2021

ANNUAL REPORT

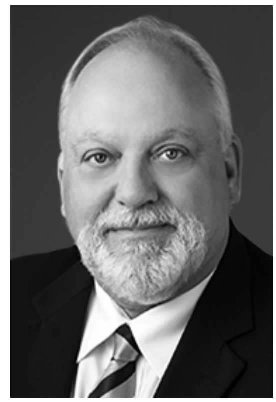
FLOTEK

(NYSE:FTK)

2021

Dear Fellow Shareholders

From John W. Gibson, Jr.



Flotek experienced a transformational 2021 by remaining focused on our priorities:

Flawless Execution - We had a zero total recordable incident rate, zero spills and zero non-productive time in 2021. This accomplishment resulted from our obsessive focus on the safety of our employees, customers and other stakeholders.

Environmental Leadership - Responsible stewardship of the environment is in our DNA. We are focused on enabling our customers to replace some of the most toxic and carcinogenic chemicals in the world with plant-based and biodegradable alternatives. In addition to our core business supplying green chemicals to the oil and gas industry, we are exploring various other use cases including solar panel coatings. Combined with our "ESG Scorecard" methodology we've developed for our customers, we are achieving our vision of becoming the industry's trusted environmental partner.

Capital Discipline - Our blending facility in Marlow, OK retains the capacity to support the recently announced contracts with ProFrac, as well as new organic growth, without the investment of additional capital.

Sustainable Revenue - Our contract with ProFrac provides a solid foundation of recurring revenue on which to build. In place currently is an estimated $200MM+ contract to supply chemicals for a minimum of ten of ProFrac's fleets for three years. Our proxy statement for the upcoming May 9 Special Meeting includes a proposal to expand that contract to a minimum of 30 fleets for ten years. This expanded contract, with an estimated value of $2B+, is truly transformational for our business, and we ask for your approval of our proposals at the Special Meeting.

Profitability - We expect our improved operational execution to result in upper quartile performance for SG&A as a percentage of revenue under our new contracts. Margins are a key focus for our team as we ramp up new opportunities.

Low Leverage - We believe strongly in limiting the use of debt financing to maintain balance sheet flexibility. Our leadership team understands the highly cyclical nature of the industries in which we conduct business. In order to ensure success over the full business cycle, we aim to finance the company in the most responsible way possible by responsibly using debt and equity with a focus on long-term sustainability.

We've invested in the transformation of Flotek over the last two difficult years, and we have now emerged as a trusted supplier of sustainable solutions. Our new contract and proposed extension create a foundation for stability and growth that differentiates Flotek from competitors. We intend to convert this momentum to further solidify Flotek as a leading environmental solution provider for our customers. This, combined with a focus on our strategic priorities and a leadership team that is strongly committed to making Flotek a success for all stakeholders, should result in improving financial performance in the years to come.

You are invited to join us for our two in-person meetings of shareholders.

The first meeting occurs on May 9, 2022 at 10 a.m. Central Time at 1301 McKinney St., Suite 5100, Houston, Texas. This is a Special Meeting seeking approval of the proposed transaction with ProFrac Holdings, LLC. We encourage you to vote in favor of this transaction and the related proposals. We feel this pivotal expansion to our existing contract with ProFrac guaranteeing a decade of recurring revenue assures Flotek's future as a leader in the development and delivery of sustainable chemistry.

The second in-person meeting is our 2022 Annual Meeting of Shareholders and occurs on June 9, 2022 at 10 a.m. Central Time at 1301 McKinney St., Suite 5100, Houston Texas. At the Annual Meeting, we are seeking approval of director nominees, an advisory vote on our executive compensation, and, for the first time, direct shareholder input on my performance as CEO. We believe that this represents the next evolution in corporate governance.

Your vote is important. We urge you to read the the proxy statements for the Special Meeting and the Annual Meeting and vote in accordance with the Board of Directors' recommendations.

I want to thank you for your ongoing support. The future is bright for Flotek, and we're excited to see where we can take it.

—John W. Gibson, Jr.
Chairman, CEO and President

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

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 2021

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from to

Commission File Number 1-13270

FLOTEK INDUSTRIES, INC.

(Exact name of registrant as specified in its charter)

Delaware	**90-0023731**
(State of other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
8846 N. Sam Houston Parkway W. Houston, TX	**77064**
(Address of principal executive offices)	**(Zip Code)**

(713) 849-9911
(Registrant's telephone number, including area code)

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.0001 par value	FTK	New York Stock Exchange

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 ☒
- if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒
- 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 ☐
- whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐
- 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 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.☐
- whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of common stock held by non-affiliates of the registrant as of June 30, 2021 (based on the closing market price on the New York Stock Exchange on June 30, 2021) was approximately $128 million. At March 30, 2022, there were 76,635,518 outstanding shares of the registrant's common stock, $0.0001 par value.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Company's definitive proxy statement in connection with the 2022 Annual Meeting of Stockholders to be filed with the Commission pursuant to Regulation 14A are incorporated by reference into Part III of this Annual Report on Form 10-K.

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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K (this "Annual Report"), and in particular, Part II, Item 7 — "Management's Discussion and Analysis of Financial Condition and Results of Operations," contains "forward-looking statements" within the meaning of the safe harbor provisions, 15 U.S.C. § 78u-5, of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are not historical facts, but instead represent the current assumptions and beliefs regarding future events of Flotek Industries, Inc. ("Flotek" or the "Company"), many of which, by their nature, are inherently uncertain and outside the Company's control. Such statements include estimates, projections, and statements related to the Company's business plan, objectives, expected operating results, and assumptions upon which those statements are based. The forward-looking statements contained in this Annual Report are based on information available as of the date of this Annual Report.

The forward-looking statements relate to future industry trends and economic conditions, forecast performance or results of current and future initiatives and the outcome of contingencies and other uncertainties that may have a significant impact on the Company's business, future operating results and liquidity. These forward-looking statements generally are identified by words including but not limited to, "anticipate," "believe," "estimate," "commit," "budget," "aim," "potential," "schedule," "continue," "intend," "expect," "plan," "forecast," "project" and similar expressions, or future-tense or conditional constructions such as "will," "may," "should," "could" and "would," or the negative thereof or other variations thereon or comparable terminology. The Company cautions that these statements are merely predictions and are not to be considered guarantees of future performance. Forward-looking statements may also include statements regarding the anticipated performance under long-term supply agreements or amendments thereto and the potential value thereof or revenue thereafter. Forward-looking statements are based upon current expectations and assumptions that are subject to risks and uncertainties that can cause actual results to differ materially from those projected, anticipated or implied.

A detailed discussion of potential risks and uncertainties that could cause actual results and events to differ materially from forward-looking statements include, but are not limited to, those discussed in Part I, Item 1A — "Risk Factors" of this Annual Report and periodically in subsequent reports filed with the Securities and Exchange Commission ("SEC"). The Company has no obligation, and we disclaim any obligation, to publicly update or revise any forward-looking statements, whether as a result of new information or future events, except as required by law.

PART I

Item 1. Business.

General

Flotek Industries, Inc. creates solutions to reduce the environmental impact of energy on air, water, land and people. A technology-driven, specialty green chemistry and data technology company, Flotek helps customers across industrial, commercial, and consumer markets improve their ESG performance. The Company serves specialty chemistry needs for both domestic and international energy markets as well as applications of U.S. manufactured surface cleaners, disinfectants for industrial, commercial and consumer use.

The Company's Chemistry Technologies ("CT") segment develops, manufactures, packages, distributes, delivers and markets green, specialty chemicals that help their customers meet their ESG and operational goals, enhancing the profitability of hydrocarbon producers and supplying professional chemistries that clean surfaces in both commercial and personal settings to help reduce the spread of bacteria, viruses and germs.

The Company's Data Analytics ("DA") segment enables users to maximize the value of their hydrocarbon associated processes by providing real-time data and analytics associated with the streams in seconds rather than minutes or days. These real-time data and analytics prevents waste, reduces reprocessing, and allows users to pursue automation of their hydrocarbon streams to maximize their profitability, thereby improving ESG performance. During the second quarter of 2020, the Company acquired 100% ownership of JP3 in a cash-and-stock transaction. JP3's real-time data platforms combine the energy industry's only field-deployable, inline optical analyzer with proprietary cloud visualization and analytics, delivers increased profitability for its customers. In conjunction with the acquisition of JP3, the Company created the DA segment.

The Company was initially incorporated under the laws of the Province of British Columbia in 1985. In October 2001, the Company changed its corporate domicile to the State of Delaware. In December 2007, the Company's common stock began trading on the New York Stock Exchange ("NYSE") under the stock ticker symbol "FTK." Annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to

Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act") are posted to the Company's website, *www.flotekind.com*, as soon as practicable subsequent to electronically filing or furnishing to the SEC. Information contained in the Company's website is not to be considered as part of any regulatory filing.

As used herein, "Flotek," the "Company," "we," "our" and "us" refers to Flotek Industries, Inc. and/or the Company's wholly-owned subsidiaries. The use of these terms is not intended to connote any particular corporate status or relationship.

Recent Developments

On February 2, 2022, Flotek entered into a Private Investment in Public Equity (PIPE) transaction with a consortium of investors to secure growth capital for the Company. Pursuant to the PIPE transaction on February 2, 2022, Flotek issued $21.2 million aggregate initial principal amount of convertible notes for net cash proceeds of approximately $19 million. The investors are ProFrac Holdings, LLC, Burlington Ventures Ltd., entities associated with North Sound Management, certain funds associated with one of Flotek's directors including the D3 Family Fund and the D3 Bulldog Fund, and Firestorm Capital LLC. The convertible notes accrue paid-in-kind interest at a rate of 10% per annum, have a maturity of one year, and are converted into common stock of Flotek (a) at the holder's option at any time prior to maturity, at a price of $1.088125 per share, (b) at Flotek's option, if the volume-weighted average trading price of Flotek's common stock equals or exceeds $2.50 for 20 trading days during a 30 consecutive trading day period, or (c) at maturity, at a price of $0.8705. The issuance of the additional shares may trigger a change in ownership defined as 50% or more under IRC Section 382 that will limit the amount of net operating losses deductible and tax credits allowable starting in 2022.

Also on February 2, 2022, the Company entered into a long-term supply agreement with ProFrac Services, LLC (the "ProFrac Agreement") in exchange for $10 million of convertible notes with terms substantially the same as those described above. Under the ProFrac Agreement, ProFrac Services, LLC is obligated to order chemicals from the Company at least equal to the greater of (a) the chemicals required for 33% of their hydraulic fracturing fleets and (b) a baseline measured by the first ten hydraulic fracturing fleets deployed by ProFrac Services, LLC. The term of the ProFrac Agreement is three years starting April 1, 2022.

On February 16, 2022, the Company entered into an amended agreement with ProFrac Holdings, LLC to expand the Profrac Agreement. Closing of the transaction is expected to occur in the second quarter of 2022 and is subject to a vote of the shareholders of Flotek's common stock, as well as other customary conditions. It is anticipated that the expansion of the Profrac Agreement will increase revenue backlog by at least $1 billion, and up to $2.1 billion, over the next ten years. As part of the transaction, at closing Flotek would (a) issue to ProFrac notes convertible into Flotek's common stock with a maturity of one year, with the amount of notes based on the size of expansion, and (b) grant ProFrac the right to appoint two members to Flotek's board of directors, for a total of four out of seven directors. Conversion price of the convertible notes is $1.088125 per share under certain conditions prior to maturity, or $0.8705 per share at maturity. The convertible notes contain other terms and conditions similar to the convertible notes issued to Profrac on February 2, 2022.

Subsequent to December 31, 2021, the Company entered into a contract to sell the Waller manufacturing facility for proceeds of $4.2 million. The transaction is expected to close in April 2022.

Description of Operations and Segments

The Company's continuing operations has two business segments, CT and DA, which are both supported by the Company's Research & Innovation ("R&I") advanced laboratory capabilities. Financial information about the Company's operating segments and geographic concentration is provided in Note 21, "Business Segment, Geographic and Major Customer Information" in Part II, Item 8 – "Financial Statements and Supplementary Data" of this Annual Report.

Chemistry Technologies

The Company's CT segment provides sustainable, optimized chemistry solutions that maximize our customer's value by elevating their ESG performance, lowering operational costs, and delivering improved return on invested capital. The Company's proprietary green chemistries, specialty chemistries, logistics, and technology services enable its customers to pursue improved efficiencies and performance throughout the life cycle of its desired chemical applications program. The Company designs, develops, manufactures, packages, distributes and markets optimized chemistry solutions that accelerate existing sustainability practices to reduce the environmental impact of energy on the air, water, land and people.

Customers of the CT segment include those of energy related markets as well as consumer and industrial applications. Major integrated oil and gas companies, oilfield services companies, independent oil and gas companies, national and state-owned oil companies, geothermal energy companies, solar energy companies and advanced alternative energy companies benefit from best-in-class technology, field operations, and continuous improvement exercises that go beyond existing sustainability practices

Data Analytics

The DA segment delivers real-time information and insights to our customers to enable optimization of operations and reduction of emissions and their carbon intensity. Real-time composition and physical properties are delivered simultaneously on their refined fuels, NGLs, natural gas, crude oil, and condensates using the industry's only field-deployable, in-line optical near-infra-red spectrometer that generates no emissions. The instrument's response is processed with advanced chemometrics modeling, artificial intelligence, and machine learning algorithms to deliver these valuable insights every 15 seconds.

Customers using this technology have obtained significant benefits including additional profits by enhancing operations in crude/condensates stabilization, blending operations, reduction of transmix, increasing efficiencies and optimization of gas plants, and ensuring product quality while reducing giveaways i.e., providing higher value products at the lower value products prices. More efficient operations has the benefit of reducing their carbon footprint e.g., less flaring and reduction in energy expenditure for compression and re-processing. Our customers in North America include the supermajors, some of the largest midstream companies and large gas processing plants. We have developed a new line of Verax analyzers for deployment internationally which was recently certified for compliance in hazardous locations and harsh weather conditions

Research & Innovation

R&I supports both segments through green chemistry formulation, specialty chemical formulations, Food and Drug Administration ("FDA") and Environmental Protection Agency ("EPA") regulatory guidance, technical support, basin and reservoir studies, data analytics and new technology projects. The purpose of R&I is to supply the Company's segments with enhanced products and services that generate current and future revenues, while advising Company management on opportunities concerning technology, environmental and industry trends. The R&I facilities support advances in chemistry performance, detection, optimization and manufacturing. For the years ended December 31, 2021 and 2020, the Company incurred $5.5 million and $7.2 million respectively of research and development expense. In 2021, research and development expense was approximately 12.8% of consolidated revenue. The Company expects that its 2022 research and development investment will continue to support new product development, especially in support of enhanced environmental, social and governance ("ESG") standards, increased adoption of green chemistry and conventional customization initiatives for its clients.

Seasonality

Overall, operations are not significantly affected by seasonality; however, weather conditions can pose delays in clients' activity levels. Certain working capital components build and recede throughout the year in conjunction with established purchasing and selling cycles that can impact operating results and financial position. The performance of the Company's services can be susceptible to both weather and naturally occurring phenomena, including, but not limited to, the following:

- the severity and duration of winter temperatures in North America, which impacts natural gas storage levels, drilling activity, commodity prices and operations at the Company's facilities;
- material deviations from normal seasonality for an extended period can impact access to operations, reduced performance at manufacturing facilities, inability to deploy required personnel, supply chain interruptions, facility damage and customer activity levels;
- the timing and duration of the Canadian spring thaw and resulting restrictions that impact activity levels;
- the timing and impact of hurricanes upon coastal and offshore operations; and
- the COVID-19 pandemic or other pandemics or similar phenomena, which may impact seasonal purchasing and selling cycles.

Product Demand and Marketing

Demand for the Company's energy-focused products and services in both the CT and DA segments is driven by energy supply and demand, as well as operator desire to deploy improved ESG solutions. Demand for the Company's energy chemistry products and services is dependent on levels of conventional and unconventional oil and natural gas well drilling and completion activity, both domestically and internationally.

The Company markets its products to end use customers using both direct and indirect sales channels. These sales channels are accessed using a mix of in-house sales professionals as well as certain contractual agency agreements. The Company also actively participates in industry trade shows, both live and virtual, publishes articles in industry publications, and participates in podcasts and creates other online content to educate the market on its product and service offerings. While the Company's primary marketing efforts remain focused in North America, resources and effort are also focused on emerging international markets, especially in the Middle East. In addition to direct marketing and relationship development, the Company also markets products and services through the use of third-party agents, primarily in international markets.

Backlog

The Company estimates that entry into the ProFrac Agreement has resulted in a backlog of $225 million of contracted revenue over the next three years, which is expected to increase to at least $1 billion, and up to $2.1 billion, over the next ten years in the event that the ProFrac Amendment Transaction closes. This is all subject to macro- environmental factors and geo-political stability.

Intellectual Property

The Company endeavors to protect its intellectual property, both within and outside of the U.S. The Company considers patent protection for all products and methods deemed to have commercial significance and that may qualify for patent protection. The decision to pursue patent protection is dependent upon several factors, including whether patent protection can be obtained, cost effectiveness, and alignment with operational and commercial interests. The Company believes its patent and trademark portfolio, combined with confidentiality agreements, FDA and EPA registrations and licensing, trade secrets, proprietary designs, and manufacturing and operational expertise, are sufficient to protect its intellectual property and provide continued strategic advantage. As of December 31, 2021, the Company had 128 granted patents, including 104 patents in our CT segment and 23 patents in our DA segment. In addition, the Company also had 26 pending patent applications filed in the U.S. and abroad, including 21 for the CT segment and 5 for the DA segment. The patents of the CT segment cover various chemical compositions and methods of use. The patents of the DA segment cover various systems and methods of use for online determination of chemical composition and data analysis. In addition, the Company had 54 registered trademarks in the U.S. and abroad, covering a variety of its goods and services.

Competition

The ability to compete is dependent upon the Company's ability to differentiate its products and services by providing superior quality and service, and maintaining a competitive cost structure with sufficient raw material supplies. Activity levels in the oilfield goods and services industry are impacted by current and expected oil and natural gas prices, oil and natural gas drilling activity, production levels, customer drilling and completion-designated capital spending, and customer commitment to improved ESG performance. The unpredictability of the energy industry and commodity price fluctuations creates both increased risk and opportunity for the products and services of both the Company and its competitors. The Company's CT segment also competes with established companies and brands in the sanitizers, surface cleaners and disinfectants market. The DA segment faces competition from other providers of equipment and services for real-time information in the upstream, midstream, refining and distribution market.

Raw Materials

Materials and components used in the Company's servicing and manufacturing operations, as well as those purchased for sale, are generally available on the open market from multiple sources. When able, the Company uses multiple suppliers, both domestically and internationally, to purchase raw materials on the open market. The prices paid for raw materials vary based on availability, weather, other commodity price fluctuations, contractual obligations, tariffs, duties on imported materials, foreign currency exchange rates, business cycle position and global demand. Higher prices for chemistries and certain raw materials could adversely impact future sales, contract fulfillment and product margins. The Company is diligent in its efforts to identify alternate suppliers in its contingency planning by reducing the number of contractually obligated volumes and utilizing competitive bidding practices to proactively reduce costs and potential supply shortages.

The DA segment currently sources spectrometers from a single supplier. Due to long lead times, supply chain disruption could adversely impact the results of the segment in the years 2022 and beyond, although re-ordering for 2022 has already begun.

Government Regulations

The Company is subject to federal, state, and local laws and regulations, including laws related to the environment, occupational safety, health, transportation and trade within the U.S. and other countries in which the Company does business. These laws and regulations strictly govern the manufacture, storage, transportation, sale, use and disposal of chemistry products. The Company strives to ensure full compliance with all regulatory requirements.

The Company continually evaluates the environmental impact of its operations and attempts to identify potential liabilities and costs of any environmental remediation, litigation or associated claims. Several products of the CT segment are considered hazardous materials. In the event of a leak or spill in association with Company operations, the Company could be exposed to risk of material cost, net of insurance proceeds, if any, to remediate any contamination. No environmental claims are currently being litigated or investigated (to the Company's knowledge), and the Company does not expect that costs related to remediation requirements will have a significant adverse effect on the Company's consolidated financial position or results of operations.

Sustainability

Flotek's vision is to create solutions to reduce the environmental impact of energy on air, water, land and people. Our mission is to be the collaborative ESG partner of choice for sustainable chemistry technology and digital analytics solutions. We believe that green chemistry and digital transformation reduce the total cost of ownership and environmental risk of our customers and can transform business by reducing carbon footprints, energy consumption, emissions and overall environmental impact.

We have green, sustainable chemistry at our core, and we focus on providing responsible specialty chemistry solutions that are environmentally friendly and cost-competitive. Our products offered by our CT segment displace harmful chemicals such as BTEX in energy production, and our logistics and delivery methodology results in lower product usage and lower carbon emissions due to delivery. The analyzers produced by our DA segment are a closed-loop system, meaning that samples of potentially harmful gasses and fluids do not need to be routinely taken and flared, as is the case with gas chromatographs. This results in lower emissions. In addition, our analyzers' ability to determine the mixing of two batches of product ("transmix") in real time results in less time, energy and resources spent processing transmix.

Human Capital

Employee Overview

As of December 31, 2021, the Company had approximately 131 employees, exclusive of existing worldwide agency relationships. None of the Company's employees are covered by a collective bargaining agreement and labor relations are generally good.

Employees & Health, Safety & Environment

The Company is committed to acting with care to protect the health and safety of people, resources and the environment. Each of us owns health, safety and environment ("HSE"), as it is not isolated to certain individuals or roles. We aim to hold each other accountable to a high standard. Thus, every employee is empowered and expected to stop any activity, big or small, that could jeopardize people, the environment or assets.

Our safety, health and environmental goals are designed to sustain our drive to zero incidents. As a result, safety is woven into the fabric of the Company, from our robust training programs to our ESG moments that begin team meetings, to our Hazardous Observation Card program. Our training program is fundamental to operating safely and protecting people and the environment. The Company maintains a robust health, safety and environmental training program that includes both classroom and online curriculum. We assign specific trainings to employees based on their role and function within the Company. Additionally, the Company's field and plant personnel complete more than 24 hours of training annually. We continuously monitor all operational activities and update training programs as needed to ensure the curriculum remains relevant and effective for minimizing risk and protecting our employees and the environment.

We have a strong company commitment to safety in all aspects of our operations through training, safety culture, and tracking of key safety metrics. In 2021, we realized our goal of 0.0 Total Recordable Incident Rate (TRIR) company wide. The TRIR is a key safety performance metric which calculates the number of recordable incidents per full-time workers during a one-year period. When comparing to the safety record of the chemical manufacturing sector, Flotek's safety performance is an industry leader. This achievement is the result of the focus of our entire organization on building and sustaining a safety culture.

Compensation: Wages & Benefits

The Company's compensation programs are designed to provide employee wages that are competitive and consistent with employee positions, skill levels, experience, knowledge and geographic location. We align our programs to attract, retain and motivate employees to achieve high-impact results that create value for all of our stakeholders. In addition to competitive base wages, all employees are eligible for a discretionary bonus, which is based upon individual and triggered by company performance.

A key component of our compensation program is benefits. We engage an outside benefits consulting firm to independently evaluate the effectiveness and competitiveness of our employee benefits program, as well as to tailor our program to the unique needs of the Company's employee base.

All full-time employees are eligible for comprehensive health insurance, including medical insurance, prescription drug benefits, dental insurance and vision insurance. Additionally, the Company offers flexible spending and health savings accounts, life and disability/accident coverage, telemedicine, critical illness insurance and paid leave. Eligible employees may elect to participate in the Company's employee stock purchase plan and retirement plans, including its 401(k) plan in the U.S. and its Registered Retirement Savings Plan in Canada. The Company currently matches 401(k) contributions at 100% of up to 2% of an employee's compensation. The Company also offers access to online and personalized financial planning services as a component of its retirement plan benefit.

The Company continues to prioritize mental health and wellness for employees, maintaining an ongoing dialogue with employees and providing resources through its employee assistance program, which is available to all employees and their families.

Available Information and Website

The Company's website is *www.flotekind.com*. Annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act are available (see the "Investor Relations" section of the Company's website), as soon as reasonably practicable, subsequent to electronically filing or otherwise providing reports to the SEC. Corporate governance materials, guidelines, by laws, and code of business conduct and ethics are also available on the website. A copy of corporate governance materials is available upon written request to the Company.

The SEC maintains the *www.sec.gov* website, which contains reports, proxy and information statements, and other registrant information filed electronically with the SEC.

The Company filed, or furnished, as applicable, all principal executive officer and financial officer certifications as required under Sections 302 and 906 of the Sarbanes-Oxley Act of 2002 with this Annual Report. Information with respect to the Company's executive officers and directors is incorporated herein by reference to information to be included in the proxy statement for the Company's 2022 Annual Meeting of Stockholders.

The Company has disclosed and will continue to disclose any changes or amendments to the Company's code of business conduct and ethics as well as waivers to the code of ethics applicable to executive management by posting such changes or waivers on the Company's website or in filings with the SEC.

Item 1A. Risk Factors

The Company's business, financial condition, results of operations, cash flows, liquidity and prospects are subject to various risks and uncertainties. Readers of this Annual Report should not consider any descriptions of these risk factors to be a complete set of all potential risks that could affect the Company. These factors should be carefully considered together with the other information contained in this Annual Report and the other reports and materials filed by the Company with the SEC. Further, many of these risks are interrelated and, as a result, the occurrence of certain risks could trigger and/or exacerbate other risks. Such a combination could materially increase the severity of the impact of these risks on the Company's business, results of operations, financial condition, cash flows, liquidity or prospects.

