court order prohibiting us from commercializing our potential products or technologies unless the holder licenses the patent or other proprietary rights to us, which such holder is not required to do;
- if a license is available from a holder, we may have to pay substantial royalties or grant cross licenses to our patents or other proprietary rights; and
- redesigning our process so that it does not infringe the third-party intellectual property, which may not be possible, or which may require substantial time and expense including delays in bringing our potential products to market.

Such actions could harm our competitive position and our ability to generate revenue and could result in increased costs.

Our patent applications may not result in issued patents, which may have a material adverse effect on our ability to prevent others from commercially exploiting products similar to ours.

We own or exclusively control many issued patents and pending patent applications. We cannot be certain that these patent applications will issue, in whole or in part, as patents. Patent applications in the United States are maintained in secrecy until the patents are published or are issued. Since publication of discoveries in the scientific or patent literature tends to lag behind actual discoveries by several months, we cannot be certain that we are the first creator of inventions covered by pending patent applications or the first to file patent applications on these inventions. We also cannot be certain that our pending patent applications will result in issued patents or that any of our issued patents will afford protection against a competitor. In addition, patent applications filed in foreign countries are subject to laws, rules and procedures that differ from those of the United States, and thus we cannot be certain that foreign patent applications related to U.S. patents will be issued. Furthermore, if these patent applications issue, some foreign countries provide significantly less effective patent enforcement than in the United States.

The status of patents involves complex legal and factual questions and the breadth of claims allowed is uncertain. Accordingly, we cannot be certain that the patent applications that we or our licensors file will result in patents being issued, or that our patents and any patents that may be issued to us in the near future will afford protection against competitors with similar technology. In addition, patents issued to us may be infringed upon or designed around by others and others may obtain patents that we need to license or design around, either of which would increase costs and may adversely affect our operations.

We license certain patent rights from third-party owners. If such owners do not properly maintain or enforce the patents underlying such licenses, our competitive position and business prospects could be harmed.

We license rights to third-party intellectual property that is necessary or useful for our business, and we may enter into additional licensing agreements in the future. Our success could depend in part on the ability of some of our licensors to obtain, maintain, and enforce patent protection for their intellectual property, in particular, those patents to which we have secured exclusive rights. Our licensors may not successfully prosecute the patent applications to which we are licensed and may in some instances retain rights to the intellectual property that allows them to compete with us. Even if patents are issued with respect to these patent applications, our licensors may fail to maintain these patents, may determine not to pursue litigation against other companies that are infringing these patents, or may pursue such litigation less aggressively than we could. Without protection for the intellectual property we license, other companies might be able to offer substantially identical products for sale, which could adversely affect our competitive business position and harm our business prospects.

Our worldwide exclusive licenses relating to tobacco from NCSU involve multiple patent families and trade secrets. The exclusive rights under the NCSU agreements expire on the date on which the last patent or registered plant variety covered by the subject license expires in the country or countries where such patents or registered plant varieties are in effect. The NCSU licenses relate predominately to issued patents, and our exclusive rights in the NCSU licenses are expected to expire in 2042.

If any of our license agreements or other intellectual property agreements are not effective at preventing others from competing with us and/or using our intellectual property, our business could be adversely affected.

Risks Related to Ownership of Our Common Stock

Nasdaq may delist our common stock from trading on its exchange which could limit investors' ability to make transactions in our common stock and subject us to additional trading restrictions.

Our common stock is currently listed on the Nasdaq Capital Market ("NASDAQ"). If Nasdaq delists our common stock from trading on its exchange, we could face significant material adverse consequences, including:

- a limited availability of market quotations for our common stock;

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- reduced liquidity with respect to our securities;
- a determination that shares of our common stock are “penny stock” which will require brokers trading in our shares to adhere to more stringent rules, possibly resulting in a reduced level of trading activity in the secondary trading market for our shares;
- a limited amount of news and analyst coverage; and
- a decreased ability to issue additional common stock or obtain additional financing in the future.

On November 7, 2023, the Company received a deficiency letter from the Nasdaq Listing Qualifications Department notifying the Company that, for the last 30 consecutive business days, the closing bid price for the Company’s common stock has been below the minimum \$1.00 per share required for continued listing on The Nasdaq Capital Market pursuant to Nasdaq Listing Rule 5550(a)(2) (“Rule 5550(a)(2)”). In accordance with Nasdaq Listing Rule 5810(c)(3)(A), the Company has been given 180 calendar days, or until May 5, 2024, to regain compliance with Rule 5550(a)(2). If the Company does not regain compliance with Rule 5550(a)(2) by May 5, 2024, the Company may be afforded a second 180 calendar day period to regain compliance. To qualify, the Company would be required to meet the continued listing requirement for market value of publicly held shares and all other initial listing standards for the Nasdaq Capital Market, except for the minimum bid price requirement. In addition, the Company would be required to provide written notice to Nasdaq of its intent to cure the deficiency during the second compliance period. The Company intends to monitor the closing bid price of its common stock and may, if appropriate, consider implementing available options to regain compliance with the Minimum Bid Price Requirement under the Nasdaq Listing Rules such as a reverse stock split.

On January 24, 2024, the stockholders approved a proposal to amend the Company’s Articles of Incorporation to effect a reverse stock split of the Company’s outstanding common stock at a ratio between 1-for-2 and 1-for-16, to be determined at the discretion of the Board of Directors, for the purpose of complying with the Nasdaq Listing Rules, subject to the Board or Directors’ discretion to abandon such amendment. The Company has not implemented the reverse stock split as of March 25, 2024.

An active trading market for our common stock may not be sustained and you may not be able to resell your shares at or above the price at which you purchased them.

An active trading market for our shares may not be sustained. In the absence of an active trading market for our common stock, shares of common stock may not be able to be resold at or above the purchase price of such shares. Although there can be no assurances, we expect that our common stock will continue to be listed on the NASDAQ. However, even if our common stock continues to be listed on the NASDAQ, there is no assurance that an active market for our common stock will continue in the foreseeable future. There also can be no assurance that we can maintain such listing on the NASDAQ. If we are ever no longer listed on the NASDAQ or other national stock exchange in the future, then it would be more difficult to dispose of shares or to obtain accurate quotations as to the market value of our common stock compared to securities of companies whose shares are traded on national stock exchanges.

Our stock price may be highly volatile and could decline in value.

Our common stock is currently traded on the NASDAQ and the market price for our common stock has been volatile. Further, the market prices for securities in general have been highly volatile and may continue to be highly volatile in the future. The following factors, in addition to other risk factors described in this section, may have a significant impact on the market price of our common stock:

- general economic conditions, including adverse changes in the global financial markets;
- actual and anticipated fluctuations in our quarterly financial and operating results;
- developments or disputes concerning our intellectual property or other proprietary rights;
- introduction of technological innovations or new commercial products by us or our competitors;

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- issues in manufacturing or distributing our products or potential products;
- market acceptance of our products or potential products;
- FDA or other United States or foreign regulatory actions affecting us or our industry;
- litigation or public concern about the safety of our products or potential products;
- negative press or publicity regarding us or our common stock;
- the announcement of litigation against us or the results of on-going litigation;
- additions or departures of key personnel;
- third-party sales of large blocks of our common stock or third party short-selling activity;
- third-party articles regarding us or our securities;
- pending or future shareholder litigation;
- sales of our common stock by our executive officers, directors, or significant stockholders; and
- equity sales by us of our common stock or securities convertible into common stock to fund our operations.

These and other external factors may cause the market price and demand for our common stock to fluctuate substantially, which may limit or prevent investors from readily selling their shares of common stock and may otherwise negatively affect the liquidity of our common stock. In addition, in the past, when the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock, such as the current class action and derivative lawsuits. Such lawsuits and any future related lawsuits could cause us to incur substantial costs defending the lawsuit and can also divert the time and attention of our management, which would have a negative adverse impact on our business. See the risk factor below entitled: *“We are named defendant in certain litigation matters, including federal securities class action lawsuits and derivative complaints; if we are unable to resolve these matters favorably, then our business, operating results and financial condition may be adversely affected.”*

We are named defendant in certain litigation matters, including federal securities class action lawsuits and derivative complaints; if we are unable to resolve these matters favorably, then our business, operating results and financial condition may be adversely affected.

We are currently involved in certain litigation matters, including securities class action and derivative litigation. See "Item 3 – Legal Proceedings" included in this Annual Report on Form 10-K. We cannot at this time predict the outcome of these matters or any future litigations matters (whether related or unrelated) or reasonably determine the probability of a material adverse result or reasonably estimate range of potential exposure, if any, that these matters or any future matters might have on us, our business, our financial condition or our results of operations, although such effects, including the cost to defend, any judgements or indemnification obligations, among others, could be materially adverse to us. In addition, in the future, we may need to record litigation reserves with respect to these matters. Further, regardless of how these matters proceed, it could divert our management’s attention and other resources away from our business.

Future sales of our common stock will result in dilution to our common stockholders.

Sales of a substantial number of shares of our common stock in the public market may depress the prevailing market price for our common stock and could impair our ability to raise capital through the future sale of our equity securities. Additionally, if any of the holders of outstanding options or warrants exercise or convert those shares, as applicable, our common stockholders will incur dilution in their relative percentage ownership. The prospect of this possible dilution may also impact the price of our common stock.

We do not expect to declare any dividends on our common stock in the foreseeable future.

We have not paid cash dividends to date on our common stock. We currently intend to retain our future earnings, if any, to fund the development and growth of our business, and we do not anticipate paying any cash dividends on our common stock for the foreseeable future. Additionally, the terms of any future debt facilities may preclude us from paying dividends on the common stock. As a result, capital appreciation, if any, of our common stock could be the sole source of gain for the foreseeable future.

Anti-takeover provisions contained in our articles of incorporation and bylaws, as well as provisions of Nevada law, could impair a takeover attempt.

Our amended and restated articles of incorporation and bylaws currently contain provisions that, together with Nevada law, could have the effect of rendering more difficult or discouraging an acquisition deemed undesirable by our board of directors. Our corporate governance documents presently include the following provisions:

- providing for a “staggered” board of directors in which only one-third (1/3) of the directors can be elected in any year;
- authorizing blank check preferred stock, which could be issued with voting, liquidation, dividend, and other rights superior to our common stock; and
- limiting the liability of, and providing indemnifications to, our directors and officers.

These provisions, alone or together, could delay hostile takeovers and changes in control of our Company or changes in our management.

As a Nevada corporation, we also may become subject to the provisions of Nevada Revised Statutes Sections 78.378 through 78.3793, which prohibit an acquirer, under certain circumstances, from voting shares of a corporation’s stock after crossing specific threshold ownership percentages, unless the acquirer obtains the approval of the stockholders of the issuer corporation. The first such threshold is the acquisition of at least one-fifth, but less than one-third of the outstanding voting power of the issuer. We may become subject to the above referenced Statutes if we have 200 or more stockholders of record, at least 100 of whom are residents of the State of Nevada and do business in the State of Nevada directly or through an affiliated corporation.

As a Nevada corporation, we are subject to the provisions of Nevada Revised Statutes Sections 78.411 through 78.444, which prohibit an “interested stockholder” from entering into a combination with the corporation, unless certain conditions are met. An “interested stockholder” is a person who, together with affiliates and associates, beneficially owns (or within the prior two years did own) 10 percent or more of the corporation’s voting stock.

Any provision of our amended and restated articles of incorporation, our bylaws or Nevada law that has the effect of delaying or deterring a change in control of our Company could limit the opportunity for our stockholders to receive a premium for their shares of our common stock and could also affect the price that some investors are willing to pay for our common stock.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

The Company recognizes the critical importance of maintaining the trust and confidence of our customers, clients, business partners and employees. The Board has delegated to the Audit Committee oversight of cybersecurity and other information technology risks affecting the Company. The Audit Committee and senior management are actively involved in oversight of the Company's risk management program, and cybersecurity represents an important component of the Company's overall approach to enterprise risk management ("ERM"). In general, the Company seeks to address cybersecurity risks through a comprehensive, cross-functional approach that is focused on preserving the confidentiality, security and availability of the information that the Company collects and stores by identifying, preventing and mitigating cybersecurity threats and effectively responding to cybersecurity incidents when they occur.

Risk Management and Strategy

As one of the critical elements of the Company's overall ERM approach, the Company's cybersecurity program is focused on the following key areas:

Collaborative Approach: The Company has implemented a comprehensive, cross-functional approach to identifying, preventing and mitigating cybersecurity threats and incidents, while also implementing controls and procedures that provide for the prompt escalation of certain cybersecurity incidents so that decisions regarding the public disclosure and reporting of such incidents can be made by management in a timely manner.

Technical Safeguards: The Company deploys technical safeguards that are designed to protect the Company's information systems from cybersecurity threats, including firewalls, intrusion prevention and detection systems, anti-malware functionality and access controls, which are evaluated and improved through vulnerability assessments and cybersecurity threat intelligence.

Third-Party Risk Management: The Company maintains a comprehensive, risk-based approach to identifying and overseeing cybersecurity risks presented by third parties, including vendors, service providers and other external users of the Company's systems, as well as the systems of third parties that could adversely impact our business in the event of a cybersecurity incident affecting those third-party systems.

Education and Awareness: The Company provides regular, mandatory training for personnel regarding cybersecurity threats as a means to equip the Company's personnel with effective tools to address cybersecurity threats, and to communicate the Company's evolving information security policies, standards, processes and practices.

The Company engages a third-party service provider specializing in information technology, which assists with the periodic assessment and testing of the Company's policies, standards, processes and practices that are designed to address cybersecurity threats and incidents. These efforts include a wide range of activities, including audits, assessments, tabletop exercises, threat modeling, vulnerability testing and other exercises focused on evaluating the effectiveness of our cybersecurity measures and planning.

Governance

The Audit Committee oversees the Company's ERM process, including the management of risks arising from cybersecurity threats. On an annual basis, the Audit Committee discusses with Senior Management cybersecurity risks, which address a wide range of topics including recent developments, evolving standards, vulnerability assessments, third-party and independent reviews, the threat environment, technological trends and information security considerations arising with respect to the Company's peers and third parties. As applicable, the Audit Committee also receives prompt and timely information regarding any cybersecurity incident that meets established reporting thresholds, as well as ongoing updates regarding any such incident until it has been addressed.

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Senior management, in coordination with the Company's third-party service provider specializing in information technology, works collaboratively across the Company to implement a program designed to protect the Company's information systems from cybersecurity threats and to promptly respond to any cybersecurity incidents in accordance with the Company's incident response and recovery plans. Through ongoing communications with the third party service provider, Senior Management monitors the prevention, detection, mitigation and remediation of cybersecurity threats and incidents in real time and report such threats and incidents to the Audit Committee when appropriate.

Cybersecurity threats, including as a result of any previous cybersecurity incidents, have not materially affected or are reasonably likely to affect the Company, including its business strategy, results of operations or financial condition, but we cannot provide assurance that they will not be materially affected in the future by such risks or any future material incidents. For more information on our cybersecurity related risks, see Item 1A Risk Factors in this Annual Report on Form 10-K.

Item 2. Properties.

Our principal executive office and headquarters is located in Mocksville, North Carolina, a leased facility. We previously held our principal executive office and headquarters at leased office space in Buffalo, New York through the end of fiscal 2023.

As of December 31, 2023, we operated four tobacco facilities located in Mocksville, North Carolina and surrounding areas. These locations are comprised of one manufacturing facility (which is also our principal executive office and headquarters) and three leased inventory storage facilities. We believe the facilities we operate and their equipment are effectively utilized, well maintained, generally are in good condition, and will be able to accommodate our capacity needs to meet current and growing levels of demand. We continuously review our anticipated requirements for facilities and, on the basis of that review, may from time to time acquire additional facilities, expand or dispose of existing facilities.

Item 3. Legal Proceedings.

See Note 12 - Commitments and Contingencies – Litigation - to our consolidated financial statements included in this Annual Report for information concerning our on-going litigation. In addition to the lawsuits described in Note 12 to our consolidated financial statements, from time to time we may be involved in claims arising in the ordinary course of business. To our knowledge, other than the cases described in Note 12 to our consolidated financial statements, no material legal proceedings, governmental actions, investigations or claims are currently pending against us or involve us that, in the opinion of our management, could reasonably be expected to have a material adverse effect on our business and financial condition.

Item 4. Mine Safety Disclosures.

Not applicable

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Our common stock is listed on the Nasdaq Capital Market under the symbol "XXII." As of March 25, 2024, there were approximately 122 holders of record of our common stock based on the records of our transfer agent. However, because many of our shares of common stock are held by brokers and other institutions on behalf of shareholders, we believe there are considerably more beneficial holders of our common stock than record holders.

Dividend Policy

We have not previously and do not plan to declare or pay any dividends on our common stock. Our current policy is to retain all funds and any earnings for use in the operation and expansion of our business. Payment of future dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including current financial condition, operating results and current and anticipated cash needs.

Recent Sales of Unregistered Securities

On November 2, 2023, we executed a licensing agreement (“NCSU License Agreement”) with North Carolina State University (“NCSU”). Pursuant to the terms of the License Agreement, NCSU granted the Company exclusive rights to Patent Rights and Plant Materials (each as defined in the NCSU License Agreement) owned by NCSU which will allow us to develop and commercialize reduced nicotine content tobacco using the latest non-GMO technology. As partial consideration, we issued 183,680 shares of our common stock, equal in value to \$100,000, to NCSU (the “Stock Consideration”) calculated using the twenty-day average closing price of the Company’s common stock immediately preceding November 2, 2023. The Stock Consideration was issued in a private placement and was exempt from registration under the Securities Act of 1933, as amended, in reliance on Section 4(a)(2) thereof as a transaction not involving a public offering and/or Rule 506 of Regulation D promulgated thereunder.

On November 28, 2023, we commenced a warrant inducement offering with the holders of our previously outstanding 31,779,654 warrants consisting of: (i) the common stock purchase warrants issued on or about June 22, 2023; (ii) the common stock purchase warrants issued on or about July 10, 2023; (iii) the common stock purchase warrants issued on or about July 21, 2023; and/or (iv) the common stock purchase warrants issued on or about October 19, 2023 (collectively, the “Existing Warrants”), which Existing Warrants were exercisable for an equal number of shares of common stock at an exercise price of \$0.525. We offer the holders of the Existing Warrants an inducement period, whereby we agreed to issue new warrants (the “Inducement Warrants”) to purchase up to a number of shares of common stock equal to 200% of the number of shares of common stock issued pursuant to the exercise by the holders of the Existing Warrants during the Inducement Period, for cash, at a reduced exercise price equal to the Nasdaq Minimum Price (as defined in the as defined in Nasdaq Listing Rule 5635(d)). As a result of the warrant inducement offering, 28,649,654 Existing Warrants were exercised for shares of common stock and 57,299,308 Inducement Warrants were issued. The Inducement Warrants were issued in reliance upon an exemption from registration pursuant to Section 4(a)(2) under the Securities Act of 1933, as amended.

We amended the outstanding Debentures to (i) allow the holders to voluntarily convert the Debentures, in whole or in part, into shares of our common stock (“Voluntary Conversion Option”) on the earlier of (i) June 30, 2024 and (ii) the public announcement of a Fundamental Transaction at a conversion price equal to the lower of (x) \$1.00 per share and (y) the closing sale price of our common stock on June 29, 2024 (the “Conversion Price”), and (ii) include a mandatory prepayment of the outstanding principal of the Debentures in an amount equal to 20% of the net cash proceeds of any issuance by us of any of its stock, or other Equity Interests (as defined in the Debentures) or the incurrence or issuance of any indebtedness. The amended Debentures and shares issuable upon conversion of the amended Debentures were issued in a private placement and were exempt from registration under the Securities Act of 1933, as amended, in reliance on Section 4(a)(2) thereof as a transaction not involving a public offering and/or Rule 506 of Regulation D promulgated thereunder.

Issuer Purchases of Equity Securities

None.

Shares authorized for issuance under equity compensation plans

On June 16, 2023, the stockholders of 22nd Century Group, Inc. (the “Company”) approved the amendment and restatement of the 22nd Century Group, Inc. 2021 Omnibus Incentive Plan (the “Plan”). The Plan allows for the granting of equity awards to eligible individuals over the life of the Plan, including the issuance of up to 566,667 shares of the Company’s common stock and any remaining shares under the Company’s 2014 Omnibus Incentive Plan pursuant to awards under the Plan. The Plan has a term of ten years and is administered by the Compensation Committee of the Company’s Board of Directors to determine the various types of incentive awards that may be granted to recipients under the Plan and the number of shares of common stock to underlie each such award under the Plan. As of December 31, 2023, we had available 606,406 shares remaining for future awards under the Plan.

The following table summarizes the number of shares of common stock to be issued upon exercise of outstanding options and vesting of restricted stock units under the Plan and our prior 2014 Equity Incentive Plan, the weighted-average exercise price of such stock options, and the number of securities available to be issued under the Plan as of December 31, 2023:

	Number of securities to be issued upon exercise of outstanding options, and restricted stock units (a)	Weighted average exercise price of outstanding options (b)	Number of securities remaining available for issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	373,831 (1)\$	26.34	606,406
Equity compensation plans not approved by security holders	—	N/A	—
Total	373,831	—	606,406 (2)

(1) Consists of outstanding options of 219,316 and unvested restricted stock units of 154,515.

(2) Consists of shares available for award under the Plan.

Item 6. [Reserved]

Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations.

This discussion should be read in conjunction with the other sections of this Form 10-K, including “Risk Factors,” and the Financial Statements and notes thereto. The various sections of this discussion contain a number of forward-looking statements, all of which are based on our current expectations and could be affected by the uncertainties and risk factors described throughout this Annual Report on Form 10-K. See “Cautionary Note Regarding Forward-Looking Statements and Risk Factor Summary.” Our actual results may differ materially. For purposes of this Management’s Discussion and Analysis of Financial Condition and Results of Operations, references to the “Company,” “we,” “us” or “our” refer to the operations of 22nd Century Group, Inc. and its direct and indirect subsidiaries for the periods described herein.

(\$ in thousands, except per share data or unless otherwise specified)

Executive Overview

- On December 23, 2021, the FDA issued modified risk granted orders for our reduced nicotine cigarettes, VLN[®] King and VLN[®] Menthol King. In addition to authorizing the Company to market VLN[®] cigarettes with the claim, “95% less nicotine”, to clarify the purpose of the brand, the FDA also required the use of the claim, “Helps You Smoke Less.”
- Commenced pilot market sales in Chicago during the first quarter of 2022 of VLN[®] King and VLN[®] Menthol King 95% reduced nicotine content cigarettes, the first and only FDA authorized MRTP designated combustible cigarettes, and subsequently expanded sales and distribution channels throughout 2022 and 2023 to more than 5,000 stores across 26 states.
- In December 2023, the Company completed the sale of substantially all of the GVB hemp/cannabis business (referred to as the “GVB Divestiture”) to Specialty Acquisition Corporation, exiting the hemp/cannabis market and focusing fully on the Company’s tobacco operations.
- Appointed Larry Firestone as Chairman and Chief Executive Officer in November 2023, and announced plans for a turnaround in the business, including cost reductions and efforts to reposition the company’s business to focus on its VLN assets and CMO business.

Tobacco Business Highlights

- Continued a multi-state VLN[®] rollout strategy, having launched sales in more than 5,000 locations across 26 states at year-end 2023, aimed at penetrating geographies and markets with large adult smoker populations, including those with favorable MRTP state excise tax savings, which can be used toward consumer incentives, distribution support, and additional programming to raise awareness of VLN[®] products.
- Initiated agreements with national-scale C-store distribution partners, including Core-Mark/Eby-Brown, McLane and others pending, to facilitate state-wide or multi-state launches of VLN[®] at hundreds of stores within our target markets in an accelerated timeline.
- Launched a private label premium cigarette brand, Pinnacle, for sale at one of the nation’s top 10 gas station convenience store chains, comprising almost 1,700 stores in 27 states.
- Announced expansion into Texas, California and Florida, expected in conjunction with the largest multi-state U.S. C-store chain leveraging these new national scale distribution capabilities.
- Secured additional retail point of sale placements with regional C-stores, such as Texas based CEFCO, and new regional distribution agreements with Hub, Inc., serving regional Midwestern and tribal accounts, and Chambers & Owen, Inc., serving the upper Midwest.
- Gained authorization to test VLN[®] sales at four United States military bases located in California, Arizona and North Carolina, beginning in the second quarter.
- Launched sales at a top U.S. drugstore chain at approximately 1,200 locations across five states in the third quarter.
- Poised to benefit from federal, state and international regulatory appetite for banning menthol and mandating reduced nicotine content. The Company has the only FDA-authorized combustible cigarette able to meet the stringent reduced nicotine content product standard under the FDA’s Comprehensive Plan requiring that all cigarettes be made “minimally or non-addictive.”
 - Proposed FDA menthol cigarette ban, in final rules status, could leave VLN[®] Menthol King as the only combustible menthol cigarette on the market, providing a critical off-ramp to help current menthol smokers to smoke less, a final decision is now expected in 2024.

Recent Business Divestiture

On December 22, 2023, we completed the sale of substantially all of the assets of the GVB hemp/cannabis business to Specialty Acquisition Corporation. As a result, we classified the results of operations of the hemp/cannabis segment and disposal group as discontinued operations in the Consolidated Statements of Operations for all periods presented and classified the related assets and liabilities associated with the discontinued operations as held for sale in the Consolidated Balance Sheets as of December 31, 2023 and 2022, respectively. All results and information presented exclude the hemp/cannabis segment and disposal group unless otherwise noted.

Refer to Note 2 “Discontinued Operations and Divestitures” of the Notes to Consolidated Financial Statements contained in Item 15 of this report for additional information about the divestiture of the GVB and hemp/cannabis disposal group.

Financial Overview – Fourth Quarter and Full Year 2023 Results

- Net revenues for the fourth quarter of 2023 were \$7,357, a decrease of 26.1% from \$9,951 in 2022, primarily driven by a decrease in volumes of filtered cigars.
 - Fourth quarter 2023 cartons sold of 823 compared to 1,354 in the comparable prior year period.
- Net revenues for the full year 2023 were \$32,204, a decrease of 20.5% from \$40,501 in 2022.
- Gross profit for the fourth quarter of 2023 was a loss of \$7,829 compared to gross loss of \$44 in the prior year period.
- Gross profit for the full year 2023 was a loss of \$8,696, compared to a gross profit of \$1,847 in 2022.
- Total operating expenses for the fourth quarter 2023 decreased to \$6,403 compared to \$10,172 in the prior year quarter driven by:
 - Sales, general and administrative expenses decreased to \$4,005 driven primarily by a decrease in personnel costs, strategic consulting, and sales and marketing due to our cost savings initiatives.
 - Research and development expenses decreased to \$493, driven by a decrease in personnel expenses and costs associated with the Company’s research programs.
 - Other operating expenses, net was \$1,905, primarily reflecting restructuring costs of \$1,871, including impairment and legal charges.
- Operating loss for the fourth quarter 2023 was \$14,232, compared to a loss of \$10,216 in the prior year period. Operating loss for the full year 2023 was \$44,931, compared to a loss of \$33,635 in the prior year.
- Net loss in the fourth quarter of 2023 was \$22,068, representing a net loss per share of \$0.66 compared with net loss in the fourth quarter of 2022 of \$11,114, representing a net loss per share of \$0.77. Net loss for the full year 2023 was \$54,686, representing a net loss per share of \$2.64 compared with net loss for the full year 2022 of \$36,553, representing a net loss per share of \$2.84.
- As of December 31, 2023, we had \$2,058 in cash and cash equivalents.

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Our Financial Results

The following table presents selected financial information derived from our Consolidated Financial Statements, contained in Item 15 of this report, for the periods presented (dollars in thousands, except per share amounts):

	Year Ended		Change	
	December 31	December 31	\$	%
	2023	2022		
Revenues, net	\$ 32,204	\$ 40,501	(8,297)	(20.5)
Cost of goods sold	40,900	38,654	2,246	5.8
Gross (loss) profit	(8,696)	1,847	(10,543)	NM
<i>Gross (loss) profit as a % of revenues, net</i>	(27.0)%	4.6 %		
Operating expenses:				
Sales, general and administrative ("SG&A")	31,064	32,231	(1,167)	(3.6)
<i>SG&A as a % of revenues, net</i>	96.5 %	79.6 %		
Research and development ("R&D")	2,644	3,578	(934)	(26.1)
<i>R&D as a % of revenues, net</i>	8.2 %	8.8 %		
Other operating expenses (income), net ("OOE")	2,527	(327)	2,854	NM
Total operating expenses	36,235	35,482	753	2.1
Operating loss from continuing operations	(44,931)	(33,635)	(11,296)	33.6
<i>Operating loss as a % of revenues, net</i>	(139.5)%	(83.0)%		
Other income (expense):				
Other income (expense), net	334	(366)	700	(191.3)
Realized loss on Panacea investment	-	(2,789)	2,789	NM
Loss on transfer of promissory note	(895)	-	(895)	NM
Interest income, net	219	313	(94)	(30.0)
Interest expense	(9,366)	(55)	(9,311)	NM
Total other expense	(9,708)	(2,897)	(6,811)	235.1
Loss before income taxes	(54,639)	(36,532)	(18,107)	49.6
Provision for income taxes	47	21	26	NM
Net loss from continuing operations	(54,686)	(36,553)	(18,133)	49.6
<i>Net loss as a % of revenues, net</i>	(169.8)%	(90.3)%		
Net loss per common share from continuing operations (basic and diluted)*	\$ (2.64)	\$ (2.84)	0.20	(7.04)

NM - calculated change not meaningful

Fiscal 2023 Compared with Fiscal 2022

Revenue - Sale of products, net

	Year Ended	
	December 31	December 31
	2023	2022
Revenues, net	\$ 32,204	\$ 40,501

Tobacco revenue was \$32,204, a decrease of 20.5% from \$40,501 in the prior year period, reflecting lower unit sales as a result of a planned reallocation in production resources during 2023 at the Company's NASCO facilities away from lower margin filtered cigars to higher margin VLN® and conventional cigarette products. Full year 2023 cartons sold were of 3,459 compared to 5,782 in the comparable prior year period.