This Annual Report contains "forward-looking statements," as defined in the Private Securities Litigation Reform Act of 1995 that involve risks and uncertainties. Forward-looking statements discuss Company prospects, expected revenue, expenses and profits, strategic and operational initiatives, and other activities. Forward-looking statements also contain suppositions regarding future oil and natural gas industry and other conditions, both domestically and internationally. The Company's results could differ materially from those anticipated in the forward-looking statements as a result of a variety of factors, including risks described below and elsewhere. See "Forward-Looking Statements" at the beginning of this Annual Report.

Risks Related to the Company's Business

The Company's business is largely dependent upon its customers' spending, both in the oil and gas industry and in adjacent industrial applications for professional chemistries. Spending could be adversely affected by industry conditions or by new or increased governmental regulations; global economic conditions; lingering sentiment surrounding the pandemic; the availability of credit; and oil and natural gas prices.

Demand for and prices of the Company's products are subject to a variety of factors, including, but not limited to:

- global demand for energy as a result of population growth, economic development, and general economic and business conditions;
- the timing and rate of economic recovery from the effects of the pandemic;
- the ability of the Organization of Petroleum Exporting Countries ("OPEC") to set and maintain production levels and the impact of non-OPEC producers on global supply;
- availability and quantity of natural gas storage;
- import and export volumes and pricing of liquefied natural gas;
- domestic and international refining activity;
- pipeline capacity to critical markets and out of producing regions;
- political and economic uncertainty, sociopolitical unrest including the current conflict in Ukraine and ongoing sanctions imposed on Russia
- cost of exploration, production and transport of oil and natural gas;
- sustained market adoption of green chemistry solutions;
- technological advances impacting energy production and consumption;
- weather conditions; and
- foreign exchange rates.

The volatility of commodity prices and the consequential effect on the activities of the Company's target customer base could adversely impact the activity levels of the Company's customers.

Demand for the Company's goods and services may be adversely impacted if volatile economic conditions weaken customer expenditures, specifically as it concerns the continued adoption of chemistry solutions with lower overall impact on the environment. It is difficult to predict the pace of industry growth, the direction of oil and natural gas prices, the direction and magnitude of economic activity, the continuing impact of the pandemic, the demand for professional chemistry products, and to what extent these conditions could affect the Company. However, reduced cash flow and capital availability could adversely impact the financial condition of the Company's customers, which could result in customer project modifications, delays or cancellations, general business disruptions, and delay in, or nonpayment of, amounts that are owed to the Company. This could cause a negative impact on the Company's results of operations and cash flows.

Furthermore, if certain of the Company's suppliers were to experience significant cash flow constraints or become insolvent as a result of such conditions, a reduction or interruption in supplies or a significant increase in the price of supplies could occur, adversely impacting the Company's results of operations and cash flows.

The persistence and or emergence of new pandemic threats can significantly reduce demand for our services and adversely impact our financial condition, results of operations and cash flows.

Actions taken by businesses and governments in efforts to mitigate pandemic threats have the potential to negatively impact international and U.S. economic activity for an indeterminable duration. These effects can directly impact the demand for oil and natural gas, as well as our oil and gas related services and products. Furthermore, pandemic conditions can create disruptions in raw materials, logistics, and access to other critical resources such as human capital and financial markets.

Reduced unconventional oil production could lessen the positive effects of a general recovery of the oil and gas industry.

The majority of the Company's product offerings in its CT segment, other than professional chemistry products are used in unconventional oil and gas operations. The Company has little to no exposure to conventional or offshore sectors. In the event that an industry recovery is disproportionately driven by conventional and offshore oil and gas operations, the Company may not have a resulting increase in its operational results.

The Company's inability to develop and/or introduce new products or differentiate existing products could have an adverse effect on its ability to be responsive to customers' needs and could result in a loss of customers, as well as adversely affecting the Company's future success and profitability.

The industries in which the Company does business are characterized by technological advancements that have historically resulted in, and will likely continue to result in, substantial improvements in the scope and quality of specialty chemistries and analytical services. Consequently, the Company's future success is dependent, in part, upon the Company's continued ability to timely develop innovative products and services. Successful introduction of new technology requires time and resources, and there is no assurance that the Company will be able to commercialize new technology in a timely manner. If the Company fails to successfully develop and introduce innovative products and services that appeal to customers, or if existing or new market competitors develop superior products and services, the Company's revenue and profitability could deteriorate. The Company develops, markets and produces certain green alternatives to many existing products. If these green alternatives do not perform as well as existing conventional products, the Company's revenue and profitability could be adversely affected.

Increased competition could exert downward pressure on prices charged for the Company's products and services.

The Company operates in a competitive environment characterized by large and small competitors. Competitors with greater resources and lower cost structures or who are trying to gain market share may be successful in providing competing products and services to the Company's customers at lower prices than the Company currently charges. The Company operates in an environment with relatively low barriers to entry; employees of the Company may leave and compete directly with the Company. This may require the Company to lower its prices, resulting in an adverse impact on revenues, margins, and operating results. Thus, competition could have a detrimental impact on the Company's business.

If the Company is unable to adequately protect intellectual property rights or is found to infringe upon the intellectual property rights of others, or is unable to maintain the registrations and certifications of its products and facilities, the Company's business is likely to be adversely affected.

The Company relies on a combination of patents, trademarks, copyrights, trade secrets, non-disclosure agreements and other methods to access markets and create a competitive advantage. Although the Company believes that existing measures are reasonably adequate to protect intellectual property rights, there is no assurance that the measures taken will prevent misappropriation of proprietary information or dissuade others from independent development of similar products or services. Moreover, there is no assurance that the Company will be able to prevent competitors from copying, reverse engineering, modifying or otherwise obtaining and/or using the Company's technology and proprietary rights to create competitive products or services. The Company may not be able to enforce intellectual property rights outside of the U.S. Additionally, the laws of certain countries in which the Company's products and services are manufactured or marketed may not protect the Company's proprietary rights to the same extent as do the laws of the U.S. Furthermore, other third parties may infringe, challenge, invalidate or circumvent the Company's patents, trademarks, copyrights and trade secrets. In each case, the Company's ability to compete could be significantly impaired.

A portion of the Company's products and services are without patent protection. The issuance of a patent does not guarantee validity or enforceability. The Company's patents may not necessarily be valid or enforceable against third parties. The issuance of a patent does not guarantee that the Company has the right to use the patented invention. Third parties may have blocking patents that could be used to prevent the Company from marketing the Company's own patented products and services and utilizing the Company's patented technology.

The Company is exposed and, in the future, may be exposed to allegations of patent and other intellectual property infringement from others. The Company may allege infringement of its patents and other intellectual property rights against others. Under either scenario, the Company could become involved in costly litigation or other legal proceedings regarding its patent or other intellectual property rights, from both an enforcement and defensive standpoint. Even if the Company chooses to enforce its patent or other intellectual property rights against a third party, there may be risk that the Company's patent or other intellectual property rights become invalidated or otherwise unenforceable through legal proceedings. In the event the Company cannot obtain a license, third parties could file lawsuits or other legal proceedings against the Company, seeking damages (including treble damages) or an injunction against the manufacture, use, sale, offer for sale, or importation of the Company's products and services. These could result in the Company having to discontinue the use, manufacture and sale of certain products and services, increase the cost of selling certain products and services, or result in damage to the Company's reputation. An award of damages, including material royalty payments, or the entry of an injunction order against the use, manufacture and sale of any of the Company's products and services found to be infringing, could have an adverse effect on the Company's results of operations and ability to compete.

Certain of the Company's products and facilities, especially those related to the professional chemistry products, have been registered with the EPA and/or FDA. The failure of the Company to maintain such EPA and FDA registrations could result in the inability of the Company to market or sell its products. In the event that the Company cannot maintain its registrations or licenses or is unable to procure new licenses or registrations for new products or in response to changes to regulatory requirements, the ability of the Company to sell its products and obtain revenue may be adversely affected.

The loss of key customers could have an adverse impact on the Company's results of operations and could result in a decline in the Company's revenue.

In the CT segment in aggregate, revenue derived from the Company's three largest customers as a percentage of consolidated revenue for the years ended December 31, 2021 and 2020, totaled 44% and 50%, respectively. The Company expects that customer concentration risk will increase due to the recent entry into the long-term supply agreement with Profrac Services LLC. Customer relationships are substantially governed by purchase orders or other short-term contractual obligations as opposed to long-term contracts. Losses of customers also may occur due to product, service or pricing issues, as well as industry consolidation. The Company competes in a highly competitive environment and must work diligently to create and maintain productive customer relationships, and the failure to maintain those relationships could result in the loss of one or more key customers. The loss of one or more key customers could have an adverse effect on the Company's results of operations and could result in a decline in the Company's revenue.

Loss of key suppliers, the inability to secure raw materials on a timely basis, or the Company's inability to pass commodity price increases on to its customers could have a material adverse effect on the Company's ability to service its customers' needs and could result in a significant loss of customers.

Materials used in servicing and manufacturing operations, as well as those purchased for sale, are generally available on the open market from multiple sources. Certain raw materials used by the Company's CT segment are available only from limited sources; accordingly, any disruptions to critical suppliers' operations could materially and adversely impact the Company's operations. Acquisition costs and transportation of raw materials to the Company's facilities have historically been impacted by extreme weather conditions. Additionally, prices paid for raw materials could be affected by energy products and other commodity prices; weather and disease associated with our crop dependent raw materials; tariffs and duties on imported materials; evolving geopolitical risks; foreign currency exchange rates; and phases of the general business cycle and global demand.

The prices of key raw materials are subject to market fluctuations, which at times can be significant and unpredictable. Availability of key raw materials, weather events, natural disasters, and health epidemics in countries from which the Company sources raw materials may significantly impact prices. During a period of scarcity of supply the Company may also be negatively impacted by prioritization decisions enacted by its suppliers.

The Company may be unable to pass along price increases to its customers, which could result in a materially adverse impact on margins and operating profits. The Company currently does not hedge commodity prices, but may consider such strategies in the future, and there is no guarantee that the Company's purchasing strategies will prevent cost increases from resulting in materially adverse impacts on margins and operating profits.

The Company's DA segment is dependent on its ability to source appropriate technical components for its Verax measurement system, certain of which are specialty products that are sole-sourced and are not easily replaceable with other sources. Any inability to source appropriate components in the future could result in significant difficulty supplying equipment or services to the Company's customers.

Removal of members of management or directors may be difficult or costly.

The Company's management, employees, Chairman and Chief Executive Officer may have retention, employment or severance agreements in place. In the event that our employees, management or directors do not have the proper skills for management or operation of the Company, or the Company otherwise wishes to remove them from their position(s), the Company may be required to pay severance or similar payments.

Failure to maintain effective disclosure controls and procedures and internal controls over financial reporting could have an adverse effect on the Company's operations and the trading price of the Company's common stock.

Effective internal controls are necessary for the Company to provide reliable financial reports, effectively prevent fraud and operate successfully as a public company. If the Company cannot provide reliable financial reports or effectively prevent fraud, the Company's reputation and operating results could be harmed. If the Company is unable to maintain effective disclosure controls and procedures and internal controls over financial reporting, the Company may not be able to provide reliable financial reports, which in turn could affect the Company's operating results or cause the Company to fail to meet its reporting obligations. Ineffective internal controls could also cause investors to lose confidence in reported financial information, which could negatively affect the trading price of the Company's common stock, limit the ability of the Company to access capital markets in the future, and require additional costs to improve internal control systems and procedures.

Cyberattacks may have a significant and adverse impact on the Company's operations and related financial condition.

The Company relies on access to information systems for operational, reporting and communication functions.. Impairments of these systems, such as ransomware and network communications disruptions, could have an adverse effect on our ability to conduct operations and could directly impact consolidated reporting. Phishing attacks could result in sensitive or confidential information being released by the Company. Security breaches pose a risk to confidential data and intellectual property, which could result in damages to our competitiveness and reputation. The Company's policies and procedures, system monitoring and data back-up processes may not prevent or detect potential disruptions or breaches in a timely or effective manner. There can be no assurance that existing or emerging threats will not have an adverse impact on our systems or communications networks. While the Company does carry cybersecurity insurance, the coverage and amount of such insurance may not be sufficient to adequately compensate the Company for cybersecurity loss.

The Company may pursue strategic acquisitions, joint ventures and strategic divestitures, which could have an adverse impact on the Company's business.

The Company's past and potential future acquisitions, joint ventures, and divestitures involve risks that could adversely affect the Company's business. Negotiations of potential acquisitions, joint ventures, or other strategic relationships, integration of newly acquired businesses, and/or sales of existing businesses could be time consuming and divert management's attention from other business concerns. Acquisitions and joint ventures could also expose the Company to unforeseen liabilities or risks associated with new markets or businesses. Unforeseen operational difficulties related to acquisitions and joint ventures could result in diminished financial performance or require a disproportionate amount of the Company's management's attention and resources. Additionally, acquisitions could result in the commitment of capital resources without the realization of anticipated returns. Divestitures could result in the loss of future earnings without adequate compensation and the loss of unrealized strategic opportunities.

If the Company does not manage the potential difficulties associated with expansion successfully, the Company's operating results could be adversely affected.

The Company believes future success will depend, in part, on the Company's ability to adapt to market opportunities and changes, to successfully integrate the operations of any businesses acquired, expansion of existing product and service lines, and potentially expand into new product and service areas in which the Company may not have prior experience. Factors that could result in strategic business difficulties include, but are not limited to:

- failure to effectively integrate acquisitions, joint ventures or strategic alliances;
- failure to effectively plan for risks associated with expansion into areas in which management lacks prior experience;
- lack of experienced management personnel;
- increased administrative burdens;
- lack of customer retention;
- technological obsolescence; and

- infrastructure, technological, communication and logistical problems associated with large, expansive operations.

If the Company fails to manage potential difficulties successfully, the Company's operating results could be adversely impacted.

The Company's ability to grow and compete could be adversely affected if adequate capital is not available.

The ability of the Company to grow and be competitive in the marketplace is dependent on the availability of adequate capital. Access to capital is dependent, in large part, on the Company's cash flows and the availability of and access to equity and debt financing. The Company cannot guarantee that internally generated cash flows will be sufficient, or that the Company will to be able to obtain equity or debt financing on acceptable terms, or at all. As a result, the Company may not be able to finance strategic growth plans, take advantage of business opportunities, or to respond to competitive pressures. There is no guarantee that the Company will file a new shelf registration statement. The Company's ability to procure debt financing, is dependent on, among other things, the willingness of banks and other financial institutions to lend into the Company's industry and on their evaluation of the Company's credit risk. There is no guarantee that the Company will be able to procure debt financing or, in the event that it is able to procure debt financing, that the financing will be on favorable terms and conditions or at favorable rates of interest.

Failure to adapt to changing buying habits of the Company's potential and existing customers could have a negative effect on the Company's ability to attract and retain business.

The demographics and habits of the purchasing departments of many of the Company's customers and potential customers is changing. Key decision makers are less experienced and show different buying habits and approaches. Customers are increasingly requiring vendors to integrate with purchasing modules and using advanced analytics to make purchasing decisions. If the Company does not adapt to these changing purchasing trends, the Company may not be able to attract or retain business.

Failure to collect for goods and services sold to key customers could have an adverse effect on the Company's financial results, liquidity and cash flows.

The Company performs credit analysis on potential customers; however, credit analysis does not provide full assurance that customers will be willing and/or able to pay for goods and services purchased from the Company. Furthermore, collectability of international sales can be subject to the laws of foreign countries, which may provide more limited protection to the Company in the event of a dispute over payment. Because sales to domestic and international customers are generally made on an unsecured basis, there can be no assurance of collectability. The Company's sales revenues are concentrated among customers operating in the oil and gas industry. Furthermore, the Company anticipates an increase in concentration risk in 2022 and beyond as a result of the entry of the Company into a substantial long-term agreement with ProFrac Services LLC. If one or more major customers are unwilling or unable to pay its debts to the Company, it could have an adverse effect of the Company's financial results, liquidity and cash flows.

Unforeseen contingencies such as litigation could adversely affect the Company's financial condition.

The Company is, and from time to time may become, a party to legal proceedings incidental to the Company's business involving alleged injuries arising from the use of Company products, exposure to hazardous substances, patent infringement, employment matters, commercial disputes, claims related to adverse physical reactions to the Company's products such as rashes or allergic reactions and shareholder lawsuits. The defense of these lawsuits may require significant expenses, divert management's attention, and may require the Company to pay damages that could adversely affect the Company's financial condition. In addition, any insurance or indemnification rights that the Company may have may be insufficient or unavailable to protect against potential loss exposures.

The Company's current insurance policies may not adequately protect the Company's business from all potential risks.

The Company's operations are subject to risks inherent in the specialty chemical industry, such as, but not limited to, accidents, explosions, fires, severe weather, oil and chemical spills, and other hazards. These conditions can result in personal injury or loss of life, damage to property, equipment and the environment, as well as suspension of customers' oil and gas operations. These events could result in damages requiring costly repairs, the interruption of Company business, including the loss of revenue and profits, and/or the Company being named as a defendant in lawsuits asserting large claims. The Company does not have insurance against all foreseeable or unforeseeable risks. Consequently, losses and liabilities arising from uninsured or underinsured events could have an adverse effect on the Company's business, financial condition and results of operations.

Regulatory pressures, environmental activism, and legislation could result in reduced demand for the Company's products and services, increase the Company's costs, and adversely affect the Company's business, financial condition and results of operations.

Regulations restricting volatile organic compounds ("VOC") exist in many states and/or communities which limit demand for certain products. Although citrus oil is considered a VOC, its health, safety, and environmental profile is preferred over other solvents (e.g., benzene, toluene, ethylbenzene and xylene), which is currently creating new market opportunities around the world. Changes in the perception of citrus oils as a preferred VOC, increased consumer activism against hydraulic fracturing or other regulatory or legislative actions by governments could potentially result in materially reduced demand for the Company's products and services and could adversely affect the Company's business, financial condition, and results of operations.
Perceptions and related usage of chemistry solutions that are currently considered safe and acceptable, within specified parameters, may be subject to change in future periods as research and testing of environmental impacts mature.

The Company is subject to complex foreign, federal, state and local environmental, health, and safety laws and regulations, which expose the Company to liabilities that could adversely affect the Company's business, financial condition, and results of operations.

The Company's operations are subject to foreign, federal, state, and local laws and regulations related to, among other things, the protection of natural resources, injury, health and safety considerations, chemical exposure assessment, waste management, and transportation of waste and other hazardous materials. The Company's operations are exposed to risks of environmental liability that could result in fines, penalties, remediation, property damage, and personal injury liability. Sanctions for noncompliance with such laws and regulations could include assessment of administrative, civil and criminal penalties, revocation of permits, and issuance of corrective action orders.

The Company could incur substantial costs to ensure compliance with existing and future laws and regulations. Laws protecting the environment have generally become more stringent and are expected to continue to evolve and become more complex and restrictive in the future. Failure to comply with applicable laws and regulations could result in material expense associated with future environmental compliance and remediation. The Company's costs of compliance could also increase if existing laws and regulations are amended or reinterpreted. Such amendments or reinterpretations of existing laws or regulations, or the adoption of new laws or regulations, could curtail exploratory or developmental drilling for, and production of, oil and natural gas which, in turn, could limit demand for the Company's products and services. Some environmental laws and regulations could also impose joint and strict liability, meaning that the Company could be exposed in certain situations to increased liabilities as a result of the Company's conduct that was lawful at the time it occurred or conduct of, or conditions caused by, prior operators or other third parties. Remediation expense and other damages arising as a result of such laws and regulations could be substantial and have a material adverse effect on the Company's financial condition and results of operations.

Changes in laws and regulations relating to hydraulic fracturing may have a negative effect on the Company's operations.

Much of the Company's revenue in its CT segment is derived from customers engaged in hydraulic fracturing services. Some states have adopted regulations which require operators to publicly disclose certain non-proprietary information. These regulations could require the reporting and public disclosure of the Company's proprietary chemistry formulas. The adoption of any future federal or state laws or local requirements, or the implementation of regulations imposing reporting obligations on, or otherwise limiting, the hydraulic fracturing process, could increase the difficulty of oil and natural gas production activity and could have an adverse effect on the Company's future results of operations.

Regulation of greenhouse gases and/or climate change could have a negative impact on the Company's business.

Certain scientific studies have suggested that emissions of certain gases, commonly referred to as "greenhouse gases," which include carbon dioxide, methane, and other volatile organic compounds, may be contributory to the warming effect of the Earth's atmosphere and other climatic changes. In response to such studies, the issue of climate change and the effect of greenhouse gas emissions, in particular emissions from fossil fuels, is attracting increasing worldwide attention.

Existing or future laws, regulations, treaties, or international agreements related to greenhouse gases, climate change, and indoor air quality, including energy conservation or alternative energy incentives, could have a negative impact on the

Company's operations, if regulations resulted in a reduction in worldwide demand for oil and natural gas. Other results could be increased compliance costs and additional operating restrictions, each of which could have a negative impact on the Company's operations.

The Company and the Company's customers are subject to risks associated with doing business outside of the U.S., including political risk, foreign exchange risk, and other uncertainties.

The Company and its customers are subject to risks inherent in doing business outside of the U.S., including, but not limited to:

- governmental instability;
- corruption;
- war and other international conflicts;
- civil and labor disturbances;
- requirements of local ownership;
- cartel behavior;
- partial or total expropriation or nationalization;
- currency devaluation; and
- foreign laws and policies, each of which can limit the movement of assets or funds or result in the deprivation of contractual rights or appropriation of property without fair compensation.

Collections from international customers and agents could also prove difficult due to inherent uncertainties in foreign law and judicial procedures. The Company could experience significant difficulty with collections or recovery due to the political or judicial climate in foreign countries where Company operations occur or in which the Company's products are sold.

The Company's international operations must be compliant with the Foreign Corrupt Practices Act and other applicable U.S. laws. The Company could become liable under these laws for actions taken by employees or agents. Compliance with international laws and regulations could become more complex and expensive thereby creating increased risk as the Company's international business portfolio grows. Further, the U.S. periodically enacts laws and imposes regulations prohibiting or restricting trade with certain nations. The U.S. government could also change these laws or enact new laws that could restrict or prohibit the Company from doing business in identified foreign countries. The Company conducts, and will continue to conduct, business in currencies other than the U.S. dollar. Historically, the Company has not hedged against foreign currency fluctuations. Accordingly, the Company's profitability could be affected by fluctuations in foreign exchange rates.

The Company has no control over and can provide no assurances that future laws and regulations will not materially impact the Company's ability to conduct international business.

The Company's ability to use net operating loss and tax attribute carryforwards to offset future taxable income may be limited.

Under Section 382 of the Internal Revenue Code of 1986, as amended, a corporation that undergoes an "ownership change" is subject to limitations on the Company's ability to utilize pre-change net operating losses ("NOLs"), and certain other tax attributes to offset future taxable income. In general, an ownership change occurs if the aggregate stock ownership of certain stockholders increases by more than 50 percentage points over such stockholders' lowest percentage ownership during the testing period (generally three years). An ownership change could limit the Company's ability to utilize existing NOLs and tax attribute carryforwards for taxable years including or following an identified "ownership change." Transactions involving the Company's common stock, even those outside the Company's control, such as purchases or sales by investors, within the testing period could result in an "ownership change." Moreover, we believe the recently completed and pending convertible notes transactions may substantially impact our ability to use NOLs.

On March 27, 2020, the Coronavirus Aid, Relief, and Economic Act ("CARES Act") was enacted in response to the COVID-19 pandemic. Among other things, the CARES Act provided the ability for taxpayers to carryback NOLs arising in a taxable year beginning after December 31, 2017, and before January 1, 2021 to each of the five years preceding the year of the loss. In addition, under the 2017 Tax Act, the ability to carry back NOLs to prior taxable years is generally eliminated, and while NOLs arising in tax years beginning after 2017 may be carried forward indefinitely, these post-2017 NOLs may only reduce 80% of the Company's taxable income in a tax year. Limitations imposed on the ability to use NOLs and tax credits to offset future taxable income could reduce or eliminate the benefit of the NOLs and tax attributes and could require the Company to pay U.S. federal income taxes in excess of that which would otherwise be required if such limitations were not in effect. Similar rules and limitations may apply for state income tax purposes.

Risks Related to the Company’s Industry

General economic declines or recessions, limits to credit availability, and industry specific factors could have an adverse effect on energy industry activity resulting in lower demand for the Company’s products and services.

Worldwide economic uncertainty can reduce the availability of liquidity and credit markets to fund the continuation and expansion of industrial business operations worldwide. The shortage of liquidity and credit combined with pressure on worldwide equity markets could continue to impact the worldwide economic climate. Geopolitical unrest around the world may also impact demand for the Company’s products and services both domestically and internationally.

Demand for many of the Company’s products and services is dependent on oil and natural gas industry activity and expenditure levels that are directly affected by trends in oil and natural gas prices. Demand for the Company’s products and services is particularly sensitive to levels of activity in the upstream, downstream and midstream sectors, and the corresponding capital spending by, oil and natural gas companies, including national oil companies. While capital spending programs for domestic producers appear to be improving, uncertainties around the potential for longer-term weakness in oil and natural gas prices could reduce or defer major expenditures given the long-term nature of many large-scale development projects. Lower levels of activity could result in a corresponding decline in the demand for the Company’s oil and natural gas related products and services, which could have a material adverse effect on the Company’s revenue and profitability.

Events in global credit markets can significantly impact the availability of credit and associated financing costs for many of the Company’s customers. Many of the Company’s upstream customers finance their drilling and completion programs through third-party lenders or public debt offerings. Lack of available credit or increased costs of borrowing could cause customers to reduce spending on drilling programs, thereby reducing demand and potentially resulting in lower prices for the Company’s products and services. Also, the credit and economic environment could significantly impact the financial condition of some customers over a prolonged period, leading to business disruptions and restricted ability to pay for the Company’s products and services.

A continuous period of swings in oil and natural gas prices could result in further reductions in demand for the Company’s products and services and adversely affect the Company’s business, financial condition, and results of operations.

The markets for the Company’s products, especially oil and gas markets, have historically been volatile. Such volatility in oil and natural gas prices, or the perception by the Company’s customers of unpredictability in oil and natural gas prices, could adversely affect spending levels. The oil and natural gas markets may be volatile in the future. The demand for the Company’s products and services is, in large part, driven by general levels of exploration and production spending and drilling activity by its customers. Future declines in oil or gas prices could adversely affect the Company’s business, financial condition, and results of operations.

New and existing competitors within the Company’s industries could have an adverse effect on results of operations.

The industries in which the Company competes are highly competitive. The Company’s principal competitors include numerous small companies capable of competing effectively in the Company’s markets on a local basis, as well as a number of large companies that possess substantially greater financial and other resources than does the Company. Larger competitors may be able to devote greater resources to developing, promoting, and selling products and services. The Company may also face increased competition due to the entry of new competitors including current suppliers that decide to sell their products and services directly to the Company’s customers. As a result of this competition, the Company could experience lower sales or greater operating costs, which could have an adverse effect on the Company’s margins and results of operations.

The Company’s industry has a high rate of employee turnover. Difficulty attracting or retaining personnel or agents could adversely affect the Company’s business.

The Company operates in an industry that has historically been highly competitive in securing qualified personnel with the required technical skills and experience. The Company’s services require skilled personnel able to perform physically demanding work. Due to industry volatility, the demanding nature of the work, and the need for industry specific knowledge and technical skills, current employees could choose to pursue employment opportunities outside the Company that offer a more desirable work environment and/or higher compensation than is offered by the Company. As a result of these competitive labor conditions, the Company may not be able to find qualified labor, which could limit the Company's growth. In addition, the cost of attracting and retaining qualified personnel has increased over the past several years due to competitive pressures. In order to attract and retain qualified personnel, the Company may be required to offer increased wages and benefits. If the Company is unable to increase the prices of products and services to compensate for increases in compensation including inflation, or is unable to attract and retain qualified personnel, operating results could be adversely affected.

Severe weather could have an adverse impact on the Company's business.

The Company's business could be materially and adversely affected by severe weather conditions. Hurricanes, tropical storms, flash floods, blizzards, cold weather, and other severe weather conditions could result in curtailment of services, damage to equipment and facilities, interruption in transportation of products and materials, and loss of productivity. If the Company's customers are unable to operate or are required to reduce operations due to severe weather conditions, and as a result curtail purchases of the Company's products and services, the Company's business could be adversely affected.

A terrorist attack or armed conflict could harm the Company's business.

Terrorist activities, anti-terrorist efforts, and other armed conflicts involving the U.S. could adversely affect the U.S. and global economies and could prevent the Company from meeting financial and other obligations. The Company could experience loss of business, delays or defaults in payments from payors, or disruptions of fuel supplies and markets if pipelines, production facilities, processing plants, or refineries are direct targets or indirect casualties of an act of terror or war. Such activities could reduce the overall demand for oil and natural gas which, in turn, could also reduce the demand for the Company's products and services. Terrorist activities and the threat of potential terrorist activities and any resulting economic downturn could adversely affect the Company's results of operations, impair the ability to raise capital, or otherwise adversely impact the Company's ability to realize certain business strategies. The armed conflict in Ukraine could affect regions in which the Company does business directly or indirectly and could harm the Company's ability to sell its good and services in those regions.

Our DA segment may be materially and negatively affected by government regulations and/or facility disruptions.

The demand for our equipment and services offerings in our DA segment could be materially affected by additional regulations on the upstream, midstream, and downstream portions of the oil and gas sectors. Additional regulation on oil and gas production, transportation, or processing of hydrocarbons may result in significantly reduced demand for our offerings, either individually or as a result of a decline in the overall oil and gas markets in the United States and abroad. In addition, our products are subject to export control laws and regulations, and changes to those laws and regulations may negatively impact our ability to pursue international opportunities. Disruptions to pipelines and refineries, whether due to regulation, weather, demand, or other factors, may also have a materially adverse effect on our ability to derive revenue from our DA segment. Adjustments to our DA segment's commercial strategy, with a shift towards subscription revenue and away from equipment sales, and the market's response to that strategy, may materially and adversely affect revenues in the near term, even if the strategic shift is successful, due to longer payback periods on subscription models.

Risks Related to the Company's Securities

The market price of the Company's common stock has been and may continue to be volatile.

The market price of the Company's common stock has historically been subject to significant fluctuations. The following factors, among others, could cause the price of the Company's common stock to fluctuate:

- variations in the Company's quarterly results of operations;
- changes in market valuations of companies in the Company's industry;
- fluctuations in stock market prices and volume;
- fluctuations in oil and natural gas prices;
- issuances of common stock or other securities in the future; including debt convertible into the Company's common stock;
- additions or departures of key personnel;
- announcements by the Company or the Company's competitors of new business, acquisitions, or joint ventures; and
- negative statements made by external parties about the Company's business in public forums.

The stock market has experienced significant price and volume fluctuations in recent years that have affected the price of common stock of companies within many industries including the oil and natural gas industry. The price of the Company's common stock could fluctuate based upon factors that have little to do with the Company's operational performance, and these fluctuations could materially reduce the Company's stock price. The Company could be a defendant in a legal case related to a significant loss of value for the shareholders. This could be expensive and divert management's attention and Company resources, as well as have an adverse effect on the Company's business, operating results, cash flows, financial condition or securities.

If the Company cannot meet the New York Stock Exchange continued listing requirements, the NYSE may delist the Company's common stock.

The Company's common stock is currently listed on the NYSE. In the future, if it is not able to meet the continued listing requirements of the NYSE, which require, among other things, that the average closing price of our common stock be above $1.00 over 30 consecutive trading days, the Company's common stock may be delisted. If the Company is unable to satisfy the NYSE criteria for continued listing, its common stock would be subject to delisting. A delisting of its common stock could negatively impact the Company by, among other things, reducing the liquidity and market price of its common stock; reducing the number of investors willing to hold or acquire the Company's common stock, which could negatively impact its ability to raise equity financing; decreasing the amount of news and analyst coverage of the Company; and limiting the Company's ability to issue additional securities or obtain additional financing in the future. In addition, delisting from the NYSE might negatively impact the Company's reputation and, as a consequence, its business, operating results, cash flows, financial condition or securities.

An active market for the Company's common stock may not continue to exist or may not continue to exist at current trading levels.

Trading volume for the Company's common stock historically has been very volatile when compared to companies with larger market capitalization. The Company cannot presume that an active trading market for the Company's common stock will continue or be sustained. Sales of a significant number of shares of the Company's common stock in the public market could lower the market price of the Company's stock.

If securities or industry analysts do not publish research or reports about the Company's business or publish negative reports, the Company's securities prices and trading volumes could decline and affect the price at which investors could sell securities.

The trading market for the Company's securities may be affected by the research and reports that industry or securities analysts publish about the Company or its business. The Company does not have any control over these analysts. If analysts do not cover the Company on a regular basis or if one or more analysts cease coverage of the Company or fail to regularly publish reports about the Company, the Company could lose visibility in the financial markets, which in turn could cause the Company's securities prices or trading volumes to decline. If one or more of such analysts publish negative reports about the Company, the Company's securities prices would likely decline. These occurrences could affect the price investors could receive from the sale of the Company's securities.

The Company has no plans to pay dividends on the Company's common stock, and, therefore, investors will have to look to stock appreciation for return on investments.

The Company does not anticipate paying any cash dividends on the Company's common stock within the foreseeable future. Any payment of future dividends will be at the discretion of the Company's board of directors and will depend, among other things, on the Company's earnings, financial condition, capital requirements, level of indebtedness, statutory and contractual restrictions applying to the payment of dividends, and other considerations deemed relevant by the board of directors. Investors must rely on sales of common stock held after price appreciation, which may never occur, in order to realize a return on their investment. The lack of plans for dividends may make the common stock of the Company an unattractive investment for investors who are seeking dividends.

Certain anti-takeover provisions of the Company's certificate of incorporation and applicable Delaware law could discourage or prevent others from acquiring the Company, which may adversely affect the market price of the Company's common stock.

The Company's certificate of incorporation and bylaws contain provisions that, among other things:

- permit the Company to issue, without stockholder approval, shares of preferred stock, in one or more series and, with respect to each series, to fix the designation, powers, preferences, and rights of the shares of the series;
- prohibit stockholders from calling special meetings;
- limit the ability of stockholders to act by written consent;
- prohibit cumulative voting; and
- require advance notice for stockholder proposals and nominations for election to the board of directors to be acted upon at meetings of stockholders.

In addition, Section 203 of the Delaware General Corporation Law limits business combinations with owners of more than 15% of the Company's voting stock without the approval of the board of directors. Aforementioned provisions and other similar provisions make it more difficult for a third party to acquire the Company exclusive of negotiation. The Company's board of directors could choose not to negotiate with an acquirer deemed not beneficial to or synergistic with the Company's strategic outlook. If an acquirer were discouraged from offering to acquire the Company or prevented from successfully completing a hostile acquisition by these anti-takeover measures, stockholders could lose the opportunity to sell their shares at a favorable price.

Future issuance of additional shares of common stock could cause dilution of ownership interests and adversely affect the Company's common stock price.

The Company is currently authorized to issue up to 140,000,000 shares of common stock. The Company may, in the future, issue previously authorized and unissued shares of common stock, which would result in the dilution of current stockholders' ownership interests. Additional shares are subject to issuance through various equity compensation plans or through the exercise of currently outstanding equity awards. The potential issuance of additional shares of common stock may create downward pressure on the trading price of the Company's common stock. The Company may also issue additional shares of common stock or other securities that are convertible into or exercisable for common stock in order to raise capital or effectuate other business purposes. Future sales of substantial amounts of common stock, or the perception that sales could occur, could have an adverse effect on the price of the Company's common stock.

The Company may issue a substantial amount of securities in connection with future acquisitions, and the sale of those securities could adversely affect the trading price of our common stock or other securities.

As part of our growth strategy, we may issue additional securities, or securities that have rights, preferences, and privileges senior to our other securities. We may file future shelf registration statements with the SEC that we may use to sell securities from time to time in connection with acquisitions. To the extent that we are able to grow through acquisitions and are able to pay for such acquisitions with shares of our common stock or other securities, the number of outstanding shares of common stock or other securities that will be eligible for sale in the future is likely to increase substantially. Persons receiving shares of our common stock or other securities in connection with these acquisitions may be more likely to sell large quantities of their common stock or other securities, which may influence the price of our common stock or other securities. In addition, the potential issuance of additional shares of common stock or other securities in connection with anticipated acquisitions could lessen demand for our common stock or other securities and result in a lower price than would otherwise be obtained.

The Company may issue shares of preferred stock or debt securities with greater rights than the Company's common stock.

Subject to the rules of the NYSE, the Company's certificate of incorporation authorizes the board of directors to issue one or more additional series of preferred stock and to set the terms of the issuance without seeking approval from holders of common stock. Currently, there are 100,000 preferred shares authorized, with no shares currently outstanding. Any preferred stock that is issued may rank senior to common stock in terms of dividends, priority and liquidation premiums, and may have greater voting rights than holders of common stock.

General Risk Factors

If the Company loses the services of key members of management, the Company may not be able to manage operations and implement growth strategies.

The Company depends on the continued service of the Chief Executive Officer and President, the Chief Operating Officer, the Chief Financial Officer and other key members of the executive management team, who possess significant expertise and knowledge of the Company's business and industry. Furthermore, the Chief Executive Officer and President serves as Chairman of the Board of Directors. The Company has entered into employment agreements with certain of these key members. Any loss or interruption of the services of key members of the Company's management could significantly reduce the Company's ability to manage operations effectively and implement strategic business initiatives.

The Company's tax returns are subject to audit by tax authorities. Taxing authorities may make claims for back taxes, interest and penalties. Changes in U.S. tax legislation may adversely affect our business, results of operations, financial condition and cash flows.

The Company is subject to income, property, excise, employment, and other taxes in the U.S. and a variety of other jurisdictions around the world. Tax rules and regulations in the U.S. and around the world are complex and subject to interpretation. From time to time, taxing authorities conduct audits of the Company's tax filings and may make claims for increased taxes and, in some cases, assess interest and penalties. The assessments for back taxes, interest, and penalties could be significant. If the Company is unsuccessful in contesting these claims, the resulting payments could result in a drain on the Company's capital resources and liquidity. In addition, there may be material adverse effects resulting from new or future U.S. tax reforms that have not been identified and that could have an adverse effect on the Company's business, results of operations, financial condition and cash flows.

Disclaimer of Obligation to Update

Except as required by applicable law or regulation, the Company assumes no obligation (and specifically disclaims any such obligation) to update these risk factors or any other forward-looking statement contained in this Annual Report to reflect actual results, changes in assumptions, or other factors affecting such forward-looking statements.

Item 1B. Unresolved Staff Comments.

Not applicable.

Item 2. Properties.

As of December 31, 2021, the Company operates two manufacturing, warehouse and research facilities in the U.S. Internationally, the Company has a warehouse and research facility in Calgary, Alberta, Canada and a warehouse in Dubai, United Arab Emirates. The Company also has sales offices in Dubai, United Arab Emirates and Calgary, Alberta, Canada. The Company owns four of these facilities and the remainder are leased with lease terms that expire from 2022 through 2030. In addition, the Company's corporate office is a leased facility located in Houston, Texas. The following table sets forth facility locations:

Segment	Owned/Leased	Location
Chemistry Technologies	Owned	Marlow, Oklahoma
Chemistry Technologies	Owned	Monahans, Texas
Chemistry Technologies	Owned	Raceland, Louisiana
Chemistry Technologies	Owned	Waller, Texas
Chemistry Technologies	Leased	Dubai, United Arab Emirates
Chemistry Technologies	Leased	Calgary, Alberta
Chemistry Technologies	Leased	Raceland, Louisiana
Chemistry Technologies	Leased	Houston, Texas
Data Analytics	Leased	Austin, Texas

In the third quarter of 2021, the Company committed to plans to sell its warehouse facility in Monahans, Texas and its manufacturing facility in Waller, Texas, and subsequent to December 31, 2021, the Company entered into a contract to sell the Waller manufacturing facility for proceeds of $4.2 million, which is expected to close in April 2022.

Item 3. Legal Proceeding

Litigation

On March 26, 2021, the Company and Flotek Chemistry, LLC ("Flotek Chemistry"), a wholly-owned subsidiary of the Company, filed a lawsuit against Archer-Daniels-Midland Company ("ADM"), Florida Chemical Company, LLC ("FCC") and other parties in state court in Harris County, Texas. The lawsuit claims damages relating to the terpene supply agreement between Flotek Chemistry and FCC and related breaches of fiduciary duty. Contemporaneously with the filing of the suit, Flotek Chemistry delivered a notice of termination of the terpene supply agreement.

Subsequent to the lawsuit described above, on April 5, 2021, ADM and FCC filed a lawsuit in the Delaware Court of Chancery seeking to enjoin the lawsuit filed in Texas and claiming damages under the terpene supply agreement and other matters. On October 29, 2021, the Company and Flotek Chemistry reached agreement with all parties resolving all claims between the parties. On or before January 3, 2022, Flotek will pay to ADM a one-time payment of $1.75 million and the terpene supply agreement is confirmed terminated, eliminating the prior obligation to purchase 10.5 million pounds of terpene through 2023.

In 2021, Flotek commenced an internal investigation into the activities of John Chisholm (Flotek's previous CEO) due to irregularities in expenses and transactions during the years from 2014 to 2018. The investigation revealed evidence of related party transactions/self-dealing, inappropriate personal expenses, and general corporate waste. Flotek's board engaged a third party to review the findings of the investigation. After the third-party review, Flotek concluded that its current and historical financial statements can be relied upon, that proper action had been taken, and that no members of current management were implicated in any way.

Beginning in December 2021, Flotek sent demand letters to, and subsequently filed arbitration or other legal proceedings against, John Chisholm, Casey Doherty/Doherty & Doherty LLP (Flotek's former outside general counsel) and Moss Adams LLP (Flotek's former independent public audit firm) to recover damages. John Chisholm subsequently filed a counterclaim against Flotek in the arbitration proceeding for his remaining severance (currently accrued by the Company, but payment for which was suspended). Although Flotek believes its claims are supported by the available evidence, the timing and amount of any outcome cannot reasonably be predicted.

The Company is subject to other routine litigation and other claims that arise in the normal course of business. Except as disclosed above, management is not aware of any pending or threatened lawsuits or proceedings that are expected to have a material effect on the Company's financial position, results of operations or liquidity.

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.

The Company's common stock began trading on the NYSE on December 27, 2007, under the stock ticker symbol "FTK." As of the close of business on March 28, 2022, there were approximately 9,980 holders of record. The Company's closing sale price of the common stock on the NYSE on March 30, 2022 was $1.33. The Company has never declared or paid cash dividends on common stock. While the Company regularly assesses the dividend policy, the Company has no current plans to declare dividends on its common stock.

Securities Authorized for Issuance Under Equity Compensation Plans

Equity compensation plan information relating to equity securities authorized for issuance under individual compensation agreements at December 31, 2021, is as follows:

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights(1)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights(2)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column(a))
	(a)	(b)	(c)
Equity compensation plans approved by security holders	6,401,581	$ 1.17	4,241,722

(1) Includes shares for outstanding stock options (3,821,875 shares), restricted stock awards (1,809,636 shares), and restricted stock unit share equivalents (770,070 shares).

(2) The weighted-average exercise price is for outstanding stock options only and does not include outstanding restricted stock awards. restricted stock unit equivalents, and rights that have no exercise price.

Unregistered Sales of Equity Securities

None

Issuer Purchases of Equity Securities

The Company's stock compensation plans allow employees to elect to have shares withheld to satisfy their tax liabilities related to non-qualified stock options exercised or restricted stock vested or to pay the exercise price of the options. When this settlement method is elected by the employee, the Company repurchases the shares withheld upon vesting of the award stock. Repurchases of the Company's equity securities during the three months ended December 31, 2021, that the Company made or were made on behalf of the Company or any "affiliated purchaser," as defined in Rule 10b-18(a)(3) under the Exchange Act are as follows:

Period	Total Number of Shares Purchased (1)	Average Price Paid per Share
October 1, 2021 to October 31, 2021	1,624	$1.26
November 1, 2021 to November 30, 2021	1,015	$0.82
December 1, 2021 to December 31, 2021	34,171	$0.70
Total	36,810	$0.73

(1) The Company purchases shares of its common stock (a) to satisfy tax withholding requirements and payment remittance obligations related to period vesting of restricted shares and exercise of non-qualified stock options and (b) to satisfy payments required for common stock upon the exercise of stock options.

Item 6. [Reserved]

Not applicable.

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

Executive Summary

Flotek Industries, Inc. ("Flotek" or the "Company") creates solutions to reduce the environmental impact of energy on air, water, land and people. A technology-driven, specialty green chemistry and data technology company, Flotek helps customers across industrial, commercial, and consumer markets improve their ESG performance. The Company serves specialty chemistry needs for both domestic and international energy markets as well as applications of U.S. manufactured surface cleaners, disinfectants for industrial, commercial and consumer use.

The Company has two operating segments, CT and DA, which are both supported by the Company's continuing Research and Innovation advanced laboratory capabilities.

The Company's CT segment develops, manufactures, packages, distributes, delivers, and markets green, specialty chemicals that help their customers meet their ESG and operational goals, enhancing the profitability of hydrocarbon producers and supplying professional chemistries that clean surfaces in both commercial and personal settings to help reduce the spread of bacteria, viruses and germs.

The Company's DA segment enables users to maximize the value of their hydrocarbon associated processes by providing real-time data and analytics associated with the streams in seconds rather than minutes or days. These real-time data and analytics prevent waste, reduces reprocessing, and allows users to pursue automation of their hydrocarbon streams to maximize their profitability, thereby improving ESG performance. During the second quarter of 2020, the Company acquired 100% ownership of JP3 in a cash-and-stock transaction. JP3's real-time data platforms combine the energy industry's only field-deployable, inline optical analyzer with proprietary cloud visualization and analytics, delivers increased profitability for its customers. In conjunction with the acquisition of JP3, the Company created the DA segment.

Company Overview

Chemistry Technologies

The Company's CT segment provides sustainable, optimized chemistry solutions that maximize our customer's value by elevating their ESG performance, lowering operational costs, and delivering improved return on invested capital. The Company's proprietary green chemistries, specialty chemistries, logistics, and technology services enable its customers to pursue improved efficiencies and performance throughout the life cycle of its desired chemical applications program. The Company designs, develops, manufactures, packages, distributes and markets optimized chemistry solutions that accelerate existing sustainability practices to reduce the environmental impact of energy on the air, water, land and people.

Customers of the CT segment include those of energy related markets as well as consumer and industrial applications. Major integrated oil and gas companies, oilfield services companies, independent oil and gas companies, national and state-owned oil companies, geothermal energy companies, solar energy companies and advanced alternative energy companies benefit from best-in-class technology, field operations, and continuous improvement exercises that go beyond existing sustainability practices.

Data Analytics

The DA segment delivers real-time information and insights to our customers to enable optimization of operations and reduction of emissions and their carbon intensity. Real-time composition and physical properties are delivered simultaneously on their refined fuels, NGLs, natural gas, crude oil, and condensates using the industry's only field-deployable, in-line optical near-infra-red spectrometer that generates no emissions. The instrument's response is processed with advanced chemometrics modeling, artificial intelligence, and machine learning algorithms to deliver these valuable insights every 15 seconds.

Customers using this technology have obtained significant benefits including additional profits by enhancing operations in crude/condensates stabilization, blending operations, reduction of transmix, increasing efficiencies and optimization of gas plants, and ensuring product quality while reducing giveaways i.e., providing higher value products at the lower value products prices. More efficient operations has the benefit of reducing their carbon footprint e.g., less flaring and reduction in energy expenditure for compression and re-processing. Our customers in North America include the supermajors, some of the largest midstream companies and large gas processing plants. We have developed a new line of Verax analyzers for deployment internationally which was recently certified for compliance in hazardous locations and harsh weather conditions.

Research & Innovation

R&I supports the acceleration of ESG solutions for both segments through green chemistry formulation, specialty chemical formulations, FDA and EPA regulatory guidance, technical support, basin and reservoir studies, data analytics and new technology projects. The purpose of R&I is to supply the Company's segments with enhanced products and services that generate current and future revenues, while advising Company management on opportunities concerning technology, environmental and industry trends. The R&I facilities support advances in chemistry performance, detection, optimization and manufacturing.

Outlook

Our business is subject to numerous variables which impact our outlook and expectations given the shifting conditions of the industry and weather volatility. We have based our outlook on the market and weather conditions we perceive today. Changes often occur.

Energy

We expect North American and International onshore activity to continue to improve throughout 2022 from fourth quarter 2021 levels for the next twelve months provided that commodity prices remain at or above current levels. The strongest potential growth throughout 2022 will likely comes from private, rather than publicly traded exploration and production companies. Private exploration and production companies operate the majority of U.S. land rigs and react quickly to changing commodity prices. In the current commodity price environment, we expect the private companies to increase activity and publicly traded companies to have modest spending increases in the year ahead. Additionally, we have reestablished our ability to sell product through other service companies and believe sales through indirect channels should accelerate in 2022.

Industrial

In 2020, the Company launched a diversified line of EPA and FDA compliant products that target industrial, agricultural and consumer markets with particular focus on customers that are seeking to accelerate their focus on sustainability and minimized impact on the environment. The Company's product line includes adjuvants, disinfectants, surface cleaners, degreasers, solvents and a multitude of proprietary chemistries for industrial, commercial and consumer use. The Company believes these adjacent markets provide an opportunity to diversify and expand the Company's portfolio of chemistry solutions to meet the growing demand. We have signed four manufacturing sales representation groups with 150+ sales personnel covering 48 states. We will be training and educating their representatives during the next two quarters. The leverage sales effort is anticipated to accelerate sales in the second half of 2022.

Digital Analytics

The use of data and digital analytics is a growing trend in all industries where technology is leveraged to analyze large datasets of operational information to improve performance, as well as for predictive maintenance, advanced safety measures and reduced environmental impact of operations. Verax has gained a foothold in NA markets for critical applications where compositional information is needed in real-time. The technology delivers real-time insight on valuable operations data like vapor pressure, boiling point, flash point, octane level, API gravity, viscosity, BTU and more, simultaneously. We continue to work with our customers to identify further facilities and applications where our technology has the highest value. We expect to open and establish our international customer base with our new generation of internationally certified online analyzers. The new analyzers are specifically designed to withstand routine exposure to extreme outdoor environments, ambient temperatures up to 55°C/131°F and sandstorm pollution common to important international environments. We anticipate international sales to increase over the next twelve months because of the newly certified equipment. To drive recurring revenue, we continue to build on the modular nature of our sensor and analysis packages with new data processing techniques that enhance the value of our installations. AIDA (Automated Interface Detection Algorithm) provides real-time detection of interfaces in a liquids pipeline without the need for additional sampling or chemometric modeling. The application can identify products such as refined fuels, crude and NGLs with its advanced machine learning algorithms and detect interfaces within 60 seconds. This allows operators to cut batches quickly and accurately, reduce transmix and minimize off-spec product that requires downgrades.