Gross profit

	Year Ended	
	December 31 2023	December 31 2022
Gross (loss) profit	\$ (8,696)	\$ 1,847
Percent of Revenues, net	(27.0)%	4.6 %

The decrease in gross profit and gross profit as a percent of revenues, net for the year ended December 31, 2023, compared to the year ended December 31, 2022, was primarily driven by lower volume due to an intentional shift during 2023 in product mix. In connection with evaluation of strategic alternatives and tobacco focused restructuring efforts, during the fourth quarter of 2023, the Company increased the reserve for excess, obsolete or expired leaf inventory by \$7,720.

Sales, general and administrative expense

	Changes From Prior Year	
Compensation and benefits (a)	\$	(2,239)
Strategic consulting (b)		(393)
Sales and marketing (c)		986
Administrative, public company and other expenses (d)		274
Legal (e)		205
Net decrease in SG&A expenses	\$	(1,167)

(a) Decreases in compensation and benefits primarily resulted from \$3,200 benefit of lower equity based compensation expense due to current year headcount reduction and forfeitures, and compared with prior year accelerated vesting of an employee's outstanding equity awards as part of a termination severance agreement; \$218 decrease in severance expenses offset by an increase of \$1,179 in personnel costs due to increased headcount during the year compared to the prior year period.

(b) Decrease of strategic consulting due to restructuring efforts and implementation of cost savings initiatives.

(c) Increased sales and marketing related to expansion of VLN[®].

(d) Other expenses increased due to \$291 of technology expenses, \$579 in public company fees, \$270 of facilities expense offset by a decrease in insurance expenses of \$469 and other of \$397.

(e) Increased legal expenses due to regulatory compliance, business development, and contract matters.

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Research and development expense

	Changes From Prior Year	
Compensation and benefits (a)	\$	(164)
Royalty, license and contract costs (b)		(376)
Consulting and professional services (c)		(478)
Other		84
Net decrease in R&D expenses	\$	(934)

(a) Decreased compensation and benefits primarily related to personnel bonus expense of \$255 in the prior year period as compared to \$0 in the current year.

(b) Decreased expenses primarily due to a decrease in royalty fees due in the current year period.

(c) Decreased consulting due to an evaluation of strategic opportunities related to our tobacco patent portfolio that occurred in the period year period.

Other operating expenses (income), net

	Year Ended	
	December 31,	
	2023	2022
Restructuring costs:		
Impairment of intangible assets	\$ 1,375	\$ 35
Impairment of fixed assets	56	-
Professional services	763	-
Severance	221	-
Total Restructuring costs (a)	2,415	35
Acquisition and transaction costs (b)	223	—
Gain on sale or disposal of property, plant and equipment (c)	(111)	(362)
Total other operating expenses (income), net	\$ 2,527	\$ (327)

NM - calculated change not meaningful

(a) During the second half of 2023, the Company undertook various restructuring activities in an effort to better align its internal organizational structure and costs with its strategy, as well as preserve liquidity. As a result, the Company incurred \$2,415 in restructuring costs for the year ended December 31, 2023, which included costs related to employee termination, professional services and consulting, and long-lived asset impairment.

(b) Acquisition and transaction costs primarily relate to professional fees incurred in connection with potential capital markets transactions.

(c) Reflects gain on sale resulting from sale of older manufacturing equipment.

Refer to Note 18, "Other operating expenses, net," of the Notes to Consolidated Financial Statements contained in Item 15 of this report for additional information regarding these charges.

Other income (expense)

	<u>Changes From Prior Year</u>
Other income (expense):	
Realized loss on Panacea investment (a)	\$ (2,789)
Other income (expense), net (b)	(700)
Loss on transfer of promissory note (c)	895
Interest income, net	94
Interest expense (d)	9,311
Net increase in other expense	<u>\$ 6,811</u>

- (a) Realized loss on PLSH investment reflects the change in fair value and write-off of our investment in PLSH common stock during the year ended December 31, 2022 of \$2,340 and extinguishment of note receivable of \$500 less adjusted discount of \$51.
- (b) Other income (expense), net includes a decrease of \$336 of realized losses on short-terms investments and \$364 gain on change in fair value of warrant liability.
- (c) In connection with the Senior Secured Credit Facility October Amendment, the Company assigned \$3,800 PLSH promissory note less unamortized discount of \$305, and corresponding pay down of indebtedness on outstanding principal of \$600 and redemption of the related warrant liability of \$2,000 resulting in loss on sale of financial asset of \$895.
- (d) Interest expense increased in 2023, as compared to the prior year period, primarily due to the cash interest of \$1,104 and non-cash interest of \$2,087 recognized from the Senior Secured Credit Facility (of these totals, \$366 of interest was allocated to discontinued operations), and additional charges of \$5,158 for extinguishment of debt and \$557 of derivative liability in connection with the December Amendment. Additionally, interest expense increased as a result of PIK interest of \$695 recognized from the Subordinated Note.

Liquidity and Capital Resources

We have incurred significant losses and negative cash flows from operations since inception and expect to incur additional losses until such time that we can generate significant revenue and profit in our tobacco business. We had negative cash flow from operations of \$54,987 for the year ended December 31, 2023 and an accumulated deficit of \$378,707 as of December 31, 2023. As of December 31, 2023, we had cash and cash equivalents of \$2,058, and working capital of (\$6,826) (compared to working capital of \$22,079 at December 31, 2022). Given our projected operating requirements and existing cash and cash equivalents, there is substantial doubt about our ability to continue as a going concern through one year following the date that the Consolidated Financial Statements herein are issued.

In response to these conditions, management is currently evaluating different strategies for reducing expenses, as well as pursuing financing strategies which include raising additional funds through the issuance of securities, asset sales, and through arrangements with strategic partners. If capital is not available to the Company when, and in the amounts needed, it could be required to liquidate inventory or assets, cease or curtail operations, seek to negotiate new business deals with our business partners or seek protection under applicable bankruptcy laws or similar state proceedings. There can be no assurance that the Company will be able to raise the capital it needs to continue operations. Accordingly, there is substantial doubt regarding our ability to continue in operations. Management's plans do not alleviate substantial doubt about the Company's ability to continue as a going concern through one year following the date that the Consolidated Financial Statements are issued.

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Our cash and short-term investments, and working capital as of December 31, 2023, and 2022, are set forth below:

	December 31 2023	December 31, 2022
Cash and cash equivalents	\$ 2,058	\$ 2,205
Short-term investment securities	\$ —	\$ 18,193
Working capital	\$ (6,826)	\$ 22,079

Working Capital

As of December 31, 2023, we had working capital, excluding assets and liabilities held for sale, of approximately (\$6,826) compared to working capital of approximately \$22,079 as of December 31, 2022, a decrease of \$28,905. This decrease in working capital is primarily driven by the decrease in short-term investment securities resulting from cash burn, increase in current portion of long-term debt, and other normal fluctuations from operations in accounts receivable, inventory, accounts payable and accrued expenses.

Summary of Cash Flow

	Year Ended December 31,		Change
	2023	2022	\$
Cash provided by (used in):			
Operating activities	\$ (54,987)	\$ (51,714)	(3,273)
Investing activities	16,816	22,578	(5,762)
Financing activities	37,209	30,820	6,389
Net change in cash and cash equivalents	\$ (962)	\$ 1,684	

Net cash used in operating activities

Cash used in operations increased \$3,273 from \$51,714 in 2022 to \$54,987 in 2023. The primary driver for this increase was higher net loss of \$80,974, driven by increased spending in SG&A and R&D both from the acquisition of GVB and acceleration of the launch of VLN[®], an increase of \$67,866 related to net adjustments to reconcile net loss to cash, and an increase in cash used for working capital components related to operations in the amount of \$9,835 for the year ended December 31, 2023, as compared to the year ended December 31, 2022.

Net cash provided by investing activities

Cash provided by investing activities amounted to \$16,816 in 2023 as compared to cash provided by investing activities of \$22,578 in 2022. The decrease in cash provided by investing activities of \$5,762 was primarily the result of (i) a decrease in net proceeds from short-term investments of \$10,338; (ii) \$1,188 related to the acquisition of patents, trademarks and property, plant and equipment; and (iii) \$126 of proceeds from the sale of property, plant and equipment. These decreased cash outflows were partially offset by an increase in cash inflows of (i) \$3,500 of property, plant, and equipment casualty loss insurance proceeds collected in the current year; (ii) \$1,043 from the acquisition of RXP in the current year and GVB in the prior year period; (iii) \$682 from the investment in Change Agronomy Ltd. in the prior year and (iv) \$665 from proceeds from the sale of discontinued operations.

Net cash provided by financing activities

During the year ended December 31, 2023, cash provided by financing activities increased by \$6,389 resulting from the net proceeds of \$16,048 from issuance of long-term debt, proceeds of \$6,016 from issuance of detachable warrants, net proceeds of \$3,044 from warrant exercises, net proceeds of \$2,563 from issuance of common stock related to the prior ATM facility, increased proceeds of \$198 from the issuance of notes payable, and a decrease in other financing of \$29. These cash inflows were offset by a decrease in net proceeds of issuance of common stock of \$9,605, payments of long-term debt of \$9,700, increased note payable payments of \$1,759, taxes paid related to net share settlement of RSUs of \$271 and \$174 of option exercises that occurred in 2022.

Cash demands on operations

As of December 31, 2023, we had approximately \$2,058 of cash and cash equivalents. Our principal sources of liquidity are our cash and cash equivalents and cash generated from our tobacco contract manufacturing business and proceeds from debt and equity financing activities, which cash flows provided by financing activities for the year ended December 31, 2023 were \$37,209.

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As discussed above, in response to the cash demands on operations, management has implemented programs to evaluate strategic alternatives for the Company's assets and cost cut initiatives intended to reduce our operating costs to provide additional cash runway. However, our cash, cash equivalents, potential business interruption insurance proceeds, and debt/equity financings, as well as the sustained tobacco contract manufacturing, currently are not forecasted to provide sufficient cash resources or liquidity for a period of twelve months from issuance of these consolidated financial statements.

Senior Secured Credit Facility

On March 3, 2023, the Company entered into that certain Securities Purchase Agreement (the "SPA") with JGB Partners, LP ("JGB Partners"), JGB Capital, LP ("JGB Capital") and JGB Capital Offshore Ltd. ("JGB Offshore" and collectively with JGB Partners and JGB Capital, the "Holders") and JGB Collateral, LLC, as collateral agent for the Holders (the "Agent") which pursuant to the agreement, the Company sold 5% original issuance discount senior secured debentures with an aggregate principal amount of \$21,053. The Debentures bear interest at a rate of 7% per annum, payable monthly in arrears as of the last trading day of each month and on the maturity date. The Debentures mature on March 3, 2026. At the Company's election, subject to certain conditions, interest can be paid in cash, shares of the Company's common stock, or a combination thereof. The Debentures are subject to an exit payment equal to 5% of the original principal amount, or \$1,053, payable on the maturity date or the date the Debentures are paid in full (the "Exit Payment"). Any time after, March 3, 2024, the Company may irrevocably elect to redeem all of the then outstanding principal amount of the Debentures for cash in an amount equal to the entire outstanding principal balance, including accrued and unpaid interest, the Exit Payment and a prepayment premium in an amount equal to 3% of the outstanding principal balance as of the prepayment date (collectively, the "Prepayment Amount"). Upon the entry into a definitive agreement that would effect a change in control (as defined in the Debentures) of the Company, the Agent may require the Company to prepay the outstanding principal balance in an amount equal to the Prepayment Amount. Commencing on May 1, 2024, at its option, the holder of a Debenture may require the Company to redeem 2% of the original principal amount of the Debentures per calendar month which amount may at the Company's election, subject to certain exceptions, be paid in cash, shares of the Company's common stock, or a combination thereof.

The JGB Warrants are exercisable for five years from September 3, 2023, at an exercise price of \$19.125 per share, a 50% premium to the VWAP on the closing date, subject, with certain exceptions, to adjustments in the event of stock splits, dividends, subsequent dilutive offerings and certain fundamental transactions. As a result of the June 19, 2023 offering, the Company's outstanding JGB warrants to purchase up to 333,334 shares of the Company's common stock for an exercise price of \$19.125 per share were automatically adjusted to be \$12.828 exercise price for up to 496,960 shares of common stock. There are no further anti-dilution adjustments on such warrants. In connection with the JGB October Amendment, the Company and Holders agreed to exercise the outstanding put provision to redeem 166,667 Warrants for an aggregate put price equal to \$2,500.

Following the JGB October and December Amendments (as further described in Note 13 "Debt" of the Notes to Consolidated Financial Statements contained in Item 15 of this report), as of December 31, 2023 the remaining principal loan balance is approximately \$10,752, exit fee of \$1,052 and remaining \$500 of the put price will be due at maturity in March 2026 in accordance with the original terms of the debenture agreements. As of December 31, 2023, the Company has pledged to JGB the \$2,000 GVB promissory note and \$1,000 assignment of Needle Rock Farms to be applied as principal reduction in 2024.

Omnia Subordinated Note

On March 3, 2023, the Company executed a Subordinated Promissory Note (the "Subordinated Note") with a principal amount of \$2,865 in favor of Omnia Ventures, LP ("Omnia"). The Subordinated Note refinanced the 12% Secured Promissory Note with a principal amount of \$1,000 dated as of October 29, 2021 payable to Omnia (the "October Note") and the 12% Secured Promissory Note with a principal amount of \$1,500 dated as of January 14, 2022 payable to Omnia (the "January Note", and together with the October Note, the "Original Notes"), which were assumed by the Company in connection with the acquisition of GVB Biopharma.

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Under the terms of the Subordinated Note, the Company is obligated to make interest payments in-kind (the “PIK Interest”). The PIK Interest accrues at a rate of 26.5% per annum, payable monthly. The Company is not permitted to prepay all or any portion of the outstanding balance on the Subordinated Note prior to maturity. The maturity date of the Subordinated Note is May 1, 2024.

In connection with the Subordinated Note, the Company issued to Omnia, warrants to purchase up to 45,000 shares of the Company’s common stock. The Omnia Warrants are exercisable for seven years from September 3, 2023, at an exercise price of \$12.828 per share subject, with certain exceptions, to adjustments in the event of stock splits, dividends, subsequent dilutive offerings and certain fundamental transactions.

ATM Offering

On March 9, 2023 the Company entered into a Sales Agreement (the “Sales Agreement”) with Cowen and Company, LLC (the “Sales Agent”) under which the Company was previously able to issue and sell in a registered offering shares of our common stock having an aggregate offering price of up to \$50,000 from time to time through or to the Sales Agent (the “ATM Offering”). The Company paid 3.00% sales commission based on the gross proceeds of the sales price per share of common stock sold. Total net proceeds during the second quarter of 2023 were \$2,563. On June 19, 2023, the Company terminated the ATM Program in connection with the June 2023 offering described below.

June 19, 2023 Registered Direct Offering

On June 19, 2023, the Company and certain investors entered into a securities purchase agreement relating to the issuance and sale of shares of approximately \$5,300 of shares and warrants, consisting of an aggregate of 747,974 shares of common stock and 747,974 warrants to purchase an equal number of shares, at a purchase price of \$7.05 per unit. The net proceeds to the Company from the offering were approximately \$4,800.

The warrants were exercisable immediately upon issuance at an exercise price of \$7.05 per share of common stock, expire on June 22, 2028 and are subject to adjustment in certain circumstances, including upon any subsequent equity sales at a price per share lower than the then effective exercise price of such warrants, then such exercise price shall be lowered to such price at which the shares were offered.

As part of the offering, the Company entered into a warrant repriced letter and agreed to reduce the exercise price on the previously issued 747,974 warrants owned by the investors participating in the Offering from \$30.75 to \$7.05 and to add a provision in the warrants that upon any subsequent equity sales at a price per share lower than the then effective exercise price of such warrants, such exercise price shall be lowered to such price at which the shares were offered. As a result of the offerings completed in July 2023, the exercise price on the 1,495,948 warrants was automatically adjusted to \$2.42 per share and subsequently adjusted to \$0.525 per share in October. All of the outstanding warrants were subsequently exercised in connection with the Warrant Inducement Offering.

The remaining 390,247 previously issued warrants were not repriced and remain at an exercise price of \$30.75 on their original terms. On December 7, 2023, the Company was provided notice of irrevocable abandonment of 325,205 warrants.

In addition, as a result of the offering, the Company’s outstanding warrants to purchase up to 333,334 shares of the Company’s common stock for an exercise price of \$19.125 per share were automatically adjusted as follows: \$12.828 exercise price for up to 496,960 shares of common stock, of which 166,667 were redeemed in October 2023 (see above discussion of amendment and waiver under Senior Secured Credit Facility).

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July 6, 2023 Registered Direct Offering.

On July 6, 2023, the Company and certain investors entered into a securities purchase agreement relating to the issuance and sale of approximately \$3,000 of shares and warrants, consisting of an aggregate of 778,634 shares of common stock and 1,557,268 warrants to purchase an equal number of shares, at a purchase price of \$3.80 per unit. The warrants are exercisable six months after issuance at an exercise price of \$3.80 per share of common stock and expire on January 10, 2029. The net proceeds to the Company from the offering were approximately \$2,722. As a result of the subsequent offering completed in July 2023, the exercise price on the 1,557,268 warrants was automatically adjusted to \$2.42 per share and subsequently adjusted to \$0.525 per share in October. All of the outstanding warrants were subsequently exercised in connection with the Warrant Inducement Offering.

July 19, 2023 Registered Direct Offering.

On July 19, 2023, the Company and certain investors entered into a securities purchase agreement relating to the issuance and sale of approximately \$11,700 of shares and warrants, consisting of an aggregate of 4,373,219 shares of common stock and 8,746,438 warrants to purchase an equal number of shares, at a purchase price of \$2.67 per unit. The warrants are exercisable immediately at an exercise price of \$2.42 per share of common stock and expire five years after issuance. The net proceeds to the Company from the offering were approximately \$10,742. As a result of the subsequent offering completed in October 2023, the exercise price on the 8,746,438 warrants was automatically adjusted to \$0.525 per share. 8,296,438 of the warrants were subsequently exercised in connection with the Warrant Inducement Offering.

October 2023 Public Offering

On October 17, 2023, the Company entered into a securities purchase agreement with certain investors, pursuant to which the Company agreed to sell and issue, in a registered public offering, (i) an aggregate of 7,600,000 shares of the Company's common stock, par value \$0.00001 per share, (ii) warrants to purchase 20,000,000 shares of common stock (the "Common Warrants") and (iii) pre-funded warrants to purchase 2,400,000 shares of common stock (the "Pre-Funded Warrants"). The Common Warrants have an exercise price of \$0.525, are immediately exercisable and have a term of exercise equal to five years following the original issuance date. The Pre-Funded Warrants have an exercise price of \$0.0001, are immediately exercisable and are exercisable at any time after their original issuance until such Pre-Funded Warrants are exercised in full. The shares were offered at a combined public offering price of \$0.525 per share and two accompanying Common Warrants. The Pre-Funded Warrants were offered at a combined public offering price of \$0.5249 per Pre-Funded Warrant and two accompanying Common Warrants.

In addition, the Company issued the placement agent warrants to purchase up to 1,000,000 shares of common stock (equal to 10% of the aggregate number of shares and Pre-Funded Warrants sold in the offering) at an exercise price of \$0.65625, which represents 125% of the public offering price per share and accompanying Common Warrant. The placement agent agreed not to exercise the such warrants until the Company subsequently increases its authorized shares of common stock.

The offering closed on October 19, 2023 with gross proceeds to the Company of approximately \$5,250, before deducting the placement agent fees of \$367 and other offering expenses payable by the Company of approximately \$288. As a result of the offering, the exercise price on 11,799,654 previously outstanding warrants were automatically adjusted from \$2.42 per share to \$0.525 per share.

The Pre-Funded Warrants were subsequently exercised on a cashless basis in October 2023, resulting in issuance of 2,399,512 shares of common stock. 17,300,000 of the October Warrants were subsequently exercised in connection with the Warrant Inducement Offering.

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Warrant Inducement Offering

On November 28, 2023, the Company commenced a warrant inducement offering with the holders of the Company's outstanding 31,779,654 warrants consisting of: (i) the common stock purchase warrants of the Company issued on or about June 22, 2023; (ii) the common stock purchase warrants of the Company issued on or about July 10, 2023; (iii) the common stock purchase warrants of the Company issued on or about July 21, 2023; and/or (iv) the common stock purchase warrants of the Company issued on or about October 19, 2023 (collectively, the "Existing Warrants"), which Existing Warrants are exercisable for an equal number of shares of common stock at an exercise price of \$0.525. The Company agreed to issue new warrants (the "Inducement Warrants") to purchase up to a number of shares of common stock equal to 200% of the number of shares of common stock issued pursuant to the exercise by the holders of the Existing Warrants during the inducement period, for cash, at a reduced exercise price equal to the Nasdaq Minimum Price (as defined in the as defined in Nasdaq Listing Rule 5635(d)).

For the period from November 28, 2023 through February 15, 2024, the date of Stockholder Approval, the Company entered into warrant inducement agreements with certain holders of the Existing Warrants to purchase an aggregate of 28,649,654 shares of common stock at a reduced weighted average exercise price of \$0.2010. Pursuant to the warrant inducement agreements, the exercising holders of the Existing Warrants received 57,299,308 Inducement Warrants at an exercise price of \$0.1765 and the Company received aggregate gross proceeds of approximately \$5,757 from the exercise of the Existing Warrants.

Outstanding Warrants

As of March 25, 2024, we had the following warrants outstanding:

	# of warrants outstanding	Exercise price	Expiration date
July 2022 RDO warrants	65,042	\$ 30.75	July 25, 2027
Senior Secured Credit Facility - JGB	330,294	\$ 12.828	September 3, 2028
Subordinated Note - Omnia	45,000	\$ 12.828	September 3, 2030
July 19, 2023 RDO warrants	450,000	\$ 0.1765	July 20, 2028
October 2023 CMPO warrants	2,700,000	\$ 0.1765	October 19, 2028
Inducement warrants	57,299,308	\$ 0.1765	February 15, 2029
	<u>60,889,644</u>		

Impact of Recently Issued Accounting Standards

In the normal course of business, we evaluate all new accounting pronouncements issued by the Financial Accounting Standards Board ("FASB"), SEC, or other authoritative accounting bodies to determine the potential impact they may have on our Consolidated Financial Statements. Refer to Note 1 "Summary of Significant Accounting Policies" of the Notes to Consolidated Financial Statements contained in Item 15 of this report for additional information about these recently issued accounting standards and their potential impact on our financial condition or results of operations.

Critical Accounting Estimates

Management's discussion and analysis of financial condition and results of operations are based upon our consolidated financial statements, which have been prepared in accordance with GAAP. We make estimates and assumptions in the preparation of our consolidated financial statements that affect the reported amounts of assets and liabilities, revenue and expenses and related disclosures of contingent assets and liabilities. We base our estimates and judgments upon historical experience and other factors that are believed to be reasonable under the circumstances. Changes in estimates or assumptions could result in a material adjustment to the consolidated financial statements.

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We have identified several critical accounting estimates. An accounting estimate is considered critical if both: (a) the nature of the estimates or assumptions is material due to the levels of subjectivity and judgment involved, and (b) the impact of changes in the estimates and assumptions have had or are reasonably likely to have a material effect on the consolidated financial statements. This listing is not a comprehensive list of all of our accounting policies. For further information regarding the application of these and other accounting policies, see Note 1 “Summary of Significant Accounting Policies” of the Notes to Consolidated Financial Statements contained in Item 15 of this report.

Inventories

Inventories are measured on a first-in, first-out basis at the lower of cost or net realizable value. Net realizable value is the estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. The valuation of inventory requires us to estimate obsolete or excess inventory, as well as inventory that is not of saleable quality.

Historically, our adjustments or write-off charges recorded against inventory have been adequate to cover our losses. However, variations in methods or assumptions could have a material impact on our results. Additionally, if our demand forecasts for specific products is greater than actual demand and we fail to reduce manufacturing output accordingly, we could be required to record additional inventory write-down or expense a greater amount of overhead costs, which would negatively impact our gross profit and net income.

Valuation of Long-Lived Assets

We make assumptions in establishing the carrying value, fair value and, if applicable, the estimated lives of our intangible and other long-lived assets. Intangible assets determined to have an indefinite useful life are not amortized. Instead, these assets are evaluated for impairment on an annual basis on December 1, the measurement date, and whenever events or business conditions change that could indicate that the asset is impaired. Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset (asset group) may not be recoverable.

Evaluation of indefinite-lived intangible assets for impairment

Our indefinite-lived intangible assets include the MSA, cigarette brand predicate and trademarks. We perform an annual impairment review of our indefinite-lived intangible assets on December 1, the measurement date, unless events occur that trigger the need for an interim impairment review. We have the option to first assess qualitative factors in determining whether it is more-likely-than-not that an indefinite-lived intangible asset is impaired. If we elect not to use this option, or we determine that it is more-likely-than-not that the asset is impaired, we perform a quantitative assessment that requires us to estimate the fair value of each indefinite-lived intangible asset and compare that amount to its carrying value. Impairment, if any, is based on the excess of the carrying value over the fair value of these assets.

For our indefinite-lived intangible assets, we performed a qualitative evaluation and considered factors such as current and future sales projections, strategic objectives, future market and economic conditions, competition, and federal and state regulations. We determined as of December 1, 2023, it is more likely than not that the assets are not impaired.

Evaluation of long-lived assets for impairment

When impairment indicators exist, we determine if the carrying value of the long-lived asset(s) including, but not limited to, PP&E, right-of-use lease assets, and definite-lived intangible asset(s) exceeds the related undiscounted future cash flows. In cases where the carrying value exceeds the undiscounted future cash flows, the carrying value is written down to fair value. Fair value is generally determined using a discounted cash flow analysis. When it is determined that the useful life of an asset (asset group) is shorter than the originally estimated life, and there are sufficient cash flows to support the carrying value of the asset (asset group), we accelerate the rate of depreciation/amortization in order to fully depreciate/amortize the asset over its shorter useful life.

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Estimation of the cash flows and useful lives of long-lived assets and definite-lived intangible assets requires significant management judgment. Events could occur that would materially affect our estimates and assumptions. Unforeseen changes, such as the loss of one or more significant customers, technology obsolescence, or significant manufacturing disruption, among other factors, could substantially alter the assumptions regarding the ability to realize the return of our investment in long-lived assets, definite-lived intangible assets or their estimated useful lives.

For our long-lived assets, we determined that impairment indicators occurred during the fourth quarter of 2023 in connection with ongoing evaluation of our tobacco strategy and restructuring efforts and concluded that certain definite-lived intangible assets, including patents, were impaired due to obsolescence or abandonment in the amount of \$1,375. No other long-lived assets were concluded to be non-recoverable based on undiscounted cash flow analysis performed.

Detachable Warrants

Warrants issued pursuant to debt or equity offerings that the Company may be required to redeem through payment of cash or other assets outside its control are classified as liabilities and therefore measured at fair value. The Company uses a Monte Carlo valuation model to estimate fair value at each issuance and period-end date. The key assumptions used in the model are the expected future volatility in the price of the Company's shares and the expected life of the warrants.