ESG

ESG-focused solutions continue to be an emphasis for the Company as the energy, industrial and consumer markets are seeking to accelerate their focus on sustainability and minimized impact on the environment. The Company's products and services offer a significant benefit to businesses seeking to improve their ESG performance, including improving safety, reliability and efficiency of their operations. The Company offers sustainable chemistry solutions, tailoring product selection to enable operational efficiencies, improve water management and reduce greenhouse gas emissions for its customers in the exploration and production sector of the oil and gas industry. Further, the Company's patented line of Complex nano-Fluid® (also known as CnF®) products are formulated with highly effective, plant-based solvents offering safer, renewable and sustainable alternatives to toxic BTEX-based (benzene, toluene, ethylbenzene and xylene) chemicals. Benzene is a carcinogenic chemical that can cause acute physical damage, chronic blood disorders, reproductive disorders, leukemia and when exposed to the atmosphere, benzene creates smog, which can be carried to the ground through rain and contaminates water bodies and soil. Additionally, the Company's real-time sensor technology helps to enable process and operational efficiencies, minimize waste and processing and reduce emissions.

The Company believes the industry focus on maintaining a "social license to operate" provides the platform to accelerate the adoption of our greener practices and chemistries. We believe the performance-driven ESG focus of the Company assists in reducing environmental liabilities and improving returns for our customers.

Supply Chain

During 2020 and 2021 challenging supply chain issues emerged that "will continue into 2022" according to Secretary of Transportation Peter Buttigieg. The anticipated activity increases will strain supply chains generally. The principal supply issues facing our industry for the next twelve months will include:

- Rising Freight Costs;
- Delays due to Port Congestion;
- Labor Shortages and
- Demand Forecasting.

All bidding will require the risk of shipping costs and delays be factored into proposals. Trucking availability and pricing will impact North American opportunities while sea-freight costs will impact sales of North American manufactured goods being delivered internationally for the foreseeable future. The import of raw materials from China will also incur price increases. Accelerating tensions between China and the U.S. could also result in supply disruption.

Weather

During 2021, Hurricane Ida and other weather related events caused significant disruptions to the energy industry in the US. The Company was able to maintain consistent operations throughout the year and provide support to our partners in Louisiana and surrounding areas during Hurricane Ida. The Company's operations, as well as those of our primary customer base, are periodically subjected to potential weather related disruptions. The Company monitors and carefully evaluates guidance from authoritative sources including the National Weather Service and other agencies. We currently do not anticipate weather related events to have a material impact on first quarter results.

COVID-19

The impacts of COVID-19 continue to affect the U.S. and global economy. The protocols and processes established to maintain business continuity with COVID-19 have proven robust enough to diminish concern about business disruption unless new variants emerge. The resumption of travel while often onerous has begun to accelerate and in person customer visits that began in earnest during the third quarter will continue to accelerate.

Consolidated Results of Operations (in thousands)

	Years ended December 31, 2021	2020
Revenue		
Revenue from external customers	$ 39,627	$ 53,141
Revenue from related party	3,641	—
Total revenues	43,268	53,141
Cost of goods sold	40,012	81,814
Cost of good sold %	92.5 %	154.0 %
Gross profit (loss)	3,256	(28,673)
Gross profit (loss) %	7.5 %	(54.0)%
Selling general and administrative	20,166	22,763
Selling general and administrative %	46.6 %	42.8 %
Depreciation and amortization	1,011	3,412
Research and development	5,537	7,213
Gain on disposal of property and equipment	(94)	(94)
Impairment of goodwill	8,092	11,706
Impairment of property and equipment and intangible assets	—	69,975
Loss from operations	(31,456)	(143,648)
Operating margin %	(72.7)%	(270.3)%
PPP loan forgiveness	881	—
Gain on lease termination	—	576
Interest and other income, net	9	443
Loss before income taxes	(30,566)	(142,629)
Income tax benefit	40	6,179
Net Loss	$ (30,526)	$ (136,450)
Net loss %	(70.6)%	(256.8)%

Consolidated revenue for the year ended December 31, 2021, decreased $9.9 million, or 18.6%, versus the same period of 2020. Revenue during the year ended December 31, 2021 reflected a loss of revenue in the CT segment associated with two major customers changing ownership during 2021, losses related to the normalization and decline of market demand for sanitizers and non-recurring citrus terpenes sales. Current year revenue decreases were partially offset by the incremental post acquisition JP3 revenues generated in the second, third, and fourth quarter of 2021.

Consolidated cost of goods sold for the year ended December 31, 2021, decreased $41.8 million, or 51.1% versus the same period of 2020. In 2020 cost of goods sold included $11.7 million purchase commitment and excess terpene reserve of which $7.6 million was reversed in 2021. This resulted in a $19.3 million decrease year on year. Additionally, both segments had non-recurring product rationalization expenses in 2020 of an aggregate $9.6 million. In 2021, the decline in revenues in addition to cost reduction initiatives including reducing personnel and facility costs also contributed to the year on year decrease.

Selling general and administrative (“SG&A”) expenses are not directly attributable to products sold or services provided. SG&A expenses for the year ended December 31, 2021, decreased $2.6 million, or 11.4%, versus the same period of 2020. SG&A expenses decreased as a result of a reduction in compensation costs including severance partially offset by an increase in non-recurring legal related costs related to litigation and investigations.

Depreciation and amortization expense decreased $2.4 million, or 70.4% for the year ended December 31, 2021, versus the same period of 2020, primarily due to impairments of property and equipment and other intangible assets recorded during the year ended December 31, 2020.

Research and development ("R&D") costs decreased $1.7 million, or 23.2% for the year ended December 31, 2021, versus the same period of 2020 due to lower personnel costs as a result of our reduction in workforce from 2020 to 2021.

Loss from operations improved by $112.2 million, or 78.1% for the year ended December 31, 2021, versus the same periods in 2020. The loss from operations improvement is primarily a result of the improvement to gross loss and reductions of expenses for SG&A, depreciation and amortization and R&D described above, and the impairment expenses of $81.7 million recorded during the year ended December 31, 2020 compared to impairment expenses of $8.1 million for the year ended December 31, 2021.

Loss before income taxes for the year ended December 31, 2021, was also impacted by an $0.9 million gain from the forgiveness of the JP3 Paycheck Protection Program ("PPP") loan, and for the year ended December 31, 2020 by a $0.6 million gain from lease termination.

The Company's income tax benefit for the year ended December 31, 2021 was minimal. The Company recorded an income tax benefit of $6.2 million in 2020, primarily as a result of the extended net operating loss carryback provisions included in the CARES Act.

Results by Segment (in thousands):

Chemistry Technologies Results of Operations:

	Years ended December 31	
	2021	2020
Revenue	$ 38,929	$ 50,310
Loss from operations	(5,466)	(88,486)

CT revenue for the year ended December 31, 2021, decreased $11.4 million compared to 2020. The decrease in revenue during 2021 compared to 2020 was driven by impacts from industry consolidation and international activity. While the pandemic continued to weigh on economic activity in 2021, global supply and demand has steadily normalized through the second half of 2021. Revenue from two major customers was reduced temporarily as a result of market consolidation in the Permian basin in addition the normalization and decline of market demand for sanitizers and non-recurring citrus terpenes sales. Additionally, international activity, primarily in the Middle East, decreased year over year. CT also granted price concessions in our effort to maintain and obtain market share.

Loss from operations for the CT segment for the year ended December 31, 2021, improved $83.0 million, or 93.9% compared to 2020. The improvement in loss from operations is due to significantly lower expenses, primarily the result of impairment charges of property and equipment of $54.7 million in 2020. Secondly, expenses during 2020 included an $11.7 million charge to reserve for terpene purchase commitment losses, while expenses during 2021 were reduced by a $7.6 million gain as a result of reaching a settlement agreement for terpene purchase commitment. Certain cost reduction initiatives to optimize our cost structure contributed to the current decrease in operating losses by reducing personnel, office costs, equipment and facilities costs as the Company continues to consolidate its physical facilities and equipment rentals to align with activity.

Data Analytics Results of Operations:

	Years ended December 31,	
	2021	2020
Revenue	$ 4,339	$ 2,831
Loss from operations	(12,168)	(36,407)

On May 18, 2020, the Company purchased JP3 and formed the DA segment. DA revenue for the year ended December 31, 2021, increased $1.5 million compared to revenue for 2020, which was only the post-acquisition partial period revenues between May 18, 2020 to December 31, 2020. Loss from operations for the DA segment for the year ended December 31, 2021 improved $24.2 million or 66.6% compared to 2020. The improvement in loss from operations is primarily the result of impairment charges of property and equipment, other intangible assets and goodwill of $24.2 million in 2020 compared to a goodwill impairment charge of $8.1 million in 2021. Additionally, operating expenses in 2020 were impacted by $3.9 million related to product rationalization and also by the change in fair value of the contingent consideration for the JP3 acquisition. A portion of the stock performance earn-out provision was triggered in 2020 resulting in $2.7 million of charges to cost of goods sold in 2020, while the revaluations of the contingent consideration in 2021 resulted in reductions to cost of goods sold of $0.8 million. Operating margins in 2021 were positively impacted by increased revenue and margins.

Capital Resources and Liquidity

Overview

The Company's ongoing capital requirements relate to the acquisition and maintenance of equipment and funding working capital requirements. During 2021, the Company funded capital requirements primarily with cash on hand.

As of December 31, 2021, the Company had available cash and cash equivalents of $11.5 million, as compared to $38.7 million at December 31, 2020. During the year ended December 31, 2021, the Company had an operating loss of $31.5 million, $25.8 million of cash used for operating activities and $0.4 million of cash used for financing activities. Cash provided by investing activities was minimal.

Liquidity

The Company currently funds its operations and growth primarily from cash on hand. The ability of the Company to grow and be competitive in the marketplace is dependent on the availability of adequate capital. Access to capital is dependent, in large part, on the Company's cash flows and the availability of and access to debt and equity financing. The Company has a history of losses and negative cash flows from operations and expects to utilize a significant amount of cash in operations in the following year. Uncertainty surrounding the long- term stability and strength of the oil and gas markets, or reduced spending by our customers could have a further negative impact on our liquidity

On February 2, 2022, the Company completed a Private Investment in Public Equity (PIPE) transaction with a consortium of investors, including with related parties, through the issuance of $21.2 million aggregate of convertible notes that resulted in net cash proceeds of approximately $19.5 million. Also, on February 2, 2022, the Company entered into a long-term supply agreement with ProFrac Services, LLC (the "ProFrac Agreement") upon issuance of $10 million of convertible notes. Under the ProFrac Agreement, ProFrac Services, LLC is obligated to order chemicals from the Company at least equal to the greater of (a) the chemicals required for 33% of their hydraulic fracturing fleets and (b) a baseline measured by the first ten hydraulic fracturing fleets deployed by ProFrac Services, LLC. If minimum volumes are not achieved, the Company receives 25% of the difference between (i) the aggregate Purchase Price of the quantity of Products comprising the Minimum Purchase Obligation during such calendar year. The term of the ProFrac Agreement is three years starting on April 1, 2022.

The Company also committed to plans to sell its warehouse facility in Monahhans, Texas and its manufacturing facility in Waller, Texas. These facilities were classified as held for sale as of December 31, 2021. Subsequent to December 31, 2021, the Company executed a contract to sell its Waller facility for $4.2 million of cash proceeds. The sale is expected to close in April 2022.

Based on our cash and liquid assets, including the transactions subsequent to year end described above and in Note 22 Subsequent Events, we believe that our cash and liquid assets will provide us with sufficient financial resources to fund operations and meet our capital requirements and anticipated obligations as they become due. However the Company cannot guarantee a sufficient level of cash flows in the future.

Cash Flows

Consolidated cash flows by type of activity are noted below (in thousands):

	Years ended December 31,	
	2021	**2020**
Net cash used in operating activities	$ (25,840)	$ (47,838)
Net cash provided by (used in) investing activities	112	(17,701)
Net cash (used in) provided by financing activities	(372)	3,727
Effect of changes in exchange rates on cash and cash equivalents	100	(102)
Net change in cash, cash equivalents and restricted cash	$ (26,000)	$ (61,914)

Operating Activities

Net cash used in operating activities was $25.8 million and $47.8 million during the year ended December 31, 2021 and 2020, respectively. Consolidated net loss for the year ended December 31, 2021 and 2020, were $30.6 million and $136.5 million, respectively.

During the year ended December 31, 2021, non-cash adjustments to net income totaled $4.2 million as compared to $112.8 million for the same period of 2020.

- For the year ended December 31, 2021, non-cash adjustments included a $7.6 million benefit related to the ADM settlement and $8.1 million of impairment charges. The non-cash adjustment for the provision of excess and obsolete inventory was $0.6 million and depreciation was $1.0 million. Other non-cash adjustments included stock based compensation of $3.8 million, JP3 PPP loan forgiveness of $0.9 million and $0.8 million related to the change in fair value of contingent consideration.
- For the year ended December 31, 2020, contributory non-cash adjustments consisted primarily of $81.7 million of impairment charges, $9.4 million of inventory purchase commitment reserve charges, $12.3 million for the provision of excess and obsolete inventory, $3.0 million for stock compensation expense, $3.4 million for depreciation and amortization and $2.7 million related to the change in fair value consideration.

During the year ended December 31, 2021, changes in working capital provided $0.5 million of cash as compared to using $24.2 million for the same period of 2020.

- For the year ended December 31, 2021, changes in working capital resulted primarily from increases in accounts receivable and other current assets of $2.0 million and accounts payable of $1.8 million. This has been offset by decreases in inventories and income taxes receivable of $2.1 million and accrued liabilities of $1.4 million.
- For the year ended December 31, 2020 the use of working capital primarily resulted from a reduction in accrued liabilities and accounts payable of $33.0 million, which included two one-time payments made in 2020: one payment of $15.8 million to amend a long-term supply agreement and one to pay $4.1 million for the final post-closing working capital adjustment related to the 2019 sale of the CICT segment. Decreases in accounts receivable, inventories and other current assets provided cash of $8.5 million.

Investing Activities

Net cash provided by investing activities for the year ended December 31, 2021 was negligible. Net cash used in investing activities was $17.7 million for the year ended December 31, 2020. Cash used in investing activities included $26.3 million from purchase of JP3 offset by cash provided of $9.9 million due to the release of escrow amounts in 2020 from the 2019 sale of the Florida Chemical Company.

Financing Activities

Net cash used in financing activities was $0.4 million for the year ended December 31, 2021, primarily for purchases of common stock related to tax withholding requirements. Net cash provided by financing activities was $3.7 million for the year ended December 31, 2020, primarily from the proceeds received from the PPP.

Off-Balance Sheet Arrangements

There have been no transactions that generate relationships with unconsolidated entities or financial partnerships, such as entities often referred to as “structured finance” or “special purpose entities” (“SPEs”), established for the purpose of facilitating off balance sheet arrangements or other contractually narrow or limited purposes. As of December 31, 2021, the Company was not involved in any unconsolidated SPEs.

The Company has not made any guarantees to customers or vendors nor does the Company have any off-balance sheet arrangements or commitments that have, or are reasonably likely to have, a current or future effect on the Company’s financial condition, change in financial condition, revenue, expenses, results of operations, liquidity, capital expenditures, or capital resources that would be material to investors other than the long term terpene agreement discussed in Note 15 in Part II, Item 8 – Financial Statements of this Annual Report.

Critical Accounting Policies and Estimates

The Company's financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America. Preparation of these statements requires management to make judgments, estimates, and assumptions that affect the amounts of assets and liabilities in the financial statements and revenue and expenses during the reporting period. Significant accounting policies are described in Note 2, "Summary of Significant Accounting Policies," in Part II, Item 8 — "Financial Statements and Supplementary Data," of this Annual Report. The Company believes the following accounting policies are critical due to the significant subjective and complex judgments and estimates required when preparing the consolidated financial statements. The Company regularly reviews judgments, assumptions and estimates related to the critical accounting policies.

Reserve for Excess and Obsolete Inventory

Inventories consist of raw materials and finished goods and are stated at the lower of cost, or market determined using the weighted-average cost method, or net realizable value. Finished goods inventories include raw materials, direct labor and production overhead.

The Company reviews inventories on hand and current market conditions to determine if the cost of raw materials and finished goods inventories exceed current market prices and impairs the cost basis of the inventory accordingly. Obsolete inventory or inventory in excess of management's estimated usage requirement is written down to its net realizable value if those amounts are determined to be less than cost. Write-downs or write-offs of inventory are charged to cost of goods sold.
At December 31, 2021 and 2020, the reserve for excess and obsolete inventory was $10.1 million and $11.1 million, or 51.8% and 48.3% of inventory, respectively. Significant or unanticipated changes to our estimates and forecasts could impact the amount and timing of any additional provisions for excess and obsolete inventory.

Goodwill

Goodwill is the excess of cost of an acquired entity over the amounts assigned to identifiable assets acquired and liabilities assumed in a business combination. Goodwill is not subject to amortization but is tested for impairment annually on October 1 or more frequently if an event occurs or circumstances change that would indicate a potential impairment. These circumstances may include an adverse change in the business climate or a change in the assessment of future operations of a reporting unit. When performing the annual impairment test, the Company has the option to assess whether a goodwill impairment exists using either a qualitative or quantitative assessment. The qualitative assessment involves determining whether events or circumstances exist that indicate it is more likely than not that the fair value of a reporting unit is less than its carrying amount, including goodwill.

If the qualitative assessment indicates that it is more likely than not that the fair value of a reporting unit is less than its carrying amount or if the Company elects not to perform a qualitative assessment, a quantitative impairment test is performed to determine whether goodwill impairment exists at the reporting unit.

The quantitative impairment test, used to identify both the existence of impairment and the amount of impairment loss, compares the estimated fair value of each reporting unit with goodwill to its carrying amount, including goodwill. To determine fair value estimates, the Company uses the income approach based on discounted cash flow analyses, combined, when appropriate, with a market-based approach. The market-based approach considers valuation comparisons of recent public sale transactions of similar businesses and earnings multiples of publicly traded businesses operating in industries consistent with the reporting unit. If the carrying amount of a reporting unit, including goodwill, exceeds its fair value, an impairment loss is recognized in an amount equal to that excess, limited to the amount of goodwill allocated to that reporting unit.

In performing the annual quantitative impairment test and consistent with our prior practice, we determined the fair value of the DA reporting unit using an income approach. Under the income approach, the fair value of the reporting unit was determined based on the present value of estimated future cash flows, discounted at an appropriate risk-adjusted rate. We used our internal forecasts, updated for recent events, to estimate future cash flows with cash flows beyond the specific operating plans estimated using a terminal value calculation, which incorporates historical and forecasted trends, including an estimate of long-term future growth rates, based on our most recent views of the long-term outlook for the DA reporting unit. Our internal forecasts include assumptions about future commodity pricing and expected demand for our goods and services. For the DA reporting unit, production growth is still anticipated to be lower in the near term as operators continue to show an abundance of fiscal discipline in development spending. Midstream thru-out volumes have remained well below capacity levels. While we are expecting production growth to increase, it is likely to do so at a more conservative pace. These factors have precipitated our impairment decision for Data Analytics goodwill. Due to the inherent uncertainties involved in making estimates and assumptions, actual results may differ from those assumed in our forecasts. We derived our discount rate using a capital asset pricing model and analyzing published rates for industries relevant to the DA reporting unit to estimate the cost of equity financing. We used a discount rate that are commensurate with the risks and uncertainties inherent in the respective business and in our internally developed forecasts.

Our estimates are based upon assumptions believed to be reasonable but which are inherently uncertain, and actual results may differ from those assumed in our analysis.

Income Taxes

Deferred tax assets and liabilities are recognized for temporary differences between financial statement carrying amounts and the tax bases of assets and liabilities and are measured using the tax rates expected to be in effect when the differences reverse. Deferred tax assets and liabilities are recognized related to the anticipated future tax effects of temporary differences between the financial statement basis and the tax basis of the Company's assets and liabilities using statutory tax rates at the applicable year end. Deferred tax assets are also recognized for operating loss and tax credit carry forwards. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the results of operations in the period that includes the enactment date.

A valuation allowance is established when it is more likely than not that some portion or all of the deferred tax assets will not be realized. The establishment of a valuation allowance requires significant judgment and is impacted by various estimates. Both positive and negative evidence, as well as the objectivity and verifiability of that evidence, is considered in determining the appropriateness of recording a valuation allowance on deferred tax assets. Except for a state jurisdiction, the Company maintains a full valuation allowance on its deferred tax assets.

The Company has performed an evaluation and concluded that there are no significant uncertain tax positions requiring recognition in the Company's consolidated financial statements.

Property and equipment

Property and equipment, including ROU assets, are reviewed for impairment whenever events or changes in circumstances indicate the carrying amount of an asset or asset group may not be recoverable. Indicative events or circumstances include, but are not limited to, matters such as a significant decline in market value or a significant change in business climate. If events or changes in circumstances indicate the carrying amount of an asset or asset group may not be recoverable, the Company first compares the carrying amount of an asset or asset group to the sum of the undiscounted future cash flows expected to result from the use and eventual disposal of the asset. If the carrying amount of an asset or asset group exceeds the sum of the undiscounted future cash flows expected to result from the use and eventual disposal of the asset, the Company will determine the fair value of the asset or asset group. The amount of impairment loss recognized is the excess of the asset or asset group's carrying amount over its fair value. Fair value is determined through various valuation techniques including discounted cash flow models, quoted market values, and third party independent appraisals, as considered necessary.

The determination of whether property and equipment, including ROU assets is impaired involved a significant level of judgement in these assumptions, and changes in our forecasts, business strategy, or economic and market conditions could significantly impact these judgements. Any resulting impairment charges could have a material impact on our results of operations.

Recent Accounting Pronouncements

Recent accounting pronouncements which may impact the Company are described in Note 2, "Recent Accounting Pronouncements," in Part II, Item 8 — "Financial Statements" of this Annual Report.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The Company is primarily exposed to market risk from changes in foreign currency exchange rates and raw material prices. Market risk is measured as the potential negative impact on earnings, cash flows or fair values resulting from a hypothetical change in interest rates, commodity prices or foreign currency exchange rates over the next year. The Company manages exposure to market risks at the corporate level. The portfolio of interest-sensitive assets and liabilities is monitored and adjusted to provide liquidity necessary to satisfy anticipated short-term needs. The Company's risk management policies allow the use of specified financial instruments for hedging purposes only. Speculation on interest rates or foreign currency rates is not permitted. The Company does not consider any of these risk management activities to be material.

Foreign Currency Exchange Risk

The Company's functional currency is primarily the U.S. dollar. The Company operates principally in the United States and has limited exposure to foreign currency risk in its international operations. During 2021, approximately 3% of revenue was denominated in non-U.S. dollar currencies and virtually all assets and liabilities of the Company are denominated in U.S. dollars. However, as the Company expands its international operations, non-U.S. denominated activity is likely to increase. The Company has not historically used swaps or foreign currency hedges, however, the Company may utilize swaps or foreign currency hedges in the future.

Commodity Risk

The Company, and the CT segment in particular, primarily relies upon long-term strategic supply relationships to meet many of its raw material needs and are expected to remain in place for the foreseeable future. Price increases are passed along to the Company's customers, where applicable or possible. The Company presently does not have any commodity futures contracts but may consider utilizing forms of hedging from time to time in the future.

Item 8. Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors Flotek Industries, Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheet of Flotek Industries, Inc. and subsidiaries (the Company) as of December 31, 2021, the related consolidated statements of operations, comprehensive loss, cash flows, and stockholders' equity for the year then ended, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021, and the results of its operations and its cash flows for the year then ended December 31, 2021, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audit. 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 the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit 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 consolidated 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 audit, 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 audit included performing procedures to assess the risks of material misstatement of the consolidated 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 consolidated financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audit provides a reasonable basis for our opinion.

Critical Audit Matter

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

Sources and Uses of Liquidity

As described in Note 1 to the Company's consolidated financial statements, the Company currently funds its operations and growth primarily from cash on hand. The ability of the Company to grow and be competitive in the marketplace is dependent on the availability of adequate capital. Access to capital is dependent on the Company's operating cash flows, the monetization of non-core assets, and the availability of and access to debt and equity financing. The Company has a history of losses and negative cash flows from operations and expects to use a significant amount of cash in the year following the issuance of the consolidated financial statements as of and for the year ended December 31, 2021. Uncertainty surrounding the long-term stability and strength of the oil and gas markets or reduced spending by the Company's customers could have a further negative impact on the Company's liquidity. The Company believes that their cash and liquid assets, including certain transactions executed after year end, will provide the Company with sufficient financial resources to fund its operations and meet its capital requirements and anticipated obligations as they become due over the twelve-month period following the date the consolidated financial statements are issued.