Embedded Derivatives – Conversion Option

Our December Amendment to the Senior Secured Credit Facility contained an embedded derivative conversion option. The Company evaluates each debt agreement to determine whether any embedded features require bifurcation from the debt host in accordance with ASC 815, *Derivatives and Hedging* ("ASC 815"). If the embedded feature requires bifurcation from its debt host, the Company will account for it as either a derivative liability or as a derivative in equity. The Company uses valuation models to estimate the fair value of the embedded derivatives. For the valuation to record the debt and embedded derivative related to the conversion option at fair value, the Company uses a binomial lattice model at inception and on subsequent valuation dates. This model incorporates inputs such as the stock price of the Company, risk-free interest rate, the effective debt yield and expected volatility. Certain inputs involve unobservable inputs and are classified as level 3 of the fair value hierarchy (see Note 9, *Fair Value Measurement* to our Consolidated Financial Statements included elsewhere in Item 15 of this Annual Report). The sensitivity of the fair value calculation to these methods, assumptions, and estimates included could create materially different results under different conditions or using different assumptions.

Off-Balance Sheet Arrangement

We do not have any off-balance sheet arrangements as defined by Item 303(a)(4) of Regulation S-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Not required for smaller reporting companies.

Item 8. Financial Statements and Supplementary Data.

The required financial statements and the notes thereto are contained in a separate section of this Form 10-K beginning with the page following Item 15 (Exhibits and Financial Statement Schedules) and are incorporated by reference into this Item 8.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, we conducted an evaluation of our disclosure controls and procedures, as such term is defined under Rule 13a-15(e) and 15d-15(e) promulgated under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Based on this evaluation, our chief executive officer and chief financial officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this Annual Report on Form 10-K to ensure information required to be disclosed in the reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported, within the time period specified in the SEC's rules and forms. These disclosure controls and procedures include controls and procedures designed to ensure that information required to be disclosed by us in the reports we file or submit is accumulated and communicated to management, including our chief executive officer and chief financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control - Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework in *Internal Control - Integrated Framework (2013)*, our management concluded that our internal control over financial reporting was effective as of December 31, 2023.

Our system of internal control over financial reporting was designed to provide reasonable assurance regarding the preparation and fair presentation of published financial statements in accordance with accounting principles generally accepted in the United States. All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance and may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

This Annual Report on Form 10-K does not include an attestation report of our independent registered public accounting firm regarding internal control over financial reporting due to a permanent exemption for smaller reporting companies.

Changes in Internal Controls over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) during the quarter ended December 31, 2023 that has materially affected, or is reasonably likely to materially affect our internal control over financial reporting.

Item 9B. Other Information.

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspection

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Information concerning our executive officers, directors and corporate governance is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2024 Annual Meeting of Stockholders.

Code of Business Conduct and Corporate Ethics

Our Board of Directors has long maintained a Code of Ethics that applies to all our directors, officers, and employees. A copy of our Code of Ethics is available on our website at <http://www.xxiicentury.com>. We intend to satisfy any disclosure requirements pursuant to Item 5.05 of Form 8-K regarding any amendment to, or waiver from, certain provisions of the Code of Ethics by posting such information on our website.

Item 11. Executive Compensation.

Information is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2024 Annual Meeting of Stockholders.

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

Information is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2024 Annual Meeting of Stockholders.

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

Information is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2024 Annual Meeting of Stockholders.

Item 14. Principal Accounting Fees and Services.

Information is incorporated herein by reference to our definitive proxy statement to be filed with the Securities and Exchange Commission within 120 days after the end of the fiscal year covered by this Form 10-K with respect to its 2024 Annual Meeting of Stockholders.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a) (1) Financial Statements

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(a) (2) Financial Statement Schedules

Financial statement schedules have been omitted because they are not required.

(b) [Exhibits](#)

Exhibits required by Item 601 of Regulation S-K are listed in the Exhibit Index below following the Financial Statements, which are incorporated herein by this reference.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of 22nd Century Group, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of 22nd Century Group, Inc. and subsidiaries (the Company) as of December 31, 2023 and 2022, the related consolidated statements of operations and comprehensive loss, changes in shareholders' equity and cash flows for each of the two years in the period ended December 31, 2023, and the related notes to the consolidated financial statements (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has incurred significant losses and negative cash flows from operations since inception and expects to incur additional losses until such time that it can generate significant revenue and profit in its tobacco business. Further, the Company has negative working capital and a shareholders' deficit as of December 31, 2023. This raises substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters also are described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Debt related accounting, classification, and valuation

Critical Audit Matter description

As discussed in Note 1 and 13 of the consolidated financial statements, during the year ended December 31, 2023, prior to the amendments described in Note 13, the Company entered into a senior secured credit facility, which consisted of a three-year debenture with a principal amount of \$21,053 (as defined in Note 13) and a \$2,865 subordinated promissory note (the "Subordinated Note). The Debentures were issued at a 5% original issuance discount and are subject to a 5% exit payment. In connection with the issuance with the Debentures and the Subordinated Note, the Company issued warrants to purchase common stock ("Detachable Warrants")

The Debenture, Subordinated Note, and Detachable Warrants included various terms that required evaluation at the issuance date. Further, a portion of the Detachable Warrants met the criteria for equity classification (Note 10), while a portion are treated as liabilities (Note 9) due to holder put features applicable to only a portion of the warrants issued. The fair value of both classes of warrants was determined at the date of issuance and recorded as a debt discount. The liability classified warrants were subsequently adjusted to fair value at the end of each reporting period.

We identified the accounting for the terms of the Debentures (prior to amendments), Subordinated Note, and Detachable Warrants as well as the valuation and classification of the same as a critical audit matter. Auditing the accounting for these was especially challenging due to the inherent complexity of the agreements and the related valuation models. Auditing these elements required an increased level of audit effort, including the involvement of professionals with specialized skill and knowledge.

How the Critical Audit Matter was addressed in the Audit

Addressing the matter involved performing subjective procedures and evaluating audit evidence in connection with forming our overall opinion on the financial statements. The primary procedures we performed include: Inspecting the underlying agreements and ensuring appropriate application of the relevant accounting literature to the terms of the Debentures and Subordinated Note; evaluating the appropriateness of the fair value and classification of the Detachable Warrants; and utilizing personnel with specialized skill and knowledge in valuation to assist in assessing the fair value determined.

Debt extinguishment, conversion option and fair value measurement

Critical Audit Matter description

During the year ended December 31, 2023, the Company amended the Debentures (as defined in Note 13) with its lenders. The terms of the amendments are described in Note 13. For each amendment, the Company was required to evaluate troubled debt restructuring applicability and debt modification versus extinguishment analysis. Neither qualified as a troubled debt restructuring and the first was a modification while the second was extinguishment, primarily resulting from the addition of conversion feature. Further, the conversion feature did require bifurcation from the debt host. Therefore, both the conversion feature (Note 9) and the Debentures post-extinguishment were subject to fair market measurement. The derivative liability is subsequently adjusted to fair value at the end of each reporting period.

We identified the accounting for the amended terms as well as the valuations related to the conversion option and Debentures post extinguishment as a critical audit matter. Auditing the accounting for these items was especially challenging due to the inherent complexity of the agreements and the related valuation models. Auditing these elements required an increased level of audit effort, including the involvement of professionals with specialized skill and knowledge.

How the Critical Audit Matter was addressed in the Audit

Addressing the matter involved performing subjective procedures and evaluating audit evidence in connection with forming our overall opinion on the financial statements. The primary procedures we performed include: Inspecting the underlying agreements and ensuring appropriate application of the relevant accounting literature to the terms of the amended Debentures; evaluating the appropriateness of the fair value for the bifurcated conversion option derivative and the amended Debentures post-extinguishment utilizing personnel with specialized skill and knowledge in valuation to assist in assessing the fair values determined.

Discontinued Operations

Critical Audit Matter description

As discussed in Notes 1, and 2 of the consolidated financial statements, during the year ended December 31, 2023, the Company divested substantially all of its assets in the GVB hemp/cannabis business and recorded impairment charges. As a result of the agreement management determined the hemp/cannabis disposal group has met the requirements to be presented as held for sale and discontinued operations for all periods presented. The Company has not segregated the statement of cash flows.

We identified the reporting of discontinued operations and the impairment charges as a critical audit matter, which required extensive effort and a higher degree of auditor judgement.

How the Critical Audit Matter was addressed in the audit

Addressing the matter involved performing subjective procedures and evaluating audit evidence in connection with forming our overall opinion on the financial statements. The primary procedures we performed include: assessed management's conclusion regarding discontinued operations treatment, obtained and read the related agreements and compared the terms of that agreement to the identification of the assets and liabilities included in the disposal group, reviewed management assumptions and judgment for determining historical numbers related to discontinued operations, reviewed and recomputed the loss on disposal of discontinued operations and related income tax benefit, and assessed the completeness and accuracy of the presentation and disclosures.

/s/ Freed Maxick, CPAs, P.C.

We have served as the Company's auditor since 2011.

Buffalo, New York

March 28, 2024

22nd CENTURY GROUP, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(amounts in thousands, except share and per-share data)

	December 31, 2023	December 31, 2022
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 2,058	\$ 2,205
Short-term investment securities	—	18,193
Accounts receivable, net	1,671	1,363
Inventories	4,346	7,270
Insurance recoveries	3,768	—
GVB promissory note	2,000	—
Prepaid expenses and other current assets	1,180	1,928
Current assets of discontinued operations held for sale	1,254	13,646
Total current assets	16,277	44,605
Property, plant and equipment, net	3,393	3,692
Operating lease right-of-use assets, net	1,894	943
Intangible assets, net	5,924	7,212
Other assets	15	3,417
Noncurrent assets of discontinued operations held for sale	—	54,782
Total assets	\$ 27,503	\$ 114,651
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Notes and loans payable - current	\$ 543	\$ 689
Current portion of long-term debt	5,848	—
Operating lease obligations	231	252
Accounts payable	4,445	2,051
Accrued expenses	1,322	766
Accrued litigation	3,768	—
Accrued payroll	883	2,662
Accrued excise taxes and fees	2,234	1,423
Deferred income	726	688
Other current liabilities	1,849	349
Current liabilities of discontinued operations held for sale	3,185	4,138
Total current liabilities	25,034	13,018
Long-term liabilities:		
Operating lease obligations	1,698	711
Long-term debt	8,058	—
Other long-term liabilities	1,123	344
Noncurrent liabilities of discontinued operations held for sale	—	4,603
Total liabilities	35,914	18,676
Commitments and contingencies (Note 12)		
Shareholders' equity (deficit)		
Preferred stock, \$.00001 par value, 10,000,000 shares authorized		
Common stock, \$.00001 par value, 66,666,667 shares authorized		
Capital stock issued and outstanding:		
43,525,862 common shares (14,349,275 at December 31, 2022)		
Common stock, par value	—	—
Capital in excess of par value	370,297	333,900
Accumulated other comprehensive loss	—	(111)
Accumulated deficit	(378,707)	(237,814)
Total shareholders' equity (deficit)	(8,410)	95,975
Total liabilities and shareholders' equity (deficit)	\$ 27,503	\$ 114,651

See accompanying notes to consolidated financial statements.

22nd CENTURY GROUP, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(amounts in thousands, except per-share data)

	Year Ended December 31,	
	2023	2022
Revenues, net	\$ 32,204	\$ 40,501
Cost of goods sold	40,900	38,654
Gross (loss) profit	(8,696)	1,847
Operating expenses:		
Sales, general and administrative	31,064	32,231
Research and development	2,644	3,578
Other operating expense (income), net	2,527	(327)
Total operating expenses	36,235	35,482
Operating loss from continuing operations	(44,931)	(33,635)
Other income (expense):		
Realized loss on Panacea investment	—	(2,789)
Other income (expense), net	334	(366)
Loss on transfer of promissory note	(895)	—
Interest income, net	219	313
Interest expense	(9,366)	(55)
Total other expense	(9,708)	(2,897)
Loss from continuing operations before income taxes	(54,639)	(36,532)
Provision for income taxes	47	21
Net loss from continuing operations	\$ (54,686)	\$ (36,553)
Discontinued operations:		
Loss from discontinued operations before income taxes	(85,634)	(23,703)
Provision (benefit) for income taxes	455	(455)
Net loss from discontinued operations	\$ (86,089)	\$ (23,248)
Net loss	\$ (140,775)	\$ (59,801)
Deemed dividends	(9,992)	—
Net loss available to common shareholders	\$ (150,767)	\$ (59,801)
Basic and diluted loss per common share from continuing operations	\$ (2.64)	\$ (2.84)
Basic and diluted loss per common share from discontinued operations	\$ (4.16)	\$ (1.81)
Basic and diluted loss per common share from deemed dividends	\$ (0.48)	\$ —
Basic and diluted loss per common share	\$ (7.28)	\$ (4.65)
Weighted average common shares outstanding - basic and diluted	20,711	12,856
Net loss	\$ (140,775)	\$ (59,801)
Other comprehensive income:		
Unrealized gain (loss) on short-term investment securities	71	(316)
Foreign currency translation	(1)	1
Reclassification of realized losses to net loss	41	366
Other comprehensive income	111	51
Comprehensive loss	\$ (140,664)	\$ (59,750)

See accompanying notes to consolidated financial statements.

22nd CENTURY GROUP, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
(amounts in thousands, except share amounts)

	Years Ended December 31, 2023 and 2022					
	Common Shares Outstanding	Par Value of Common Shares	Capital in Excess of Par Value	Other Comprehensive Income (Loss)	Accumulated Deficit	Shareholders' Equity
Balance at January 1, 2022	10,858,237	\$ —	\$ 244,249	\$ (162)	\$ (178,013)	\$ 66,074
Stock issued in connection with option exercises	10,001	—	174	—	—	174
Stock issued in connection with RSU vesting, net of shares withheld for taxes	149,482	—	(149)	—	—	(149)
Stock issued in connection with acquisition	2,193,334	—	51,653	—	—	51,653
Stock issued in connection with capital raise, net of issuance costs of 2,516	1,138,221	—	32,484	—	—	32,484
Equity-based compensation	—	—	5,489	—	—	5,489
Other comprehensive income	—	—	—	51	—	51
Net loss	—	—	—	—	(59,801)	(59,801)
Balance at December 31, 2022	14,349,275	\$ —	\$ 333,900	\$ (111)	\$ (237,814)	\$ 95,975
Stock issued in connection with RSU vesting, net of shares withheld for taxes	114,786	—	(419)	—	—	(419)
Stock issued in connection with acquisition	31,056	—	503	—	—	503
Stock issued in connection with ATM, net of fees of \$178	284,343	—	2,563	—	—	2,563
Stock issued in connection with licensing arrangement	333,334	—	3,570	—	—	3,570
Stock issued in connection with capital raises, net of issuance costs of 2,279	13,499,827	—	22,880	—	—	22,880
Stock issued in connection with warrant exercises, net of fees of \$292	14,847,206	—	3,044	—	—	3,044
Equity detachable warrants	—	—	1,577	—	—	1,577
Adoption of ASU 2016-13	—	—	—	—	(118)	(118)
Fractional shares issued for reverse stock split	66,035	—	—	—	—	—
Equity-based compensation	—	—	2,679	—	—	2,679
Other comprehensive income	—	—	—	111	—	111
Net loss	—	—	—	—	(140,775)	(140,775)
Balance at December 31, 2023	43,525,862	\$ —	\$ 370,297	\$ —	\$ (378,707)	\$ (8,410)

See accompanying notes to consolidated financial statements.

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22nd CENTURY GROUP, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(amounts in thousands)

	Year Ended December 31,	
	2023	2022
Cash flows from operating activities:		
Net loss	\$ (140,775)	\$ (59,801)
Adjustments to reconcile net loss to cash used in operating activities:		
Impairment of long-lived assets	3,297	1,488
Amortization and depreciation	3,951	2,858
Amortization of right-of-use asset	908	733
Amortization of inventory step-up	—	978
Unrealized loss on investment	—	5
GVB fire write-offs	—	4,549
Other non-cash (gains) and losses	(15)	563
Provision for credit losses	1,024	770
(Gain) loss on the sale of machinery and equipment	73	(368)
Realized loss (gain) on Panacea investment	—	2,789
Inventory write-off	—	237
Debt related charges included in interest expense	8,006	—
Equity-based employee compensation expense	2,679	5,489
Gain on change of contingent consideration	(1,138)	—
Change in fair value of warrant liabilities	(364)	—
Change in fair value of derivative liability	557	—
Loss on disposal of discontinued operations	58,521	—
Loss on transfer of promissory note	895	—
Deferred income taxes	434	(434)
Increase in inventory reserves	8,695	—
Changes in operating assets and liabilities, net of acquisition:		
Accounts receivable	(18)	(2,881)
Inventory	(5,925)	(8,789)
Prepaid expenses and other assets	451	(920)
Accounts payable	4,752	416
Accrued expenses	681	(582)
Accrued payroll	(2,153)	748
Accrued excise taxes and fees	811	153
Other liabilities	(334)	285
Net cash used in operating activities	(54,987)	(51,714)
Cash flows from investing activities:		
Acquisition of patents, trademarks, and licenses	(961)	(772)
Acquisition of property, plant and equipment	(4,656)	(3,657)
Proceeds from the sale of property, plant and equipment	283	409
Acquisition, net of cash acquired	(254)	(1,297)
Proceeds from sale of discontinued operations	665	—
Investment in Change Agronomy Ltd.	—	(682)
Property, plant and equipment insurance proceeds	3,500	—
Sales and maturities of short-term investment securities	21,714	101,990
Purchase of short-term investment securities	(3,475)	(73,413)
Net cash provided by investing activities	16,816	22,578
Cash flows from financing activities:		
Payments on notes payable	(5,581)	(3,822)
Proceeds from issuance of notes payable	2,360	2,162
Other financing activities	—	(29)
Payments of long-term debt	(9,700)	—
Proceeds from issuance of long-term debt	16,849	—
Payment of debt issuance costs	(801)	—
Proceeds from issuance of detachable warrants	6,016	—
Net proceeds from option exercise	—	174
Net proceeds from warrant exercise	3,044	—
Proceeds from issuance of common stock related to the ATM	2,741	—
Payment of common stock issuance costs related to the ATM	(178)	—
Proceeds from issuance of common stock	25,158	35,000
Payment of common stock issuance costs	(2,279)	(2,516)
Taxes paid related to net share settlement of RSUs	(420)	(149)
Net cash provided by financing activities	37,209	30,820
Net (decrease) increase in cash and cash equivalents	(962)	1,684
Cash and cash equivalents - beginning of period	3,020	1,336
Cash and cash equivalents - end of period	\$ 2,058	\$ 3,020
Supplemental disclosures of cash flow information:		
Net cash paid for:		
Cash paid during the period for interest	\$ 1,313	\$ 34
Cash paid during the period for income taxes	\$ 40	\$ 14
Non-cash transactions:		
Capital expenditures incurred but not yet paid	\$ 118	\$ 94
Right-of-use assets and corresponding operating lease obligations	\$ 5,166	\$ —
Non-cash assignment of PLSH Promissory Note	\$ 2,600	\$ —
Insurance/litigation gross up	\$ 3,768	\$ —
Non-cash proceeds from sale of discontinued operations	\$ 2,000	\$ —
Deemed dividends	\$ 9,801	\$ —
Stock issued in connection with acquisition	\$ —	\$ 51,653
Non-cash consideration RXP acquisition	\$ 1,641	\$ —
Non-cash licensing arrangement	\$ 3,500	\$ —

See accompanying notes to consolidated financial statements.

22nd CENTURY GROUP, INC. AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2023

Amounts in thousands, except for share and per share data

NOTE 1. – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

22nd Century Group, Inc. (together with its consolidated subsidiaries, “22nd Century Group” or the “Company”) is a publicly traded Nevada corporation on the NASDAQ Capital Market under the symbol “XXII.” 22nd Century Group is a tobacco products company with sales and distribution of the Company’s own proprietary new reduced nicotine tobacco products authorized as Modified Risk Tobacco Products by the FDA. Additionally, the Company provides contract manufacturing services for conventional combustible tobacco products for third-party brands.

Basis of Presentation and Principles of Consolidation – The consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (“GAAP”) and include the accounts of 22nd Century Group and its wholly owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

As described in Note 2, on December 22, 2023, the Company divested substantially all of the assets of GVB Biopharma’s (“GVB”) business within its former hemp/cannabis segment.

As a result of the divestiture of GVB and strategic shift away from hemp/cannabis, the Company has realigned its corporate and management reporting structure to focus solely on its tobacco business. As a result, during the fourth quarter of 2023, the Company reorganized its business to become a single reportable segment: (1) tobacco. This segment structure reflects the financial information and reports used by the Company’s management, specifically its Chief Operating Decision Maker (“CODM”), to make decisions regarding the Company’s business, including resource allocations and performance assessments. All assets and continuing operations of the Company are physically located or domiciled in the United States.

The results of operations of the former hemp/cannabis segment are reported as discontinued operations in the Consolidated Statements of Operations and Comprehensive Loss for all periods presented and the related assets and liabilities associated with the discontinued operations are classified as held for sale in the Consolidated Balance Sheets as of December 31, 2023, and 2022, respectively. The Consolidated Statements of Cash Flows includes cash flows related to the discontinued operations due to 22nd Century’s (parent) centralized treasury and cash management processes, and, accordingly, cash flow amounts for discontinued operations are disclosed in Note 2 “Discontinued Operations and Divestitures.” All results and information in the Consolidated Financial Statements are presented as continuing operations and exclude the former hemp/cannabis segment unless otherwise noted specifically as discontinued operations.

Use of Estimates – The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of income and expenses during the reporting period. Actual results could differ from those estimates.

Liquidity and Capital Resources – These Consolidated Financial Statements have been prepared in accordance with generally accepted accounting principles applicable to a going concern, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business.

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The Company has incurred significant losses and negative cash flows from operations since inception and expects to incur additional losses until such time that it can generate significant revenue and profit in its tobacco business. The Company had negative cash flow from operations of \$54,987 and \$51,714 for the years ended December 31, 2023 and 2022, respectively, and an accumulated deficit of \$378,707 and \$237,814 as of December 31, 2023 and December 31, 2022, respectively. As of December 31, 2023, the Company had cash and cash equivalents of \$2,058. Subsequent to December 31, 2023, the Company completed a warrant inducement offering with gross proceeds to the Company of approximately \$2,421, before deducting the placement agent fees of \$165 (see Note 21 “Subsequent Events”).

Given the Company’s projected operating requirements and its existing cash and cash equivalents, there is substantial doubt about the Company’s ability to continue as a going concern through one year following the date that the Consolidated Financial Statements are issued.

In response to these conditions, management is currently evaluating different strategies for reducing expenses, as well as pursuing financing strategies which include raising additional funds through the issuance of securities, asset sales, and through arrangements with strategic partners. If capital is not available to the Company when, and in the amounts needed, it could be required to liquidate inventory or assets, cease or curtail operations, or seek protection under applicable bankruptcy laws or similar state proceedings. There can be no assurance that the Company will be able to raise the capital it needs to continue operations. Management’s plans do not alleviate substantial doubt about the Company’s ability to continue as a going concern through one year following the date that the Consolidated Financial Statements are issued.

The Consolidated Financial Statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of this uncertainty.

Other Significant Risks and Uncertainties - The Company is subject to a number of risks, including, but not limited to, the lack of available capital; the possible delisting of its common stock from Nasdaq; future covenant non-compliance with respect to the Company’s Senior Secured Credit Facility giving rise to an event of default; inability to identify or consummate any strategic initiatives and transactions; unsuccessful commercialization strategy and launch plans for the Company’s products or market acceptance of the Company’s products; risks inherent in litigation, including purported class actions; and protection of proprietary technology.

Reverse Stock Split – On July 5, 2023, the Company effected a 1-for-15 reverse stock split of its common stock in order to regain compliance with Nasdaq’s continued listing requirements. Fractional shares resulting from the reverse stock split were rounded up to the nearest whole share, which resulted in the issuance of a total of 66,035 shares of common stock to implement the reverse stock split. All share and per share amounts, and exercise prices of stock options, and warrants in the Consolidated Financial Statements and notes thereto have been retroactively adjusted for all periods presented to give effect to this reverse stock split.

Preferred stock authorized – The Company is authorized to issue “blank check” preferred stock, which could be issued with voting, liquidation, dividend and other rights superior to our common stock.

Concentration of Credit Risk – Financial instruments that potentially subject the Company to concentration of credit risk consist of cash accounts in financial institutions. Although the cash accounts exceed the federally insured deposit amount, management does not anticipate nonperformance by the financial institutions. Management reviews the financial viability of these institutions on a periodic basis.

Cash and cash equivalents – The Company considers all highly liquid investments with maturities of three months or less at the date of acquisition to be cash equivalents. However, the Company has elected to classify money market mutual funds related to its short-term investment portfolio as short-term investment securities. There are no restrictions on the Company’s cash and cash equivalents.

Short-term investment securities – The Company’s short-term investment securities are classified as available-for-sale securities and consist of money market funds, corporate bonds, U.S. government agency bonds, U.S. treasury securities, and commercial paper with maturities that may extend beyond three months at the time of acquisition. The Company’s short-term investment securities are carried at fair value within current assets on the Company’s Consolidated Balance Sheets. The Company views its available-for-sale securities as available for use in current operations regardless of the stated maturity date of the security. The Company’s investment policy states that all investment securities must have a maximum maturity of twenty-four (24) months or less and the maximum weighted maturity of the investment securities must not exceed twelve (12) months. Some of the Company’s short-term investment securities are fixed-income debt instruments, and accordingly, unrealized gains and losses incurred on the short-term investment securities (the adjustment to fair value) are recorded in other comprehensive income or loss on the Company’s Consolidated Statements of Operations and Comprehensive Loss. Realized gains and losses on short-term investment securities are recorded in the other income (expense) portion of the Company’s Consolidated Statements of Operations and Comprehensive Loss. Interest income is recorded on the accrual basis and presented net of investment related fees.

Trade Accounts Receivable and Provision for Current Expected Credit Losses – The Company provides credit, in the normal course of business, to its tobacco customers in the form of trade receivables. Credit is extended based on evaluation of a customer’s financial condition and collateral is not required. The Company maintains a provision for those trade receivables that it does not expect to collect. In accordance with Accounting Standards Codification (“ASC”) Topic 326, the Company accrues its estimated losses from uncollectable accounts receivable to the provision based upon recent historical experience, the length of time the receivable has been outstanding, other specific information as it becomes available, and reasonable and supportable forecasts not already reflected in the historical loss information. Provisions for current expected credit losses are charged to current operating expenses. Actual losses are charged against the provision when incurred. As of December 31, 2023, and 2022, the Company recorded a provision for credit losses of \$8 and \$0, respectively.

Inventories – Inventories are valued at the lower of historical cost or net realizable value. Cost is determined using an average cost method for tobacco leaf inventory and raw materials inventory. Standard cost is primarily used for finished goods inventory. Inventories are evaluated to determine whether any amounts are not recoverable based on slow moving or obsolete condition and are written off or reserved as appropriate.

Property, plant and equipment – Plant and equipment are recorded at their acquisition cost and depreciated on a straight-line basis over their estimated useful lives. Leasehold improvements are depreciated on a straight-line basis over the term of the lease or the estimate useful life of the asset, whichever is shorter. Depreciation commences when the asset is placed in service. The following table shows estimated useful lives of property, plant and equipment:

Classification	Estimated Useful Lives
Leasehold improvements	shorter of 20 years or lease term
Manufacturing equipment	5 to 15 years
Office furniture, fixtures and equipment	3 to 10 years

Acquisitions - The Company accounts for acquisitions under the acquisition method of accounting for business combinations. Results of operations of acquired companies are included in the Company’s results of operations as of the respective acquisition dates. The purchase price of each acquisition is allocated to the net assets acquired based on estimates of their fair values at the date of the acquisition. Any purchase price in excess of these net assets is recorded as goodwill. The allocation of purchase price in certain cases may be subject to revision based on the final determination of fair values during the measurement period, which may be up to one year from the acquisition date.

Discontinued Operations - In determining whether a group of assets which has been disposed of (or is to be disposed of) should be presented as a discontinued operation, the Company analyzes whether the group of assets being disposed of represented a component of the entity; that is, whether it had historic operations and cash flows that were clearly distinguished (both operationally and for financial reporting purposes). In addition, the Company considers whether the disposal represents a strategic shift that has or will have a major effect on the Company's operations and financial results.

The assets and liabilities of a discontinued operation held for sale, other than goodwill, are measured at the lower of carrying amount or fair value less cost to sell. The Company allocates interest to discontinued operations if the interest is directly attributable to the discontinued operations or is interest on debt that is required to be repaid as a result of the disposal transaction.

Contingent Consideration - Contingent consideration arising from a business acquisition is included as part of the purchase price and is recorded at fair value as of the acquisition date. Subsequent to the acquisition date, the Company remeasures contingent consideration arrangements at fair value at each reporting period until the contingency is resolved. The changes in fair value are recognized within Other operating expenses (income), net in the Company's Consolidated Statement of Operations and Comprehensive Loss. Changes in fair values reflect new information about the likelihood of the payment of the contingent consideration and the passage of time. See Note 3 "Business Acquisitions" for the contingent consideration arising from the acquisition of RX Pharmatech Ltd.