We identified the evaluation of the Company’s assessment of its ability to continue as a going concern and related disclosures as a critical audit matter. There was significant auditor judgment required in evaluating (1) forecasted revenue growth rates and operating expenses used in the Company’s forecasted cash flows analysis for the twelve-month period subsequent to issuance of the consolidated financial statements and (2) management's ability to implement its plans with respect to the disposition of assets held for sale.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design of certain internal controls related to the Company’s assessment of its ability to continue as a going concern, including the development of the forecasted revenue growth rates and operating expenses over the twelve-month period following the date the consolidated financial statements are issued, and the Company’s assessment of the probability of disposing assets held for sale. To assess the Company’s ability to forecast revenue and operating expenses, we compared historical revenue and operating expense forecasts to actual results. We also compared the Company's forecasted revenue growth rates to certain relevant industry trends. We performed sensitivity analyses over the Company’s going concern assessment by evaluating the effect of changes in the forecasted revenue growth rates and operating expenses and the effect of potential outcomes of the disposition of assets held for sale. We evaluated the reasonableness of the Company’s forecasted revenue and operating expenses by comparing them to management’s stated plans which were corroborated by meeting minutes of the Board of Directors. We evaluated management’s plans related to disposition of certain assets held for sale by inspecting the contractual sale document. We assessed the Company’s disclosures related to its going concern assessment by comparing the disclosures to the audit evidence obtained.

/s/ KPMG LLP

We have served as the Company’s auditor since 2021.

Houston, Texas
March 31, 2022

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Shareholders and Board of Directors
Flotek Industries, Inc.
Houston, Texas

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheet of Flotek Industries, Inc. (the "Company") as of December 31, 2020, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for the year then ended, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2020 and the results of its operations and its cash flows for the year then ended**,** in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

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

We conducted our audit 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 consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audit included performing procedures to assess the risks of material misstatement of the consolidated 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 consolidated financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ BDO USA, LLP

We began serving as the Company's auditor in 2020 and became the predecessor auditor in 2021.

Houston, Texas
March 16, 2021

FLOTEK INDUSTRIES, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	December 31, 2021	December 31, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 11,534	$ 38,660
Restricted cash	1,790	664
Accounts receivable, net of allowance for doubtful accounts of $659 and $1,316 at December 31, 2021 and December 31, 2020, respectively	13,297	11,764
Inventories, net	9,454	11,837
Income taxes receivable	22	403
Other current assets	3,740	3,127
Assets held for sale	2,762	—
Total current assets	42,599	66,455
Property and equipment, net	5,296	9,087
Operating lease right-of-use assets	2,041	2,320
Goodwill	—	8,092
Deferred tax assets, net	279	223
Other long-term assets	29	33
TOTAL ASSETS	$ 50,244	$ 86,210
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 7,616	$ 5,787
Accrued liabilities	8,996	18,275
Income taxes payable	4	21
Interest payable	82	34
Current portion of operating lease liabilities	602	636
Current portion of finance lease liabilities	41	60
Current portion of long-term debt	1,436	4,048
Total current liabilities	18,777	28,861
Deferred revenue, long-term	91	117
Long-term operating lease liabilities	7,779	8,348
Long-term finance lease liabilities	53	96
Long-term debt	3,352	1,617
TOTAL LIABILITIES	30,052	39,039
Commitments and contingencies (See Note 15)		
Stockholders' equity:		
Preferred stock, $0.0001 par value, 100,000 shares authorized; no shares issued and outstanding	—	—
Common stock, $0.0001 par value, 140,000,000 shares authorized; 79,483,837 shares issued and 73,461,203 shares outstanding at December 31, 2021; 78,669,414 shares issued and 73,088,494 shares outstanding at December 31, 2020	8	8
Additional paid-in capital	363,417	359,721
Accumulated other comprehensive income (loss)	81	(19)
Accumulated deficit	(309,214)	(278,688)
Treasury stock, at cost; 6,022,634 and 5,580,920 shares at December 31, 2021 and December 31, 2020, respectively	(34,100)	(33,851)
Total stockholders' equity	20,192	47,171
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 50,244	$ 86,210

FLOTEK INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Years ended December 31,	
	2021	2020
Revenue:		
Revenue from external customers	$ 39,627	$ 53,141
Revenue from related party	3,641	—
Total revenues	43,268	53,141
Cost of goods sold	40,012	81,814
Gross profit (loss)	3,256	(28,673)
Operating costs and expenses:		
Selling, general, and administrative	20,166	22,763
Depreciation and amortization	1,011	3,412
Research and development	5,537	7,213
Gain on disposal of property and equipment	(94)	(94)
Impairment of goodwill	8,092	11,706
Impairment of property and equipment and intangible assets	—	69,975
Total operating costs and expenses	34,712	114,975
Loss from operations	(31,456)	(143,648)
Other income (expense):		
Paycheck protection plan loan forgiveness	881	—
Interest expense	(78)	(60)
Other income, net	87	1,079
Total other income	890	1,019
Loss before income taxes	(30,566)	(142,629)
Income tax benefit	40	6,179
Net Loss	$ (30,526)	$ (136,450)
Loss per common share:		
Basic	$ (0.42)	$ (2.00)
Diluted	$ (0.42)	$ (2.00)
Weighted average common shares:		
Weighted average common shares used in computing basic loss per common share	73,361	68,312
Weighted average common shares used in computing diluted loss per common share	73,361	68,312

The accompanying Notes are an integral part of these Consolidated Financial Statements.

FLOTEK INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Years ended December 31,	
	2021	**2020**
Net Loss	$ (30,526)	$ (136,450)
Other comprehensive income (loss):		
Foreign currency translation adjustment	100	(200)
Comprehensive Loss	$ (30,426)	$ (136,650)

The accompanying Notes are an integral part of these Consolidated Financial Statements.

FLOTEK INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Years ended December 31,	
	2021	**2020**
Cash flows from operating activities:		
Net loss	$ (30,526)	$ (136,450)
Adjustments to reconcile net loss to net cash used in operating activities:		
Change in fair value of contingent consideration	(808)	2,716
Depreciation and amortization	1,011	3,412
Provision for doubtful accounts, net of recoveries	(127)	652
Inventory purchase commitment provision and settlement	(7,633)	9,402
Provision for excess and obsolete inventory	623	12,261
Impairment of goodwill	8,092	11,706
Impairment of right-of-use assets	—	7,434
Impairment of property and equipment	—	30,178
Impairment of intangible assets	—	32,363
Gain on sale of assets	(94)	(561)
Non-cash lease expense	279	356
Stock compensation expense	3,757	3,044
Deferred income tax benefit	(56)	(187)
Paycheck protection plan loan forgiveness	(881)	—
Changes in current assets and liabilities:		
Accounts receivable	(1,406)	3,556
Inventories	1,760	3,955
Income taxes receivable	381	182
Other current assets	(613)	1,026
Other long-term assets	4	(16)
Accounts payable	1,829	(12,323)
Accrued liabilities	(1,463)	(20,662)
Income taxes payable	(17)	84
Interest payable	48	34
Net cash used in operating activities	(25,840)	(47,838)
Cash flows from investing activities:		
Capital expenditures	(39)	(1,425)
Proceeds from sale of business	—	9,907
Proceeds from sale of assets	151	109
Purchase of JP3, net of cash acquired	—	(26,284)
Abandonment of patents and other intangible assets	—	(8)
Net cash provided by (used in) investing activities	112	(17,701)
Cash flows from financing activities:		
Payment for contingent consideration	—	(1,200)
Proceeds from paycheck protection plan loan	—	4,788
Payments to tax authorities for shares withheld from employees	(390)	(253)
Proceeds from issuance of stock	80	462
Payments for finance leases	(62)	(70)
Net cash (used in) provided by financing activities	(372)	3,727
Effect of changes in exchange rates on cash and cash equivalents	100	(102)
Net change in cash, cash equivalents and restricted cash	(26,000)	(61,914)
Cash and cash equivalents at the beginning of period	38,660	100,575
Restricted cash at the beginning of period	664	663
Cash and cash equivalents and restricted cash at beginning of period	39,324	101,238
Cash and cash equivalents at end of period	11,534	38,660
Restricted cash at the end of period	1,790	664
Cash, cash equivalents and restricted cash at end of period	$ 13,324	$ 39,324

The accompanying Notes are an integral part of these Consolidated Financial Statements.

FLOTEK INDUSTRIES, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
Years Ended December 31, 2021 and 2020
(In thousands of U.S. dollars and shares)

	Common Stock		Treasury Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares Issued	Par Value	Shares	Cost				
Balance, December 31, 2020	78,669	$ 8	5,581	$ (33,851)	$ 359,721	$ (19)	$ (278,688)	$ 47,171
Net loss	—	—	—	—	—	—	(30,526)	(30,526)
Foreign currency translation adjustment	—	—	—	—	—	100	—	100
Stock issued under employee stock purchase plan	—	—	(136)	—	80	—	—	80
Restricted stock granted	1,702	—	—	—	—	—	—	—
Restricted stock forfeited	(284)		422	—	—	—	—	—
Restricted units vested	86	—	—	—	—	—	—	—
Stock compensation expense	—	—	—	—	3,757	—	—	3,757
Shares withheld to cover taxes	(76)	—	155	(273)	(150)	—	—	(423)
Other [1]	(613)	—	—	24	9	—	—	33
Balance, December 31, 2021	79,484	$ 8	6,022	$ (34,100)	$ 363,417	$ 81	$ (309,214)	$ 20,192

(1) See Note 16, "Stockholders' Equity" for further discussion.

	Common Stock		Treasury Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares Issued	Par Value	Shares	Cost				
Balance, December 31, 2019	63,657	$ 6	4,145	$ (33,484)	$ 347,564	$ 181	$ (142,238)	$ 172,029
Net loss	—	—	—	—	—	—	(136,450)	(136,450)
Foreign currency translation adjustment	—	—	—	—	—	(200)	—	(200)
Sale of common stock, net of issuance cost	200	—	—	—	339	—	—	339
Stock issued under employee stock purchase plan		—	(78)	—	123	—	—	123
Restricted stock granted	3,201	1	—	—	—	—	—	1
Restricted stock forfeited	—	—	1,302	—	—	—	—	—
Treasury stock purchased	—	—	146	(253)	—	—	—	(253)
Stock compensation expense	—	—	—	—	3,044	—	—	3,044
Excess tax benefit related to share-based awards	—	—	66	—	—	—	—	—
Stock issued in JP3 acquisition	11,500	1	—	—	8,537	—	—	8,538
Stock options exercised	111	—	—	(114)	114	—	—	—
Balance, December 31, 2020	78,669	$ 8	5,581	$ (33,851)	$ 359,721	$ (19)	$ (278,688)	$ 47,171

Note 1 — Organization and Nature of Operations

General

Flotek Industries, Inc. ("Flotek" or the "Company") creates solutions to reduce the environmental impact of energy on air, water, land and people. A technology-driven, specialty green chemistry and data company, Flotek helps customers across industrial, commercial, and consumer markets improve their environmental performance.

The Company's Chemistry Technologies ("CT") segment develops, manufactures, packages, distributes, delivers, and markets green specialty chemicals that enhance the profitability of hydrocarbon producers and cleans surfaces in both commercial and personal settings to help reduce the spread of bacteria, viruses and germs.

The Company's Data Analytics ("DA") segment enables users to maximize the value of their hydrocarbon associated processes by providing analytics associated with their hydrocarbon streams in seconds rather than minutes or days. The real-time access to information prevents waste, reduces reprocessing and allows users to pursue automation of their hydrocarbon streams to maximize their profitability, while reducing their carbon footprint, energy consumption and emissions.

The Company formed the DA segment during the second quarter of 2020, after acquiring JP3 Measurement, LLC ("JP3"). The Company's two operating segments, CT and DA, are both supported by its Research & Innovation advanced laboratory capabilities. For further discussion of our operations and segments, see Note 21, "Business Segment, Geographic and Major Customer Information." For further discussion of the JP3 acquisition, see Note 3, "Business Acquisition."

The Company was initially incorporated under the laws of the Province of British Columbia in 1985. In October 2001, the Company changed its corporate domicile to the State of Delaware.

Sources and Uses of Liquidity

The Company currently funds its operations and growth primarily from cash on hand. The ability of the Company to grow and be competitive in the marketplace is dependent on the availability of adequate capital. Access to capital is dependent on the Company's operating cash flows, the monetization of non-core assets, and the availability of and access to debt and equity financing. The Company has a history of losses and negative cash flows from operations and expects to utilize a significant amount of cash in the following year. While we believe that our cash and liquid assets, including the actions taken subsequent to year end discussed below and in Note 22, "Subsequent Events", will provide us with sufficient financial resources to fund operations and meet our capital requirements and anticipated obligations as they become due, uncertainty surrounding the long term stability and strength of the oil and gas markets or reduced spending by our customers could have a further negative impact on our liquidity.

On February 2, 2022, the Company completed a Private Investment in Public Equity (PIPE) transaction with a consortium of investors, including related parties, through the issuance of $21.2 million aggregate of convertible notes that resulted in net cash proceeds of approximately $19.5 million. Also, on February 2, 2022, the Company entered into a long-term supply agreement with ProFrac Services, LLC (the "ProFrac Agreement") upon issuance of $10 million of convertible notes. Under the ProFrac Agreement, ProFrac Services, LLC is obligated to order chemicals from the Company at least equal to the greater of (a) the chemicals required for 33% of their hydraulic fracturing fleets and (b) a baseline measured by the first ten hydraulic fracturing fleets deployed by ProFrac Services, LLC. Profrac shall pay to the company, as liquidated damages an amount equal to twenty-five percent (25%) of the difference between (i) the aggregate Purchase Price of the quantity of Products comprising the Minimum Purchase Obligation during such calendar year. The term of the ProFrac Agreement is three years starting on April 1, 2022.

The Company also committed to plans to sell its warehouse facility in Monahans, Texas and its manufacturing facility in Waller, Texas. These facilities were classified as held for sale as of December 31, 2021. Subsequent to December 31, 2021, the Company executed a contract to sell its Waller facility for $4.2 million of cash proceeds. The sale is expected to close in April 2022.

Based on our cash and liquid assets, including the transactions subsequent to year end described above and in Note 22 Subsequent Events, we believe that our cash and liquid assets will provide us with sufficient financial resources to fund operations and meet our capital requirements and anticipated obligations as they become due. However, the Company cannot guarantee a sufficient level of cash flows in the future. The consolidated financial statements have been prepared assuming that the Company will continue as a going concern.

Note 2 — Summary of Significant Accounting Policies

Basis of Presentation

The Company's consolidated financial statements have been prepared in accordance with the accounting principles generally accepted in the United States of America ("U.S. GAAP"). The consolidated financial statements include the accounts of Flotek Industries, Inc. and subsidiaries it controls.

All significant intercompany accounts and transactions have been eliminated in consolidation. The Company does not have investments in any unconsolidated subsidiaries.

Cash Equivalents

Cash equivalents consist of highly liquid investments with maturities of three months or less at the date of purchase.

Cash Management

The Company uses a controlled disbursement account for its main cash account. Under this system, outstanding checks can be in excess of the cash balances at the bank before the disbursement account is funded, creating a book overdraft. Book overdrafts on this account are presented as a current liability in accounts payable in the consolidated balance sheets.

Restricted Cash

The Company's restricted cash consists of cash that the Company is contractually obligated to maintain in accordance with the terms of its credit card program with a financial institution and as of December 31, 2021 an amount held in escrow of $1.75 million for amounts due under the terms of the legal settlement discussed in Note 15, Commitments and Contingencies.

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable arise from product sales and services and are stated at estimated net realizable value. This value incorporates an allowance for doubtful accounts to reflect any loss anticipated on accounts receivable balances. The Company regularly evaluates its accounts receivable to estimate amounts that will not be collected and records the appropriate provision for doubtful accounts as a charge to operating expenses. The allowance for doubtful accounts is based on a combination of the age of the receivables, individual customer circumstances, credit conditions, and historical write-offs and collections. The Company writes off specific accounts receivable when they are determined to be uncollectible. The recovery of accounts receivable previously written off is recorded as a reduction to the provision for doubtful accounts charged to operating expense.

The majority of the Company's customers are engaged in the energy industry. The cyclical nature of the energy industry may affect customers' operating performance and cash flows, which directly impact the Company's ability to collect on outstanding obligations. Additionally, certain customers are located in international areas that are inherently subject to risks of economic, political, and civil instability, which can impact the collectability of receivables.

Changes in the allowance for doubtful accounts are as follows (in thousands):

	Years ended December 31,	
	2021	**2020**
Balance, beginning of year	$ 1,316	$ 1,527
Charges to provision for doubtful accounts, net of recoveries	(127)	652
Write-offs	(530)	(863)
Balance, end of year	$ 659	$ 1,316

Inventories

Inventories consist of raw materials and finished goods and are stated at the lower of cost determined using the weighted-average cost method, or net realizable value. Finished goods inventories include raw materials, direct labor and production overhead. The Company periodically reviews inventories on hand and current market conditions to determine if the cost of raw materials and finished goods inventories exceed current market prices and impairs the cost basis of the inventory accordingly. Obsolete inventory or inventory in excess of management's estimated usage requirement is written down to its net realizable value if those amounts are determined to be less than cost. Write-downs or write-offs of inventory are charged to cost of goods sold.

Property and equipment

Property and equipment are stated at cost. The cost of ordinary maintenance and repair is charged to operating expense, while replacement of critical components and major improvements are capitalized. Depreciation or amortization of property and equipment, including right-of-use assets ("ROU"), is calculated using the straight-line method over the asset's estimated useful life as follows:

Buildings and leasehold improvements	2-30 years
Machinery and equipment	7-10 years
Furniture and fixtures	3 years
Land improvements	20 years
Transportation equipment	2-5 years
Computer equipment and software	3-7 years

Property and equipment, including ROU assets, are reviewed for impairment whenever events or changes in circumstances indicate the carrying amount of an asset or asset group may not be recoverable. If events or changes in circumstances indicate the carrying amount of an asset or asset group may not be recoverable, the Company first compares the carrying amount of an asset or asset group to the sum of the undiscounted future cash flows expected to result from the use and eventual disposal of the asset. If the carrying amount of an asset or asset group exceeds the sum of the undiscounted future cash flows expected to result from the use and eventual disposal of the asset, the Company will determine the fair value of the asset or asset group. The amount of impairment loss recognized is the excess of the asset or asset group's carrying amount over its fair value. Fair value is determined through various valuation techniques including discounted cash flow models, quoted market values, and third party independent appraisals, as considered necessary.

Assets to be disposed of are reported as assets held for sale at the lower of the carrying amount or the asset's fair value less cost to sell and depreciation is ceased. Upon sale or other disposition of an asset, the Company recognizes a gain or loss on disposal measured as the difference between the net carrying amount of the asset and the net proceeds received.

Goodwill

Goodwill is the excess of cost of an acquired entity over the amounts assigned to identifiable assets acquired and liabilities assumed in a business combination. Goodwill is not subject to amortization but is tested for impairment annually on October 1 or more frequently if an event occurs or circumstances change that would indicate a potential impairment.

When performing the annual impairment test, the Company has the option to assess whether a goodwill impairment exists using either a qualitative or quantitative assessment. The qualitative assessment involves determining whether events or circumstances exist that indicate it is more likely than not that the fair value of a reporting unit is less than its carrying amount, including goodwill.

If the qualitative assessment indicates that it is more likely than not that the fair value of a reporting unit is less than its carrying amount or if the Company elects not to perform a qualitative assessment, a quantitative impairment test is performed to determine whether goodwill impairment exists at the reporting unit.

The quantitative impairment test, used to identify both the existence of impairment and the amount of impairment loss, compares the estimated fair value of the reporting unit to its carrying amount, including goodwill. To determine fair value estimates, the Company uses the income approach based on discounted cash flow analyses, combined, when appropriate, with a market-based approach. Under the income approach, the fair value of the reporting unit was determined based on the present value of estimated future cash flows, discounted at an appropriate risk-adjusted rate. We used our internal forecasts, updated for recent events, to estimate future cash flows with cash flows beyond the specific operating plans estimated using a terminal value calculation, which incorporates historical and forecasted trends, including an estimate of long-term future growth rates, based on our most recent views of the long-term outlook for the reporting unit. We derive our discount rate using a capital asset pricing model and analyzing published rates for industries relevant to the reporting unit to estimate the cost of equity financing. We use discount rates that are commensurate with the risks and uncertainties inherent in the respective business and in our internally developed forecasts. The market-based approach considers valuation comparisons of recent public sale transactions of similar businesses and earnings multiples of publicly traded businesses operating in industries consistent with the reporting unit. If the carrying amount of a reporting unit, including goodwill, exceeds its fair value, an impairment loss is recognized in an amount equal to that excess, limited to the amount of goodwill allocated to that reporting unit.

Fair Value Measurements

The Company categorizes financial assets and liabilities using a three-tier fair value hierarchy, based on the nature of the inputs used to determine fair value. Inputs refer broadly to assumptions that market participants would use to value an asset or liability and may be observable or unobservable. When determining the fair value of assets and liabilities, the Company uses the most reliable measurement available. See Note 13, “Fair Value Measurements.”

Revenue Recognition

The Company recognizes revenue to depict the transfer of control of promised goods or services to its customers in an amount that reflects the consideration to which it expects to be entitled in exchange for those goods or services.

The Company recognizes revenue based on a five-step model when all of the following criteria have been met: (i) a contract with a customer exists, (ii) performance obligations have been identified, (iii) the price to the customer has been determined, (iv) the price to the customer has been allocated to the performance obligations, and (v) performance obligations are satisfied.

Products and services are sold with fixed or determinable prices. Certain sales include right of return provisions, which are considered when recognizing revenue and deferred accordingly. Deposits and other funds received in advance of delivery are deferred until the transfer of control is complete.

The Company applies several practical expedients including:

- Sales commissions are expensed as selling, general and administrative expenses when incurred because the amortization period is generally one year or less.
- The majority of the Company’s services are short-term in nature with a contract term of one year or less. As a result the Company does not disclose the transaction price allocated to remaining performance obligations.
- The Company’s payment terms are short-term in nature with settlements of one year or less. As a result the Company does not adjust the promised amount of consideration for the effects of a significant financing component.
- In most service contracts, the Company has the right to consideration from a customer in an amount that corresponds directly with the value to the customer of the Company’s performance obligations completed to date and as such the Company recognizes revenue in the amount to which it has a right to invoice.
- The Company excludes from the measurement of the transaction price all taxes assessed by a governmental authority that are both imposed on and concurrent with a specific revenue-producing transaction and collected by the entity from a customer. Such taxes are included in accrued liabilities on our consolidated balance sheet until remitted to the governmental agency.

Shipping and handling costs associated with outbound freight after control over a product has transferred to a customer are accounted for as a fulfillment cost and are included in cost of goods sold on our consolidated statement of operations.

Foreign Currency Translation

Financial statements of foreign subsidiaries are prepared using the currency of the primary economic environment of the foreign subsidiaries as the functional currency. Assets and liabilities of foreign subsidiaries are translated into U.S. dollars at exchange rates in effect as of the end of identified reporting periods. Revenue and expense transactions are translated using the average monthly exchange rate for the reporting period. Resultant translation adjustments are recognized as other comprehensive income (loss) within stockholders’ equity.

Comprehensive Loss

Comprehensive loss encompasses all changes in stockholders’ equity, except those arising from investments from and distributions to stockholders. The Company’s comprehensive loss includes consolidated net loss and foreign currency translation adjustments.

Research and Development Costs

Expenditures for research activities relating to product development and improvement are charged to expense as incurred.

Income Taxes

Deferred tax assets and liabilities are recognized for temporary differences between financial statement carrying amounts and the tax bases of assets and liabilities and are measured using the tax rates expected to be in effect when the differences reverse. Deferred tax assets are also recognized for operating loss and tax credit carry forwards. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in the results of operations in the period that includes the enactment date.

A valuation allowance is established when it is more likely than not that some portion or all of the deferred tax assets will not be realized. The establishment of a valuation allowance requires significant judgment and is impacted by various estimates. Both positive and negative evidence, as well as the objectivity and verifiability of that evidence, is considered in determining the appropriateness of recording a valuation allowance on deferred tax assets.

The Company recognizes the effect of income tax positions only if those positions are more likely than not of being sustained. Recognized income tax positions are measured at the largest amount that is greater than 50% likely of being realized. Changes in recognition or measurement are reflected in the period in which the change in judgment occurs.

The Company's policy is to record interest and penalties related to uncertain tax positions as income tax expense.

Stock-Based Compensation

Stock-based compensation expense, related to stock options, restricted stock awards and restricted stock units, is recognized based on their grant-date fair values. The Company recognizes compensation expense, net of estimated forfeitures, on a straight-line basis over the requisite service period of the award. Estimated forfeitures are based on historical experience.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect reported amounts of assets and liabilities, disclosure of contingent assets and liabilities, and reported amounts of revenue and expenses. Actual results could differ from these estimates.

Significant items subject to estimates and assumptions include the carrying amount and useful lives of property and equipment and intangible assets; goodwill, property and equipment and intangible asset impairment assessments; allocation of purchase price in business combinations; stock-based compensation expense; and valuation allowances for accounts receivable, inventories, and deferred tax assets.

Reclassifications

Certain prior year amounts in the consolidated statement of operations and consolidated statement of stockholders' equity have been reclassified to conform to the current year presentation.. In the fourth quarter of 2021, the Company changed its financial statement presentation to report cost of goods sold and gross profit (loss) and eliminated the reporting of operating expenses (excluding depreciation and amortization) on the consolidated statements of operations to conform to customary industry reporting practices. In connection with this change in presentation, the Company reclassified selling costs of $6.5 million to selling, general and administrative expenses which were previously reported in operating expenses for the year ended December 31, 2020. The reclassifications and change in presentation of the statements of operations did not impact previously recorded net loss and stockholders' equity.