Goodwill - Goodwill represents the excess of cost over the fair value of identifiable net assets of a business acquired and is assigned to one or more reporting units. The Company tests its reporting unit's goodwill for impairment at least annually as of the measurement date year and between annual tests if an event occurs or circumstances change that would more-likely-than-not reduce the fair value of a reporting unit below its carrying amount. The Company concluded an interim impairment trigger event occurred and tested its goodwill for impairment during the quarter ended September 30, 2023 and concluded that goodwill impairment existed. No goodwill remained as of December 31, 2023. See Note 2 "Discontinued Operations and Divestitures" for additional information.

Intangible Assets - Definite lived intangible assets are recorded at cost and consist primarily of (1) expenditures incurred with third-parties related to the processing of patent claims and trademarks with government authorities, as well as costs to acquire patent rights from third-parties, (2) license fees paid for third-party intellectual property. The amounts capitalized relate to intellectual property that the Company owns or to which it has rights to use. The Company's capitalized intellectual property costs are amortized using the straight-line method over the remaining statutory life of the patent assets in each of the Company's patent families, which have estimated expiration dates ranging from 2026 to 2043. Periodic maintenance or renewal fees are expensed as incurred. Annual minimum license fees are charged to expense. License fees paid for third-party intellectual property are amortized on a straight-line basis over the last to expire patents, which have expected expiration dates from 2028 through 2043.

The Company believes that costs associated with becoming a signatory to the master settlement agreement "MSA", costs related to the acquisition of a predicate cigarette brand, and tobacco brand related trademarks have indefinite lives. At each reporting period, the Company evaluates whether the nature and use of the asset continue to support the indefinite-lived classification.

Impairment of Long-Lived Assets - The Company reviews the carrying value of its long-lived assets at each reporting period to determine if impairment indicators are present in accordance with ASC 360-*Property, plant, and equipment* or ASC 350- *Intangibles, Goodwill, and Other*.

Definite lived intangible assets subject to amortization are reviewed for strategic importance and commercialization opportunity prior to expiration. If it is determined that the asset no longer supports the Company's strategic objectives and/or will not be commercially viable prior to expiration, the asset is impaired. In addition, the Company will assess the expected future undiscounted cash flows for its intellectual property based on consideration of future market and economic conditions, competition, federal and state regulations, and licensing opportunities. If the carrying value of such assets are not recoverable, the carrying value will be reduced to fair value and the difference is recorded as impairment.

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Indefinite-lived intangible asset carrying values are reviewed at least annually or more frequently if events or changes in circumstances indicate that it is more likely than not that an impairment exists. The Company first performs a qualitative assessment and considers its current strategic objectives, future market and economic conditions, competition, and federal and state regulations to determine if an impairment is more likely than not. If it is determined that an impairment is more likely than not, a quantitative assessment is performed to compare the asset carrying value to fair value.

Leases – The Company determines if an arrangement is, or contains, a lease at inception and classifies it as operating or finance. The Company has operating and finance leases for office and manufacturing facilities, machinery and vehicles. Finance lease assets and corresponding liabilities are not material to the Consolidated Financial Statements.

Any operating lease having a lease term greater than twelve months will be recognized on the Consolidated Balance Sheets as a right-of-use (ROU) asset with an associated lease obligation—all other leases are considered short-term in nature and will be expensed on a month-to-month basis. The ROU assets and lease obligations are recognized as of the commencement date at the net present value of the fixed minimum lease payments for the lease term. The lease term is determined based on the contractual conditions, including whether renewal options are reasonably certain to be exercised. The discount rate used is the interest rate implicit in the lease, if available, or the Company’s incremental borrowing rate which is determined using a base line rate plus an applicable spread.

Refer to Note 6 “Right-of-use Assets, Lease Obligations, and Other Leases” for additional information.

Fair Value of Financial Instruments – FASB ASC 820 - *Fair Value Measurements and Disclosures* establishes a valuation hierarchy for disclosure of the inputs to valuation used to measure fair value. This hierarchy prioritizes the inputs into three broad levels as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities;
- Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument; and
- Level 3 inputs are unobservable inputs based on the Company’s own assumptions used to measure assets and liabilities at fair value.

A financial asset’s or a financial liability’s classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement. The Company estimates that the carrying amounts reported on the Consolidated Balance Sheets for cash and cash equivalents, accounts receivable, contract assets, promissory note receivable, accounts payable and accrued expenses, and notes and loans payable approximate their fair value due to the short-term nature of these items. Note 9 “Fair Value Measurements” contains additional information on assets and liabilities recorded at fair value in the Consolidated Financial Statements.

Warrants - The Company accounts for stock warrants as either equity instruments, derivative liabilities, or liabilities in accordance with ASC 480, *Distinguishing Liabilities from Equity* (ASC 480) and ASC 815, *Derivatives and Hedging* (ASC 815) depending on the specific terms of the warrant agreement. The assessment considers whether the warrants are freestanding financial instruments pursuant to ASC 480, meet the definition of a liability pursuant to ASC 480, and whether the warrants meet all of the requirements for equity classification under ASC 815, including whether the warrants are indexed to the Company’s own ordinary shares and whether the warrant holders could potentially require “net cash settlement” in a circumstance outside of the Company’s control, among other conditions for equity classification. This assessment, which requires the use of professional judgment, is conducted at the time of warrant issuance and as of each subsequent quarterly period end date while the warrants are outstanding.

Warrants that the Company may be required to redeem through payment of cash or other assets outside its control are classified as liabilities pursuant to ASC 480 and are initially and subsequently measured at their estimated fair values. Changes in subsequent measurement fair value are recorded in Other income (expense), net of the Company’s Consolidated Statements of Operations and Comprehensive Loss. For issued or modified warrants that meet all of the criteria for equity classification, the warrants are required to be recorded as a component of additional paid-in

capital at the time of issuance. For additional discussion on warrants, see Note 9 “Fair Value Measurements” and Note 10 “Capital Raise and Warrants for Common Stock”.

Deemed dividends associated with anti-dilution or down round provisions (commonly referred to as “ratchets”) represent the economic transfer of value to holders of equity-classified freestanding financial instruments when these provisions are triggered. These deemed dividends are presented as a reduction in net income or an increase in net loss available to common stockholders and a corresponding increase to additional paid-in-capital resulting in no change to stockholders’ equity/deficit. The incremental value of modifications to warrants as a result of the trigger of down round provisions in connection with equity financings was \$3,029, the incremental value of replacement warrants was \$6,596, and the incremental value of modifications to warrants as a result of the trigger of anti-dilution provisions of the JGB warrants was \$367. Such amounts were determined using Monte-Carlo valuation models and are recorded as Deemed dividends for the year ended December 31, 2023 on the Consolidated Statement of Operations and Comprehensive Loss.

Debt Issued with Detachable Warrants - The Company considers guidance within ASC 470-20, *Debt* (ASC 470), ASC 480, and ASC 815 when accounting for the issuance of debt with detachable warrants. As described above under the caption “*Warrants*”, the Company classifies stock warrants as either equity instruments, derivative liabilities, or liabilities depending on the specific terms of the warrant agreement. In circumstances in which debt is issued with detachable warrants, the proceeds from the issuance of the debt are first allocated to the warrants at their full estimated fair value with a corresponding debt discount. The remaining proceeds, as further reduced by discounts (including those created by the bifurcation of embedded derivatives), is allocated to the debt. The Company accounts for debt as liabilities measured at amortized cost and amortizes the resulting debt discount from the allocation of proceeds, to interest expense using the effective interest method over the expected term of the debt instrument pursuant to ASC 835, *Interest* (ASC 835).

Embedded Derivatives - The Company considers whether there are any embedded features in debt instruments that require bifurcation and separate accounting as derivative financial instruments pursuant to ASC 815. Embedded derivatives are initially and subsequently measured at fair value. With the exception of the bifurcated embedded conversion option as described in Note 13 “Debt”, the embedded derivatives associated with the Company’s Senior Secured Credit Facility and Subordinated Note are not material.

Debt Issuance Costs and Discounts - Debt issuance costs and discounts associated with the issuance of debt by the Company are deferred and amortized over the term of the related debt. Debt issuance costs and discounts related to the Company’s Senior Secured Credit Facility and Subordinated Note are recorded as a reduction of the carrying value of the related debt and are amortized to Interest expense using the effective interest method over the period from the date of issuance to the maturity date, whichever is earlier. The amortization of debt issuance costs and discounts are included in Debt related charges included in interest expense in the Consolidated Statements of Cash Flows. Note 13 “Debt” contains additional information on the Company’s debt issuance costs and discounts.

Transfers of Financial Assets – The Company accounts for transfers of financial assets as sales when it has surrendered control over the related assets. Whether control has been relinquished requires, among other things, an evaluation of relevant legal considerations and an assessment of the nature and extent of the Company’s continuing involvement with the assets transferred. Gains and losses resulting from transfers reported as sales are included as a component of Other income (expense) in the Consolidated Statement of Operations and Comprehensive Loss.

Gain/Loss on Debt Extinguishment – Gain or loss on debt extinguishment is generally recorded upon an extinguishment of a debt instrument. Gain or loss on extinguishment of debt is calculated as the difference between the reacquisition price and net carrying amount of the debt, which includes unamortized debt issuance costs. Gains and losses on debt extinguishment are included as a component of Interest expense in the Consolidated Statement of Operations and Comprehensive Loss.

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Revenue Recognition – The Company recognizes revenue when it satisfies a performance obligation by transferring control of the product to a customer. For additional discussion on revenue recognition, refer to Note 17 “Revenue Recognition”.

Research and Development – Research and development costs are expensed as incurred.

Stock Based Compensation – The Company’s Omnibus Incentive Plan allows for various types of equity-based incentive awards. Stock based compensation expense is based on awards that are expected to vest over the requisite service periods and are based on the fair value of the award measured on the grant date. Vesting requirements vary for directors, officers, and employees. In general, time-based awards fully vest after one year for directors and vest in equal annual installments over a three-year period for officers and employees. Performance-based awards vest upon achievement of certain milestones. Forfeitures are accounted for when they occur.

Income Taxes – The Company recognizes deferred tax assets and liabilities for any basis differences in its assets and liabilities between tax and U.S. GAAP reporting, and for operating loss and credit carry-forwards.

As a result of the Company’s history of cumulative net operating losses and the uncertainty of their future utilization, the Company has established a valuation allowance to fully offset its net deferred tax assets as of December 31, 2023, and December 31, 2022.

The Company’s federal and state tax returns for the years ended December 31, 2020 through December 31, 2022 are currently open to audit under the statutes of limitations. There are no pending audits as of December 31, 2023.

Loss Per Common Share – Basic loss per common share is computed using the weighted-average number of common shares outstanding. Diluted loss per share is computed assuming conversion of all potentially dilutive securities. Potential common shares outstanding are excluded from the computation if their effect is anti-dilutive. Refer to Note 16 “Loss Per Common Share” for additional information.

Gain and Loss Contingencies – The Company establishes an accrued liability for litigation and regulatory matters when those matters present loss contingencies that are both probable and estimable. In such cases, there may be an exposure to loss in excess of any amounts accrued. When a loss contingency is not both probable and estimable, the Company does not establish an accrued liability. As a litigation or regulatory matter develops, the Company, in conjunction with any outside counsel handling the matter, evaluates on an ongoing basis whether such matter presents a loss contingency that is probable and estimable. If, at the time of evaluation, the loss contingency related to a litigation or regulatory matter is not both probable and estimable, the matter will continue to be monitored for further developments that would make such loss contingency both probable and estimable. When a loss contingency related to a litigation or regulatory matter is deemed to be both probable and estimable, the Company will establish an accrued liability with respect to such loss contingency and record a corresponding amount of related expenses. The Company will then continue to monitor the matter for further developments that could affect the amount of any such accrued liability.

The Company maintains general liability insurance policies for its facilities. Under the terms of our insurance policies, in the case of loss to a property, the Company follows the guidance in ASC 610-30, *Other Income—Gains and Losses on Involuntary Conversions*, for the conversion of nonmonetary assets (the properties) to monetary assets (insurance recoveries). Under ASC 610-30, once the recovery is deemed probable the Company recognizes an asset for the insurance recovery receivable in the Consolidated Balance Sheets, with corresponding income that is offsetting to the casualty losses recorded in the Consolidated Statements of Operations and Comprehensive Loss. If the insurance recovery is less than the amount of the casualty charges recognized, the Company will recognize a loss whereas if the insurance recovery is greater than the amount of casualty loss recognized, the Company will only recognize a recovery up to the amount of the casualty loss and will account for the excess as a gain contingency in accordance with ASC 450-30, *Gain Contingencies*. Business interruption insurance is treated as a gain contingency. Gain contingencies are recognized when earned and realized, which typically will occur at the time of final settlement or when cash is received.

Refer to Note 12 “Commitments and Contingencies”.

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Severance charges - From time to time, the Company evaluates its resources and optimizes its business plan to align to changing needs of executing on its strategy. These actions may result in voluntary or involuntary employee termination benefits. Voluntary termination benefits are accrued when an employee accepts the related offer. Involuntary termination benefits are accrued upon the commitment to a termination plan and the benefit arrangement is communicated to affected employees, or when liabilities are determined to be probable and estimable, depending on the existence of a substantive plan for severance or termination. The following table summarizes the change in accrued liabilities, presented within Other current liabilities and Other long-term liabilities Consolidated Balance Sheets:

Balance at January 1, 2022	\$	238
Accruals		692
Cash payments		(296)
Balance at December 31, 2022		634
Accruals		790
Reversal from settlement		(168)
Cash payments		(870)
Balance at December 31, 2023	\$	386

	December 31, 2023	December 31, 2022
Current	\$ 386	\$ 349
Noncurrent	—	285
Total severance liability	\$ 386	\$ 634

	Year Ended December 31,	
	2023	2022
Sales, general, and administrative	\$ 401	\$ 692
Other operating expense, net	221	—
Total severance charges	\$ 622	\$ 692

Recent Accounting Pronouncement(s) –

The Company adopted ASU 2016-13, or ASC 326 *Financial Instruments-Credit Losses*, effective January 1, 2023 under a modified retrospective approach. Under the current expected credit losses (“CECL”) model, the Company immediately recognizes an estimate of credit losses expected to occur over the life of the financial asset at the time the financial asset is originated or acquired. Estimated credit losses are determined by taking into consideration historical loss conditions, current conditions and reasonable and supportable forecasts. Changes to the expected lifetime credit losses are recognized each period. The new guidance applies to the Company’s trade receivables and contract asset balances. Due to the nature of business operations and contracts with customers, the Company has historically not experienced significant bad debt expense or write-offs and as a result, the adoption of ASC 326 did not have a material impact to the Company’s Consolidated Financial Statements. In connection with the adoption of ASC 326, the Company recorded a provision for credit losses of \$118 with an offsetting cumulative-effect adjustment to the opening balance of retained earnings as of January 1, 2023.

Accounting Guidance Not Yet Elected or Adopted

In November 2023, the FASB issued ASU 2023-07, *Segment Reporting (Topic 280)-Improvements to Reportable Segment Disclosures*. The ASU enhances disclosure of significant segment expenses by requiring disclosure of significant segment expenses regularly provided to the chief operating decision maker, extend certain annual disclosures to interim periods, and permits more than one measure of segment profit or loss to be reported under certain conditions. The amendments are effective for the Company in years beginning after December 15, 2023, and interim periods within years beginning after December 15, 2024. Early adoption of the ASU is permitted, including adoption in any interim period for which financial statements have not been issued. The Company is currently evaluating the impact that the adoption of this ASU will have on its consolidated financial statements.

In December 2023, the FASB issued ASU 2023-09, *Income Taxes (Topic 740)-Improvements to Income Tax Disclosures*. The ASU requires additional quantitative and qualitative income tax disclosures to allow readers of the consolidated financial statements to assess how the Company's operations, related tax risks and tax planning affect its tax rate and prospects for future cash flows. For public business entities, the ASU is effective for annual periods beginning after December 15, 2024. The Company is currently evaluating the impact that the adoption of this ASU will have on its consolidated financial statements.

We consider the applicability and impact of all ASUs. If the ASU is not listed above, it was determined that the ASU was either not applicable or would have an immaterial impact on our financial statements and related disclosures.

NOTE 2. – DISCONTINUED OPERATIONS AND DIVESTITURES

Provision for Impairment of GVB Hemp/Cannabis Business

During the third quarter of 2023, the Company identified certain events and circumstances that could potentially be an impairment triggering event for both the tobacco and hemp/cannabis reporting units in connection with (1) the announcement of initiating a process to evaluate strategic alternatives for the Company's assets, and (2) announcement of cost cut initiatives intended to yield significant cash savings on an annual basis. The initiation of these two processes was in response to the sustained decline in the Company's market capitalization, operating losses and negative cash flows from operations, and current liquidity position, and is intended to monetize the value or more effectively expand the market reach of our products.

Accordingly, the Company evaluated the impact on each of its reporting units to assess whether there was an impairment triggering event requiring it to perform a goodwill impairment test. The Company had no recorded goodwill in its tobacco reporting unit. For the hemp/cannabis reporting unit, as part of this impairment test, the Company considered certain qualitative factors, such as the Company's performance, business forecasts, and strategic plans. It reviewed key assumptions, including projected cash flows and future revenues. After reviewing the qualitative assessment, the Company determined a quantitative assessment was required to be performed.

Using the income approach, with the discount rate selected considering and capturing the related risk associated with the forecast, the Company compared the fair value of the reporting unit to carrying value. Based on the results, the carrying value of the hemp/cannabis reporting unit exceeded its fair value and the goodwill was determined to be impaired and \$33,360, representing the full amount of goodwill recorded to the hemp/cannabis reporting unit, was written off as impaired during the quarter ended September 30, 2023.

The impairment charge is the result of the Company's Step-1 goodwill impairment test for the former hemp/cannabis reporting unit, which reflected a decrease in the future expected cash flows related to bulk ingredient and CDMO+D product sales, along with increases in discount rates to reflect the uncertainty of future cash flows. Estimating the fair value of goodwill requires the use of estimates and significant judgments that are based on a number of factors, including unobservable level 3 inputs. These estimates and judgments may not be within the control of the Company and accordingly it is reasonably possible that the judgments and estimates could change in future periods.

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The Company also evaluated the recoverability of its hemp/cannabis segment other intangible assets, net and long-lived assets to determine whether any assets or asset groups were impaired. The Company determined that the carrying value of certain tradenames, patents and license intangible assets, net were greater than their fair value, as these intangible assets related to hemp/cannabis operations. Therefore, the Company recorded additional provision for impairment in the amount of \$10,879, the Cookies license acquired in the second quarter of 2023 was written-off and fully impaired in the amount of \$3,037, and a loss on equity investments of \$682. Additionally, through a similar analysis, the Company recorded provision for impairment of \$7,418 for property, plant and equipment and \$5,038 for operating lease right-of-use assets related to manufacturing and lab facilities. The undiscounted cash flow analysis and fair value determination requires the use of estimates and significant judgments that are based on a number of factors, including unobservable level 3 inputs. For the year ended December 31, 2023, total impairment charges for other intangibles and long-lived assets is \$25,189.

Discontinued Operations and Divestiture of GVB Hemp/Cannabis Business

On November 20, 2023, the Company entered into an Equity Purchase Agreement (the “Purchase Agreement”) with Specialty Acquisition Corporation, a Nevada corporation (the “Buyer”) pursuant to which the Company agreed to sell substantially all of its equity interests in its GVB hemp/cannabis business (the “Purchased Interests”) for a purchase price of \$2,250 (the “Purchase Price”).

On December 22, 2023, the Company and the Buyer entered into an Amendment to Equity Purchase Agreement (the “GVB Amendment”) pursuant to which the Company and the Buyer increased the Purchase Price to \$3,100 (the “New Purchase Price”) which consisted of (i) a cash payment of \$1,100 to the Company’s senior lender, on behalf of and at the direction of the Company and (ii) a 12% secured promissory note issued by the Buyer to the Company’s senior lender, on behalf of and at the direction of the Company, in an aggregate principal amount of \$2,000 (the “GVB Note”). Until repaid to the senior lender, the GVB Note is recorded as a current asset and corresponding amount is pledged as Current portion of long term debt on the Consolidated Balance Sheet as of December 31, 2023.

The parties previously agreed that the Company would retain any insurance proceeds received in connection with the fire at the Grass Valley manufacturing facility, if any (the “Insurance Proceeds”) and up to the first \$2,000 of the Insurance Proceeds would be used to offset the Buyer’s portion of certain shared liabilities. Pursuant to the terms of the GVB Amendment, the Buyer will be entitled to offset its portion of certain shared contingent liabilities up to \$1,000; provided that, the Insurance Proceeds exceed \$5,000.

In connection with the closing of the transaction on December 22, 2023, but prior to any adjustments for Insurance Proceeds and certain shared liabilities, after selling expenses of \$434, the Company recognized a loss on disposal of discontinued operations of \$58,521 during the year ended December 31, 2023, which includes the third quarter impairment charges described above.

For disposal transactions, a component of an entity that is anticipated to be sold in the future is reported in discontinued operations after it meets the criteria for held-for-sale classification, and if the disposition represents a strategic shift that has (or will have) a major effect on the entity’s operations and financial results. The Company evaluated the quantitative and qualitative factors related to the expected sale of the GVB hemp/cannabis business and exit from the hemp/cannabis space, and concluded that it met the held-for-sale criteria and that all other conditions for discontinued operations presentation were not met until November 30, 2023. Property, plant and equipment are not depreciated, and intangibles assets are not amortized once classified as held-for-sale.

As a result, the operating results of the hemp/cannabis disposal group have been classified as discontinued operations in the Consolidated Statements of Operations and Comprehensive Loss for all periods presented and the assets and liabilities of the hemp/cannabis disposal group have been classified as assets and liabilities of discontinued operations in the Consolidated Balance Sheets at December 31, 2023 and 2022, respectively. See additional information in Note 3, “Business Acquisitions” related to GVB And RXP, including the date of transactions and periods that operating results of the acquired business are included in the Consolidated Financial Statements.

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The assets and liabilities of a discontinued operation held for sale, other than goodwill, are measured at the lower of carrying amount or fair value less cost to sell. Following the provision for impairment charges recorded during the third quarter of 2023 as described above, the Company concluded the carrying value of assets and liabilities of the GVB hemp/cannabis business approximated fair value when deemed held for sale based on the purchase price consideration of \$3,100.

As of December 31, 2023, all assets and liabilities of the hemp/cannabis disposal group are presented as current in the Consolidated Balance Sheet as management believes the remaining disposal and exit from hemp/cannabis is deemed probable and will occur within one year. The carrying amounts of the hemp/cannabis disposal group assets and liabilities that were classified as assets and liabilities of discontinued operations held for sale were as follows:

	December 31, 2023	December 31, 2022
Cash and cash equivalents	\$ —	\$ 815
Accounts receivable, net	—	4,278
Inventories	—	2,738
Insurance recoveries	—	5,000
Prepaid expenses and other current assets	9	815
Property, plant and equipment, net - current	1,207	—
Other current assets	38	—
Current assets of discontinued operations held for sale	\$ 1,254	\$ 13,646
Property, plant and equipment, net	—	9,401
Operating lease right-of-use assets, net	—	1,732
Goodwill	—	33,160
Intangible assets, net	—	9,641
Investments	—	682
Other assets	—	166
Noncurrent assets of discontinued operations held for sale	\$ —	\$ 54,782
Notes and loans payable - current	\$ 2	\$ 219
Operating lease obligations	1,083	429
Accounts payable	2,013	2,117
Accrued expenses	79	662
Accrued payroll	—	537
Deferred income	8	143
Other current liabilities	—	31
Current liabilities of discontinued operations held for sale	\$ 3,185	\$ 4,138
Notes and loans payable	—	3,001
Operating lease obligations	—	1,430
Other long-term liabilities	—	172
Noncurrent liabilities of discontinued operations held for sale	\$ —	\$ 4,603
Net (liabilities) assets	\$ (1,931)	\$ 59,687

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Net loss from discontinued operations for year ended December 31, 2023 and 2022 was as follows:

	Year Ended December 31,	
	2023	2022
Revenues, net	\$ 42,113	\$ 21,610
Cost of goods sold	49,185	22,283
Gross loss	(7,072)	(673)
Operating expenses:		
Sales, general and administrative	16,540	12,286
Research and development	3,010	2,983
Other operating expense, net ⁽¹⁾	118	7,529
Loss on disposal of discontinued operations	58,521	—
Total operating expenses	78,189	22,798
Operating loss from discontinued operations	(85,261)	(23,471)
Other income (expense):		
Other income, net	65	66
Interest expense ⁽²⁾	(438)	(298)
Total other expense	(373)	(232)
Loss from discontinued operations before income taxes	(85,634)	(23,703)
Provision (benefit) for income taxes	455	(455)
Net loss from discontinued operations	\$ (86,089)	\$ (23,248)

(1) The Company recorded \$25,189 of impairment charges in Other operating expenses, net and recorded \$33,360 of Goodwill impairment from discontinued operations during the three months ended September 30, 2023, which were reclassified to Loss on disposal of discontinued operations during the three months ended December 31, 2023.

(2) The Company allocates interest to discontinued operations if the interest is directly attributable to the discontinued operations or is interest on debt that is required to be repaid as a result of the disposal transaction. Interest expense included in discontinued operations reflects an estimate of interest expense related to the \$3,100 principal balance of debt that is required to be repaid with the proceeds from the sale of the GVB hemp/cannabis business.

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The components of discontinued operations “Other operating expenses, net” were as follows:

	Year Ended	
	December 31,	
	2023	2022
Grass Valley fire:		
Fixed asset write-offs	\$ —	\$ 5,550
Inventory charges	—	3,998
Lease obligations	—	20
Professional services	407	36
Compensation & benefits	—	195
Insurance recoveries	—	(5,000)
Total Grass Valley fire	407	4,799
Severance	13	—
Impairment of intangible assets	—	1,453
Gain on change in contingent consideration	(1,138)	—
Needlerock Farms settlement	769	—
Impairment of inventory	—	237
Gain on sale or disposal of property, plant and equipment	(64)	(6)
Acquisition costs	131	1,046
Total other operating expenses, net	\$ 118	\$ 7,529

Grass Valley fire

In November 2022, there was a fire at our Grass Valley manufacturing facility in Oregon, which manufactures bulk ingredients, primarily CBD isolate and distillate. The Company has incurred continuous expenses throughout 2023 related to consulting, legal and demolition at this facility.

Cash flow information from discontinued operations for years ended December 31, 2023 and 2022 was as follows:

	Year Ended	
	December 31,	
	2023	2022
Cash used in operating activities	\$ 21,281	\$ 17,274
Cash used in investing activities	\$ 799	\$ 3,665
Depreciation and amortization	\$ 2,443	\$ 1,566
Capital expenditures	\$ 3,752	\$ 2,752

NOTE 3. – BUSINESS ACQUISITIONS

The following acquisitions occurring during the years ended December 31, 2023, and 2022, respectively, are included in the Company’s former hemp/cannabis reportable segment. Accordingly, the results of operations are reported as discontinued operations in the Consolidated Statements of Operations and Comprehensive Loss for all periods presented. See Note 2 “Discontinued Operations and Divestitures” for additional information.

RX Pharmatech, Ltd.

On January 19, 2023, the Company acquired RX Pharmatech Ltd (“RXP”) pursuant to a share purchase agreement (“SPA”) a privately held distributor of cannabinoids with 1,276 novel food applications with the U.K. Food Standards Agency (“FSA”). RXP’s products include CBD isolate and numerous variations of finished products like gummies, oils, drops, candies, tinctures, sprays, capsules and others.

The initial consideration paid to acquire RXP included \$200 in cash and \$503 in common stock (consisting of 31,056 unregistered shares of common stock), and an initial estimate of target working capital true-up of \$286. The fair value of the Company’s common stock issued as part of the consideration was determined based upon the opening stock price of the Company’s shares as of the acquisition date. Additionally, the contingent consideration in the transaction represents the estimated fair value of the Company’s obligation, under the share purchase agreement, to make additional equity based payments of up to \$1,550 over the next three years based on specified conditions being met, which has an initial fair value of contingent consideration of \$1,138. The fair value of the aggregate consideration in the transaction is \$2,127.

Based on the preliminary purchase price allocation, the assets acquired and liabilities assumed principally comprise \$1,744 of intangible assets, and other immaterial working capital items representing a net asset of \$93 (net of cash acquired of \$290). There was no excess purchase price and therefore no goodwill recorded as part of the business combination. The determination of estimated fair value required management to make significant estimates and assumptions based on information that was available at the time the Consolidated Financial Statements were prepared.

Intangible assets include the intellectual property associated with the 1,276 novel food applications with the FSA, which is determined to be indefinite lived. The preliminary fair value was determined by utilizing the cost approach and considered market data to evaluate the replacement cost per application. The intellectual property is included in the former hemp/cannabis reportable segment.

The Company utilizes third-party valuation experts to assist in estimating the fair value of the contingent consideration and develops estimates by considering weighted-average probabilities of likely outcomes and discounted cash flow analysis. These estimates require the Company to make various assumptions about forecasted revenues and discount rates, which are unobservable and considered Level 3 inputs in the fair value hierarchy. A change in these inputs to a different amount might result in a significantly higher or lower fair value measurement at the reporting date.

The following table provides quantitative information associated with the initial fair value measurement of the Company’s liabilities for contingent consideration as of January 19, 2023:

Contingency Type	Maximum Payout (undiscounted)	Fair Value	Unobservable Inputs	Weighted Average or Range
Revenue-based payments	\$ 1,550	\$ 1,138	Discount rate	16 %
			Projected year(s) of payment	2024-2026

During the third quarter of 2023, the Company finalized amounts recorded as purchase price allocation and recorded measurement period adjustments of \$53, resulting from an increase of the working capital true-up amount based on final payment made to the sellers.

On December 22, 2023, concurrent with the GVB divestiture (as described in Note 2) which included RXP, the Company entered into a binding letter agreement to terminate its’ remaining contingent consideration obligation payable in shares under the SPA with the sellers of RXP. Accordingly, for the year-ended December 31, 2023, the Company recognized within discontinued operations a gain of \$1,138 in Other operating expenses, net in connection with the change in fair value of the contingent consideration.

GVB Biopharma

On May 13, 2022, the Company entered into and closed the transactions contemplated by the Reorganization and Acquisition Agreement (the “Reorganization Agreement”) with GVB. Under the terms of the Reorganization Agreement, the Company acquired substantially all of the assets of GVB’s business dedicated to hemp-based cannabinoid extraction, refinement, contract manufacturing and product development (the “Transaction”).

The aggregate consideration for the Transaction consisted of (i) the assumption of approximately \$4,637 of debt, (ii) the assumption and direct payment of certain third-party transaction costs incurred by GVB in connection with the Transaction totaling approximately \$1,753 and (iii) the issuance to GVB of 2,193,334 unregistered shares of common stock of the Company (the “Shares”) with a fair value of \$51,653. The fair value of the Company’s common stock issued as part of the consideration was determined based upon the opening stock price of the Company’s shares as of the acquisition date.

The Transaction was structured as a tax-free re-organization pursuant to Internal Revenue Code Section 368(a)(1)(c). Accordingly, the tax basis of net assets acquired retain their carry over tax basis and holding period in purchase accounting.

The Company recorded provisional estimated fair values for the assets purchased, liabilities assumed and purchase consideration as of the date of the acquisition during the second quarter of 2022, resulting in goodwill of \$44,200. The determination of estimated fair value required management to make significant estimates and assumptions based on information that was available at the time the Consolidated Financial Statements were prepared.

Following the initial acquisition accounting, the Company recorded final measurement period adjustments, in which the preliminary fair values of the assets acquired and liabilities assumed as of May 13, 2022 were adjusted to reflect the ongoing acquisition valuation analysis procedures of property and equipment, intangible assets, deferred taxes, and working capital adjustments. These adjustments resulted in a combined reduction to goodwill of \$10,840. The impact of depreciation and amortization to Operating loss recorded in the third quarter of 2022 as a result of completing valuation procedures for property and equipment and intangible assets, that would have been recorded in the prior period since the date of acquisition was \$70.

The following table presents management’s purchase price allocation:

Cash	\$	456
Accounts receivable		2,944
Inventory		3,551
Other assets		519
Property, plant & equipment		11,189
Operating leases right-of-use assets, net		1,231
Goodwill		33,360
Tradename		4,600
Customer relationships		5,800
Accounts payable and accrued expenses		(2,777)
Other current liabilities		(944)
Lease liabilities		(1,259)
Auto loans		(387)
Deferred tax liability		(627)
Bridge loan		(4,250)
Fair value of net assets acquired	\$	<u>53,406</u>

The fair values of the assets acquired were determined using one of three valuation approaches: market, income or cost. The selection of a particular method for a given asset depended on the reliability of available data and the nature of the asset, among other considerations.

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The market approach estimates the value for a subject asset based on available market pricing for comparable assets. The income approach estimates the value for a subject asset based on the present value of cash flows projected to be generated by the asset. The projected cash flows were discounted at a required rate of return that reflects the relative risk of the asset and the time value of money. The projected cash flows for each asset considered multiple factors from the perspective of a marketplace participant including revenue projections from existing customers, attrition trends, tradename life-cycle assumptions, marginal tax rates and expected profit margins giving consideration to historical and expected margins. The cost approach estimates the value for a subject asset based on the cost to replace the asset and reflects the estimated reproduction or replacement cost for the asset, less an allowance for loss in value due to depreciation or obsolescence, with specific consideration given to economic obsolescence if indicated. These fair value measurement approaches are based on significant unobservable inputs, including management estimates and assumptions.

Current Assets and Liabilities

The fair value of current assets and liabilities, excluding inventory, was assumed to approximate their carrying value as of the acquisition date due to the short-term nature of these assets and liabilities.

The fair value of in-process and finished goods inventory acquired was estimated by applying a version of the income approach called the comparable sales method. This approach estimates the fair value of the assets by calculating the potential revenue generated from selling the inventory and subtracting from it the costs related to the completion and sale of that inventory and a reasonable profit allowance for these remaining efforts. Based upon this methodology, the Company recorded the inventory acquired at fair value resulting in an increase in inventory of \$978, which was fully amortized in the three month period ended June 30, 2022 in the Consolidated Statement of Operations and Comprehensive Loss.

Property, Plant and Equipment

The fair value of PP&E acquired was estimated by applying the cost approach for personal property and leasehold improvements. The cost approach was applied by developing a replacement cost and adjusting for economic depreciation and obsolescence.

Leases

The Company recognized operating lease liabilities and operating lease right-of-use assets for office and manufacturing facilities in (i) Las Vegas, Nevada (ii) Grass Valley, Oregon (iii) Prineville, Oregon, and (iv) Tygh Valley, Oregon, accordance with ASC 842, *Leases*. All facilities were subsequently divested as part of the GVB sale discussed in Note 2 “Discontinued Operations and Divestitures.”

The following table summarizes the Company’s discount rate and remaining lease terms as of the acquisition date:

Weighted average remaining lease term in years	3.8
Weighted average discount rate	8.3 %

The Company concluded there were no off-market lease intangibles on the date of acquisition based on an evaluation of market rents per square foot, geographic location and nature of use of the underlying asset, among other considerations.

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Intangible assets

The purchase price was allocated to intangible assets as follows:

Definite-lived Intangible Assets	Fair Value	Weighted Average	Weighted Average
	Assigned	Amortization Period (Years)	Discount Rate
Customer relationships	\$ 5,800	10	23.50%
Tradename	\$ 4,600	Indefinite	23.50%

Customer Relationships

Customer relationships represent the estimated fair value of contractual and non-contractual customer relationships GVB had as of the acquisition date. These relationships were valued separately from goodwill at the amount that an independent third party would be willing to pay for these relationships. The fair value of customer relationships was determined using the multi-period excess-earnings method, a form of the income approach. The estimated useful life of the existing customer base was based upon the historical customer annual attrition rate of 20%, as well as management's understanding of the industry and product life cycles.

Tradename

Tradename represents the estimated fair value of GVB's corporate and product names. The acquired tradename was valued separately from goodwill at the amount that an independent third party would be willing to pay for use of these names. The fair value of the tradename was determined by utilizing the relief from royalty method, a form of the income approach, with a royalty rate of 1.0%. The GVB tradename was assumed to have an indefinite useful life based upon long-term management expectations and future operating plans.

Deferred Taxes

The Company determined the deferred tax position to be recorded at the time of the GVB acquisition in accordance with ASC Topic 740, *Income Taxes*, resulting in recognition of deferred tax liabilities for future reversing of taxable temporary differences primarily for intangible assets and property, plant and equipment. This resulted in a preliminary net deferred tax liability of \$627, which includes the carryover basis of historical recognized deferred tax assets, liabilities and valuation allowance.

The net deferred tax liabilities recorded as a result of the acquisition of GVB was determined by the Company to also provide future taxable temporary differences that allow for the Company to utilize certain previously fully reserved deferred tax assets. Accordingly, the Company recognized a reduction to its valuation allowance resulting in a net tax benefit of approximately \$434 for the year ended December 31, 2022.

Goodwill

The excess of the purchase price over the fair value of net tangible and intangible assets acquired and liabilities assumed was allocated to goodwill. A variety of factors contributed to the goodwill recognized, including the value of GVB's assembled work force, the incremental value resulting from GVB's capabilities in hemp/cannabis, operational synergies across the plant science platform, and the expected revenue growth over time that is attributable to increased market share from future products and customers. Goodwill recorded in the transaction will be non-deductible.

Acquisition costs

During the year ended December 31, 2023, direct costs incurred as a result of the acquisition of RXP were \$130, compared to direct costs incurred as a result of the acquisition of GVB of \$1,046 during the year ended December 31, 2022. Acquisition costs are expensed as incurred and included in Other operating expenses, net in the Consolidated Statements of Operations and Comprehensive Loss.

NOTE 4. – INVENTORIES

Inventories at December 31, 2023 and 2022 consisted of the following:

	December 31, 2023	December 31, 2022
Raw materials	\$ 3,580	\$ 7,090
Work in process	—	3
Finished goods	766	177
	<u>\$ 4,346</u>	<u>\$ 7,270</u>

During the year ended December 31, 2023, the Company reserved certain leaf inventory totaling \$7,720 resulting from restructuring initiatives implemented, as described in Note 18 “Other Operating Expenses, Net”. Inventory charges are included within Cost of goods sold on the Company’s Consolidated Statement of Operations and Comprehensive Loss.

NOTE 5. – PROPERTY, PLANT AND EQUIPMENT, NET

Property, plant and equipment, net at December 31, 2023 and 2022 consisted of the following:

	December 31, 2023	December 31, 2022
Leasehold improvements	\$ 262	\$ 232
Manufacturing equipment	7,254	6,780
Office furniture, fixtures and equipment	254	414
	7,770	7,426
Less: accumulated depreciation	(4,377)	(3,734)
Property, plant and equipment, net	<u>\$ 3,393</u>	<u>\$ 3,692</u>

Depreciation expense was \$852 and \$673 for the year ended December 31, 2023 and 2022, respectively.

NOTE 6. – RIGHT-OF-USE ASSETS, LEASE OBLIGATIONS, AND OTHER LEASES

The Company leases a manufacturing facility in Mocksville, North Carolina and an inventory storage facility in Winston-Salem, North Carolina.

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On January 1, 2023, the Company signed the lease agreement for the inventory storage facility. The lease has an initial monthly base rent of \$15 (escalating 3.0% annually after the first year), an initial term of 36 months – with two twenty-four-month optional renewal options at the Company’s discretion.

On March 31, 2023, the Company extended the lease terms for its manufacturing facility. As a result of this lease modification, the Company re-measured the lease liability and adjusted the ROU asset on the modification dates.

The following table summarizes the Company’s discount rate and remaining lease terms as of December 31, 2023:

Weighted average remaining lease term in years	5.9
Weighted average discount rate	9.0 %

Future minimum lease payments as of December 31, 2023 are as follows:

2024	\$	396
2025		403
2026		422
2027		430
2028		449
Thereafter		414
Total lease payments		2,514
Less: imputed interest		(585)
Present value of lease liabilities		1,929
Less: current portion of lease liabilities		(231)
Total long-term lease liabilities	\$	1,698

Operating lease costs for the year ended December 31, 2023 and 2022, were \$475 and \$288, respectively.

Supplemental cash flow information for leases for fiscal years 2023 and 2022 are comprised of the following:

	December 31, 2023	December 31, 2022
Cash paid for operating leases	\$ 436	\$ 276
Assets acquired under operating leases	\$ 1,602	\$ —

NOTE 7. – INTANGIBLE ASSETS, NET

Our intangible assets at December 31, 2023 and 2022 consisted of the following:

December 31, 2023	Gross Carrying Amount	Accumulated Amortization	Impairment	Net Carrying Amount
<i>Definite-lived:</i>				
Patent	\$ 2,913	\$ (1,622)	\$ (487)	\$ 804
License fees	4,165	(1,666)	(65)	2,434
Total amortizing intangible assets	\$ 7,078	\$ (3,288)	\$ (552)	\$ 3,238
<i>Indefinite-lived:</i>				
Trademarks	\$ 134	NA	\$ -	\$ 134
MSA signatory costs	2,202	NA	-	2,202
License fee for predicate cigarette brand	350	NA	-	350
Total indefinite-lived intangible assets	\$ 2,686	NA	\$ -	\$ 2,686
Total intangible assets, net	\$ 9,764	\$ (3,288)	\$ (552)	\$ 5,924

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December 31, 2022	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
<i>Definite-lived:</i>			
Patent	\$ 5,723	\$ (3,588)	\$ 2,135
License fees	3,801	(1,417)	2,384
Total amortizing intangible assets	<u>\$ 9,524</u>	<u>\$ (5,005)</u>	<u>\$ 4,519</u>
<i>Indefinite-lived:</i>			
Trademarks			\$ 141
MSA signatory costs			2,202
License fee for predicate cigarette brand			350
Total indefinite-lived intangible assets			<u>\$ 2,693</u>
Total intangible assets, net			<u><u>\$ 7,212</u></u>

Aggregate intangible asset amortization expense comprises of the following:

	Year Ended December 31,	
	2023	2022
Cost of goods sold	\$ 11	\$ 10
Research and development	644	609
Total amortization expense	<u>\$ 655</u>	<u>\$ 619</u>

During the years ended December 31, 2023 and 2022, the Company incurred impairment charges of \$1,375 and \$35, respectively, related to write-downs and disposals of patents, licenses and trademarks as a result of a shift in strategy related to the nature and use of the related assets. Impairment charges during the year-ended December 31, 2023 consisted of \$552 for patents and trademarks the Company continues to hold but does not align with its current strategy, \$772 was related to disposals of patents abandoned from future maintenance and renewal and \$51 was related to disposals of trademarks abandoned. The Company also disposed of \$1,501 of patents that had a net book value of \$0.

The impairment charges are included in Other operating expenses, net on the Company's Consolidated Statements of Operations and Comprehensive Loss.

Estimated future intangible asset amortization expense based on the carrying value as of December 31, 2023 is as follows:

	2024	2025	2026	2027	2028	Thereafter
Amortization expense	\$ 422	\$ 410	\$ 351	\$ 365	\$ 321	\$ 1,369

NOTE 8. – INVESTMENTS & OTHER ASSETS

Panacea Investment – Promissory Note:

On June 30, 2021, the Company entered into a Promissory Note Exchange Agreement with Panacea Life Sciences Holdings, Inc. (“PLSH”) as a component of various investment transactions with PLSH. The promissory note was issued in the amount of \$4,300 (the “Promissory note receivable”) with a maturity date of June 30, 2026 and a 0% interest rate. The Promissory note receivable is with J&N Real Estate Company, L.L.C., a related party of Panacea and is fully secured by a first priority lien on Panacea’s headquarters located in Golden, Colorado.

The Promissory note receivable was originally valued at \$3,684 (\$4,300 face value less \$616 discount) and is included within the Consolidated Balance Sheets as “Other Assets.” Subsequently, on December 31, 2022 the Company and PLSH entered into a settlement agreement in which the Company agreed to a reduction to the face value of the Promissory note receivable of \$500, in exchange for resolution to all contractual requirements surrounding the investment and business relationship. Accordingly, the Company recognized an extinguishment charge of note receivable of \$500 less adjusted discount of \$51 during the year-ended December 31, 2022.

As of October 16, 2023, the \$3,800 Promissory note receivable was fully assigned in connection with the Senior Secured Credit Facility Amendment and Waiver. The remaining discount of \$305 was extinguished and after recognizing consideration of \$2,600, resulted in a loss on transfer of financial asset of \$895 recorded as a component of Other income (expense) on the Consolidated Statement of Operations and Comprehensive Loss. Refer to Note 13 “Debt.” Through the date of assignment, the Company intended to hold the remaining outstanding Promissory note receivable to maturity and the associated discount will be amortized into interest income over the term of the note.

NOTE 9. – FAIR VALUE MEASUREMENTS

Assets and Liabilities Measured at Fair Value on a Recurring Basis

Fair value measurement standards apply to certain financial assets and liabilities that are measured at fair value on a recurring basis (each reporting period). For the Company, these financial assets and liabilities include its short-term investment securities and equity investments. The Company does not have any nonfinancial assets or liabilities that are measured at fair value on a recurring basis.

The following table presents information about our assets and liabilities measured at fair value at December 31, 2023 and 2022, and indicates the fair value hierarchy of the valuation techniques the Company utilized to determine such fair value:

	Fair Value December 31, 2023			
	Level 1	Level 2	Level 3	Total
Liabilities				
Detachable warrants	\$ —	\$ —	\$ 1,350	\$ 1,350
Derivative liability	—	—	557	557
Total liabilities	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 1,907</u>	<u>\$ 1,907</u>
	Fair Value December 31, 2022			
	Level 1	Level 2	Level 3	Total
Assets				
Money market funds	\$ 10,163	\$ —	\$ —	\$ 10,163
Corporate bonds	—	7,031	—	7,031
U.S. treasury securities	—	999	—	999
Total assets	<u>\$ 10,163</u>	<u>\$ 8,030</u>	<u>\$ —</u>	<u>\$ 18,193</u>

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Money market mutual funds are valued at their daily closing price as reported by the fund. Money market mutual funds held by the Company are open-end mutual funds that are registered with the SEC that generally transact at a stable \$1.00 Net Asset Value (“NAV”) representing its estimated fair value. On a daily basis the fund’s NAV is determined by the fund based on the amortized cost of the funds underlying investments. The Company classifies its money market funds within Level 1 because it uses quoted market prices to determine their fair value. The Company classifies its commercial paper, corporate notes, certificates of deposit, and U.S. government bonds within Level 2 because it uses quoted prices for similar assets or liabilities in active markets and each has a specified term and all level 2 inputs are observable for substantially the full term of each instrument.

Corporate bonds are valued using pricing models maximizing the use of observable inputs for similar securities.

The following tables set forth a summary of the Company’s available-for-sale debt securities from amortized cost basis to fair value as of December 31, 2022:

	Available for Sale Debt Securities December 31, 2022			
	Amortized Cost Basis	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Corporate bonds	\$ 7,143	\$ —	\$ (112)	\$ 7,031

The following table sets forth a summary of the Company’s available-for-sale debt securities at amortized cost basis and fair value by contractual maturity as of December 31, 2022:

	December 31, 2022	
	Amortized Cost Basis	Fair Value
Due in one year or less	\$ 7,143	\$ 7,031

The Company recognized interest income on short-term investment securities recorded in Interest income, net on the Consolidated Statement of Operations and Comprehensive Loss during the years ended December 31, 2023 and 2022 of \$52 and \$546, respectively.

Detachable Warrants

The following table sets forth a summary of the changes in fair value of the Company’s stock warrants accounted for as liabilities (Level 3 asset) for the period ended December 31, 2023:

Fair value measurement at January 1, 2023	\$	—
Initial measurement (see Note 1 and 10)		4,214
Fair value measurement adjustment		(364)
JGB redemption of 166,667 warrants		(2,500)
Fair value measurement at December 31, 2023	\$	1,350

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The Omnia detachable warrants were measured at December 31, 2023 using a Monte Carlo valuation model with the following assumptions:

Risk-free interest rate per year	4.6 %
Expected volatility per year	90.9 %
Expected dividend yield	— %
Contractual expiration	6.6 years
Exercise price	\$ 12.828
Stock price	\$ 0.19

The detachable warrants are measured at fair value using certain estimated factors which are classified within Level 3 of the valuation hierarchy. Significant unobservable inputs that are used in the fair value measurement of the Company's detachable warrants include the volatility factor, anti-dilution provisions, and contingent put option. Significant increases or decreases in the volatility factor would have resulted in a significantly higher or lower fair value measurement. Additionally, a change in probability regarding the anti-dilution provision or put option would have resulted in a significantly higher or lower fair value measurement.

Derivative Liability

The derivative liability related to the debentures and embedded conversion option using was measured at December 31, 2023 using a binomial lattice valuation model under a "with and without" approach and contained the following assumptions:

Stock price volatility	104.1 %
Expected term	2.2 years
Stock price as of measurement date (per share)	\$ 0.19
Risk-free rate	4.3 %
Credit rating	CCC
Market yield (credit risk)	13.8 %

The debentures and derivative liability are measured at fair value using certain estimated factors which are classified within Level 3 of the valuation hierarchy. Significant unobservable inputs that are used in the fair value measurement of the Company's derivative liability include a decrease/increase in our stock price, stock price volatility, credit rating, and simulated stock price upon conversion could significantly change the fair value measurement as either an increase or decrease.

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis

Fair value standards also apply to certain assets and liabilities that are measured at fair value on a nonrecurring basis. During the years ended December 31, 2023 and 2022, the Company did not have any financial assets or liabilities measured at fair value on a nonrecurring basis.

NOTE 10. – CAPITAL RAISES AND WARRANTS FOR COMMON STOCK

The following tables summarize the Company’s warrant activity:

Warrants outstanding at January 1, 2022	—
Exercised	—
Issued	1,138,212
Warrants outstanding at December 31, 2022	1,138,212
Exercised	(18,084,052)
Abandoned	(325,205)
Issued	65,028,421
Warrants outstanding at December 31, 2023	<u>47,757,376</u>

	# of warrants outstanding	Exercise price	Expiration date
July 2022 RDO warrants	65,042	\$ 30.75	July 25, 2027
Senior Secured Credit Facility - JGB	330,294	\$ 12.828	September 3, 2028
Subordinated Note - Omnia	45,000	\$ 12.828	September 3, 2030
July 6, 2023 RDO warrants	1,557,268	\$ 0.2042	January 10, 2029
July 19, 2023 RDO warrants	1,225,000	\$ 0.2042	July 20, 2028
October 2023 CMPO warrants	13,500,000	\$ 0.2042	October 19, 2028
Inducement warrants	31,034,772	\$ 0.2042	February 15, 2029
	<u>47,757,376</u>		

2022 Registered Direct Offering & Warrant Repricing

On July 21, 2022, the Company and certain institutional investors (the “July 2022 Investors”) entered into a securities purchase agreement (the “July 2022 Securities Purchase Agreement”) relating to the issuance and sale of shares of common stock pursuant to a registered direct offering (the “July 2022 Registered Offering”) and, together with the July 2022 Private Placement (as defined below), the “July 2022 Offerings”). The July 2022 Investors purchased approximately \$35,000 of shares, consisting of an aggregate of 1,138,221 shares of common stock at a purchase price of \$30.75 per share, subject to certain restrictions. The net proceeds to the Company from the July 2022 Offerings, after deducting the fees and the Company’s offering expenses, were \$32,484.

Pursuant to the July 2022 Securities Purchase Agreement, in a concurrent private placement, the Company issued and sold to the July 2022 Investors warrants (the “July 2022 Warrants”) to purchase up to 1,138,221 shares of common stock (the “July 2022 Private Placement”). The July 2022 Warrants were exercisable immediately upon issuance at an exercise price of \$30.75 per share of common stock, subject to adjustment in certain circumstances, and expire on July 25, 2027.

As a result of the June 19, 2023 offering described below, certain of the July 2022 Investors and the Company entered a warrant reprice letter (the “Warrant Repricing”) and agreed to reduce the exercise price on the previously issued 747,974 warrants owned by the investors participating in the June 19, 2023 offering from \$30.75 to \$7.05 and to add a provision in the warrants that upon any subsequent equity sales at a price per share lower than the then effective exercise price of such warrants, such exercise price shall be lowered to such price at which the shares were offered. The Warrant Repricing is accounted for as a modification of a freestanding equity-classified written call option, and therefore resulted in an immediate and incremental increase of approximately \$2,025 in the estimated fair value of the related 747,974 warrants, recorded as a component of Capital in excess of par value, with an offsetting equal amount recorded as equity issuance costs.

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As a result of subsequent offerings, the exercise price on 747,974 warrants was automatically adjusted triggering non-cash deemed dividends as a result of the down-round adjustments. In July 2023 the exercise price was adjusted to \$3.80 and \$2.42, respectively, and further in October 2023 was adjusted to \$0.525. All of the outstanding warrants were subsequently exercised in connection with the Warrant Inducement Offering.

The remaining 390,247 previously issued July 2022 Warrants were not repriced and on December 7, 2023, the Company was provided notice of irrevocable abandonment of 325,205 warrants. Accordingly, the Company has 65,042 remaining July 2022 Warrants with an exercise price of \$30.75 and an expiration date of July 25, 2027.

June 19, 2023 Registered Direct Offering

On June 19, 2023, the Company and certain investors entered into a securities purchase agreement relating to the issuance and sale of shares of approximately \$5,300 of shares and warrants, consisting of an aggregate of 747,974 shares of common stock and 747,974 warrants to purchase an equal number of shares, at a purchase price of \$7.05 per unit. The net proceeds to the Company from the offering were approximately \$4,800.

The warrants were exercisable immediately upon issuance at an exercise price of \$7.05 per share of common stock, expire on June 22, 2028 and are subject to adjustment in certain circumstances, including upon any subsequent equity sales at a price per share lower than the then effective exercise price of such warrants, then such exercise price shall be lowered to such price at which the shares were offered.

As a result of the subsequent offerings, the exercise price on the 747,974 warrants was automatically adjusted triggering non-cash deemed dividends as a result of the down-round adjustments. In July 2023, the exercise price was adjusted to \$3.80 and \$2.42, respectively, and further in October 2023 was adjusted to \$0.525. All of the outstanding warrants were subsequently exercised in connection with the Warrant Inducement Offering and no warrants issued in the June 2023 registered direct offering remain outstanding as of December 31, 2023.

July 6, 2023 Registered Direct Offering.

On July 6, 2023, the Company and certain investors entered into a securities purchase agreement relating to the issuance and sale of approximately \$3,000 of shares and warrants, consisting of an aggregate of 778,634 shares of common stock and 1,557,268 warrants to purchase an equal number of shares, at a purchase price of \$3.80 per unit. The warrants became exercisable six months after issuance at an exercise price of \$3.80 per share of common stock and expire on January 10, 2029. The net proceeds to the Company from the offering were approximately \$2,722.

As a result of subsequent offerings, the exercise price on 1,557,268 warrants was automatically adjusted triggering non-cash deemed dividends as a result of the down-round adjustments. In July 2023, the exercise price was adjusted to \$2.42 and further in October 2023 was adjusted to \$0.525. 1,557,368 warrants that remained outstanding as of December 31, 2023 were subsequently exercised in connection with the Warrant Inducement Offering in January 2024 (see Note 21 “Subsequent Events.”)

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July 19, 2023 Registered Direct Offering.

On July 19, 2023, the Company and certain investors entered into a securities purchase agreement relating to the issuance and sale of approximately \$11,700 of shares and warrants, consisting of an aggregate of 4,373,219 shares of common stock and 8,746,438 warrants to purchase an equal number of shares, at a purchase price of \$2.67 per unit. The warrants were exercisable immediately at an exercise price of \$2.42 per share of common stock and expire five years after issuance. The net proceeds to the Company from the offering were approximately \$10,742.

As a result of a subsequent offering, the exercise price on 8,746,438 warrants was automatically adjusted triggering non-cash deemed dividends as a result of the down-round adjustment. In October 2023 the exercise price was adjusted to \$0.525. 7,521,438 of the warrants were subsequently exercised in connection with the Warrant Inducement Offering through December 31, 2023. 1,225,000 warrants remained outstanding with an exercise price of \$0.1765 and an expiration date of July 19, 2028, of which 775,000 were subsequently exercised in January 2024 (see Note 21 “Subsequent Events.”).

October 2023- Public Equity Offering

On October 17, 2023, the Company entered into a securities purchase agreement with certain investors, pursuant to which the Company agreed to sell and issue, in a registered public offering, (i) an aggregate of 7,600,000 shares of the Company’s common stock, par value \$0.00001 per share, (ii) warrants to purchase 20,000,000 shares of common stock (the “October Warrants”) and (iii) pre-funded warrants to purchase 2,400,000 shares of common stock (the “Pre-Funded Warrants”). The Common Warrants had an exercise price of \$0.525, are immediately exercisable and have a term of exercise equal to five years following the original issuance date. The Pre-Funded Warrants have an exercise price of \$0.0001, are immediately exercisable and will be able to be exercised at any time after their original issuance until such Pre-Funded Warrants are exercised in full. The shares were offered at a combined public offering price of \$0.525 per share and two accompanying October Warrants. The Pre-Funded Warrants were offered at a combined public offering price of \$0.5249 per Pre-Funded Warrant and two accompanying October Warrants.