Business Combinations

The Company includes the results of operations of its acquisitions in its consolidated results, prospectively from the date of acquisition. The Company allocates the fair value of purchase consideration to the assets acquired, liabilities assumed and any non-controlling interests in the acquired entity generally based on their fair values at the acquisition date. The excess of the fair value of purchase consideration over the fair value of these assets acquired, liabilities assumed and any non-controlling interests in the acquired entity is recorded as goodwill. The primary items that generate goodwill include the value of the synergies between the acquired company and Flotek and the value of the acquired assembled workforce. Acquisition-related expenses are recognized separately from the business acquisition and are recognized as expenses as incurred.

Recent Accounting Pronouncements

Changes to U.S. GAAP are established by the Financial Accounting Standards Board ("FASB"). We evaluate the applicability and impact of all authoritative guidance issued by the FASB. Guidance not listed below was assessed and determined to be either not applicable, clarifications of items listed below, immaterial or already adopted by the Company.

New Accounting Standards Issued But Not Adopted as of December 31, 2021

The FASB issued ASU No. 2019-12, "*Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*." This standard removes specific exceptions to the general principles in *Topic 740.* The pronouncement is effective for fiscal years beginning after December 15, 2020, including interim periods within those fiscal years, with early adoption permitted for public companies for periods in which financial statements have not yet been issued. The Company evaluated the impact of this standard and determined that there is no impact on the consolidated financial statements and related disclosures.

The FASB issued ASU No. 2016-13, "*Measurement of Credit Losses on Financial Instruments*." This standard replaces the incurred loss impairment methodology in current U.S. GAAP with a methodology that reflects estimates of expected credit losses over their contractual life that are recorded at inception based on historical information, current conditions, and reasonable and supportable forecasts. The pronouncement is effective for smaller reporting companies for fiscal years beginning after December 15, 2022. The Company is currently evaluating the impact of this standard, including subsequent amendments, on the consolidated financial statements and related disclosures.

The FASB issued ASU No. 2020-06, "*Accounting for Convertible Instruments and Contracts in an Entity's Own Equity.*" This standard changes the accounting for convertible instruments by reducing the number of accounting models, amends the requirements for a conversion option to be classified in equity and amends diluted earnings per share calculations for certain convertible debt instruments. The pronouncement is effective for smaller reporting companies for fiscal years beginning after December 15, 2023, with early adoption allowed for fiscal years beginning after December 15, 2020. The Company has adopted this standard on January 1, 2022, and is evaluating the impact of this standard, on the consolidated financial statements and related disclosures.

The FASB issued ASU No. 2021-10, "*Government Assistance (Topic 832); Disclosures by Business Entities about Government Assistance.*" This standard provides guidance on disclosures for transactions with a government that are accounted for by applying a grant or contribution accounting model by analogy. The pronouncement is effective for fiscals years beginning after December 15, 2021. The Company is currently evaluating the impact of this standard on the consolidated financial statements and related disclosures.

Note 3 — Business Acquisition

On May 18, 2020, the Company acquired 100% ownership of JP3, a privately-held data and analytics technology company, in a cash-and-stock transaction. The transaction was valued at approximately $36.6 million as of the transaction closing date, comprised of $25.0 million in cash, subject to certain adjustments and contingent consideration as described below, and 11.5 million shares in Flotek common stock with an estimated fair value of $8.5 million, net of a discount for marketability due to a lock-up period. The payment of $25.0 million was subject to certain purchase price adjustments, and the total non-equity consideration at closing on May 18, 2020 was comprised of $25.0 million plus net working capital in excess of the target net working capital of $1.9 million. Additionally, the Company was subject to contingent consideration with an estimated fair value of $1.2 million at acquisition date for two potential earn-out provisions totaling up to $5.0 million based on certain stock performance targets. The first and second earn-out provisions occur if the ten-day volume-weighted average share price equals or exceeds $2 per share and $3 per share, respectively, before May 18, 2025. See Note 13, "Fair Value Measurements," for additional information on the current estimated fair value of the contingent consideration.

The following table summarizes the fair value of JP3's assets acquired as of the closing date of May 18, 2020 (in thousands):

Tradenames and trademarks	$	1,100
Technology and know-how		5,000
Customer lists		6,800
Inventories		7,100
Cash		604
Net working capital, net of cash and inventories		(1,063)
Fixed assets		426
Long-term debt assumed and other assets (liabilities)		(893)
Goodwill		17,522
Net assets acquired	$	36,596

See Note 8, "Goodwill," for additional information on goodwill remeasurement and impairment.

The Company recorded transaction costs of $0.5 million for professional services including legal, accounting, and other professional or consulting fees in connection with the JP3 acquisition to the Company's operating expenses (excluding depreciation and amortization) in the consolidated statements of operations during the second quarter of 2020.

Pro forma information for JP3 is not provided as the impact is not considered material.

During the third quarter of 2020, the Company made certain measurement period adjustments to inventory, resulting in an increase of goodwill of $2.3 million.

Note 4 — Revenue from Contracts with Customers

Revenues are recognized when control of the promised goods or services is transferred to the customer, in an amount that reflects the consideration the Company expects to be entitled in exchange for those goods or services. In recognizing revenue for products and services, the Company determines the transaction price of purchase orders or contracts with customers, which may consist of fixed and variable consideration. Determining the transaction price may require significant judgment by management, which includes identifying performance obligations, estimating variable consideration to include in the transaction price, and determining whether promised goods or services can be distinguished in the context of the contract. Variable consideration typically consists of product returns and is estimated based on the amount of consideration the Company expects to receive. Revenue accruals are recorded on an ongoing basis to reflect updated variable consideration information. The majority of the products from the CT segment are sold at a point in time and service contracts are short-term in nature. The DA segment recognizes revenue for sales of equipment at the time of sale. Revenue related to service and support is recognized over time. The Company bills sales on a monthly basis with payment terms customarily 30-60 days for domestic and 90-120 days for international from invoice receipt. In addition, sales taxes are excluded from revenues.

Disaggregation of Revenue

The Company differentiates revenue based on whether the source of revenue is attributable to product sales (point-in-time revenue recognition) or service revenue (over-time revenue recognition).

Revenue disaggregated by revenue source is as follows (in thousands):

	Years ended December 31,			
	2021		2020	
Revenue:				
Products (1)	$	40,265	$	50,478
Services		3,003		2,663
	$	43,268	$	53,141

(1) Product revenues for 2021 include sales to a related party as described in Note 20, "Related Party Transactions."

Arrangements with Multiple Performance Obligations

The CT and DA segments primarily sell chemicals and equipment recognized at a point in time based on when control transfers to the customer determined by agreed upon delivery terms. Additionally, both segments offer various services associated to products sold which includes field services, installation, maintenance, and other functions. For DA, services are recognized upon completion of commissioning and installation due to the short-term nature of the performance obligation. DA has additional performance obligations related to providing ongoing or reoccurring maintenance. Revenue for these types of arrangements is recognized ratably over time throughout the contract period. Additionally, DA may provide subscription-type arrangements with customers in which monthly reoccurring revenue is recognized ratably over time in accordance with agreed upon terms and conditions. Subscription-type arrangements were not a material revenue stream in the years ended December 31, 2021 and 2020.

Under revenue contracts for both products and services, customers are invoiced once the performance obligations have been satisfied, at which point payment is unconditional. Contract assets associated with incomplete performance obligations are not material.

Note 5 — Inventories

Inventories are as follows (in thousands):

	December 31, 2021	December 31, 2020
Raw materials	$ 5,610	$ 7,190
Finished goods	13,985	15,705
Inventories	19,595	22,895
Less reserve for excess and obsolete inventory	(10,141)	(11,058)
Inventories, net	$ 9,454	$ 11,837

Changes in the reserve for excess and obsolete inventory are as follows (in thousands):

	Years ended December 31, 2021	Years ended December 31, 2020
Balance, beginning of year	$ 11,058	$ 5,698
Charged to provisions	623	12,261
Deductions for sales and disposals	(1,540)	(6,901)
Balance, end of the year	$ 10,141	$ 11,058

The provisions recorded in the year ended December 31, 2021 were $0.6 million for the CT segment and nil for the DA segment. The provisions recorded in the year ended December 31, 2020 were $8.4 million for the CT segment and $3.9 million for the DA segment.

Note 6 — Property and Equipment

Property and equipment are as follows (in thousands):

	December 31, 2021	December 31, 2020
Land	$ 886	$ 2,415
Land improvements	520	867
Buildings and leasehold improvements	5,473	6,364
Machinery and equipment	6,843	7,760
Furniture and fixtures	620	649
Transportation equipment	878	1,190
Computer equipment and software	1,176	1,296
Property and equipment	16,396	20,541
Less accumulated depreciation	(11,100)	(11,454)
Property and equipment, net	$ 5,296	$ 9,087

Depreciation expense totaled $1.0 million and $2.5 million for the years ended December 31, 2021 and 2020, respectively.

In the third quarter of 2021, the Company committed to plans to sell its warehouse facility in Monahans, Texas and its manufacturing facility in Waller, Texas, in their current condition and as a result the associated assets in the amount of $2.8 million are classified as held for sale as of December 31, 2021. Subsequent to December 31, 2021, the Company entered into a contract to sell the Waller manufacturing facility which is expected to close in April 2022. See further discussion in Note 22, Subsequent Events.

During the year ended December 31, 2020, the Company recorded an impairment of property and equipment assets totaling $30.2 million. No impairment was recognized during the year ended December 31, 2021. Refer to Note 10 — Impairment of Property and Equipment, Operating Lease Right-of-use Assets and Intangible Assets.

Note 7 — Leases

In August 2021, the company entered into a five-year triple net operating lease agreement to lease its warehouse facility in Monahans, Texas, for $20,000 per month, and the tenant occupied the warehouse facility in September 2021. The Company will recognize rental income, including rent, taxes and insurance over the lease period. Rental income recognized during the year ended December 31, 2021 was $76,000 and was included in other income in the consolidated statement of operations.

In July 2021, the Company entered into a long-term rental agreement to lease its manufacturing facility in Waller, Texas, for $40,000 per month for sixty-four months. Rental income recognized during the year ended December 31, 2021 was $121,000 and was included in other income in the consolidated statement of operations.

During the first quarter of 2020, the Company ceased use of the corporate headquarters leased offices and moved corporate employees to the Global Research and Innovation Center (“GRIC”) during the second quarter of 2020. In addition, the operating lease liability and corresponding operating lease right-of-use (“ROU”) assets for the corporate headquarters and GRIC were remeasured to remove the anticipated term extensions as the Company determined it was no longer reasonably certain to utilize the extension at the GRIC. The remeasurement resulted in reductions to lease liabilities and ROU assets totaling of $6.2 million during the year ended December 31, 2020.

In addition, during the year ended December 31 2020, the Company recorded an impairment of the ROU assets totaling $7.4 million. No impairment was recognized during the year ended December 31, 2021. Refer to Note 10, “Impairment of Property and Equipment, Operating Lease Right-of-use Assets and Intangible Assets”.

The components of lease expense and supplemental cash flow information are as follows (in thousands):

	Years ended December 31,	
	2021	2020
Operating lease expense	$ 797	$ 1,370
Finance lease expense:		
Amortization of right-of-use assets	15	17
Interest on lease liabilities	12	18
Total finance lease expense	27	35
Short-term lease expense	267	202
Total lease expense	$ 1,091	$ 1,607
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	$ 1,107	$ 2,884
Operating cash flows from finance leases	62	18
Financing cash flows from finance leases	8	70

Maturities of lease liabilities as of December 31,2021 are as follows (in thousands):

Years ending December 31,	Operating Leases	Finance Leases
2022	$ 1,254	$ 47
2023	1,318	39
2024	1,348	23
2025	1,375	
2026	1,423	—
Thereafter	5,453	—
Total lease payments	$ 12,171	$ 109
Less: Interest	(3,790)	(15)
Present value of lease liabilities	$ 8,381	$ 94

Supplemental balance sheet information related to leases is as follows (in thousands):

	December 31, 2021	December 31, 2020
Operating Leases		
Operating lease right-of-use assets	$ 2,041	$ 2,320
Current portion of operating lease liabilities	$ 602	$ 636
Long-term operating lease liabilities	7,779	8,348
Total operating lease liabilities	$ 8,381	$ 8,984
Finance Leases		
Property and equipment	$ 147	$ 147
Accumulated depreciation	(33)	(26)
Property and equipment, net	$ 114	$ 121
Current portion of finance lease liabilities	$ 41	$ 60
Long-term finance lease liabilities	53	96
Total finance lease liabilities	$ 94	$ 156
Weighted Average Remaining Lease Term		
Operating leases	9.1 years	9.9 years
Finance leases	2.9 years	3.1 years
Weighted Average Discount Rate		
Operating leases	8.9 %	8.9 %
Finance leases	8.9 %	9.0 %

Note 8 - Goodwill

As discussed in Note 3 Business Acquisition, during the second quarter of 2020, the Company acquired 100% ownership of JP3, as a new operating segment and reporting unit. The Company recorded goodwill of $17.5 million. During the third quarter of 2020, the Company made certain measurement period adjustments to inventory obtained in the JP3 acquisition, resulting in an increase of goodwill of $2.3 million.

On October 1 of each fiscal year, we perform our annual goodwill impairment test for the DA reporting unit. We also test goodwill for impairment whenever events or circumstances occur which, in our judgment, could more likely than not reduce the fair value of the DA reporting unit below its carrying amount. Potential impairment indicators include, but are not limited to, (i) the results of our most recent annual impairment testing, in particular the magnitude of the excess of fair value over carrying value observed, (ii) downward revisions to internal forecasts, and the magnitude thereof, if any, and (iii) declines in our market capitalization below our book value, and the magnitude and duration of those declines, if any.

In performing the annual quantitative impairment test and consistent with our prior practice, we determined the fair value of the DA reporting unit using an income approach. Under the income approach, the fair value of the reporting unit was determined based on the present value of estimated future cash flows, discounted at an appropriate risk-adjusted rate. We used our internal forecasts, updated for recent events, to estimate future cash flows with cash flows beyond the specific operating plans estimated using a terminal value calculation, which incorporates historical and forecasted trends, including an estimate of long-term future growth rates, based on our most recent views of the long-term outlook for the DA reporting unit. Our internal forecasts include assumptions about future commodity pricing and expected demand for our goods and services. For the DA reporting unit, production growth is anticipated to be moderate in the near term as operators continue to show an abundance of fiscal discipline in development spending. Midstream thru-put volumes remain well below capacity levels. While we are expecting production growth to increase, it is likely to do so at a more conservative pace. These factors have precipitated our impairment decision for Data Analytics goodwill. Due to the inherent uncertainties involved in making estimates and assumptions, actual results may differ from those assumed in our forecasts. We derived our discount rate using a capital asset pricing model and analyzing published rates for industries relevant to the DA reporting unit to estimate the cost of equity financing. We used a discount rate that are commensurate with the risks and uncertainties inherent in the respective business and in our internally developed forecasts.

Based upon the results of our annual quantitative impairment test, we concluded that the carrying value of the DA reporting unit exceeded its estimated fair value as of the testing date, which resulted in goodwill impairment charges of $8.1 million. The goodwill impairment was calculated as the amount that the carrying value of the DA reporting unit, including any goodwill, exceeded its fair value. The carrying value of the DA reporting unit equals its fair value upon completion of the goodwill impairment test.

Changes in the carrying amount of goodwill are as follows (in thousands):

Balance at December 31, 2019	$	—
Acquisition goodwill recognized		17,522
Measurement period adjustment		2,276
Goodwill impairment recognized		(11,706)
Balance at December 31, 2020	$	8,092
Goodwill impairment recognized		(8,092)
Balance at December 31, 2021	$	—

		December 31, 2021		December 31, 2020
Goodwill	$	19,798	$	19,798
Accumulated impairment losses		(19,798)		(11,706)
Goodwill balance, net of impairment	$	—	$	8,092

Note 9 — Other Intangible Assets

During the year ended December 31, 2020, the Company recorded impairment charges of $32.4 million for other intangible assets, impairing all finite-lived intangible assets, including those acquired in the acquisition of JP3 discussed in Note 3, Business Acquisition. See Note 10, "Impairment of Property and Equipment, Operating Lease Right-of-use Assets, and Intangible Assets."

Amortization of intangible assets acquired totaled $0.9 million for the year ended December 31, 2020. There was no intangible amortization recorded during the year ended December 31, 2021.

Note 10 — Impairment of Property and Equipment, Operating Lease Right-of-use Assets and Intangible Assets

There were no impairments of property and equipment, operating lease right-of-use assets, and intangible assets during the year ended December 31, 2021.

The Company recorded impairment charges of property and equipment, operating lease right-of-use assets and intangible assets during the year ended December 31, 2020, as follows (in thousands):

Property and equipment	$	30,178
Operating lease right-of-use assets		7,434
Other Intangible Assets:		
Patents and technology		14,733
Customer relationships		15,796
Intangible assets in progress		596
Trademarks and brand names		1,238
Total other intangible assets		32,363
Total impairment charges	$	69,975

During the first quarter of 2020, with the onset of the global COVID-19 Pandemic and the significant disruption across the industry, the Company's operations were negatively impacted resulting in actual and projected declines in the Company's revenues and results of operations. These declines were driven by market factors, including an oversupply of oil, insufficient storage and demand destruction resulting from the reaction to the pandemic. Based on these factors, the Company concluded that a triggering event occurred and, accordingly, an interim impairment test was performed as of March 31, 2020, for the CT segment.

Using the income approach, the fair value of the CT segment asset group was determined based on the present value of future cash flows. The Company utilized internal forecast trends and potential growth rates to estimate future cash flows of the asset group. Based on the results of the quantitative assessment, the Company concluded the carrying value of the asset group exceeded its fair value as of March 31, 2020, and an impairment loss of $57.5 million was recorded.

Management performed an interim impairment test as of September 30, 2020 for the DA business segment which was negatively impacted by reduced demand in the oil and gas sector because of reductions in capital spending across our customer base, lower than anticipated growth in the international market gained from the JP3 acquisition.

Using the income approach, the fair value of the DA segment asset group was determined based on the present value of future cash flows. The Company utilized internal forecast trends and potential growth rates to estimate future cash flows of the asset group. Based on the results of the assessment, the Company concluded the carrying value of the asset group exceeded its fair value as of September 30, 2020. The Company recognized an impairment loss of $12.5 million in the DA segment asset group.

During the year ended December 31, 2020, all finite lived intangible assets were fully impaired.

Note 11 — Accrued Liabilities

Current accrued liabilities are as follows (in thousands):

	December 31,	
	2021	2020
Severance costs	$ 2,581	$ 3,558
Loss on purchase commitments (Note 15)	1,750	9,402
Payroll and benefits	1,054	1,789
Legal costs	1,013	333
Contingent liability for earn-out provision	608	1,416
Deferred revenue, current	528	146
Taxes other than income taxes	241	544
Due to third parties	36	434
Other	1,185	653
Total current accrued liabilities	$ 8,996	$ 18,275

Note 12 — Debt

In April 2020, the Company received a $4.8 million loan (the “Flotek PPP loan”) under the Paycheck Protection Program (“PPP”), which was created through the Coronavirus Aid, Relief, and Economic Act (“CARES Act”) and is administered by the U.S. Small Business Administration (“SBA”). In connection with the acquisition of JP3 in May 2020, the Company assumed a PPP loan of $0.9 million obtained by JP3 (the “JP3 PPP loan”) in April 2020 prior to its acquisition by Flotek. The PPP loans had a fixed interest rate of 1% and originally a two-year term, maturing in April and May 2022, respectively. No payments of principal or interest were required during the years ended December 31, 2021 or 2020.

A portion of the loans may be eligible for forgiveness by the SBA depending on the extent of proceeds used for payroll costs and other designated expenses incurred for up to 24 weeks following loan origination, subject to adjustments for headcount reductions and compensation limits and provided that at least 60% of the eligible costs incurred were used for payroll. Receipt of these funds required the Company to, in good faith, certify that the current economic uncertainty made the loan request necessary to support ongoing operations of the Company. This certification further required the Company to take into account current business activity and the ability to access other sources of liquidity sufficient to support ongoing operations in a manner that was not significantly detrimental to the business. The forgiveness of the loans is dependent on the Company having initially qualified for the loans and qualifying for the forgiveness of such loans based on our past and future adherence to the forgiveness criteria. The PPP loans are subject to any new guidance and new requirements released by the Department of the Treasury, which initially indicated that all companies that have received funds in excess of $2.0 million will be subject to audit by the SBA to further ensure PPP loans are limited to eligible borrowers in need.

During the second quarter of 2021, the Company applied for forgiveness of the JP3 PPP loan with the SBA. In June 2021, the Company received notice from the SBA that the JP3 PPP loan and accrued interest were fully forgiven. Accordingly, during the second quarter of 2021, the Company recorded $0.9 million for the amount of principal and accrued interest forgiven associated with the JP3 PPP loan in other income on the consolidated statement of operations.

In October 2021, the Flotek PPP loan maturity date was extended from April 15, 2022 to April 15, 2025.

The Company has submitted to the SBA for forgiveness of substantially all of the Flotek PPP loan but as of December 31, 2021 and as of the date of this filing, the Company has not received a forgiveness notice. If the loan is not forgiven, monthly payments will be due over the remaining term of the loan. Denial of the forgiveness of the Flotek PPP loan will negatively impact the Company’s liquidity as discussed in Note 1, “Organization and Nature of Operations”.

Long-term debt, including current portion, is as follows (in thousands):

	December 31, 2021	December 31, 2020
Flotek PPP loan	$ 4,788	$ 4,788
JP3 PPP loan	—	877
Total	4,788	5,665
Less current maturities	(1,436)	(4,048)
Total long-term debt, net of current portion	$ 3,352	$ 1,617

Note 13 — Fair Value Measurements

Fair value is defined as the amount that would be received for selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Company categorizes financial assets and liabilities into the three levels of the fair value hierarchy. The hierarchy prioritizes the inputs to valuation techniques used to measure fair value and bases categorization within the hierarchy on the lowest level of input that is available and significant to the fair value measurement.

- Level 1 — Quoted prices in active markets for identical assets or liabilities;
- Level 2 — Observable inputs other than Level 1, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3 — Significant unobservable inputs that are supported by little or no market activity or that are based on the reporting entity's assumptions about the inputs.

Fair Value of Other Financial Instruments

The carrying amounts of certain financial instruments, including cash and cash equivalents, restricted cash, accounts receivable, accrued liabilities and accounts payable approximate fair value due to the short-term nature of these accounts. The carrying amount of the Flotek PPP loan approximates its fair value as of December 31, 2021.

Liabilities Measured at Fair Value on a Recurring Basis

The following table presents the Company's liabilities that are measured at fair value on a recurring basis and the level within the fair value hierarchy (in thousands):

	Level 1	Level 2	Level 3	December 31 2021	Level 1	Level 2	Level 3	December 31, 2020
Contingent consideration	$ —	$ —	$ 608	$ 608	$ —	$ —	$ 1,416	$ 1,416

The estimated fair value of the remaining stock performance earn-out provision, with respect to the JP3 transaction, discussed in Note 3, Business Acquisition, is included in accrued liabilities as of December 31, 2021 and 2020. The estimated fair value of the earn-out provision at the end of each period was valued using a Monte Carlo model analyzing 20,000 simulations performed using Geometric Brownian Motion with inputs such as risk-neutral expected growth and volatility. During the third quarter of 2020, the first stock performance target of the contingent consideration was achieved, and the Company accrued a liability of $2.5 million, which was subsequently settled during the fourth quarter of 2020.

Assets Measured at Fair Value on a Nonrecurring Basis

The Company's non-financial assets, including property and equipment, operating lease right-of-use assets, goodwill and other intangible assets, are measured at fair value on a non-recurring basis and are subject to fair value adjustment in certain circumstances. Impairments of long-lived assets of $70 million were recorded during the year ended December 31, 2020. See Note 10, Impairment of Property and Equipment, Operating Lease Right-of-use Assets and Intangible Assets. Impairments of goodwill of $8.1 million and $11.7 million were recorded during the year ended December 31, 2021 and 2020, respectively. See Note 8, “Goodwill”.

Management inputs used in fair value measurements in 2021 and 2020 to estimate the fair value of the non-financial assets were classified as Level 3.

Level 3 Rollforward for Assets and Liabilities Measured at Fair Value on a Recurring Basis

In conjunction with the acquisition of JP3, discussed in Note 3, Business Acquisition, during the year ended December 31, 2020, the Company recorded contingent consideration of $1.2 million. Management inputs used in the fair value measurement were classified as Level 3. During the third quarter of 2020, the first stock performance target of the contingent consideration was achieved, and the Company accrued a liability of $2.5 million, which was transferred out of Level 3 to a current liability and subsequently settled during the fourth quarter of 2020. The Company estimated the fair value of the remaining stock performance earn-out provision as of December 31, 2021 and 2020 and adjusted the estimated fair value of the contingent liability to $0.6 million and $1.4 million, respectively. The Company records changes in the fair value of the contingent consideration and achievement of performance targets in cost of goods sold.