In addition, the Company issued the placement agent warrants to purchase up to 1,000,000 shares of common stock (equal to 10% of the aggregate number of shares and Pre-Funded Warrants sold in the offering) at an exercise price of \$0.65625, which represents 125% of the public offering price per share and accompanying October Warrant. The placement agent agreed not to exercise the such warrants until the Company subsequently increases its authorized shares of common stock.

The offering closed on October 19, 2023 with gross proceeds to the Company of approximately \$5,250, before deducting the placement agent fees of \$367 and other offering expenses payable by the Company of approximately \$288. As a result of the offering, the exercise price on 11,799,654 previously outstanding warrants were automatically adjusted from \$2.42 per share to \$0.525 per share.

The Pre-Funded Warrants were subsequently exercised on a cashless basis in October 2023, resulting in issuance of 2,399,512 shares of common stock. 3,800,000 of the warrants were subsequently exercised in connection with the Warrant Inducement Offering through December 31, 2023. 13,500,000 warrants remained outstanding with an exercise price of \$0.1765 and an expiration date of October 19, 2028, of which 10,800,000 were subsequently exercised in January 2024 (see Note 21 “Subsequent Events.”).

Warrant Inducement Offering

On November 28, 2023, the Company commenced a warrant inducement offering with the holders of the Company's outstanding 31,779,654 warrants consisting of: (i) the common stock purchase warrants of the Company issued on or about June 22, 2023; (ii) the common stock purchase warrants of the Company issued on or about July 10, 2023; (iii) the common stock purchase warrants of the Company issued on or about July 21, 2023; and/or (iv) the common stock purchase warrants of the Company issued on or about October 19, 2023 (collectively, the "Existing Warrants"), which Existing Warrants were exercisable for an equal number of shares of common stock at an exercise price of \$0.525. The Company agreed to issue new warrants (the "Inducement Warrants") to purchase up to a number of shares of common stock equal to 200% of the number of shares of common stock issued pursuant to the exercise by the holders of the Existing Warrants during the inducement period, for cash, at a reduced exercise price equal to the Nasdaq Minimum Price (as defined in the as defined in Nasdaq Listing Rule 5635(d)).

For the period from November 28, 2023 to December 31, 2023, the Company entered into warrant inducement agreements with certain holders of the Existing Warrants to purchase an aggregate of 15,517,386 shares of common stock at a reduced exercise price of \$0.215. Pursuant to the warrant inducement agreements, the exercising holders of the Existing Warrants received 31,034,772 Inducement Warrants and the Company received aggregate gross proceeds of approximately \$3,336 from the exercise of the Existing Warrants before deducting the placement agent fees of \$234 and other offering expenses payable by the Company of approximately \$58. As a result of the inducement and subsequent exercise, the Company determined the incremental fair value provided to the holders using Black Scholes and Monte Carlo models as (i) \$883 increase in fair value due to the adjustment in exercise price of Existing Warrants attributable to down round pricing protection (ii) \$6,596 fair value of Inducement Warrants issued to the holders that exercised Existing Warrants. The incremental fair value is recorded as non-cash deemed dividend. The proceeds of the warrant inducement and issuance of common stock are recorded as Capital in excess of par value. Refer to Note 21 "Subsequent Events."

March 2023 JGB Warrants

In connection with the sale of the Debentures as described in Note 13 "Debt", the Company issued the JGB Warrants to purchase up to 333,334 shares of common stock for an exercise price of \$19.125 per share. The JGB Warrants are exercisable for five years from September 3, 2023, at an exercise price of \$19.125 per share, determined as a 50% premium to the VWAP on the closing date, subject, with certain exceptions, to adjustments in the event of stock splits, dividends, subsequent dilutive offerings and certain fundamental transactions. The JGB warrants initial fair value of \$4,475 net of issuance costs of \$139 (see Note 9 "Fair Value Measurements"), of which half of the warrants meet the criteria for liability classification due to a contingent put option which allows the holder to require that the Company redeem the warrants in cash for a purchase price equal to \$15.00 upon certain conditional events such as change in control or event of default. Accordingly, at issuance half of the warrants with the put provision are classified as Other long-term liabilities on the Consolidated Balance Sheets in the amount of \$2,898 whereas the remainder of the warrants without the put provision are equity classified and recorded as a component of Capital in excess of par value in the amount of \$1,577. The valuation assumptions of the warrants at issuance, as detailed below, are the same for all warrants except for the put provision which derives a greater fair value.

As a result of the June 19, 2023 offering, the Company's outstanding JGB warrants to purchase up to 333,334 shares of the Company's common stock for an exercise price of \$19.125 per share were automatically adjusted to be \$12.828 exercise price for up to 496,960 shares of common stock. As a result of the anti-dilution provision being triggered, the Company recognized a non-cash deemed dividend of \$367 in connection with these adjustments, recorded on the Consolidated Statement of Operations and Comprehensive Loss and within Capital in excess of par value (as the Company has an accumulated deficit and therefore the deemed dividend is treated as paid out of Capital in excess of par value). There are no further anti-dilution adjustments on such warrants.

In connection with the Senior Secured Credit Facility Amendment and Waiver, the Company redeemed 166,667 of such warrants for an aggregate put price equal to \$2,500. See Note 13 "Debt."

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The JGB detachable warrants were valued at the closing dates of the Senior Secured Credit Facility using a Monte Carlo valuation model with the following assumptions:

Risk-free interest rate per year	4.2 %
Expected volatility per year	88.1 %
Expected dividend yield	— %
Contractual expiration	5.5 years
Exercise price	\$ 19.125
Stock price	\$ 13.65

March 2023 Omnia Warrants

In connection with the Subordinated Note as described in Note 13 “Debt”, the Company issued to Omnia, the Omnia Warrants to purchase up to 45,000 shares of the Company’s common stock (the “Omnia Warrants”). The Omnia Warrants are exercisable for seven years from September 3, 2023, at an exercise price of \$12.828 per share, subject, with certain exceptions, to adjustments in the event of stock splits, dividends, subsequent dilutive offerings and certain fundamental transactions. The Omnia warrants initial fair value was \$1,316 (see Note 9 “Fair Value Measurements”), and meet the criteria for liability classification due to contingent put option which allows the holder to require that the Company redeem the warrants in cash for a purchase price equal to \$30.00 upon certain conditional events such as change in control or event of default. The Omnia warrants are classified as Other long-term liabilities on the Consolidated Balance Sheets.

The Omnia detachable warrants were valued at the closing dates of the Subordinated Note using a Monte Carlo valuation model with the following assumptions:

Risk-free interest rate per year	4.1 %
Expected volatility per year	83.8 %
Expected dividend yield	— %
Contractual expiration	7.5 years
Exercise price	\$ 12.828
Stock price	\$ 13.65

ATM Offering

On March 31, 2023, the Company established an at-the-market common equity offering program (“ATM Program”), through which it may, through which it had the ability to offer and sell shares of common stock having an aggregate gross sales price of up to \$50,000. The Company paid a 3.00% sales commission based on the gross proceeds of the sales price per share of common stock sold. On June 19, 2023, the Company terminated the ATM Program in connection with the June 2023 Capital Raise. The following table shows the number of shares sold under the ATM Program prior to its termination:

	Year Ended December 31,
	2023
<i>(in thousands, except for per-share data)</i>	
Number of common shares issued	284
Weighted average sale price per share	\$ 9.65
Gross proceeds	\$ 2,741
Net proceeds	\$ 2,563

NOTE 11. – RETIREMENT PLAN

The Company sponsors a defined contribution plan under IRC Section 401(k). The plan covers all employees who meet the minimum eligibility requirements. Under the 401(k) plan eligible employees are allowed to make voluntary deferred salary contribution to the plan, subject to statutory limits. The Company has elected to make Safe Harbor Non-Elective Contributions to the plan for eligible employees in the amount of three percent (3%) of the employee’s compensation. Total employer contributions to the plan for the years ended December 31, 2023 and 2022 amounted to \$231 and \$198, respectively.

NOTE 12. – COMMITMENTS AND CONTINGENCIES

License and growing agreements – The Company has entered into various license and tobacco growing agreements (the “Agreements”) with various counter parties in connection with the Company’s plant biotechnology business relating to tobacco. The schedule below summarizes the Company’s commitments, both financial and other, associated with each Agreement. Costs incurred under the Agreements are generally recorded as research and development expenses on the Company’s Consolidated Statements of Operations and Comprehensive Loss.

Commitment	Counter Party	Commitment Type	Future Commitments					Total
			2024	2025	2026	2027	2028 & After	
License Agreement	NCSU	Minimum annual royalty	\$ 100	\$ 100	\$ 100	\$ 100	\$ 3,575	\$ 3,975 (1)
License Agreement	NCSU	Contract fee	150	250	250	—	—	650 (2)
Consulting Agreements	Various	Contract fee	214	24	—	—	—	238 (3)
Growing Agreements	Various	Contract fee	225	—	—	—	—	225 (4)
			<u>\$ 689</u>	<u>\$ 374</u>	<u>\$ 350</u>	<u>\$ 100</u>	<u>\$ 3,575</u>	<u>\$ 5,088</u>

- (1) The minimum annual royalty fee is credited against running royalties on sales of licensed products. The Company is also responsible for reimbursing NCSU for actual third-party patent costs incurred, including capitalized patent costs and patent maintenance costs. These costs vary from year to year and the Company has certain rights to direct the activities that result in these costs.
- (2) On November 1, 2023, the Company entered into a license agreement with NCSU for an exclusive sublicensable right and license under specific patent rights and plant variety rights for the field of use in specific licensed territories. Additional milestone fees could be required pending achievement of events pursuant to the agreement.
- (3) As a requirement for a modified risk tobacco product and a condition of the marketing authorization by the FDA, the Company engaged various consultants to conduct post-market studies and research.
- (4) Various R&D tobacco growing agreements.

Litigation - The Company is subject to litigation arising from time to time in the ordinary course of its business. The Company does not expect that the ultimate resolution of any pending legal actions will have a material effect on its consolidated results of operations, financial position, or cash flows. However, litigation is subject to inherent uncertainties. As such, there can be no assurance that any pending legal action, which the Company currently believes to be immaterial, will not become material in the future. In accordance with applicable accounting guidance, the Company establishes an accrued liability for litigation and regulatory matters when those matters present loss contingencies that are both probable and estimable. In such cases, there may be an exposure to loss in excess of any amounts accrued. When a loss contingency is not both probable and estimable, the Company does not establish an accrued liability. As a litigation or regulatory matter develops, the Company, in conjunction with any outside counsel handling the matter, evaluates on an ongoing basis whether such matter presents a loss contingency that is probable and estimable. If, at the time of evaluation, the loss contingency related to a litigation or regulatory matter is not both probable and estimable, the matter will continue to be monitored for further developments that would make such loss contingency both probable and estimable. When a loss contingency related to a litigation or regulatory matter is deemed to be both probable and estimable, the Company will establish an accrued liability with respect to such loss contingency and record a corresponding amount of related expenses. The Company will then continue to monitor the matter for further developments that could affect the amount of any such accrued liability.

In connection with ongoing restructuring efforts and the hemp/cannabis disposal group (see Note 2 “Divestitures and discontinued operations,” the Company has received unasserted claims related to disputed contracts, which could result in accrual of an additional amount up to \$1,314 on the Consolidated Balance Sheet. The Company is vigorously defending its position against these claims.

Class Action

On January 21, 2019, Matthew Jackson Bull, a resident of Denver, Colorado, filed a Complaint against the Company, the Company’s then Chief Executive Officer, Henry Sicignano III, and the Company’s then Chief Financial Officer, John T. Brodfuehrer, in the United States District Court for the Eastern District of New York entitled: Matthew Bull, Individually and on behalf of all others similarly situated, v. 22nd Century Group, Inc., Henry Sicignano III, and John T. Brodfuehrer, Case No. 1:19 cv 00409.

On January 29, 2019, Ian M. Fitch, a resident of Essex County Massachusetts, filed a Complaint against the Company, the Company’s then Chief Executive Officer, Henry Sicignano III, and the Company’s then Chief Financial Officer, John T. Brodfuehrer, in the United States District Court for the Eastern District of New York entitled: Ian Fitch, Individually and on behalf of all others similarly situated, v. 22nd Century Group, Inc., Henry Sicignano III, and John T. Brodfuehrer, Case No. 2:19 cv 00553.

On May 28, 2019, the plaintiff in the Fitch case voluntarily dismissed that action. On August 1, 2019, the Court in the Bull case issued an order designating Joseph Noto, Garden State Tire Corp, and Stephens Johnson as lead plaintiffs.

On September 16, 2019, pursuant to a joint motion by the parties, the Court in the Bull case transferred the class action to federal district court in the Western District of New York, where it remains pending as Case No. 1:19-cv-01285.

Plaintiffs in the Bull case filed an Amended Complaint on November 19, 2019 that alleges three counts: Count I sues the Company and Messrs. Sicignano and Brodfuehrer and alleges that the Company's quarterly and annual reports, SEC filings, press releases and other public statements and documents contained false statements in violation of Section 10(b) of the Securities Exchange Act and Rule 10b-5; Count II sues Messrs. Sicignano and Brodfuehrer pursuant to Section 10(b) of the Securities Exchange Act and Rule 10b5(a) and (c); and Count III sues Messrs. Sicignano and Brodfuehrer for the allegedly false statements pursuant to Section 20(a) of the Securities Exchange Act. The Amended Complaint seeks to certify a class, and unspecified compensatory and punitive damages, and attorney's fees and costs.

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On January 29, 2020, the Company and Messrs. Sicignano and Brodfuehrer filed a Motion to Dismiss the Amended Complaint. On January 14, 2021, the Court granted the motion, dismissing all claims with prejudice. The Plaintiffs filed a notice of appeal on February 12, 2021 to the Second Circuit Court of Appeals. On May 24, 2022, after briefing and oral argument, the Second Circuit issued an order affirming in part, and reversing in part, the District Court's dismissal order. The Second Circuit affirmed the District Court's dismissal of the claims relating to the non-disclosure of stock promotion articles, but reversed the District Court's dismissal order of the claims alleging the non-disclosure of an SEC investigation. The Second Circuit noted in its opinion, however, that the District Court had not addressed certain arguments raised by the Company and Messrs. Sicignano and Brodfuehrer in the Motion to Dismiss the Amended Complaint as to these remaining claims, and remanded the case to the District Court to address these arguments for the dismissal of the remaining claims. On August 8, 2022, the Company and Messrs. Sicignano and Brodfuehrer filed a renewed motion to dismiss the remaining claims in the Amended Complaint to address the arguments not previously addressed by the District Court. On September 22, 2022, Plaintiffs filed a brief in opposition to the motion. On October 12, 2022, the Company and Messrs. Sicignano and Brodfuehrer filed a reply brief in further support of the motion. On January 6, 2023, the District Court denied the motion to dismiss.

The parties participated in a mediation on March 21, 2023 and reached an initial memorandum of understanding for settlement in principle to resolve the litigation and release all claims against the Company. On April 25, 2023, the parties filed with the Court the Motion for Preliminary Approval of the Settlement, which includes the final terms of the proposed settlement. The Court preliminarily approved the settlement on June 30, 2023, and scheduled a further settlement hearing for October 3, 2023. The Court entered the Final Judgment and Order of Dismissal with Prejudice of the action on October 23, 2023. The settlement amount that the defendants paid is \$3,000 and is fully covered by the Company's insurance, which has been funded by the Company's insurance carrier in an escrow account and anticipated to be disbursed in the first or second quarter of 2024. Accordingly, the Company has recorded an accrual for litigation settlement and corresponding indemnification receivable on the Consolidated Balance Sheets as of December 31, 2023.

Shareholder Derivative Cases

On February 6, 2019, Melvyn Klein, a resident of Nassau County New York, filed a shareholder derivative claim against the Company, the Company's then Chief Executive Officer, Henry Sicignano III, the Company's Chief Financial Officer, John T. Brodfuehrer, and each member of the Company's Board of Directors in the United States District Court for the Eastern District of New York entitled: Melvyn Klein, derivatively on behalf of 22nd Century Group v. Henry Sicignano, III, Richard M. Sanders, Joseph Alexander Dunn, Nora B. Sullivan, James W. Cornell, John T. Brodfuehrer and 22nd Century Group, Inc., Case No. 1:19 cv 00748. Mr. Klein brings this action derivatively alleging that (i) the director defendants supposedly breached their fiduciary duties for allegedly allowing the Company to make false statements; (ii) the director defendants supposedly wasted corporate assets to defend this lawsuit and the other related lawsuits; (iii) the defendants allegedly violated Section 10(b) of the Securities Exchange Act and Rule 10b 5 promulgated thereunder for allegedly approving or allowing false statements regarding the Company to be made; and (iv) the director defendants allegedly violated Section 14(a) of the Securities Exchange Act and Rule 14a 9 promulgated thereunder for allegedly approving or allowing false statements regarding the Company to be made in the Company's proxy statement.

On February 11, 2019, Stephen Mathew filed a shareholder derivative claim against the Company, the Company's then Chief Executive Officer, Henry Sicignano III, the Company's Chief Financial Officer, John T. Brodfuehrer, and each member of the Company's Board of Directors in the Supreme Court of the State of New York, County of Erie, entitled: Stephen Mathew, derivatively on behalf of 22nd Century Group, Inc. v. Henry Sicignano, III, John T. Brodfuehrer, Richard M. Sanders, Joseph Alexander Dunn, James W. Cornell, Nora B. Sullivan and 22nd Century Group, Inc., Index No. 801786/2019. Mr. Mathew brings this action derivatively generally alleging the same allegations as in the Klein case. The Complaint seeks declaratory relief, unspecified monetary damages, corrective corporate governance actions, and attorney's fees and costs.

On August 15, 2019, the Court consolidated the Mathew and Klein actions pursuant to a stipulation by the parties (Western District of New York, Case No. 1-19-cv-0513). On May 3, 2019, the Court ordered the *Mathew* case stayed. This stay was applied to the Consolidated Action pursuant to the Court's August 15, 2019 Order Consolidated Related Shareholder Derivative Actions and Establishing a Leadership Structure. As a result of the Court's denial of the renewed Motion to Dismiss the Amended Complaint, the May 3, 2019 stay will be lifted. No trial date has been set. We

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believe that the claims are frivolous, meritless and that the Company and the individual defendants have substantial legal and factual defenses to the claims. We intend to vigorously defend the Company and the individual defendants against such claims.

On June 10, 2019, Judy Rowley filed a shareholder derivative claim against the Company, the Company's then Chief Executive Officer, Henry Sicignano III, the Company's Chief Financial Officer, John T. Brodfuehrer, and each member of the Company's Board of Directors in the Supreme Court of the State of New York, County of Erie, entitled: Judy Rowley, derivatively on behalf of 22nd Century Group, Inc. v. Henry Sicignano, III, Richard M. Sanders, Joseph Alexander Dunn, Nora B. Sullivan, James W. Cornell, John T. Brodfuehrer, and 22nd Century Group, Inc., Index No. 807214/2019. Ms. Rowley brought the action derivatively alleging that the director defendants supposedly breached their fiduciary duties by allegedly allowing the Company to make false statements. The Complaint sought declaratory relief, unspecified monetary damages, corrective corporate governance actions, and attorney's fees and costs. We believe that the claims are frivolous, meritless and that the Company and the individual defendants have substantial legal and factual defenses to the claims. We intend to vigorously defend the Company and the individual defendants against such claims. On September 13, 2019, the Court ordered the litigation stayed pursuant to a joint stipulation by the parties. On August 3, 2022, Plaintiff dismissed the case with prejudice by filing a stipulation of discontinuance with the Court. This dismissal was not pursuant to a settlement.

On January 15, 2020, Kevin Broccuto filed a shareholder derivative claim against the Company, the Company's then Chief Executive Officer, Henry Sicignano III, the Company's Chief Financial Officer, John T. Brodfuehrer, and certain members of the Company's prior Board of Directors in the District Court of the State of Nevada, County of Clark, entitled: Kevin Broccuto, derivatively on behalf of 22nd Century Group, Inc. v. James W. Cornell, Richard M. Sanders, Nora B. Sullivan, Henry Sicignano, III, and John T. Brodfuehrer, Case No. A-20-808599. Mr. Broccuto brings this action derivatively alleging three counts: Count I alleges that the defendants breached their fiduciary duties; Count II alleges they committed corporate waste; and Count III that they were unjustly enriched, by allegedly allowing the Company to make false statements.

On February 11, 2020, Jerry Wayne filed a shareholder derivative claim against the Company, the Company's then Chief Executive Officer, Henry Sicignano III, the Company's Chief Financial Officer, John T. Brodfuehrer, and certain members of the Company's prior Board of Directors in the District Court of the State of Nevada, County of Clark, entitled: Jerry Wayne, derivatively on behalf of 22nd Century Group, Inc. v. James W. Cornell, Richard M. Sanders, Nora B. Sullivan, Henry Sicignano, III, and John T. Brodfuehrer, Case No. A-20-808599. Mr. Wayne brings this action derivatively alleging generally the same allegations as the Broccuto case. The Complaint seeks unspecified monetary damages, corrective corporate governance actions, disgorgement of alleged profits and imposition of constructive trusts, and attorney's fees and costs. The Complaint also seeks to declare as unenforceable the Company's Bylaw requiring derivative lawsuits to be filed in Erie County, New York, where the Company is headquartered.

On March 25, 2020, the Court ordered the Broccuto and Wayne cases consolidated and stayed pursuant to a joint stipulation from the parties. On June 27, 2022, the Court ordered that the stay continue until thirty (30) days after the District Court rules on the renewed Motion to Dismiss the Amended Complaint in the Noto Class Action case. As a result of the Court's denial of the Motion to Dismiss the Amended Complaint, the June 27, 2022 stay will be lifted if the case is not resolved. No trial date has been set.

The parties participated in a mediation on March 21, 2023, and a subsequent mediation on October 17, 2023. On December 5, 2023, the parties entered into a Memorandum of Settlement to fully resolve all claims pending the Court's approval of a motion for preliminary approval of settlement. The settlement amount is \$768 related to plaintiffs attorney and legal fees and is fully covered by the Company's insurance. Accordingly, the Company has recorded an accrual for litigation settlement and corresponding indemnification receivable on the Consolidated Balance Sheets as of December 31, 2023.

On September 1, 2023, Kenneth Troup filed a shareholder derivative claim against the Company, the Company's then Chief Executive Officer, Henry Sicignano III, the Company's Chief Financial Officer, John T. Brodfuehrer, and certain members of the Company's Board of Directors in the United States District Court for the Western District of New York entitled: Kenneth Troup, derivatively on behalf of 22nd Century Group v. Nora Sullivan, James Mish, Michael Koganov, Anthony Johnson, Richard Sanders, Lucille Salhany, Andy Arno, James W. Cornell,

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Henry Sicignano, III, and John T. Brodfuehrer, and 22nd Century Group, Inc., Case No. 1:23-cv-00916. Mr. Troup brings this action derivatively generally alleging the same allegations as in the Klein case. The Complaint seeks declaratory relief, unspecified monetary damages, corrective corporate governance actions, and attorney’s fees and costs. On February 9, 2024, defendants filed an unopposed Motion to Consolidate the Troup action with the consolidated derivative cases, which would include the Troup case in the preliminary settlement described above.

We believe that the claims are frivolous, meritless and that the Company and the individual defendants have substantial legal and factual defenses to the claims. We intend to vigorously defend the Company and the individual defendants against such claims.

Insurance Litigation

In November 2022, there was a fire at the Company’s Grass Valley manufacturing facility in Oregon, which resulted in a total loss of the facility. The Company submitted an insurance claim with Dorchester Insurance Company, Ltd. (“Dorchester”) for casualty loss and business interruption coverage which was acknowledged on November 23, 2022. Dorchester funded \$5,000 of casualty loss insurance but has failed to issue any payments in connection with the Company’s business interruption claim.

On July 19, 2023, the Company filed a Complaint against Dorchester in the United States District Court for the District of Oregon, Pendleton Division, Case No. 2:23-cv-01057-HL. The Company is alleging breach of contract, breach of duty of good faith and fair dealing and negligence per se. The Company is seeking full recovery of its business interruption claim under the policy plus direct, indirect and consequential damages resulting from Dorchester’s continued delay in issuing coverage payments. Discovery is ongoing. No trial date has been set.

Needle Rock Farms – Settlement Agreement

During March 2023, the Company negotiated and entered into a settlement agreement related to water rights dispute with the adjacent property owner for Needle Rock Farms in which the Company agreed to pay \$250 in cash upon execution of the settlement, transferred certain farm equipment with net book value of \$272, and accrued an additional payment of \$225 that is contingent on either the sale of the farm or will be paid within one year. The total charges of \$747 recorded in connection with the settlement agreement is included in discontinued operations within Other operating expenses, net on the Consolidated Statements of Operations and Comprehensive Loss.

KeyGene Dispute

On April 3, 2019, the Company entered into the Framework Collaborative Research Agreement with KeyGene in the field of hemp/cannabis. On April 30, 2021, the Company and KeyGene entered into a First Amended and Restated Framework Collaborative Research Agreement which extended the agreement term, from first quarter 2024 to first quarter 2027, and preserves the Company’s option for an additional 2-year extension, through first quarter of 2029. On March 30, 2022, the Company and KeyGene entered into a new Framework Collaborative Research Agreement for a term of three years in the field related to the hops plant. On January 8, 2024, the Company formally terminated the new Framework Collaborative Agreement, as amended, related to hemp/cannabis and hops. KeyGene is seeking payment in the amount of \$1,885 for current and future services under the Framework Collaborative Agreement and has invoiced the Company \$881 for services performed. The parties anticipate mediating the dispute although no mediation date has been set.

Maison Dispute

On January 23, 2024, the Company received a Notice of Intent to Arbitrate from Maison Placements Canada Inc. (“Maison”) in connection with the Company’s March 2023 Senior Secured Credit Facility transaction (*infra*). Maison claims it is owed fees for closure of the Senior Secured Credit Facility transaction as a result of discussions with former Company personnel and a purported letter of engagement dating from 2021. The Company believes it has substantial defenses to Maison’s claims and intends to defend itself vigorously.

NOTE 13. – DEBT

The Company has a senior secured credit facility (the “Senior Secured Credit Facility”), which consists of three-year \$21,053 Debentures (as defined below) and \$2,865 subordinated promissory note (the “Subordinated Note”). The Debentures were issued at a 5% original issuance discount and are subject to a 5% exit payment.

Debt related to the Senior Secured Credit Facility and Subordinate Note as of December 31, 2023, consists of the following:

	December 31, 2023	December 31, 2022
Senior Secured Credit Facility	\$ 11,805	\$ —
Subordinated Note	3,554	—
Unamortized discount on loan and deferred debt issuance costs	(1,453)	—
Total debt	\$ 13,906	\$ —
Current portion of long-term debt	(5,848)	—
Total long-term debt	\$ 8,058	\$ —

Debentures

On March 3, 2023, the Company entered into a Securities Purchase Agreement (the “SPA”) with JGB Partners, LP (“JGB Partners”), JGB Capital, LP (“JGB Capital”) and JGB Capital Offshore Ltd. (“JGB Offshore” and collectively with JGB Partners and JGB Capital, the “Holders”) and JGB Collateral, LLC, as collateral agent for the Holders (the “Agent”) which pursuant to the agreement, the Company sold 5% original issuance discount senior secured debentures with an aggregate principal amount of \$21,053. The Debentures bear interest at a rate of 7% per annum, payable monthly in arrears as of the last trading day of each month and on the maturity date. The Debentures mature on March 3, 2026. At the Company’s election, subject to certain conditions, interest can be paid in cash, shares of the Company’s common stock, or a combination thereof. The Debentures are subject to an exit payment equal to 5% of the original principal amount, or \$1,053, payable on the maturity date or the date the Debentures are paid in full (the “Exit Payment”). Any time after, March 3, 2024, the Company may irrevocably elect to redeem all of the then outstanding principal amount of the Debentures for cash in an amount equal to the entire outstanding principal balance, including accrued and unpaid interest, the Exit Payment and a prepayment premium in an amount equal to 3% of the outstanding principal balance as of the prepayment date (collectively, the “Prepayment Amount”). Upon the entry into a definitive agreement that would effect a change in control (as defined in the Debentures) of the Company, the Agent may require the Company to prepay the outstanding principal balance in an amount equal to the Prepayment Amount. Commencing on May 1, 2024, at its option, the holder of a Debenture may require the Company to redeem 2% of the original principal amount of the Debentures per calendar month which amount may at the Company’s election, subject to certain exceptions, be paid in cash, shares of the Company’s common stock, or a combination thereof.

The Company’s obligations under the Debentures can be accelerated upon the occurrence of certain customary events of default. In the event of a default and acceleration of the Company’s obligations, the Company would be required to pay the Prepayment Amount, liquidated damages and other amounts owing in respect thereof through the date of acceleration.