The following table presents the changes in contingent consideration balances classified as Level 3 balances (in thousands):

	Years ended December 31,	
	2021	2020
Balance - beginning of period	$ 1,416	$ —
Additions / issuances	—	1,200
Change in fair value	(808)	2,716
Transfer out of Level 3	—	(2,500)
Balance - end of period	$ 608	$ 1,416

Note 14 — Income Taxes

Components of the income tax benefit is as follows (in thousands):

	Years ended December 31,	
	2021	2020
Current:		
Federal	$ —	$ (6,115)
State	16	144
Foreign	—	(21)
Total current	16	(5,992)
Deferred:		
Federal	—	(116)
State	(56)	(71)
Foreign	—	—
Total deferred	(56)	(187)
Income tax benefit	$ (40)	$ (6,179)

The components of loss before income taxes are as follows (in thousands):

	Years ended December 31,	
	2021	2020
United States	$ (30,037)	$ (141,864)
Foreign	(529)	(765)
Loss before income taxes	$ (30,566)	$ (142,629)

A reconciliation of the U.S. federal statutory tax rate to the Company's effective income tax rate is as follows:

	Years ended December 31,	
	2021	2020
U.S. federal statutory tax rate	21.0 %	21.0 %
State income taxes, net of federal benefit	0.1	2.1
Non-U.S. income taxed at different rates	0.5	0.2
Increase (reduction) in tax benefit related to stock-based awards	0.1	(0.2)
Increase in valuation allowance	(24.9)	(20.3)
Effect of tax rate differences of NOL carryback	—	1.5
Permanent differences related to CARES Act	2.6	—
Other	0.7	—
Effective income tax rate	0.1 %	4.3 %

On March 27, 2020, the CARES Act was enacted in response to the COVID-19 pandemic. Among other things, the CARES Act provided the ability for taxpayers to carryback a net operating loss ("NOL") arising in a taxable year beginning after December 31, 2017 and before January 1, 2021 to each of the five years preceding the year of the loss. Based on analysis of the extended NOL carryback provision, the Company recorded an income tax benefit and related receivable of $6.1 million as of March 31, 2020, which was received in July 2020.

Further, the CARES Act included provisions to assist employers during the pandemic including the Employee Retention Credit ("ERC"). The ERC provision provides a refundable payroll tax credit on qualified wages paid by eligible employers to certain employees. On March 11, 2021, the American Rescue Plan Act of 2021 was enacted to combat the ongoing public health and economic impacts of the pandemic and provides some tax relief to businesses in the form of extending and modifying the ERC as well as other provisions. The Company applied for and received $2.9 million of refundable payroll tax credits during the year ended December 31, 2021. This was recorded as a credit to payroll taxes in SG&A.

Fluctuations in effective tax rates have historically been impacted by permanent tax differences with no associated income tax impact, changes in state apportionment factors, including the effect on state deferred tax assets and liabilities, and non-U.S. income taxed at different rates. During the years ended December 31, 2021 and 2020, the effective tax rate was further impacted by permanent difference related to the CARES Act provisions and the NOL carryback claim, respectively.

Deferred income taxes reflect the tax effect of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and the value reported for income tax purposes, at the enacted tax rates expected to be in effect when the differences reverse. The components of deferred tax assets and liabilities are as follows (in thousands):

	December 31, 2021	December 31, 2020
Deferred tax assets:		
Net operating loss carryforwards	$ 33,166	$ 23,589
Intangible assets	2,916	6,026
Tax credit carryforwards	4,001	3,802
Goodwill	5,284	4,087
Property and equipment	3,229	3,640
Lease liability	1,750	1,945
Inventory valuation reserves	2,675	2,093
Allowance for doubtful accounts	1,184	1,134
Accrued liabilities	569	2,076
Accrued compensation	401	657
Equity compensation	399	435
Other	304	353
Total gross deferred tax assets	55,878	49,837
Valuation allowance	(54,875)	(48,671)
Total deferred tax assets, net	1,003	1,166
Deferred tax liabilities:		
ROU asset	(453)	(686)
Prepaid insurance and other	(271)	(257)
Total gross deferred tax liabilities	(724)	(943)
Net deferred tax assets	$ 279	$ 223

As of December 31, 2021, the Company had U.S. net operating loss carryforwards of $140.6 million, including $46.4 million expiring in various amounts from 2029 through 2037 which can offset 100% of taxable income and $94.2 million that has an indefinite carryforward period which can offset 80% of taxable income per year. The ability to utilize net operating losses and other tax attributes could be subject to a significant limitation if the Company were to undergo an “ownership change” for purposes of Section 382 of the Tax Code.

We record a valuation allowance when it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of the deferred tax assets depends on the ability to generate sufficient taxable income of the appropriate character in the future and in the appropriate taxing jurisdictions.As of December 31, 2021 and 2020, the valuation allowance against the net federal and state deferred tax assets was $54.9 million and $48.7 million, respectively. Except for a state jurisdiction, the Company maintains a full valuation allowance on its deferred tax assets.

The Company intends to reinvest the unremitted earnings of its non-U.S. subsidiaries. As of December 31, 2021, the Company had approximately $8.5 million in unremitted earnings from its foreign jurisdictions. As a result of the 2017 Tax Act these earnings have been previously taxed in the U.S. although they have not been repatriated to the U.S. However, certain withholding taxes will need to be paid upon repatriation. It is not practicable to estimate the amount of the deferred tax liability on such unremitted earnings.

The Company performed an evaluation and concluded there are no uncertain tax positions requiring recognition in the Company’s financial statements. Tax years which remain subject to examination by tax jurisdictions as of December 31, 2021, are the years ended December 31, 2018 through December 31, 2021 for U.S. federal taxes and the years ended December 31, 2017 through December 31, 2021 for various state tax jurisdictions.

Note 15 — Commitments and Contingencies

Litigation

The Company is subject to routine litigation and other claims that arise in the normal course of business. Except as disclosed below, management is not aware of any pending or threatened lawsuits or proceedings that are expected to have a material effect on the Company's financial position, results of operations or liquidity.

Terpene Supply Agreement

As of December 31, 2020, the Company's consolidated balance sheet included an accrued liability of $9.4 million associated with the terpene supply agreement with Florida Chemical Company, LLC ("FCC"), a wholly owned subsidiary of Archer-Daniels-Midland Company ("ADM"). The Company calculated the liability based on its expected usage of terpene in blended products being less than the minimum quantities of terpene required to be purchased under the terpene supply agreement and the expected selling prices of the excess terpene. Losses for the year ended December 31, 2020 on the terpene contract totaled $11.7 million and was recognized in cost of goods sold in the consolidated statements of operations.

On March 26, 2021, Flotek Industries, Inc. and Flotek Chemistry, LLC ("Flotek Chemistry"), a wholly-owned subsidiary of the Company, filed a lawsuit against ADM, FCC and other parties in state court in Harris County, Texas. The lawsuit claimed damages relating to the terpene supply agreement between Flotek Chemistry and FCC and related breaches of fiduciary duty. Contemporaneously with the filing of the suit, Flotek Chemistry delivered a notice of termination of the terpene supply agreement.

On April 5, 2021, ADM and FCC filed a lawsuit in the Delaware Court of Chancery seeking to enjoin the lawsuit filed in Texas and claiming damages under the terpene supply agreement and other matters.

On October 29, 2021, the Company reached agreement with all parties resolving all claims between the parties ("the ADM Settlement") that resulted in the termination of the terpene supply agreement and a settlement payment of $1.75 million due from Flotek. In accordance with the terms of the ADM Settlement, the Company reduced the accrued liability associated with the terpene supply agreement to $1.75 million and recorded a gain of $7.6 million in cost of goods sold in the consolidated statement of operations for the year ended December 31, 2021. The one-time payment of $1.75 million from Flotek to ADM was paid on January 3, 2022 and was included as restricted cash on the consolidated balance sheet as of December 31, 2021.

Former CEO Matter

During the year ended December 31, 2021, Flotek commenced an internal investigation into the activities of John Chisholm (Flotek's previous CEO) due to irregularities in expenses and transactions during the years from 2014 to 2018. The investigation revealed evidence of related party transactions/self-dealing, inappropriate personal expenses, and general corporate waste. Flotek's board engaged a third party to review the findings of the investigation. After the third-party review, Flotek concluded that its current and historical financial statements can be relied upon, that proper action had been taken, and that no members of current management were implicated in any way.

Beginning in December 2021, Flotek sent demand letters to, and subsequently filed arbitration or other legal proceedings against, John Chisholm, Casey Doherty/Doherty & Doherty LLP (Flotek's former outside general counsel) and Moss Adams LLP (Flotek's former independent public audit firm) to recover damages. John Chisholm subsequently filed a counterclaim against Flotek in the arbitration proceeding for his remaining severance (currently accrued by the Company, but payment for which was suspended). Although Flotek believes its claims are supported by the available evidence, the timing and amount of any outcome cannot reasonably be predicted.

Other Commitments and Contingencies

The Company is subject to concentrations of credit risk within trade accounts receivable, as the Company does not generally require collateral as support for trade receivables. In addition, the majority of the Company's cash is invested in three major U.S. financial institutions and balances often exceed insurable amounts.

Note 16 — Stockholders' Equity

Common and Preferred Stock

On May 5, 2020, the shareholders of the Company approved an amendment to the Company's Amended and Restated Certificate of Incorporation, as previously amended, to increase the authorized shares of common stock from 80 million shares to 140 million shares of common stock, par value $0.0001 per share, and 100,000 shares of one or more series of preferred stock, par value $0.0001 per share. The additional authorized shares are available for corporate purposes, including acquisitions.

During the first quarter 2021, the Company identified 0.6 million shares that were improperly included in the December 31, 2020 issued share count, and the Company adjusted the issued share count presented on the statement of stockholders' equity. This adjustment was not material to the December 31, 2020 consolidated financial statements or basic and diluted earnings per share.

A reconciliation of the changes in common shares issued is as follows:

	Year ended December 31,	
	2021	**2020**
Shares issued at the beginning of the year	78,669,414	63,656,897
Correction to issued share count at beginning of the year	(613,419)	—
Issued upon sale of common stock	—	200,000
Issued upon exercise of stock options	—	111,298
Issued as restricted stock award grants	1,702,289	3,114,978
Issued upon vesting of restricted stock units	86,240	86,241
Restricted stock awards forfeited and cancelled	(284,334)	—
Shares withheld to cover taxes and cancelled	(76,353)	—
Issued in business combination to acquire JP3	—	11,500,000
Shares issued at the end of the year	79,483,837	78,669,414

Treasury Stock

The Company accounts for treasury stock using the cost method and includes treasury stock as a component of stockholders' equity. During the years ended December 31, 2021 and 2020, the Company purchased 155,317 shares and 145,703 shares, respectively, of the Company's common stock at market value as payment of income tax withholding owed by employees upon the vesting of restricted shares and the exercise of stock options. Shares issued as restricted stock awards to employees under the 2018 long-term incentive plan that were forfeited are accounted for as treasury stock. During the years ended December 31, 2021 and 2020, forfeited stock awards returned to treasury stock were 421,839 shares and 1,301,470 shares, respectively.

Note 17 — Stock-Based Compensation and Other Benefit Plans

Stock-Based Incentive Plans

Stockholders approved long-term incentive plans in 2019, 2018, 2014, 2010 and 2007 (the "2019 Plan," the "2018 Plan," the "2014 Plan," the "2010 Plan" and the "2007 Plan," respectively) under which the Company may grant equity awards to officers, key employees, non-employee directors and service providers in the form of stock options, restricted stock, restricted stock units, and certain other incentive awards. The maximum number of shares that may be issued under the 2019 Plan, 2018 Plan, 2014 Plan, 2010 Plan and 2007 Plan are 1.0 million, 3.0 million, 5.2 million, 6.0 million and 2.2 million, respectively. At December 31, 2021, the Company had a total of 4.2 million shares remaining to be granted under the 2019 Plan and 2018 Plan. Shares may no longer be granted under the 2007, 2010 and 2014 Plans.

Stock Options

All stock options are granted with an exercise price equal to the market value of the Company's common stock on the date of grant. During the years ended December 31, 2021 and 2020, 1.4 million and 1.3 million market-based stock options were granted, respectively. The market-based options are restricted until criteria defined in the agreements are met. Proceeds received from stock option exercises are credited to common stock and additional paid-in capital, as appropriate. The Company uses historical data to estimate pre-vesting option forfeitures. Estimates are adjusted when actual forfeitures differ from the estimate.

Stock-based compensation expense is recorded for all equity awards expected to vest. During the years ended December 31, 2021 and 2020, 0.2 million and 0.1 million stock options vested, respectively, and 0.8 million and 0.6 million stock options were forfeited, respectively.

Stock option activity for the years ended December 31, 2021 and 2020, are as follows

	Shares	Weighted-Average Exercise Price	Weighted-Average Fair Value
Outstanding as of January 1, 2020	3,000,000	$ —	$ —
Granted	1,327,795	1.12	0.62
Exercised	(111,298)	0.92	0.51
Forfeited	(556,497)	0.92	0.51
Outstanding as of January 1, 2021	3,660,000		
Granted	1,448,959	1.07	0.88
Exercised	—	—	—
Forfeited	(777,084)	1.02	0.52
Expired	(50,000)	0.52	0.52
Outstanding as of December 31, 2021	4,281,875		
Vested or expected to vest at December 31, 2021	3,775,148		

The following table sets forth significant assumptions used in the Monte Carlo model for market-based options to determine the fair value of the options at the date of grant:

	Year Ended December 31, 2021	Year Ended December 31, 2020
	Market-Based Options	Market-Based Options
Risk-free interest rate	1.61 %	0.12 %
Expected volatility of common stock	90.00 %	103.50 %
Expected life of options in years	10	2
Dividend yield	— %	— %

At December 31, 2021, the unrecognized compensation cost related to stock options was $3.3 million.

Restricted Stock

The Company grants employees and directors either time-vesting or market-based restricted shares in accordance with terms specified in the Restricted Stock Agreements. During the year ended December 31, 2021, all of the restricted stock granted were time-vesting restricted shares. Grantees of restricted shares retain voting rights for the granted shares.

- Time-vesting restricted shares vest after a stipulated period has elapsed after the date of grant, generally three years. Certain time-vested shares have also been issued with a portion of the shares granted vesting immediately.
- Market-based restricted shares are issued with criteria defined over a designated period and vest only when, and if, the outlined criteria are met.

Restricted stock share activity for the years ended December 31, 2021 and 2020, are as follows:

Restricted Stock Shares	Shares	Weighted-Average Fair Value at Date of Grant
Non-vested at January 1, 2020	1,629,020	$ 2.66
Granted	3,114,978	0.83
Vested	(711,988)	2.94
Forfeited	(1,236,910)	1.65
Non-vested at January 1, 2021	2,795,100	1.00
Granted	1,702,289	1.73
Vested	(1,453,854)	1.24
Forfeited	(1,275,172)	1.36
Non-vested at December 31, 2021	1,768,363	$ 1.61

The total fair value of restricted stock that vested during the years ended December 31, 2021 and 2020 was $2.5 million and $2.1 million, respectively.

At December 31, 2021, unrecognized compensation expense related to non-vested restricted stock was $1.9 million. The unrecognized compensation expense is expected to be recognized over a weighted-average period of 1.8 years.

Restricted Stock Units

During the years ended December 31, 2020, the Company granted 0.9 million market-based restricted stock units (“RSUs”). The performance period for these RSUs continues until December 22, 2024. No RSU’s were granted during the year ended December 31, 2021.

Restricted stock units activity for the years ended December 31, 2021 and 2020, are as follows:

Restricted Stock Units	Units	Weighted-Average Fair Value at Date of Grant
RSUs at January 1, 2020	1,038,474	$ 3.24
2020 granted	922,786	1.19
2020 forfeited	(733,711)	3.79
RSUs at January 1, 2021	1,227,549	1.25
2021 granted	—	—
2021 forfeited	(184,173)	2.61
RSUs at December 31, 2021	1,043,376	$ 1.07

At December 31, 2021, unrecognized compensation expense related to restricted stock units was $1.0 million. The unrecognized compensation expense is expected to be recognized over a weighted-average period of 2.1 years.

Employee Stock Purchase Plan

The Company’s Employee Stock Purchase Plan (“ESPP”) was approved by stockholders in 2012. The Company registered 500,000 shares of its common stock, currently held as treasury shares, for issuance under the ESPP. The purpose of the ESPP is to provide employees with an opportunity to purchase shares of the Company’s common stock through accumulated payroll deductions. The ESPP allows participants to purchase common stock at a purchase price equal to 85% of the fair market value of the common stock on the last business day of a three-month offering period which coincides with calendar quarters. Payroll deductions may not exceed 10% of an employee’s compensation and participants may not purchase more than 1,000 shares in any one offering period. In addition, for each calendar year, an employee may not be granted purchase rights valued over $25,000, as determined at the time such purchase right is granted. The fair value of the discount associated with shares purchased under the plan is recognized as stock-based compensation expense and was $0.02 and $0.1 million for the years ended December 31, 2021 and 2020, respectively. The total fair value of the shares purchased under the plan during each of the years ended December 31, 2021 and 2020 was $0.2 million and $0.1 million, respectively. The employee payment associated with participation in the plan occurs through payroll deductions.

Stock-Based Compensation Expense

Non-cash stock-based compensation expense related to stock options, restricted stock, restricted stock unit grants and stock purchased under the Company's ESPP was $3.8 million and $3.0 million during the years ended December 31, 2021 and 2020, respectively.

401(k) Retirement Plan

The Company maintains a 401(k) retirement plan for the benefit of eligible employees in the U.S. All employees are eligible to participate in the plan upon employment. The Company currently matches contributions at 100% of up to 2% of an employee's compensation.

During the years ended December 31, 2021 and 2020, compensation expense included $0.2 million and $0.2 million, respectively, related to the Company's 401(k) match.

Note 18 — Earnings (Loss) Per Share

Basic earnings (loss) per common share is calculated by dividing net income (loss) by the weighted average number of common shares outstanding for the period. Diluted earnings (loss) per common share is calculated by dividing net income (loss) by the weighted average number of common shares outstanding combined with dilutive common share equivalents outstanding, if the effect is dilutive. Potentially dilutive common share equivalents consist of incremental shares of common stock issuable upon exercise of stock options and settlement of restricted stock units.

Potentially dilutive securities were excluded from the calculation of diluted loss per share for the years ended December 31, 2021 and 2020, since including them would have an anti-dilutive effect on loss per share due to the net loss incurred during the periods. Securities convertible into shares of common stock that were not considered in the diluted loss per share calculations were 1.0 million restricted stock units and 4.3 million stock options for the year ended December 31, 2021, and 1.8 million restricted stock units and 3.8 million stock options for the year ended December 31, 2020.

Note 19 — Supplemental Cash Flow Information

Supplemental cash flow information is as follows (in thousands):

	Years ended December 31,	
	2021	**2020**
Supplemental cash payment information:		
Interest paid	$ 26	$ 25
Income taxes received	(351)	(6,246)
Supplemental non-cash investing and financing activities:		
Equity issued - acquisition of JP3	$ —	$ 8,538

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Note 20 — Related Party Transaction

In January 2017, the Internal Revenue Service ("IRS") notified the Company that it was examining the Company's federal tax returns for the year ended December 31, 2014. As a result of this examination, the IRS informed the Company on May 1, 2019, that certain employment taxes related to the compensation of our former CEO, Mr. Chisholm, were not properly withheld in 2014 and proposed an adjustment. Mr. Chisholm's affiliated companies through which he provided his services have agreed to indemnify the Company for any such taxes, and Mr. Chisholm executed a personal guaranty in favor of the Company, supporting this indemnification.

In October 2019, an amendment to the employment agreement of Mr. Chisholm was executed, giving the Company the contractual right of offset for any amounts owed by Mr. Chisholm to the Company for the IRS matter, and giving the Company the right to withhold payments to Mr. Chisholm equal to amounts reasonably estimated to potentially become due to the Company by the affiliated companies for the IRS matter from any amounts owed under the employment agreement. At December 31, 2019, the Company netted the related party receivable against the severance payable and recorded $1.8 million for potential liability to the IRS. On January 5, 2020, Mr. Chisholm ceased to be an employee of the Company. In September 2020, the Company informed Mr. Chisholm it would cease payment of future severance.

During first quarter of 2020, an additional accrual was recorded for $0.2 million related to potential penalties and interest on the IRS obligation. As of December 31, 2021 and 2020, the receivable from Mr. Chisholm was $1.4 million, which equaled the payable to the IRS and netted with Mr. Chisholm's severance liability. Both the IRS and severance liabilities are recorded in accrued liabilities on the consolidated balance sheet.

Mr. Ted D. Brown has been a Director of the Company since November of 2013 and has been the President and CEO of Confluence Resources LP ("Confluence"), a private oil and gas exploration and production company formed in 2016. For the year ended December 31, 2021, the Company's revenues for chemical sales to Confluence was $3.6 million. As of December 31, 2021, Confluence owed $1.3 million to the Company which is recorded in account receivables on the consolidated balance sheet. There were no transactions with Confluence in the year ended December 31, 2020.

Note 21 — Business Segment, Geographic and Major Customer Information

Segment Information

Operating segments are defined as components of an enterprise for which separate financial information is available that is regularly evaluated by the chief operating decision-maker in deciding how to allocate resources and assess performance. The operations of the Company are categorized into the following reportable segments: CT and DA.

Chemistry Technologies. The CT segment includes green specialty chemistries, logistics and technology services, which enable its customers to pursue improved efficiencies and performance throughout the life cycle of their wells, helping customers improve their ESG and operational goals. This segment also includes a portfolio of specialty chemical products to address the long term challenges of in the janitorial, sanitization, food services, and adjacent markets. Customers of the CT segment include major integrated oil and gas companies, oilfield services companies, independent oil and gas companies, national and state-owned oil companies, and international supply chain management companies.

Data Analytics. The DA segment, created in the second quarter of 2020 in conjunction with the acquisition of JP3 on May 18, 2020, includes the design, development, production, sale and support of equipment and services that create and provide valuable information on the composition and properties of energy customers' hydrocarbon fluids. The company markets products and services that support in-line data analysis of hydrocarbon components and properties. Customers of the DA segment span across the entire oil and gas market, from upstream production to midstream facilities to refineries and distribution networks.

The Company evaluates performance based upon a variety of criteria. The primary financial measure is segment operating income (loss). Various functions, including certain sales and marketing activities and general and administrative activities, are provided centrally by the corporate office. Costs associated with corporate office functions, other corporate income and expense items, and income taxes are not allocated to the reportable segment.

Summarized financial information of the reportable segments is as follows (in thousands):

As of and for the years ended December 31,	Chemistry Technologies	Data Analytics [(1)]	Corporate and Other	Total
2021				
Revenue from external customers	$ 35,288	$ 4,339	$ —	$ 39,627
Revenue from related party	3,641	—	—	3,641
Loss from operations	(5,466)	(12,168)	(13,822)	(31,456)
Depreciation and amortization	939	70	2	1,011
Additions to long-lived assets	39	—	—	39
2020				
Revenue from external customers	$ 50,310	$ 2,831	$ —	$ 53,141
Revenue from related party	—	—	—	—
Loss from operations	(88,486)	(36,407)	(18,755)	(143,648)
Depreciation and amortization	2,519	422	471	3,412
Additions to long-lived assets	1,425	—	—	1,425

[(1)] The Company formed the DA segment in the second quarter of 2020 upon acquiring JP3.

Assets of the Company by reportable segments are as follows (in thousands):

	December 31,	
	2021	2020
Chemistry Technologies	$ 34,387	$ 43,346
Data Analytics	7,329	13,201
Corporate and Other	8,528	29,663
Total assets	$ 50,244	$ 86,210

Geographic Information

Revenue by country is based on the location where services are provided and products are sold. No individual countries other than the U.S. and the United Arab Emirates ("UAE") accounted for more than 10% of revenue. Revenue by geographic location is as follows (in thousands):

	Years ended December 31,	
	2021	2020
U.S.	$ 33,187	$ 40,632
UAE	4,512	6,763
Other countries	5,569	5,746
Total revenue	$ 43,268	$ 53,141

Long-lived assets held in countries other than the U.S. are not considered material to the consolidated financial statements.

Major Customers

Revenue from major customers, as a percentage of consolidated revenue, is as follows (in thousands):

	Chemistry Technologies	% of Total Revenue
Year ended December 31, 2021		
Customer A	$ 4,067	9 %
Customer B	11,632	26 %
Year ended December 31, 2020		
Customer A	$ 12,891	24 %
Customer **B**	9,394	18 %

The majority of the Company's revenue is derived from its CT segment, which consists predominantly of customers within the oil and gas industry. Customers within the oil and gas industry include oilfield services companies, integrated oil and natural gas companies, independent oil and natural gas companies, and state-owned national oil companies. The concentration in the oil and gas industry increases credit and business risk.

Note 22 — Subsequent Events

We have evaluated the effects of events that have occurred subsequent to December 31, 2021, and there have been no material events that would require recognition in the 2021 consolidated financial statements or disclosure in the notes to the consolidated financial statements, except as disclosed below.

On February 2, 2022, Flotek entered into a Private Investment in Public Equity (PIPE) transaction with a consortium of investors to secure growth capital for the Company. Pursuant to the PIPE transaction on February 2, 2022, Flotek issued $21.2 million aggregate initial principal amount of convertible notes for net cash proceeds of approximately $19 million. The investors are ProFrac Holdings, LLC, Burlington Ventures Ltd., entities associated with North Sound Management, certain funds associated with one of Flotek's directors including the D3 Family Fund and the D3 Bulldog Fund, and Firestorm Capital LLC. The convertible notes accrue paid-in-kind interest at a rate of 10% per annum, have a maturity of one year, and are converted into common stock of Flotek (a) at the holder's option at any time prior to maturity, at a price of $1.088125 per share, (b) at Flotek's option, if the volume-weighted average trading price of Flotek's common stock equals or exceeds $2.50 for 20 trading days during a 30 consecutive trading day period, or (c) at maturity, at a price of $0.8705. The issuance of the additional shares may trigger a change in ownership defined as 50% or more under IRC Section 382 that will limit the amount of net operating losses deductible and tax credits allowable starting in 2022.