The Debentures contain customary representations, warranties and covenants including among other things and subject to certain exceptions, covenants that restrict the Company from incurring additional indebtedness, creating or permitting liens on assets, making or holding any investments, repaying outstanding indebtedness, paying dividends or distributions and entering into transactions with affiliates. Substantially all of the company’s assets, including intellectual property, are collateralized and at risk if Debenture obligation is not satisfied. In addition, the Company is required to maintain at least \$7,500 on its balance sheet as restricted cash in a separate account and has financial covenants to maintain certain quarterly revenue targets.

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In connection with the sale of the Debentures, the Company issued warrants to purchase up to 333,334 shares of common stock for an exercise price of \$19.125 per share (the “JGB Warrants”), which had an initial fair value of \$4,475 net of issuance costs of \$139 (see Note 9 “Fair Value Measurements” and Note 10 “Capital Raise and Warrants for Common Stock”). On June 22, 2023, as a result of the June 19, 2023 offering, the Company’s outstanding JGB warrants to purchase up to 333,334 shares of the Company’s common stock for an exercise price of \$19.125 per share were automatically adjusted to be \$12.828 exercise price for up to 496,960 shares of common stock. There are no further anti-dilution adjustments on such warrants.

On October 16, 2023, the Company entered into a Waiver and Amendment Agreement (the “October Amendment”) with each of the subsidiaries of the Company executing the Debentures, the Holders and the Agent, pursuant to which, among other things, (a) the Holders waived an event of default under Section 7(d) of the Debentures which required the Company to achieve revenue of at least \$18,500 for the quarter ended September 30, 2023 (the “waiver”), (b) the parties agreed to amend Schedule E of the Debentures to reduce the Revenue Target (as such term is defined in the Debentures), for the quarter ended December 31, 2023, to \$15,500, and (c) the Company agreed to release to the Purchasers the \$7,500 that the Company was required to maintain in a separate account (the “Escrow Funds”) which Escrow Funds were be applied to, and reduce, the outstanding principal amount of the Debentures on a dollar-for-dollar basis.

As additional consideration for the waiver, the Company agreed to assign, transfer and convey to the Agent, the Company’s entire right, title and interest in and to (i) the Promissory Note made by J&N Real Estate Company, L.L.C. (“J&N”) payable to the Company in the principal amount of \$3,800 and (ii) the Deed of Trust, Assignment of Rents, Security Agreement and Fixture Filing dated June 30, 2021, between J&N, as borrower, for the benefit of the Company, as lender (collectively, the “Pledged Indebtedness”). Upon assignment of the Pledged Indebtedness, the Company recognized the \$2,600 of consideration in exchange to be applied as a \$2,000 reduction of the Put Price (as defined below), \$600 reduction of the outstanding principal amount of Debentures and \$895 loss on sale of financial asset.

In connection with the waiver, the Company and Holders agreed to exercise the outstanding put provision to redeem 166,667 Warrants for an aggregate put price equal to \$2,500 (the “Put Price”), which was concurrently reduced by \$2,000, as described above, with the remaining \$500 payable by the Company on the Maturity Date recorded as Other long-term liabilities on the Consolidated Balance Sheet. No cash was exchanged as a result of executing the October Amendment.

Subsequently, on December 22, 2023, the Company, the Holders and the Agent entered into an Amendment Agreement (the “December Amendment”) pursuant to which the Holders and the Agent consented to the Purchase Agreement, as amended by the GVB Amendment (see Note 2 “Discontinued Operations and Divestitures”). In consideration of the Holders and the Agents’ consent, the Company agreed to (i) pay to the Agent, a cash payment of \$2,200 to reduce the outstanding principal of the Debentures (which includes the cash portion of the New Purchase Price paid directly to Agent by Buyer which consists of a cash payment of \$1,100 and an additional \$1,100 paid by the Company), (ii) a 12% secured promissory note issued to the Company’s senior lender, on behalf of and at the direction of the Company, in an aggregate principal amount of \$2,000 (the “GVB Promissory Note”), (iii) assign the GVB Insurance Proceeds to the Agent until the outstanding aggregate principal amount of the Debentures, plus accrued and unpaid interest, has been repaid in full; provided that the first \$1,000 of Insurance Proceeds in excess of \$5,000 shall be applied as stated above, and (iv) post-closing enter into a deed in lieu of foreclosure agreement with respect to 224 acres of real property in Delta County, Colorado commonly known as Needle Rock Farms, resulting in a non-monetary exchange yielding additional debt reduction of \$1,000. As of December 31, 2023, the \$2,000 GVB Promissory Note and \$1,000 real estate farm asset are pledged to the senior lender for principal reduction and accordingly \$3,000 of the Senior Secured Credit Facility is recorded as Current portion of long-term debt on the Consolidated Balance Sheets.

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Additionally, the Company, the Holders and the Agent agreed to amend the Debentures to (i) allow the Holders to voluntarily convert the Debentures, in whole or in part, into shares of the Company's common stock ("Voluntary Conversion Option") on the earlier of (i) June 30, 2024 and (ii) the public announcement of a Fundamental Transaction at a conversion price equal to the lower of (x) \$1.00 per share and (y) the closing sale price of the Company's common stock on June 29, 2024 (the "Conversion Price"), and (ii) include a mandatory prepayment of the outstanding principal of the Debentures in an amount equal to 20% of the net cash proceeds of any issuance by the Company of any of its stock, or other Equity Interests (as defined in the Debentures) or the incurrence or issuance of any indebtedness. The Voluntary Conversion Option remains subject to the approval of the Company's stockholders and the Company is required pursuant to the December Amendment to use its commercially reasonable efforts to obtain such approval.

Additional terms of the December Amendment include a financial covenant holiday through the third quarter of 2024 and revised certain covenants thereafter to reflect the sale of the Purchased Interests, including lowering the Company's quarterly revenue targets.

In accordance with ASC 470-60 *Troubled Debt Restructurings by Debtors* and ASC 470-50, Debt Modifications and Extinguishment, the Company performed an assessment of whether the transaction was deemed to be a troubled debt restructuring, and if no, whether the transaction was deemed modification of existing debt, or an extinguishment of existing debt and new debt.

The October Amendment was concluded to be a modification, and not an extinguishment, based on an analysis of the present value of future cash flows. A new effective interest rate was determined, and the debt continued to be amortized. The December Amendment was concluded to be an extinguishment, due to the addition of a substantive conversion option. As a result, the pre-amended debt carrying value was extinguished and the new debt was recorded at fair value, which is subsequently amortized using the effective interest method. Extinguishment charges were \$5,158 and recorded in Interest expense on the Consolidated Statements of Operations and Comprehensive Loss.

The Company analyzed the conversion feature of the December Amendment for derivative accounting consideration under ASC 815-15 and determined that the embedded conversion features should be classified as a bifurcated derivative because the exercise price of these convertible notes are subject to a variable conversion rate. The Company has determined that the conversion feature is not considered to be solely indexed to the Company's own stock and is therefore not afforded equity treatment. In accordance with AC 815, the Company has bifurcated the conversion feature of the note and recorded a derivative liability at fair value in the amount of \$557 as a component of Other Long-Term Liabilities on the Consolidated Balance Sheet. See Note 9 "Fair Value Measurement" for additional information related to measurement of the debentures and derivative liability.

Subordinated Note

On March 3, 2023, the Company executed a Subordinated Promissory Note (the "Subordinated Note") with a principal amount of \$2,865 in favor of Omnia Ventures, LP ("Omnia"). The Subordinated Note refinanced the 12% Secured Promissory Note with a principal amount of \$1,000 dated as of October 29, 2021 payable to Omnia (the "October Note") and the 12% Secured Promissory Note with a principal amount of \$1,500 dated as of January 14, 2022 payable to Omnia (the "January Note", and together with the October Note, the "Original Notes"), which were assumed by the Company in connection with the acquisition of GVB Biopharma (see Note 3 "Business Acquisitions"). The accrued PIK interest refinanced from the Original Notes was \$365.

Under the terms of the Subordinated Note, the Company is obligated to make interest payments in-kind (the "PIK Interest"). The PIK Interest accrues monthly at a compounding rate of 26.5% per annum. For the year ended December 31, 2023 the PIK Interest accrual amounts were \$695. The Company is not permitted to prepay all or any portion of the outstanding balance on the Subordinated Note prior to maturity. The maturity date of the Subordinated Note is May 1, 2024. The Subordinated Note includes customary event of default provisions. The Subordinated Note is subordinated to the Debenture pursuant to a Subordination Agreement between the Company, the Agent and Omnia.

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In connection with the Subordinated Note, the Company issued to Omnia, warrants to purchase up to 45,000 shares of the Company’s common stock (the “Omnia Warrants”). The Omnia Warrants are exercisable for seven years from September 3, 2023, at an exercise price of \$12.828 per share, subject, with certain exceptions, to adjustments in the event of stock splits, dividends, subsequent dilutive offerings and certain fundamental transactions, as more fully described in the Omnia Warrants. The Omnia warrants initial fair value was \$1,316 (see Note 9 “Fair Value Measurements” and 10 “Capital Raise and Warrants for Common Stock”).

Contractual maturities under the Senior Secured Credit Facility and Subordinate Note through maturity, excluding any discounts or premiums, as of December 31, 2023 is as follows:

	2024	2025	2026	2027	2028	Thereafter
Future minimum principal payments	\$ 5,848	\$ —	\$ 8,058	\$ —	\$ —	\$ —

The fair values of the warrants at issuance of \$5,791, together with the Debentures original issuance discount of \$1,053, Debentures exit payment of \$1,053, and third-party debt issuance costs of \$801, are being amortized using the effective interest method over the term of the respective debt instrument, recorded as Interest expense in the Consolidated Statement of Operations and Comprehensive Loss. The components and activity of unamortized discount and deferred debt issuance costs related to the Senior Secured Credit Facility and Subordinated Note is as follows:

	Total
Issuance	\$ 8,698
Amortization during the year	(2,087)
Debt extinguishment charges	(5,158)
December 31, 2023	\$ 1,453

NOTE 14. – NOTES AND LOANS PAYABLE

The table below outlines our notes payable balances as of December 31, 2023 and 2022:

	December 31, 2023	December 31, 2022
Insurance loans payable	\$ 543	\$ 689
Total current notes and loans payable	\$ 543	\$ 689

Insurance loans payable

During the second quarter of 2023, the Company renewed its Director and Officer (“D&O”) insurance for a one-year policy premium totaling \$1,626. The Company paid \$285 as a premium down payment and financed the remaining \$1,341 of policy premiums over ten months at a 7.88% annual percentage rate. Additionally, during the third quarter of 2023, the Company expanded its D&O coverage, resulting in additional financing of \$143, at 9.38% annual percentage rate over six months.

During the second quarter of 2022, the Company renewed its Director and Officer (“D&O”) insurance for a one-year policy premium totaling \$2,394. The Company paid \$400 as a premium down payment and financed the remaining \$1,994 of policy premiums over ten months at a 3.25% annual percentage rate. Additionally, during the third quarter of 2022, the Company expanded its D&O coverage as a result of the acquisition of GVB, resulting in an additional premium down payment of \$90 and financing of \$168, under the same terms as the original one-year policy.

The Company also has other insurance loans payables related to pollution, property, and general liability across the Company.

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As of December 31, 2023, all estimated future principal payments to be made under the above notes and loans payable will be paid in 2024.

NOTE 15. – EQUITY BASED COMPENSATION

Stock Compensation Plan

On May 20, 2021, the stockholders of 22nd Century Group, Inc. (the “Company”) approved the 22nd Century Group, Inc. 2021 Omnibus Incentive Plan (the “2021 Plan”). The 2021 Plan allows for the granting of equity awards to eligible individuals over the life of the 2021 Plan, including the issuance of up to 333,334 shares of the Company’s common stock, in addition to any remaining shares under the Company’s 2014 Omnibus Incentive Plan pursuant to awards under the 2021 Plan. The 2021 Omnibus Incentive Plan was amended on June 16, 2023, increasing the authorized shares by 233,334. The 2021 Plan has a term of ten years and is administered by the Compensation Committee of the Company’s Board of Directors to determine the various types of incentive awards that may be granted to recipients under the 2021 Plan and the number of shares of common stock to underlie each such award under the 2021 Plan. As of December 31, 2023, the Company had available 606,406 shares remaining for future awards under the 2021 Plan.

Compensation Expense

The Company recognized the following compensation costs, net of actual forfeitures, related to RSUs and stock options:

	Year Ended December 31,	
	2023	2022
Sales, general, and administrative	\$ 2,052	\$ 5,252
Research and development	179	182
Total equity based compensation - continuing operations	2,231	5,434
Total equity based compensation - discontinued operations	448	55
Total equity based compensation	\$ 2,679	\$ 5,489

During the years ended December 31, 2023, and 2022, equity-based compensation expense reversals due to employee termination forfeitures amounted to \$1,960 and \$84, respectively. Additionally, the Company recorded \$523 and \$1,237 of accelerated equity compensation expense, respectively, in connection with the vesting of an employees’ outstanding equity awards as part of termination severance agreements. Amounts are recorded as Selling, general and administrative in the Consolidated Statements of Operations and Comprehensive Loss.

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Restricted Stock Units (“RSUs”). We typically grant RSUs to employees and non-employee directors. The following table summarizes the changes in unvested RSUs from January 1, 2022 through December 31, 2023.

	Unvested RSUs	
	Number of Shares in thousands	Weighted Average Grant-date Fair Value \$ per share
Unvested at January 1, 2022	211	\$ 37.50
Granted	236	29.40
Vested	(154)	31.65
Forfeited	(24)	35.85
Unvested at December 31, 2022	269	\$ 31.88
Granted	293	12.44
Vested	(147)	29.67
Forfeited	(260)	20.86
Unvested at December 31, 2023	155	\$ 15.69

The fair value of RSUs that vested during the years ended December 31, 2023 and 2022 was approximately \$1,838 and \$4,505, respectively, based on the stock price at the time of vesting. As of December 31, 2023, unrecognized compensation expense for RSUs amounted to \$823 which is expected to be recognized over a weighted average period of approximately 1.7 years. In addition, there is approximately \$786 of unrecognized compensation expense that requires the achievement of certain milestones which are not yet probable.

Stock Options. Our outstanding stock options were valued using the Black-Scholes option-pricing model on the date of the award. There was no stock option grant activity during 2023 and 2022. A summary of all stock option activity since January 1, 2022 is as follows:

	Number of Options in thousands	Weighted Average Exercise Price \$ per share	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
Outstanding at January 1, 2022	345	\$ 24.75		
Exercised	(10)	17.40		
Forfeited	(7)	20.85		
Expired	(1)	41.40		
Outstanding at December 31, 2022	327	24.82		
Forfeited	(101)	21.29		
Expired	(7)	41.40		
Outstanding at December 31, 2023	219	\$ 26.34	1.9 years	\$ —
Exercisable at December 31, 2023	213	\$ 25.95	1.8 years	\$ —

The intrinsic value of a stock option is the amount by which the current market value or the market value upon exercise of the underlying stock exceeds the exercise price of the option. In addition, there is approximately \$190 of unrecognized compensation expense for stock options that requires the achievement of certain milestones which are not yet probable.

NOTE 16. – LOSS PER COMMON SHARE

The following table sets forth the computation of basic and diluted loss per common share for the years ended December 31, 2023 and 2022, respectively. Outstanding warrants, options, and restricted stock units were excluded from the calculation of diluted EPS as the effect was antidilutive.

	Year Ended December 31,	
	2023	2022
Net loss from continuing operations	\$ (54,686)	\$ (36,553)
Net loss from discontinued operations	(86,089)	(23,248)
Net loss	\$ (140,775)	\$ (59,801)
Deemed dividends	(9,992)	—
Net loss available to common shareholders	\$ (150,767)	\$ (59,801)
Weighted average common shares outstanding - basic and diluted	20,711	12,856
Basic and diluted loss per common share from continuing operations	\$ (2.64)	\$ (2.84)
Basic and diluted loss per common share from discontinued operations	(4.16)	(1.81)
Basic and diluted loss per common share from deemed dividends	(0.48)	—
Basic and diluted loss per common share	\$ (7.28)	\$ (4.65)
Anti-dilutive shares are as follows as of December 31 (in thousands):		
Warrants	47,757	1,138
Options	219	327
Restricted stock units	155	269
	48,131	1,734

NOTE 17. – REVENUE RECOGNITION

The Company's revenues are derived primarily from contract manufacturing organization ("CMO") customer contracts that consist of obligations to manufacture the customers' branded filtered cigars and cigarettes. Additional revenues are generated from sale of the Company's proprietary low nicotine content cigarettes, sold under the brand name VLN®, or research cigarettes sold under the brand name SPECTRUM®.

The Company recognizes revenue when it satisfies a performance obligation by transferring control of the product to a customer. For certain CMO contracts, the performance obligation is satisfied over time as the Company determines, due to contract restrictions, it does not have an alternative use of the product and it has an enforceable right to payment as the product is manufactured. The Company recognizes revenue under those contracts at the unit price stated in the contract based on the units manufactured. Revenue from the sale of the Company's products, which include excise taxes and shipping and handling charges billed to customers, is recognized net of cash discounts, sales returns and allowances. There was no allowance for discounts or returns and allowances at December 31, 2023 and December 31, 2022. Excise taxes recorded in Cost of Goods Sold on the Consolidated Statement of Operations and Comprehensive Loss for the years ended December 31, 2023 and 2022 was \$10,413 and \$12,619, respectively.

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Disaggregation of Revenue

The Company's net revenue is derived from customers located primarily in the United States and is disaggregated by the timing of revenue. Revenue recognized from Tobacco products transferred to customers over time represented 63% and 74%, for the year ended December 31, 2023 and 2022, respectively.

The following table presents net revenues by significant customers, which are defined as any customer who individually represents 10% or more of disaggregated product line net revenues:

	Year Ended	
	December 31,	
	2023	2022
Customer A	31.49 %	23.61 %
Customer B	23.92 %	23.22 %
Customer C	21.70 %	35.20 %
All other customers	22.89 %	17.97 %

Contract Assets and Liabilities

Unbilled receivables (contract assets) represent revenues recognized for performance obligations that have been satisfied but have not been billed. These receivables are included as Accounts receivable, net on the Consolidated Balance Sheets. Customer payment terms vary depending on the terms of each customer contract, but payment is generally due prior to product shipment or within extended credit terms up to twenty-one (21) days after shipment. Deferred Revenue (contract liabilities) relate to down payments received from customers in advance of satisfying a performance obligation. This deferred revenue is included as Deferred income on the Consolidated Balance Sheets.

Total contract assets and contract liabilities are as follows:

	December 31, 2023	December 31, 2022	December 31, 2021
Unbilled receivables	\$ 1,053	\$ 354	\$ 178
Deferred income	(726)	(688)	(119)
Net contract assets (liabilities)	\$ 327	\$ (334)	\$ 59

During the years ended December 31, 2023 and 2022, the Company recognized \$688 and \$119 of revenue that was included in the contract asset balance as of December 31, 2022 and 2021 respectively.

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NOTE 18. – OTHER OPERATING EXPENSES (INCOME), NET

The components of “Other operating expenses (income), net” were as follows:

	Year Ended December 31,	
	2023	2022
Restructuring costs:		
Impairment of intangible assets (see Note 7)	\$ 1,375	\$ 35
Impairment of fixed assets	56	—
Professional services	763	—
Severance (see Note 1)	221	—
Total Restructuring costs	2,415	35
Acquisition and transaction costs	223	-
Gain on sale or disposal of property, plant and equipment	(111)	(362)
Total other operating expenses (income), net	\$ 2,527	\$ (327)

Restructuring costs

During the third quarter of 2023, the Company undertook various restructuring activities in an effort to better align its internal organizational structure and costs with its strategy, as well as preserve liquidity. As a component of the restructuring, the Company has initiated a process to evaluate strategic alternatives with respect to the Company’s tobacco assets. The process will include consideration of a range of strategic, operational and financial transactions and alternatives, such as business combinations, asset sales, licensing agreements, alternate financing strategies and other options.

As a result, the Company incurred \$2,415 in restructuring costs for the year ended December 31, 2023, which included costs related to employee termination, professional services and consulting, and long-lived asset impairment.

NOTE 19. – INCOME TAXES

The following is a summary of the components giving rise to the (benefit) provision for income taxes from continuing operations for the years ended December 31, 2023 and 2022:

	2023	2022
Current:		
Federal	\$ —	\$ —
State	40	14
Foreign	—	—
Total current provision	\$ 40	\$ 14
Deferred:		
Federal	(11,351)	(6,610)
State	(736)	(4,404)
Foreign	—	—
Total deferred benefit	(12,087)	(11,014)
Change in valuation allowance	12,094	11,021
Total income tax provision	\$ 47	\$ 21

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The (benefit) provision for income tax from continuing operations varies from that which would be expected based on applying the statutory federal rate to pre-tax book loss, including the effect of the change in the U.S. corporate income tax rates, as follows:

	<u>2023</u>	<u>2022</u>
Statutory federal rate	21.0 %	21.0 %
Other items	0.2	(0.8)
Stock based compensation	(0.8)	(1.3)
Research and development credit carryforward	0.4	—
State tax, net of federal benefit	1.3	12.0
162(m) limitation	(0.2)	(0.9)
Valuation allowance	<u>(22.0)</u>	<u>(30.1)</u>
Effective tax rate	<u>(0.1)%</u>	<u>(0.1)%</u>

Individual components of deferred taxes consist of the following as of December 31:

	<u>2023</u>	<u>2022</u>
Deferred tax assets:		
Net operating loss carry-forward	\$ 54,453	\$ 34,029
Inventory	2,020	220
Stock-based compensation	862	1,144
Start-up expenditures	155	175
Research and development credit carryforward	1,424	1,205
Accrued bonus	133	458
Severance liability	95	151
Credit loss reserves	2	—
Research and development costs	1,617	813
Operating lease obligations	476	229
Capital loss on investment	2,449	2,209
Note payable and warrant liability	581	—
Other	1,758	50
	<u>\$ 66,025</u>	<u>\$ 40,683</u>
Deferred tax liabilities:		
Machinery and equipment	(283)	(221)
Patents and trademarks	(193)	(203)
Operating lease right-of-use assets	(467)	(225)
Other intangible assets	(385)	(334)
	<u>(1,328)</u>	<u>(983)</u>
Valuation allowance	<u>(64,763)</u>	<u>(39,759)</u>
Net deferred taxes	<u>\$ (66)</u>	<u>\$ (59)</u>

The Company has net operating loss (“NOL”) carryforwards of approximately \$193,322 as of December 31, 2023 that do not expire. The Company had accumulated an NOL carryforward of approximately \$46,920 through December 31, 2017 and this NOL carryforward begins to expire in 2030. As of December 31, 2023, the Company has a research and development credit carryforward of approximately \$1,424 that begins to expire in 2030. The Company generated a capital loss carryover of approximately \$9,932 as of December 31, 2023, that begins to expire in 2026. Utilization of these NOL carryforwards may be subject to an annual limitation in the case of equity ownership changes, as defined by law. Due to the uncertainty of the Company’s ability to generate sufficient taxable income in the future, the Company has recorded a valuation allowance to reduce the net deferred tax asset to zero. These carryforwards are included in the net deferred tax asset that has been fully offset by the valuation allowance. The valuation allowance increased for continuing operations by \$12,094 and \$11,021 for the years ended December 31, 2023, and 2022, respectively, and increased an additional \$12,910 due to tax attributes that were generated as a part of discontinued

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operations but remain on a prospective basis with continuing operations due to the Company filing a consolidated US Federal return for the year ended December 31, 2023.

ASC 740 provides guidance on the financial statement recognition and measurement for uncertain income tax positions that are taken or expected to be taken in a company's income tax return. The Company has evaluated its tax positions and believes there are no uncertain tax positions as of December 31, 2023.

NOTE 20. – QUARTERLY REVENUE AND EARNINGS DATA – UNAUDITED

	Three Months Ended			
	December 31, 2023	September 30, 2023	June 30, 2023	March 31, 2023
Revenues, net	\$ 7,357	\$ 7,871	\$ 8,050	\$ 8,926
Gross profit (loss)	\$ (7,829)	\$ 77	\$ (961)	\$ 17
Net loss from continuing operations (2)	\$ (22,068)	\$ (8,081)	\$ (13,707)	\$ (10,830)
Basic and diluted loss per common share from continuing operations (1)	\$ (0.66)	\$ (0.41)	\$ (0.92)	\$ (0.75)

	Three Months Ended			
	December 31, 2022	September 30, 2022	June 30, 2022	March 31, 2022
Revenues, net	\$ 9,951	\$ 11,535	\$ 9,970	\$ 9,045
Gross profit	\$ (44)	\$ 636	\$ 928	\$ 328
Net loss from continuing operations (3)	\$ (11,114)	\$ (10,490)	\$ (7,699)	\$ (7,250)
Basic and diluted loss per common share from continuing operations (1)	\$ (0.77)	\$ (0.75)	\$ (0.63)	\$ (0.67)

- (1) The quarterly per share data in this table has been rounded and therefore may not sum to total year-to-date EPS.
- (2) For the quarter ended December 31, 2023, net loss from continuing operations increased from the previous current year quarters, mainly due to an inventory leaf reserve charge of \$7,720 and loss on extinguishment of debt in the amount of \$5,158.
- (3) For the quarter ended December 31, 2022, net loss from continuing operations increased from the previous current year quarters, mainly due to higher personnel and strategic consulting costs.

NOTE 21. – SUBSEQUENT EVENTS

Increase in Authorized Shares

On February 15, 2024, our stockholders approved an amendment (the "Articles Amendment") to our Articles of Incorporation, as amended, to increase the number of authorized shares of common stock sixty-six million, six hundred sixty-six thousand six hundred and sixty-seven (66,666,667) to two hundred fifty million (250,000,000), which Articles Amendment was filed and effective with the Secretary of the State of Nevada on February 15, 2024.

Warrant Inducement

For the period from January 1, 2024 to February 15, 2024, the date of Stockholder Approval, the Company entered into warrant inducement agreements with certain holders of the Existing Warrants to purchase an aggregate of 13,132,268 shares of common stock at a reduced weighted average exercise price of approximately \$0.1844. Pursuant to the warrant inducement agreements, the exercising holders of the Existing Warrants received 26,264,536 Inducement Warrants and the Company received aggregate gross proceeds of approximately \$2,421 from the exercise of the Existing Warrants. Additionally, on the date of Stockholder Approval, the exercise price of the 57,299,308 outstanding Inducement Warrants, was reduced to \$0.1765 based on the lowest Nasdaq Minimum Price (as defined in the as defined in Nasdaq Listing Rule 5635(d)) during the inducement period.

Item 15(b). Exhibits

In reviewing the agreements included as exhibits to this report, please remember they are included to provide you with information regarding their terms and are not intended to provide any other factual or disclosure information about the Company, its subsidiaries or other parties to the agreements. The agreements contain representations and warranties by each of the parties to the applicable agreement. These representations and warranties have been made solely for the benefit of the other parties to the applicable agreement and:

- should not in all instances be treated as categorical statements of fact, but rather as a way of allocating the risk to one of the parties if those statements prove to be inaccurate;
- have been qualified by disclosures that were made to the other party in connection with the negotiation of the applicable agreement, which disclosures are not necessarily reflected in the agreement;
- may apply standards of materiality in a way that is different from what may be viewed as material to you or other investors; and
- were made only as of the date of the applicable agreement or such other date or dates as may be specified in the agreement and are subject to more recent developments.

Accordingly, these representations and warranties may not describe the actual state of affairs as of the date they were made or at any other time. We acknowledge that, notwithstanding the inclusion of the foregoing cautionary statements, we are responsible for considering whether additional specific disclosures of material information regarding material contractual provisions are required to make the statements in this report not misleading. Additional information about the Company may be found elsewhere in this report and the Company's other public files, which are available without charge through the SEC's website at <http://www.sec.gov>.