Also on February 2, 2022, the Company entered into a long-term supply agreement with ProFrac Services, LLC (the “ProFrac Agreement”), a subsidiary of Profrac Holdings LLC, in exchange for $10 million of convertible notes under the same terms as the convertible notes issued in the PIPE transaction. Under the ProFrac Agreement, ProFrac Services, LLC is obligated to order chemicals from the Company at least equal to the greater of (a) the chemicals required for 33% of their hydraulic fracturing fleets and (b) a baseline measured by the first ten hydraulic fracturing fleets deployed by ProFrac Services, LLC. Profrac shall pay to the company, as liquidated damages an amount equal to twenty-five percent (25%) of the difference between (i) the aggregate Purchase Price of the quantity of Products comprising the Minimum Purchase Obligation during such calendar year. The term of the ProFrac Agreement is three years starting April 1, 2022. In connection with the Profrac Agreement, the Company also granted Profrac Holdings LLC. the right to designate two members to serve on Flotek’s board of directors.

On February 16, 2022, the Company entered into an amended agreement with ProFrac Holdings, LLC to expand the Profrac Agreement to a term of ten years and up to thirty hydraulic fracturing fleets deployed by ProFrac Services, LLC. Closing of the transaction is expected to occur in the second quarter of 2022 and is subject to a vote of the shareholders of Flotek’s common stock, as well as other customary conditions. As part of the transaction, at closing of the amended agreement Flotek would (a) issue to ProFrac notes convertible into Flotek’s common stock with a maturity of one year, with the amount of notes based on the size of expansion, and (b) grant ProFrac the right to appoint two members to Flotek’s board of directors, for a total of four out of seven directors. Conversion price of the convertible notes will be $1.088125 per share under certain conditions prior to maturity, or $0.8705 per share at maturity. The convertible notes contain other terms and conditions similar to the convertible notes issued to Profrac on February 2, 2022.

As a result of these transactions, the Company will seek shareholder approval to increase the authorized shares of common stock or perform a reverse split to allow for the conversion of these convertible notes.

On December 31, 2021, the Company entered into a contract to sell the Waller manufacturing facility for proceeds of $4.2 million net of brokerage fee, which is expected to close in April 2022.

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

Not Applicable.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

The Company's disclosure controls and procedures are designed to ensure that information required to be disclosed by the Company in reports filed or submitted under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. The Company's disclosure controls and procedures are also designed to ensure such information is accumulated and communicated to management, including the principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosures. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance that control objectives are attained.

Based upon this evaluation, our principal executive officer and principal financial officer have concluded that our internal control over financial reporting disclosure controls and processes were effective as of December 31, 2021.

Remediation of the Previously Reported Material Weaknesses in Internal Controls Over Financial Reporting

A material weakness is a deficiency, or a combination of deficiencies, in internal controls over financial reporting, such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis. As reported in Management's Annual Report on Internal Control over Financial Reporting for the year ended December 31, 2020, as well as in our Quarterly Reports on Form 10-Q for each interim period through the third quarter of the year ended December 31, 2021, we did not maintain effective internal controls over financial reporting as a result of material weaknesses related to: (1) ineffective design and operation of controls over nonrecurring transactions including derecognition of items and cash flow presentation relating to disposal transactions, and operating ineffectiveness of controls relating to impairment evaluations; (2) ineffective design and operating effectiveness over forecasts used in business combinations and impairment evaluations; and (3) the ineffective design and operating effectiveness of the controls over the assessment of going concern.

During the year ended December 31, 2021, the Company implemented remediation plans to address the design and operating effectiveness of control deficiencies that led to the material weaknesses described above. Management's plan of remediation included adding additional resources to the Company's finance and accounting team and:

- Enhanced the design of our monitoring controls over the identification of non-recurring transactions and the accounting, presentation and disclosures for non-recurring transactions.
- Enhanced the design of the control over the assessment of impairment evaluations, including the assessment of events or changes in circumstances that may indicate a potential impairment.
- Enhanced the design of the controls related to assumptions used in management's forecasts used for accounting purposes.
- Implemented a control over the analysis of the assessment of going concern at each period end and a process for the monitoring of the completion of the assessment and performance of the control as designed.
- Implemented monitoring processes to ensure controls occurred on the frequency designed and that documentation was sufficient to support the operating effectiveness of the control.

After testing the design and implementation and operating effectiveness of the new controls described above, management concluded that the material weaknesses described above were remediated as of December 31, 2021. We will continue to monitor execution of our controls to ensure the effectiveness of those controls and make enhancements when and where necessary. Additionally, we will continue to train new and key personnel on our standard processes and systems as required.

Changes in Internal Controls over Financial Reporting

As described above under "Remediation of the Previously Reported Material Weakness in Internal Controls Over Financial Reporting," there were changes in our internal controls over financial reporting during the fourth quarter of the year ended December 31, 2021, that have materially affected, or are reasonably likely to materially affect, the Company's internal controls over financial reporting.

Management's Annual Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) of the Securities Exchange Act of 1934, as amended. Internal control over financial reporting, no matter how well designed, has inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Further, because of changes in conditions, the effectiveness of internal control over financial reporting may vary over time.

Under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, we conducted an evaluation to assess the effectiveness of our internal control over financial reporting as of December 31, 2021 based upon criteria set forth in the Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our assessment, we believe that, as of December 31, 2021, our internal control over financial reporting was effective.

This annual report does not include an attestation report of the Company's registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by the Company's registered public accounting firm pursuant to rules of the Securities and Exchange Commission that permit the Company to provide only management's report in this annual report.

Item 9B. Other Information.

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

None

PART III - OTHER INFORMATION

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this Item is incorporated by reference to the Company’s Definitive Proxy Statement for the 2022 Annual Meeting of Stockholders to be filed with the SEC within 120 days of year end.

Item 11. Executive Compensation.

The information required by this Item is incorporated by reference to the Company’s Definitive Proxy Statement for the 2022 Annual Meeting of Stockholders to be filed with the SEC within 120 days of year end.

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

The information required by this Item is incorporated by reference to the Company’s Definitive Proxy Statement for the 2022 Annual Meeting of Stockholders to be filed with the SEC within 120 days of year end.

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

The information required by this Item is incorporated by reference to the Company’s Definitive Proxy Statement for the 2022 Annual Meeting of Stockholders to be filed with the SEC within 120 days of year end.

Item 14. Principal Accounting Fees and Services.

Our independent registered public accounting firm is KPMG LLP, Houston, TX, Auditor Firm ID: 185

The information required by this Item is incorporated by reference to the Company’s Definitive Proxy Statement for the 2022 Annual Meeting of Stockholders to be filed with the SEC within 120 days of year end.

Item 15. Exhibits and Financial Statement Schedules

Exhibit Number		Description of Exhibit
2.1	††	Share Purchase Agreement, dated as of January 10, 2019, by and between the Company and ADM (portions of this exhibit have been omitted pursuant to a confidential treatment request, which has been granted) (incorporated by reference to Exhibit 2.1 to the Company's Form 8-K filed on March 4, 2019).
2.2	††	Membership Interest Purchase Agreement, dated as of May 18, 2020, by and between the Company, JP3 Measurement, LLC, the Sellers party thereto, and John A. Cardwell, as Seller Representative) (incorporated by reference to Exhibit 2.1 to the Company's Form 8-K filed on May 19, 2020).
3.1		Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Company's Form 10-Q for the quarter ended September 30, 2007).
3.2		Certificate of Amendment to the Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Company's Form 10-Q for the quarter ended September 30, 2009).
3.3		Certificate of Amendment to the Amended and Restated Certificate of Incorporation of Flotek Industries, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed on May 7, 2020).
3.4		Second Amended and Restated Bylaws, as amended (incorporated by reference to Exhibit 3.4 to the Company's Form 10-K filed on March 16, 2021).
4.1		Form of Certificate of Common Stock (incorporated by reference to Appendix E to the Company's Definitive Proxy Statement filed on September 27, 2001).
4.2	*	Description of Capital Stock of the Company
4.3		Form of Convertible Note (incorporated by reference to Exhibit 4.1 to the Company's Form 8-K filed on February 4 2020).
4.4		Form of Pre-Funded Warrant (incorporated by reference to Exhibit 4.2 to the Company's Form 8-K filed on February 4, 2020).
10.1		2007 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.6 to the Company's Form 10-K for the year ended December 31, 2007)
10.1	†	Employment Agreement, dated May 18, 2020, between Flotek Industries, Inc. and Matthew R. Thomas (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on May 19, 2020)
10.2	†	Employment Agreement dated October 15, 2021, between the Company and Michael Borton (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K on October 20, 2021.)
10.3	†	Purchase Agreement, dated January 10, 2020, between the Company and John W. Gibson, Jr. (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on January 13, 2020).
10.4	†	Employment Agreement dated October 15, 2021, between the Company and TengBeng Koid (incorporated by reference to Exhibit 10.2 to the Company's Form 8-K on October 20, 2021.)
10.5	†	Employment Agreement between Flotek Industries, Inc. and Ryan Ezell effective as of January 1, 2021 (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on January 6, 2021)
10.6	†	Flotek Industries, Inc. Employment Inducement Plan (incorporated by reference to Exhibit 99.1 to the Company's Form S-8 filed on June 17, 2020)
10.7	†	Form of Stock Option Grant Notice and Stock Option Agreement under Flotek Industries, Inc. Employment Inducement Plan (incorporated by reference to Exhibit 99.3 to the Company's Form S-8 filed on June 17, 2020)
10.8	†	Separation and Release Agreement, dated July 28, 2020, between the Company and Elizabeth Wilkinson (incorporated by reference to Exhibit 10.4 to the Company's Form 10-Q filed on August 17, 2020)
10.9		Promissory Note dated April 16, 2020 in favor of PNC Bank, National Association (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on April 17, 2020)
10.10	***	Amendment to Supply Agreement between Flotek Chemistry, LLC and Florida Chemical Company, LLC dated February 26, 2020 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on March 3, 2020)
10.11		Letter Agreement between Flotek Industries, Inc. and North Sound Management, Inc. dated December 2, 2020 (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on December 2, 2020).
10.12	***	Supply Agreement (Citrus Burst), dated as of February 28, 2019, by and between Florida Chemical Company, LLC and Flotek Chemistry, LLC (incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q for the quarter ended March 31, 2019)
10.13		Cooperation Agreement, dated as of March 19, 2019, by and among the Company and BLR Partners LP and its affiliates (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on March 20, 2019)
10.14	†	Employment Agreement, dated effective as of April 1, 2019, by and between the Company and John W. Chisholm (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on May 24, 2019)

10.15	†	First Amended and Restated Employment Agreement, dated effective as of April 1, 2019, by and between the Company and Elizabeth T. Wilkinson (incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed on May 24, 2019)
10.16	†	Termination and Release Agreement, dated as of May 20, 2019, by and among the Company, John W. Chisholm, Protechnics II, Inc. and Chisholm Management, Inc. (incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q for the quarter ended June 30, 2019)
10.17	†	Stand-Alone Cash-Settled Restricted Stock Unit Agreement, dated as of May 20, 2019, by and between the Company and John W. Chisholm (incorporated by reference to Exhibit 10.4 to the Company's Form 10-Q for the quarter ended June 30, 2019)
10.18	†	Restricted Stock Agreement, dated as of May 24, 2019, by and between the Company and John W. Chisholm (incorporated by reference to Exhibit 10.5 to the Company's Form 10-Q for the quarter ended June 30, 2019)
10.19	†	Form of Restricted Stock Agreement pursuant to the Company's 2018 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.6 to the Company's Form 10-Q for the quarter ended June 30, 2019)
10.20	†	Form of Restricted Stock Agreement pursuant to the Company's 2019 Non-Employee Director Incentive Plan (incorporated by reference to Exhibit 10.7 to the Company's Form 10-Q for the quarter ended June 30, 2019)
10.21	†	Amendment No. 1 to Employment Agreement, dated October 18, 2019, by and between the Company and John W. Chisholm (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on October 24, 2019)
10.22	†	Guaranty, dated May 8, 2019, by John W. Chisholm in favor of the Company (incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed on October 24, 2019)
10.23	†	Employment Agreement, dated effective as of December 22, 2019, by and between the Company and John W. Gibson, Jr. (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on December 27, 2019)
10.24	†	Stand-Alone Restricted Stock Unit Award Agreement, dated as of December 22, 2019, by and between the Company and John W. Gibson, Jr. (incorporated by reference to Exhibit 10.2 to the Company's Form 8-K filed on December 27, 2019)
10.25	†	Stand-Alone Time-Based Stock Option Award Agreement, dated as of December 22, 2019, by and between the Company and John W. Gibson, Jr. (incorporated by reference to Exhibit 10.3 to the Company's Form 8-K filed on December 27, 2019)
10.26	†	Stand-Alone Performance-Based Stock Option Award Agreement, dated as of December 22, 2019, by and between the Company and John W. Gibson, Jr. (incorporated by reference to Exhibit 10.4 to the Company's Form 8-K filed on December 27, 2019)
10.27		Securities Purchase Agreement dated February 16, 2022 by and between Flotek Industries, Inc. and ProFrac Holdings, LLC (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on February 22, 2022)
10.28		Note Purchase Agreement, dated February 2, 2022, by and among Flotek Industries, Inc. and the Purchasers party thereto (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed on February 4, 2022)
21.1	*	List of Subsidiaries
23.1	*	Consent of BDO USA, LLP
23.2	*	Consent of KPMG LLP
31.1	*	Rule 13a-14(a) Certification of Principal Executive Officer.
31.2	*	Rule 13a-14(a) Certification of Principal Financial Officer.
32.1	**	Section 1350 Certification of Principal Executive Officer.
32.2	**	Section 1350 Certification of Principal Financial Officer.
101.INS	*	Inline XBRL Instance Document - The instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document
101.SCH	*	Inline XBRL Schema Document
101.CAL	*	Inline XBRL Calculation Linkbase Document
101.LAB	*	Inline XBRL Label Linkbase Document
101.PRE	*	Inline XBRL Presentation Linkbase Document
101.DEF	*	Inline XBRL Definition Linkbase Document
104		Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)
*		Filed with this Form 10-K.
**		Furnished with this Form 10-K, not filed.
***		Portions of this exhibit have been omitted pursuant to Item 601(b)(10) of Regulation S-K in order for them to remain confidential.

† Management contracts or compensatory plans or agreements.

†† Pursuant to Item 601(a)(5) of Regulation S-K, certain schedules and similar attachments have been omitted. The Company hereby agrees to furnish a copy of any omitted schedule or attachment to the Securities and Exchange Commission upon request.

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.

FLOTEK INDUSTRIES, INC.

By: /s/ John W. Gibson, Jr.

John W. Gibson, Jr.
President, Chief Executive Officer and Chairman of the Board

Date: March 31, 2022

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

SIGNATURES	TITLE	DATE
/s/ John W. Gibson Jr. John W. Gibson, Jr.	President, Chief Executive Officer, and Chairman of the Board (Principal Executive Officer)	March 31, 2022
/s/ Michael E. Borton Michael E. Borton	Chief Financial Officer (Principal Financial and Accounting Officer)	March 31, 2022
/s/ David Nierenberg David Nierenberg	Director	March 31, 2022
/s/ Harsha V. Agadi Harsha V. Agadi	Director	March 31, 2022
/s/ Ted D. Brown Ted D. Brown	Director	March 31, 2022
/s/ Michael Fucci Michael Fucci	Director	March 31, 2022
/s/ Paul W. Hobby Paul W. Hobby	Director	March 31, 2022
/s/ Lisa Mayr Lisa Mayr	Director	March 31, 2022

EXHIBIT 4.2

DESCRIPTION OF CAPITAL STOCK

The following description of capital stock of Flotek Industries, Inc. (the "Company," "we" or "us") is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to the Company's Amended and Restated Certificate of Incorporation, the Certificate of Amendment to the Amended and Restated Certificate of Incorporation (collectively, the "Certificate of Incorporation") and the Company's Second Amended and Restated Bylaws, as amended (the "Bylaws"), each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.2 is a part. We encourage you to read the Certificate of Incorporation, the Bylaws and the applicable provisions of the Delaware General Corporation Law (the "DGCL"), for additional information.

General

Our authorized capital stock consists of:

•140,000,000 shares of common stock, $0.0001 par value; and
•100,000 shares of preferred stock, $0.0001 par value.

The following summary of the rights, preferences and privileges of our capital stock, our Certificate of Incorporation and our Bylaws does not purport to be complete and is qualified in its entirety by reference to the provisions of applicable law and to our Certificate of Incorporation and Bylaws.

Common Stock

Holders of common stock are entitled to one vote per share on all matters to be voted upon by the stockholders. Because holders of common stock do not have cumulative voting rights, the holders of a majority of the shares of common stock can elect all of the members of the board of directors standing for election. The holders of common stock are entitled to receive dividends as may be declared by the board of directors. Upon our liquidation, dissolution or winding up, and subject to any prior rights of outstanding preferred stock, the holders of our common stock will be entitled to share pro rata in the distribution of all of our assets available for distribution to our stockholders after satisfaction of all of our liabilities and the payment of the liquidation preference of any preferred stock that may be outstanding. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable. The holders of our common stock have no preemptive or other subscription rights to purchase our common stock.

Preferred Stock

Subject to the provisions of the Certificate of Incorporation and limitations prescribed by law, the board of directors has the authority to issue up to 100,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions of the preferred stock, including dividend rights, dividend rates, conversion rates, voting rights, terms of redemption, redemption prices, liquidation preferences and the number of shares constituting any series or the designation of the series, which may be superior to those of the common stock, without further vote or action by the stockholders.

One of the effects of undesignated preferred stock may be to enable the board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a tender offer, proxy contest, merger or otherwise and, as a result, protect the continuity of our management. The issuance of shares of the preferred stock under the board of directors' authority described above may adversely affect the rights of the holders of common stock. For example, preferred stock issued by us may rank prior to the common stock as to dividend rights, liquidation preference or both, may have full or limited voting rights and may be convertible into shares of common stock. Accordingly, the issuance of shares of preferred stock may discourage bids for the common stock or may otherwise adversely affect the market price of the common stock.

Delaware Anti-Takeover Law, Certificate of Incorporation and Bylaw Provisions

We are subject to the provisions of Section 203 of the DGCL. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner.

Section 203 defines a "business combination," among other things, as a merger, asset sale or other transaction resulting in a financial benefit to the interested stockholders. Section 203 defines an "interested stockholder" as a person who, together with affiliates and associates, owns, or, in some cases, within three years prior, did own, 15% or more of the corporation's voting stock. Under Section 203, a business combination between us and an interested stockholder is prohibited unless:

- our board of directors approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder prior to the date the person attained the status;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of our voting stock outstanding at the time the transaction commenced, excluding, for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers and employee stock plans, under which employee participants do not have the right to; or
- the business combination is approved by our board of directors on or subsequent to the date the person became an interested stockholder and authorized at an annual or special meeting of the stockholders by the affirmative vote of the holders of at least 66 2/3% of the outstanding voting stock that is not owned by the interested stockholder.

This provision has an anti-takeover effect with respect to transactions not approved in advance by our board of directors, including discouraging takeover attempts that might result in a premium over the market price for the shares of our common stock. With approval of our stockholders, we could amend our Certificate of Incorporation or Bylaws in the future to elect not to be governed by the anti-takeover law. This election would generally be effective 12 months after the adoption of the amendment and would not apply to any business combination between us and any person who became an interested stockholder on or before the adoption of the amendment.

Provisions of Our Certificate of Incorporation and Bylaws

Our Certificate of Incorporation and Bylaws provide that any action required or permitted to be taken by our stockholders may be taken at a duly called meeting of stockholders or by written consent of the holders of all of the outstanding stock entitled to vote on such action. Under Delaware law, the power to adopt, amend or repeal Bylaws is conferred upon the stockholders. A corporation may, however, in its Certificate of Incorporation also confer upon the board of directors the power to adopt, amend or repeal its Bylaws. Our Certificate of Incorporation and Bylaws grant our board the power to adopt, amend and repeal our Bylaws on the affirmative vote of a majority of the directors then in office. Our stockholders may adopt, amend or repeal our Bylaws, but only at any regular or special meeting of stockholders by the holders of not less than a majority of the outstanding shares of stock entitled to vote. Also, our Bylaws do not grant our stockholders the ability to call special meetings of stockholders. Advance notice is required for stockholders to nominate directors or to submit proposals for consideration at meetings of stockholders.

The foregoing provisions of our Certificate of Incorporation and Bylaws and the provisions of Section 203 of the DGCL could have the effect of delaying, deferring or preventing a change in control of the Company.

Liability and Indemnification of Officers and Directors

Our Certificate of Incorporation and Bylaws provide that indemnification shall be to the fullest extent permitted by the DGCL for all current or former directors or officers of the Company. As permitted by the DGCL, the Certificate of Incorporation provides that directors of the Company will not be liable to the Company or its stockholders for monetary damages for breach of fiduciary duty as a director to the fullest extent of the law of the State of Delaware. If the DGCL is amended to authorize the further elimination or limitation of directors' liability, then the liability of our directors will automatically be limited to the fullest extent provided by law.

We have also agreed to obtain and maintain director and officer liability insurance for the benefit of each of our officers and directors. These policies include coverage for losses for wrongful acts. Each of our officers and directors is named as an insured under such policies and provided with the same rights and benefits as are accorded to the most favorably insured of our directors and officers.

Exclusive Forum Provision

Our Bylaws provide that, unless the Company consents in writing to the selection of an alternative forum, the Court of Chancery (the "Chancery Court") of the State of Delaware (or, in the event that the Chancery Court does not have jurisdiction, the federal district court for the District of Delaware or other state courts of the State of Delaware) shall, to the fullest extent permitted by law, be the sole and exclusive forum for (a) any derivative action or proceeding brought on behalf of the Company, (b) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the Company to the Company or to the Company's stockholders, (c) any action arising pursuant to any provision of the DGCL or the Certificate of Incorporation or the Bylaws (as either may be amended from time to time), or (d) any action asserting a claim against the Company governed by the internal affairs doctrine.

Listing of Common Stock

Our common stock is currently listed on the New York Stock Exchange under the symbol "FTK."

Transfer Agent and Registrar

The transfer agent and registrar for the common stock is American Stock Transfer & Trust Company, LLC.

Exhibit 21.1

Flotek Industries, Inc.
List of Subsidiaries

Flotek Chemistry, LLC
Oklahoma Limited Liability Company

Flotek Paymaster, Inc.
Texas Corporation

JP3 Measurement, LLC
Texas Limited Liability Company

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Flotek Industries, Inc.
Houston, Texas

We hereby consent to the incorporation by reference in the Registration Statements filed on Form S-8 (Nos. 333-157276, 333-172596, 333-174983, 333-183617, 333-198757, 333-213407, 333-225865, 333-231749, 333-237292 and 333-239244) and Form S-3 (Nos. 333-161552, 333-166442, 333-166443, 333-173806, 333-174199, 333-189555, 333-212864, 333-219618 and 333-251043) of Flotek Industries, Inc. (the "Company") of our report dated March 16, 2021, relating to the consolidated financial statements as of and for the year ended December 31, 2020 which appears in this Annual Report on Form 10-K.

/s/ BDO USA, LLP

Houston, Texas
March 31, 2022

EXHIBIT 23.2

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the registration statements (Nos. 333-157276, 333-172596, 333-174983, 333-183617, 333-198757, 333-213407, 333-225865, 333-231749, 333-237292 and 333-239244) on Form S-8 and in the registration statements (Nos. 333-161552, 333-166442, 333-166443, 333-173806, 333-174199, 333-189555, 333-212864, 333-219618 and 333-251043) on Form S-3 of our report dated March 31, 2022, with respect to the consolidated financial statements of Flotek Industries, Inc.

/s/ KPMG LLP

Houston, Texas
March 31, 2022

Exhibit 31.1

CERTIFICATION

I, John W. Gibson, Jr, certify that:

1. I have reviewed this Annual Report on Form 10-K of Flotek Industries, Inc.;

2. To the best of 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. To the best of 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 that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors:

(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.

/s/ JOHN W. GIBSON, JR

John W. Gibson, Jr

President, Chief Executive Officer and
Chairman of the Board

Date: March 31, 2022

Exhibit 31.2

CERTIFICATION

I, Michael E. Borton, certify that:

1. I have reviewed this Annual Report on Form 10-K of Flotek Industries, Inc.;

2. To the best of 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. To the best of 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 that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors:

(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.

/s/ MICHAEL E. BORTON

Michael E. Borton

Chief Financial Officer

Date: March 31, 2022

Exhibit 32.1

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of Flotek Industries, Inc. (the "Company") on Form 10-K for the year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned hereby certifies, pursuant to 18 U.S.C. §1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ John W. Gibson, Jr

John W. Gibson, Jr

President, Chief Executive Officer and
Chairman of the Board

Date: March 31, 2022

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report of Flotek Industries, Inc. (the “Company”) on Form 10-K for the year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), the undersigned hereby certifies, pursuant to 18 U.S.C. §1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Michael E. Borton
Michael E. Borton
Chief Financial Officer

Date: March 31, 2022