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Exhibit No.	Description
3.1	Amended and Restated Certificate of Incorporation of the Company (incorporated herein by reference to Exhibit 3.2 of the Company's Annual Report on Form 10-K for the year ended September 30, 2010 filed with the Commission on December 1, 2010).
3.1.1	Amendment to Certificate of Incorporation of the Company (incorporated by reference to Appendix A to the Company's Definitive Proxy Statement filed with the Commission on March 4, 2014).
3.1.2	Amendment to Certificate of Incorporation of the Company (incorporated by reference to Appendix B to the Company's Definitive Proxy Statement filed with the Commission on December 11, 2023).
3.2	Amended and Restated Bylaws of the Company (incorporated herein by reference to Exhibit 3.2 of the Company's Annual Report on Form 10-K for the year ended December 31, 2014 filed with the Commission on January 30, 2014).
3.2.1	Amendment No. 1 to Amended and Restated Bylaws of the Company (incorporated herein by reference to Exhibit 3.2 of the Company's Form 8-K filed with the Commission on April 28, 2015).
4.1*	Description of Securities Registered Pursuant to Section 12
4.2	Form of Warrant (incorporated by reference from Exhibit 4.1 to the Company's Form 8-K filed with the Commission on July 25, 2022).
4.3	Form of Amended Original Issue Discount Senior Secured Debentures dated March 3, 2023 (incorporated by reference to Exhibit 4.1 to the Company's Form 8-K filed with the Commission on December 28, 2023).
4.4	Form of JGB Warrant (incorporated by reference to Exhibit 4.4 to the Company's Form 10-K filed with the Commission on March 9, 2023).
4.5	Form of Omnia Warrant (incorporated by reference to Exhibit 4.5 to the Company's Form 10-K filed with the Commission on March 9, 2023).
4.6	Form of Inducement Warrant (incorporated by reference to Exhibit 4.1 to the Company's Form 8-K filed with the Commission on November 29, 2023).
4.7	Waiver and Amendment Agreement (Incorporated by reference from Exhibit 10.1 to the Company's Form 8-K filed with the Commission on October 16, 2023).
4.8	Form of Common Warrant (Incorporated by reference from Exhibit 4.1 to the Company's Form 8-K filed with the Commission on October 18, 2023).
4.9	Form of Placement Agent Warrant (Incorporated by reference from Exhibit 4.3 to the Company's Form 8-K filed with the Commission on October 18, 2023).
10.1††	License Agreement dated March 6, 2009 between North Carolina State University and 22nd Century Limited, LLC (incorporated by reference to Exhibit 10.21 to the Company's Form S-1 registration statement filed with the Commission on August 26, 2011).
10.1.1	Amendment dated August 9, 2012 to License Agreement dated March 6, 2009 between North Carolina State University and 22nd Century Limited, LLC (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the Commission on August 20, 2012).

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<u>10.2</u>	<u>Letter Agreement between the Company and North Carolina State University dated November 22, 2011 (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the Commission on November 23, 2011).</u>
<u>10.3†</u>	<u>Amended and Restated 22nd Century Group, Inc. 2021 Omnibus Incentive Plan (incorporated by reference from Appendix B to the Company's definitive proxy statement filed April 25, 2023)</u>
<u>10.4†</u>	<u>Form of Option Award Agreement under 22nd Century Group, Inc. 2021 Omnibus Incentive Plan (incorporated by reference to exhibit 10.2 of the Company's Current Report on Form 8-K filed with the Commission on May 21, 2021).</u>
<u>10.5†</u>	<u>Form of Executive RSU Award Agreement under 22nd Century Group, Inc. 2021 Omnibus Incentive Plan (incorporated by reference to exhibit 10.3 of the Company's Current Report on Form 8-K filed with the Commission on May 21, 2021).</u>
<u>10.6†</u>	<u>Form of Director RSU Award Agreement under 22nd Century Group, Inc. 2021 Omnibus Incentive Plan (incorporated by reference to exhibit 10.4 of the Company's Current Report on Form 8-K filed with the Commission on May 21, 2021).</u>
<u>10.7†</u>	<u>22nd Century Group, Inc. 2014 Omnibus Incentive Plan, as amended and restated (incorporated by reference from Appendix A to the Company's definitive proxy statement filed on March 22, 2019).</u>
<u>10.8</u>	<u>Securities Purchase Agreement dated March 3, 2023 with each of the purchasers party thereto and JGB Collateral, LLC, a Delaware limited liability company, as collateral agent for the Purchasers (incorporated by reference to Exhibit 10.18 to the Company's Form 10-K filed with the Commission on March 9, 2023)</u>
<u>10.8.1</u>	<u>Amendment to Securities Purchase Agreement dated March 3, 2023 with each of the purchasers party thereto and JGB Collateral, LLC, a Delaware limited liability company, as collateral agent for the Purchasers (incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed with the Commission on December 28, 2023)</u>
<u>10.9</u>	<u>Subordinated Promissory Noted dated March 3, 2023 (incorporated by reference to Exhibit 10.19 to the Company's Form 10-K filed with the Commission on March 9, 2023)</u>
<u>10.10</u>	<u>Equity Purchase Agreement dated November 20, 2023 (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the Commission on November 27, 2023)</u>
<u>10.10.1</u>	<u>Amendment to Equity Purchase Agreement dated December 22, 2023 (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the Commission on December 28, 2023)</u>
<u>10.11</u>	<u>Form of Inducement Letter (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the Commission on November 29, 2023).</u>
<u>10.12</u>	<u>License Agreement with NCSU dated November 2, 2023 (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the Commission on November 8, 2023)</u>
<u>19.1*</u>	<u>Insider Trading Policy</u>
<u>21.1*</u>	<u>Subsidiaries</u>
<u>23.1*</u>	<u>Consent of Freed Maxick CPAs, P.C.</u>
<u>31.1*</u>	<u>Section 302 Certification.</u>

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31.2*	Section 302 Certification.
32.1*	Written Statement of Principal Executive Officer and Chief Financial Officer pursuant to 18.U.S.C §1350.
97.1*	Compensation Recovery Policy
101*	Interactive data files formatted in XBRL (eXtensible Business Reporting Language): (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Operations, (iii) the Consolidated Statements of Cash Flows, and (iv) the Notes to the Consolidated Financial Statements.
101.INS XBRL	Instance Document*
101.SCH XBRL	Taxonomy Extension Schema Document*
101.CAL XBRL	Taxonomy Extension Calculation Linkbase Document*
101.DEF XBRL	Taxonomy Extension Definition Linkbase Document*
101.LAB XBRL	Taxonomy Extension Label Linkbase Document*
101.PRE XBRL	Taxonomy Extension Presentation Linkbase Document*
Exhibit 104	Cover Page Interactive Data File – The cover page interactive data file does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document*

* Filed herewith.

† Management contract or compensatory plan, contract or arrangement.

†† Certain portions of the exhibit have been omitted pursuant to a confidential treatment order. An unredacted copy of the exhibit has been filed separately with the United States Securities and Exchange Commission pursuant to the request for confidential treatment.

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.

22nd CENTURY GROUP, INC.

Date: March 28, 2024

By: /s/ Lawrence D. Firestone
Lawrence D. Firestone
Chief Executive Officer and Director
(Principal Executive Officer)

Date: March 28, 2024

By: /s/ R. Hugh Kinsman
R. Hugh Kinsman
Chief Financial Officer
(Principal Accounting and Financial Officer)

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.

Date: March 28, 2024

By: /s/ Nora B. Sullivan
Nora B. Sullivan
Director

Date: March 28, 2024

By: /s/ Richard M. Sanders
Richard M. Sanders
Director

Date: March 28, 2024

By: /s/ James A. Mish
James A. Mish
Director

Date: March 28, 2024

By: /s/ Andrew Arno
Andrew Arno
Director

Date: March 28, 2024

By: /s/ Dr. Michael Koganov
Dr. Michael Koganov
Director

Date: March 28, 2024

By: /s/ Anthony Johnson
Anthony Johnson
Director

Date: March 28, 2024

By: /s/ Lucille S. Salhany
Lucille S. Salhany
Director

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

As of December 31, 2023, 22nd Century Group, Inc. (“we” or “our”) had one class of securities, our common stock, par value \$0.00001 per share (“Common Stock”), registered under Section 12 of the Securities Exchange Act of 1934, as amended. The following description of our Common Stock is a summary and is subject to, and is qualified in its entirety by reference to, the provisions of our Amended and Restated Certificate of Incorporation and our Amended and Restated Bylaws, copies of which are incorporated by reference to our Annual Report on Form 10-K for the year ended December 31, 2023 of which this Exhibit 4.1 is a part.

Our authorized capital stock consists of 250,000,000 shares of Common Stock, \$0.00001 par value per share, and 10,000,000 shares of preferred stock, \$0.00001 par value per share. As of December 31, 2023, 43,525,862 shares of Common Stock were issued and outstanding and no shares of preferred stock were issued and outstanding.

Our Common Stock is traded on the Nasdaq Capital Market under the symbol “XXII.” Holders of our Common Stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and do not have cumulative voting rights. Holders of Common Stock are entitled to receive ratably such dividends, if any, as may be declared by the board of directors out of funds legally available therefore, subject to a preferential dividend right of outstanding preferred stock. Upon the liquidation, dissolution or our winding up, the holders of Common Stock are entitled to receive ratably our net assets available after the payment of all debts and other liabilities and subject to the prior rights of any outstanding preferred stock. The rights, preferences and privileges of holders of our Common Stock are subject to, and may be adversely affected by the rights of the holders any series of preferred stock that we may designate and issue in the future.

Insider Trading Policy 22nd Century Group, Inc.

This Insider Trading Policy (the “Policy”) applies to officers, employees, consultants and directors (the “Associates”) and immediate family members of, and other individuals who share a household with, an Associate (together with the Associates, the “Covered Persons”) of 22nd Century Group, Inc. and its subsidiaries (collectively, the “Company”).

This Policy concerns (a) transactions in the Company’s equity, debt, and derivative securities (collectively, the “Securities”) and (b) the use of Material Nonpublic Information (as defined below) (i) of the Company and (ii) regarding other entities when such Material Nonpublic Information is obtained by an Associate in connection with the Associate’s engagement with the Company.

General Policy

It is the policy of the Company that no Covered Person shall misuse Material Nonpublic Information obtained in connection with the Covered Person’s relationship with the Company.

Mandatory Provisions

1. No Trading based on Material Nonpublic Information. No Covered Person shall engage in any transaction involving a purchase or sale of the Company’s Securities (including any offer to purchase or sell) while the Covered Person possesses Material Nonpublic Information concerning the Company. The period during which this prohibition applies begins on the date that the Covered Person acquires or has access to any Material Nonpublic Information concerning the Company, and ends at the close of business on the second Trading Day (as defined below) following the date of public disclosure of such information, or at such time as such nonpublic information ceases to be material. The term “Trading Day” means a day on which national stock exchanges and the NASDAQ Stock Market (“NASDAQ”) are open for trading.

2. Certain Exemptions. Notwithstanding the provisions of Section 1 hereof, Covered Persons may engage in the following transactions (each, an “Exempt Transaction”) while in possession of Material Nonpublic Information:

- Acquisition of the Company’s Securities pursuant to a stock incentive plan or other employee benefit plans (provided, however that this exemption does not apply to the sale of Securities so acquired);
 - Acquisition of the Company’s Securities pursuant to a previously established election to invest in a Company-sponsored employee benefit plan (provided, however that this exemption does not apply to the sale of Securities so acquired);
 - Acquisition or disposition of Securities pursuant to a previously established trading plan that complies with the requirements of Rule 10b5-1 promulgated under the Securities Exchange Act of 1934, as amended (the “Act”); and
 - Acquisition or disposition of Securities as a result of a bona fide gift, a transfer by will or the laws of descent.
-

3. No Tipping; Confidentiality of Nonpublic Information. No Covered Person shall disclose to any other person (“Tip”) any Material Nonpublic Information pertaining to the Company. Further, all nonpublic information relating to the Company is the property of the Company. The unauthorized disclosure of all such nonpublic information is forbidden regardless of its materiality.

4. Definition of Material Nonpublic Information. “Material Nonpublic Information” means information that is both material and nonpublic. Information should be regarded as “material” if a reasonable person would attach importance to such information in determining whether to buy, sell or hold a company’s equity, debt, or derivative securities. By way of illustration and not limitation, the following types of information may be material:

- Financial results, quarterly or annual reports;
- Projections of future earnings or losses;
- Pending or proposed mergers, acquisitions, divestitures or joint ventures;
- Information regarding a company’s products under development;
- Impending bankruptcy or financial liquidity problems;
- Gain or loss of a significant customer or supplier;
- New product or service announcements of a significant nature;
- Significant product or service problems, defects or modifications;
- Significant pricing changes;
- Stock splits;
- New equity or debt offerings;
- Actual or threatened litigation; or
- Changes in senior management.

Information is considered to be “public” if it has been disseminated such that it is available to investors in the market at large or if it has become a matter of public record as a result of governmental filings.

5. Prohibition against Short Selling. No Covered Person may engage in any transaction where the Covered Person may benefit from a decline in the Company’s stock price (a “Short Sale”). While only officers or directors of the Company are prohibited by law from engaging in Short Sales, the Company has adopted a policy prohibiting all Covered Persons from engaging in such transactions. Specifically, no Covered Person may, directly or indirectly, sell any Securities of the Company if the Covered Person (i) does not own the Securities sold or (ii) if the Securities are owned, does not either deliver them against such sale within 20 days or does not deposit them in the mail or other usual channels of transportation for such delivery within five (5) days.

6. Preclearance of Transactions. All Associates of the Company must consult the Company’s Chief Financial Officer (or individual filling a similar role) before engaging in any acquisition or disposition of the Company’s Securities (“Preclearance”), even during the Window Periods (as defined below). With regard to transactions pursuant

to investment elections in a Company-sponsored employee benefit plan or pursuant to a Rule 10b5-1 trading plan, Preclearance must be obtained at the time that such election is made or when such trading plan is adopted or amended.

Preclearance is intended to serve the following functions:

- Prevent inadvertent insider trading violations;
- Assist directors and officers in complying with their reporting obligations under Federal securities laws; and
- Verify compliance with any other obligations under applicable laws.

Rule Applicable to Blackout Group

Notwithstanding anything contained herein to the contrary, certain Associates (including all officers and directors of the Company) designated in writing from time to time by the Company (collectively, the “Blackout Group”) may not buy or sell the Company’s securities during the “Blackout Periods.” Members of the Blackout Group may buy or sell Company’s Securities only during Window Periods. The Blackout Period restrictions do not apply to Exempt Transactions.

Blackout Periods begin on the first day of each new quarter and last until the third business day following the earlier of the issuance of (a) an earnings release for a completed quarter or year, or (b) a periodic report on Form 10-Q or Form 10-K. For example, if the Company does not file an earnings release for a completed fiscal year and does not file its Form 10-K until April 1st, then the Blackout Period would run from January 1st to the third business day after the Company filed its Form 10-Q for its first quarter which will usually be around May 15th.

Window Periods are the dates that are not included in the Blackout Periods. Thus, Window Periods run from the third business day following the earlier of (a) the issuance of an earnings release for the most recently completed quarter or year, or (b) the filing of a periodic report on Form 10-Q or 10-K for such most recently completed quarter or year. Such Window Period would end on the last day of the fiscal quarter or year following the quarter or year to which the periodic report or earnings release related to. For example, if a Form 10-K is filed on March 1st, then the Window Period would begin three business days after such filing and would end on March 31st.

Trading in the Company’s Securities during Window Periods should not be considered a “safe harbor,” and all Associates should use good judgment at all times.

Recommended Guidelines for the Non-Blackout Group

In addition to the foregoing restrictions on trading, the Company recommends that all Associates who are not included in the Blackout Group only engage in transactions involving Company Securities during a “Window Period” as defined above.

Violations; Penalties

All Associates should consult the Company's Chief Financial Officer (or individual filling a similar role) with any questions they might have, before engaging in a transaction regarding the Company's Securities. Officers and supervisors (each, a "Control Person") must take reasonable measures to ensure that all Associates under the Control Person's supervision who are reasonably likely to have access to Material Nonpublic Information are aware of insider trading laws. Failure to do so can subject the Control Persons to liability. Any suspected violation of insider trading laws or this Policy must be promptly reported in writing to the Company's Chief Financial Officer (or individual filling a similar role). Anyone who violates insider trading laws or this Policy is subject to disciplinary action up to and including termination with cause.

Under Federal securities laws, an individual who engages in insider trading is subject to:

- Civil fines by the United States Securities and Exchange Commission (the "SEC") of up to three times the profit gained or loss avoided;
- Injunctive action by the SEC;
- Private actions for rescission or damages; and
- Criminal fines up to \$5 million and a prison sentence up to 20 years.

The Company, as well as any implicated Control Person, is subject to liability if the Company or the Control Person knew and recklessly disregarded the fact that a person directly or indirectly under the Company's or the Control Person's control was likely to engage in insider trading and failed to take appropriate steps to prevent such an act before it occurred. The Company or a Control Person may face civil liability up to the greater of \$1 million or three times the profit gained or loss avoided as a result of the inside trade as well as criminal fines of up to \$25 million.

Covered Persons may also be liable for improper transactions by any person (a "Tippee") to whom they have disclosed Material Nonpublic Information. The SEC has imposed large penalties even when the disclosing person did not profit from the trading by a Tippee.

Applicability of Policy to Inside Information Regarding Other Companies

This Policy and the guidelines described herein apply to Material Nonpublic Information relating to other publicly traded companies when such information is obtained in connection with a Covered Person's relationship with the Company. In addition to civil and criminal penalties, termination of an Associate (with cause) may result from trading on, or providing a Tip with regard to, such Material Nonpublic Information. All Covered Persons should treat nonpublic information obtained in connection with their relationship with the Company regarding other companies and entities with the same care and confidentiality as they would treat nonpublic information about the Company.

Additional Information – Directors and Officers

Directors and officers of the Company must also comply with the reporting obligations and limitations on short-swing transactions set forth in Section 16 of the Act. The practical effect of these provisions is that directors and officers

who both purchase and sell the Company's securities within a six (6) month period must disgorge all profits to the Company, whether or not they had any Material Nonpublic Information about the Company. Under these provisions, and so long as certain other criteria are met, the receipt of an option under the Company's equity incentive (or similar) plans and the exercise of that option are not deemed "purchases" for the purposes of Section 16; however, the sale of any Securities so acquired are deemed to be "sales" for the purposes of Section 16.

Miscellaneous

Please direct your questions as to any of the matters discussed in this Policy to the Company's Chief Financial Officer. Every Associate of the Company has the individual responsibility to comply with this Policy. The guidelines set forth in this Policy are guidelines only, and appropriate judgment should be exercised in connection with any trade in the Company's Securities to the extent it is not explicitly prohibited. An Associate may, from time to time, have to forego a proposed transaction in the Company's Securities even if he or she planned to make the transaction before learning of the Material Nonpublic Information and even though the Associate believes he or she may suffer an economic loss or forego anticipated profit by waiting.

**SUBSIDIARIES OF
22nd CENTURY GROUP, INC.**

Name	State of Formation	Percentage
22nd Century Limited, LLC	Delaware	100%
Goodrich Tobacco Company, LLC	Delaware	100%
Heracles Pharmaceuticals, LLC	Delaware	100%
NASCO Products, LLC	North Carolina	100%
Botanical Genetics, LLC	Delaware	100%
22nd Century Group Europe B.V.	Amsterdam	100%
22nd Century Group Canada, Inc.	Canada	100%
22nd Century Holdings, LLC	Delaware	100%
Golden Acquisition Sub, LLC	Delaware	100%
ESI Holdings, LLC	Nevada	100%
PTB Investment Holdings, LLC	Nevada	100%
BridgeWay Distribution, LLC	Nevada	100%

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Numbers 333-256616, 333-173166, 333-195380, 333-217771, 333-231262 and 333-274091 on Form S-8 and in Registration Statement Numbers 333-239981, 333-267266, 333-270473, and 333-271217 on Form S-3 of 22nd Century Group, Inc. of our report, dated March 28, 2024, appearing in this Annual Report on Form 10-K of 22nd Century Group, Inc.

/s/ Freed Maxick CPAs, P.C.

Buffalo, NY
March 28, 2024

CERTIFICATIONS

I, Lawrence D. Firestone, Chief Executive Officer of 22nd CENTURY GROUP, INC., certify that:

1. I have reviewed this annual report on Form 10-K of 22nd CENTURY GROUP, 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 control 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; and
 - 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.
5. The registrant's other certifying officer 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 registrant's board of directors (or persons performing 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: March 28, 2024

/s/ Lawrence D. Firestone

Lawrence D. Firestone

Chief Executive Officer and Director

(Principal Executive Officer)

CERTIFICATIONS

I, R. Hugh Kinsman, Chief Financial Officer of 22nd CENTURY GROUP, INC., certify that:

1. I have reviewed this annual report on Form 10-K of 22nd CENTURY GROUP, 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 control 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; and
 - 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.
5. The registrant's other certifying officer 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 registrant's board of directors (or persons performing 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: March 28, 2024

/s/ R. Hugh Kinsman

R. Hugh Kinsman
Chief Financial Officer

(Principal Accounting and Financial Officer)

Written Statement of the Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. §1350

Solely for the purposes of complying with 18 U.S.C. §1350, I, the undersigned Chief Executive Officer of 22nd CENTURY GROUP, INC. (the "Company"), and I, the undersigned Chief Financial Officer of the Company, hereby certify, to the best of my knowledge, that the annual report on Form 10-K of the Company for the year ended December 31, 2023 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

This certification is being furnished solely to accompany this Report pursuant to 18 U.S.C. 1350, and is not being filed for purposes of Section 18 of the Securities Exchange Act of 1934 and is not to be incorporated by reference into any filing of the registrant, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

Date: March 28, 2024

/s/ Lawrence D. Firestone

Lawrence D. Firestone

Chief Executive Officer and Director

Date: March 28, 2024

/s/ R. Hugh Kinsman

R. Hugh Kinsman

Chief Financial Officer

22nd Century Group, Inc.
Compensation Recovery Policy

1. Purpose. The purpose of this Compensation Recovery Policy (this “Policy”) is to describe the circumstances under which 22nd Century Group, Inc. (the “Company”) is required to or shall have the right to recover certain compensation paid to certain employees and independent contractors. Any references in compensation plans, agreements, equity awards or other policies to the Company’s “recoupment”, “clawback” or similarly-named policy shall be deemed to refer to this Policy.
 2. Mandatory Recovery of Compensation. In the event that the Company is required to prepare an Accounting Restatement, the Company shall recover reasonably promptly the amount of Erroneously Awarded Compensation.
 3. Definitions. For purposes of this Policy, the following terms, when capitalized, shall have the meanings set forth below:
 - (a) “*Accounting Restatement*” shall mean any accounting restatement of the Company’s previously publicly issued financial statements required due to material noncompliance of the Company with any financial reporting requirement under the securities laws, including to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period.
 - (b) “*Covered Officer*” shall mean:
 - (i) for Incentive-Based Compensation, the Company’s president; chief executive officer; chief operating officer; principal financial officer; principal accounting officer (or if there is no such accounting officer, the controller); any vice-president of the Company in charge of a principal business unit, division, or function (such as sales, administration, or finance); any other officer who performs a significant policy-making function; or any other person who performs similar significant policy-making functions for the Company; and
 - (ii) for Time-Based Compensation, one of the Company’s “named executive officers” as defined in Item 402 of Regulation S-K.
 - (c) “*Effective Date*” shall mean the date of adoption of NASDAQ Listing Rule 5608(a).
 - (d) “*Erroneously Awarded Compensation*” shall mean the excess of (i) the amount of Incentive-Based Compensation or Time-Based Compensation Received by a person (A) after beginning service as a Covered Officer, (B) in the case of Incentive-Based Compensation, who served as a Covered Officer at any time during the performance period for that Incentive-Based Compensation, (C) while the Company has a class of securities listed on a national securities exchange or a
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national securities association and (D) during the Recovery Period; over (ii) the Recalculated Compensation.

- (e) *“Incentive-Based Compensation”* shall mean any compensation that is granted, earned, or vested based wholly or in part upon the attainment of a financial reporting measure. A financial reporting measure is a measure that is determined and presented in accordance with the accounting principles used in preparing the Company’s financial statements, and any measures that are derived wholly or in part from such measures, regardless of whether such measure is presented within the financial statements or included in a filing with the Securities and Exchange Commission. Each of stock price and total shareholder return is a financial reporting measure. For the avoidance of doubt, Incentive-Based Compensation subject to this Policy does not include stock options, restricted stock, restricted stock units or similar equity-based awards for which the grant is not contingent upon achieving any financial reporting measure performance goal and vesting is contingent solely upon completion of a specified employment period and/or attaining one or more non-financial reporting measures.
- (f) *“Recalculated Compensation”* shall mean the amount of Incentive-Based Compensation or Time-Based Compensation that otherwise would have been Received had it been determined based on the restated amounts in the Accounting Restatement, computed without regard to any taxes paid. For Time-Based Compensation, and for Incentive-Based Compensation based on stock price or total shareholder return, where the amount of the Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in an Accounting Restatement, the amount of the Recalculated Compensation must be based on a reasonable estimate of the effect of the Accounting Restatement on the stock price or total shareholder return, as the case may be, on the Incentive Compensation Received. The Company must maintain documentation of the determination of that reasonable estimate and provide such documentation to the national securities exchange or association on which its securities are listed.
- (g) Incentive-Based Compensation is deemed *“Received”* in the Company’s fiscal period during which the financial reporting measure specified in the award of such Incentive-Based Compensation is attained, even if the payment or grant of the Incentive-Based Compensation occurs after the end of that period. Time-Based Compensation is *“Received”* in the year of payment or settlement.
- (h) *“Recovery Period”* shall mean the three completed fiscal years of the Company immediately preceding the date the Company is required to prepare an Accounting Restatement; provided that the Recovery Period shall not begin before the Effective Date. For purposes of determining the Recovery Period, the Company is considered to be *“required to prepare an Accounting Restatement”* on the earlier to occur of: (i) the date the Company’s Board of Directors, a committee thereof, or the Company’s authorized officers conclude, or reasonably should have concluded, that the Company is required to prepare an Accounting Restatement, or (ii) the date

a court, regulator, or other legally authorized body directs the Company to prepare an Accounting Restatement. If the Company changes its fiscal year, then the transition period within or immediately following such three completed fiscal years also shall be included in the Recovery Period, provided that if the transition period between the last day of the Company's prior fiscal year end and the first day of its new fiscal year comprises a period of nine to 12 months, then such transition period shall instead be deemed one of the three completed fiscal years and shall not extend the length of the Recovery Period.

- (i) "*Time-Based Compensation*" shall mean any compensation that is paid pursuant to an equity-based award the amount of which is determined wholly or partially in relation to the fair market value of a share of the Company's common stock, that is granted, earned or vests based solely on the passage of time or on the basis of non-financial reporting measures, and that is not Incentive-Based Compensation.

4. Exceptions. Notwithstanding anything to the contrary in this Policy, recovery of Erroneously Awarded Compensation will not be required to the extent a committee of the Company's independent directors responsible for executive compensation decisions (or a majority of the independent directors on the Company's Board of Directors in the absence of such a committee) has made a determination that such recovery would be impracticable and one of the following conditions have been satisfied:

- (a) The direct expense paid to a third party to assist in enforcing this Policy would exceed the amount to be recovered; provided that, before concluding that it would be impracticable to recover any amount of Erroneously Awarded Compensation that was Incentive-Based Compensation based on the expense of enforcement, the Company must make a reasonable attempt to recover such Erroneously Awarded Compensation, document such reasonable attempt(s) to recover, and provide that documentation to the national securities exchange or association on which its securities are listed.
- (b) Recovery would violate home country law where, with respect to Incentive-Based Compensation, that law was adopted prior to November 28, 2022; provided that, before concluding that it would be impracticable to recover any amount of Erroneously Awarded Compensation that was Incentive-Based Compensation based on violation of home country law, the Company must obtain an opinion of home country counsel, acceptable to the national securities exchange or association on which its securities are listed, that recovery would result in such a violation, and must provide such opinion to the exchange or association.
- (c) Recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of 26 U.S.C. 401(a) (13) or 26 U.S.C. 411(a) and regulations thereunder.

5. Manner of Recovery. In addition to any other actions permitted by law or contract, the Company may take any or all of the following actions to recover any Erroneously Awarded Compensation: (a) require the Covered Officer to repay such amount; (b) offset such amount from any other compensation owed by the Company or any of its affiliates to the Covered Officer, regardless of whether the contract or other documentation governing such other compensation specifically permits or specifically prohibits such offsets; and (c) subject to Section 4(c), to the extent the Erroneously Awarded Compensation was deferred into a plan of deferred compensation, whether or not qualified, forfeit such amount (as well as the earnings on such amounts) from the Covered Officer's balance in such plan, regardless of whether the plan specifically permits or specifically prohibits such forfeiture. If the Erroneously Awarded Compensation consists of shares of the Company's common stock, and the Covered Officer still owns such shares, then the Company may satisfy its recovery obligations by requiring the Covered Officer to transfer such shares back to the Company.
6. Other.
- (a) This Policy shall be administered and interpreted, and may be amended from time to time, by the Company's Board of Directors or any committee to which the Board may delegate its authority in its sole discretion in compliance with the applicable listing standards of the national securities exchange or association on which the Company's securities are listed, and the determinations of the board or such committee shall be binding on all Covered Officers.
 - (b) The Company shall not indemnify any Covered Officer against the loss of Erroneously Awarded Compensation.
 - (c) The Company shall file all disclosures with respect to this Policy in accordance with the requirements of the Federal securities laws, including disclosure required by the Securities and Exchange Commission filings.
 - (d) Any right to recovery under this Policy shall be in addition to, and not in lieu of, any other rights of recovery that may be available to the Company.